

**STRESS MANAGEMENT OF FARMERS IN
DISTRESS PRONE AREA OF VIDARBHA**

THESIS

**Submitted to
Dr. Panjabrao Deshmukh Krishi Vidyapeeth, Akola
in partial fulfilment of the requirements
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**DOCTOR OF PHILOSOPHY
IN
AGRICULTURE
(EXTENSION EDUCATION)**

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DECLARATION OF STUDENT

I hereby declare that the experimental work and its interpretation in the thesis entitled "**STRESS MANAGEMENT OF FARMERS IN DISTRESS PRONE AREA OF VIDARBHA**" or part thereof has neither been submitted for any other degree or diploma of any University, nor the data have been derived from any thesis / publication of any University or scientific organization. The source of materials used and all assistance received during the course of investigation have been duly acknowledged.

Place : Akola
Date : / /2018

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CERTIFICATE

This is to certify that thesis entitled "**STRESS MANAGEMENT OF FARMERS IN DISTRESS PRONE AREA OF VIDARBHA**" submitted in partial fulfilment of the requirement for the degree of "**Doctor of Philosophy in Agriculture (Extension Education)**" of Dr. Panjabrao Deshmukh Krishi Vidyapeeth, Akola is a record of bonafide research work carried out by **Yashwanta Baburaoji Shambharkar** under my guidance and supervision.

The subject of the thesis has been approved by the Student's Advisory Committee.

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(Yashwanta Baburaoji Shambharkar)

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(D) Abbreviations

%	: per cent
A	: Agree
Agri.	: Agriculture
Agril.	: Agricultural
AIACC	: Assessment of Impact and Adaptation to Climate Change
BBC	: British Broadcasting Corporation
CEEPA	: Centre for Environmental Economics and Policy in Africa
CICERO	: Center for International climate and Environmental Research
Clin	: Clinic
CO- Op	: Co - Operatives
D	: Disagree
Dr. PDKV	: Dr. Panjabrao Deshmukh Krishi Vidyapeeth.
Econ	: Economics
Ed	: Edition
Educ.	: Education
<i>et al.</i>	: et alia (all others)
Ext.	: Extension
FAO	: Food and Agriculture Organization of the United Nations
Fig.	: Figure
Freq	: Frequency
GDs	: Group Discussions
GOI	: Government of India
Govt.	: Government
ha.	: Hectare
HE	: His Excellence
HS	: High Stress
i.e.	: That is
IFPRI	: International Food Policy Research Institute
J.	: Journal
KVKs	: Krishi Vigyan Kendra's
LS	: Little stress

MTS	: Moderately Tolerable Stress
NGOs	: Non-Government Organizations
Nov	: November
NS	: No stress
Res.	: Research
Rev.	: Review
Rs.	: Rupees
SA	: Strongly Agree
Sci.	: Science
SD	: Standard Deviation
SD	: Strongly Disagree
Soc	: Social
Std.	: Standard
THS	: Tremendously High Stress
TV	: Television
UD	: Undecided
Univ.	: University
Unpub.	: Unpublished
viz.	: Namely

(E)

GLOSSARY

1. Health

Conceptually health is defined as a state of complete physical, mental, and social well being of an individual and not a mere absence of disease or infirmity.

2. Impact of Stress on farmers behaviour

The effects of stress on farmers behavior in terms of bad habits like drinking, Ghutkas consumption, smoking, rapid speaking, over eating/under eating, An ill temper, often annoyed, carelessness, introvertness, difficulty in thinking logically, feeling, helpless, feeling hopeless, suicidal thoughts etc before stress and after stress during the span of five years.

3. Optimism

In the present study optimism was operationally defined as hopefulness and confidence of individual farmer to get success in future by managing stress effectively

4. Perception about the concept of stress

Perception is the process by which we receive information or stimuli from our environment and transform it into psychological awareness. This varies with the individual's past experiences and present sets or attitudes acting through values, needs, memories, moods, social circumstances, and expectations

Perception towards stress is operationally defined as the awareness knowledge gained by the individual farmer' towards the positive and negative stress

5. Powerlessness

It is operationally defined as the feeling of farmer about lacking of strength or power or being weak in taking any decision

6. Quality of life

Quality of life is the subjective judgment of the extent to which one is living the good life. This perception of the good life may be based on feelings of happiness, meaning in life and inner peace.

7. Relationship management

It is operationally defined as continuing activity of individual farmer to maintain the relations with family, neighbours friends and others for seeking of emotional/instrumental help in hard situation.

8. Self esteem

In the present study self esteem is operationally defined as feeling or judgment of self value or worth by an individual farmer to judge his/her success or failure.

9. Self efficacy

Self-efficacy is "the belief in one's capabilities to organize and execute the courses of action required to manage prospective situations

10. Social support

It is operationalized as the support given by the society to the individual farmer to face the stressful situation. It may be in terms of instrumental or emotional support.

11. Social Isolation

In the present study it is operationalized as the lack of good relations of an individual farmer with nearest and dearest person with whom he/or she made the interaction.

12. Spirituality

Spirituality in psychology is mean a belief or relationship with some higher power defined. It is also known as dimensions of wellness, creative force, divine being or infinite source of energy

13. Stress

According to Selye (1956) stress is “any external event or internal drive which threatens to upset the organismic equilibrium”

14. Stress Management

Stress management refers to the wide spectrum of techniques and psychotherapies aimed at controlling a person's levels of stress, especially chronic stress, usually for the purpose of improving everyday functioning.

15. Time management

It is the process of skillfully applying time to finish and perfect a specific activity within time constraint” (Harris, 2008).

(F) Thesis Abstract

- a) Title of the thesis : **STRESS MANAGEMENT OF FARMERS IN DISTRESS PRONE AREA OF VIDARBHA**
- b) Full name of student : **Yashwanta Baburaoji Shambharkar**
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ABSTRACT

A research study entitled "Stress Management of Farmers in Distress Prone Area of Vidarbha" was an attempt to aware the farmers about causes of stress at personal level, family level and occupational (farming) level and its management in holistic approach. Also, investigated the factors and barriers affecting the stress management process. This was an outcome of bottom-up approach of hearing the voices from the field and sincere efforts of researcher for taking their concerns to the people who matter the most. The study was conducted in six distress districts of namely, Akola, Buldhana, Washim, Amravati, Wardha and Yavatmal. The data were collected from 360 farmers' spread over 24 villages across the 6 *tahsils* of suicide concentrated six districts

by conducting field survey, by applying exploratory and analytical design of social research. Apart from in-depth interviews with the randomly sampled 360 farmers', 05 group discussions were also carried out in the study area. The data regarding causes of stress in farmers' life and stress management by them was obtained on parameter/indicators identified from relevancy ratings from experts, finalized during the construction and standardization of scale. The standardized scales were administered to the respondents to measure the causes of stress and stress management during the course of investigation. The data collected from the respondents was then suitably organized, scored, classified, tabulated and analyzed in line with the objectives of the study. The study findings have brought out dreadful picture of the socio-economic situations, causes of stress and its management.

Results pertaining to independent variables revealed that 42.50 per cent of the respondents were under middle age category in between 36-50 years. Relatively higher percentage of the respondents (36.11%), were educated up to high school level. Large majority of the respondents (98.06%) were married. Maximum number of respondents (64.44%) had nuclear type of family. Maximum number of the respondents (60.56%) had medium family size. Little more than half of respondents (51.39%) belonged to small category of land holding 1.00 to 2.00 ha. Less than half (42.78%) of the respondents were possessed farming experience ranging from 15 to 28 years. Less than half of (47.78%) of the respondents were having annual income ranging from 50001 to 100000/-. Higher proportions of the respondents (60.83%) were possessed farming + labour occupation. Relatively higher proportion of the respondents (44.44%) were in debt up to Rs. 50,000/-. More than half per cent of farmers' (56.38%) had access to credit availability. Most of the respondents (38.01 %) have been borrowed credit from Cooperative Societies/ Banks. More than half of the farmers' (53.05 %) were found to have medium input infrastructure, 46.38 per cent had low availability of credit sources infrastructure facilities, 63.05 per cent of the respondents had medium availability of information infrastructure, over half (53.33%) of the farmers' had medium availability of transport facilities. It was noted that 46.16 per cent of the farmers' falls in category of low. Majority of the farmers (78.06%) were found in medium level of technology utilization. In case of health of the respondents, proportion of the respondents who suffered

from joint pain were 11.38 per cent followed by the chronic acidity reported by the respondents 10.83 per cent while with regards to family health of the respondents, proportion of the respondents family member who suffered from joint pain were 08.61 per cent followed by the malaria reported as 08.50 per cent. Higher proportion of the respondents (44.72%) were having no social participation. Relatively higher proportion of the respondents (63.61%) were found in low category of labour availability up to 6 labour. Productivity analysis of major crops revealed that there were increase in output in most of the major crops including cotton, soyabean, jowar, tur and gram, however yields were not assured due to monsoon vagaries, whereas, productivity was reduced in crops like mung, udid. Most of farmers' (46.39%) had access to market within 10 km. It was heartening to note that major group of farmers did not have access of weather information (71.64%). Little more than one fourth (26.47%) of the respondents perceived the weather information as accurate. Less than half of the farmers' (48.61%) were using the mass media at low level. Over half of the farmers' (60.83%) had low contact with various extension agencies for seeking information on stress management on agricultural, personal or family issues. Large majority of the respondents (86.11%) were found in low level of expenditure pattern up to Rs. 1,99,300/-. Among 86.39 per cent respondents' income expenditure gap is observed that means their annual income were short for fulfilling the livelihood expenditure of the family. Maximum number of the respondents (66.39%) were found in medium category of optimism level. More than half (56.11%) of the respondents were found in medium level of powerlessness. More than half (56.38%) of the respondents were found in medium level of social isolation. Higher proportions of the respondents (57.50%) were found in medium level of spirituality. Little more than half of the respondents (52.78%) found in poor quality of life. Most of the respondents (64.72%) were found in medium category of self efficacy. Majority of the respondents (71.67%) were in medium level of self esteem. More than one third of the respondents (37.50%) were found in medium level of occupational stress. Relatively higher proportion of the respondents were (35.53%) in low stress related to individual level stress. Less than half of the respondents (44.17%) were in medium level of family. In case of overall stress level, more than one third of the respondents (31.94%) were found in medium level of overall stress.

Majority of the respondents (89.72%) were don't know about the concept of stress. Majority of the respondents (72.50%) were found in medium stress mindset. There is definite effect of stress on each and every selected behavioural indicators and they got changed themselves after stress for making bad habits and other behavioural aspects such as making habit of eating tobacco, ghutka consumption, an ill temper, feelings helpless and intro-vertness, smoking, often annoyed, alcohol consumption, decreased commitment to work, difficulty in thinking logically, lose interest in meeting with friends and attending marriages, suicidal thought, over or under eating and rapid speaking.

Results of stress management by the farmers showed that relatively higher proportion of the respondents (43.61%) were medium physical stress management. Most of the respondents (38.89%) were manage their mental stress at medium level. With regards to overall stress management, equal proportion of the respondents (37.78%) were manage their physical and mental stress at poor to medium level of category.

Results pertaining to relational analysis found that, education, family size, land holding, farming experience, occupational status, annual income, access to credit, health, technology utilization, labour availability, access to market, productivity, access to weather information, optimism, quality of life spirituality, self esteem self efficacy were found to be positively significant to physical stress management at 0.01 level of probability whereas, In case of mental stress management, the variables namely, education, family size, land holding farming experience, occupational status, annual income, access to credit, agricultural infrastructural facilities, health, technology utilization, labour availability, access to market, productivity, mass media exposure, access to weather information, optimism, quality of life spirituality, self esteem and self efficacy were found to be positively and highly significant relationship with mental stress management at 0.01 level of probability. With regards to overall stress management, it is found that, the variables viz., education, family size, land holding, farming experience, occupational status, annual income, access to credit, health, technology utilization, labour availability, access to market, productivity, access to weather information, optimism, quality of life, spirituality, self esteem, self efficacy were found to be

positively significant with overall stress management at 0.01 level of probability.

In case of regression analysis, multiple regression analysis showed that, 18 variables namely education, family size, land holding, farming experience, occupational status, expenditure pattern, indebtedness, access to market, annual income, health, mass media exposure, optimism, quality of life, powerlessness, social isolation, spirituality, self esteem and self efficacy contributed significantly to the prediction of the dependent variable stress management.

In case of constraints faced by the farmers in stress management indicated that, cent percent of the respondents were facing constraints as no irrigation under the farm related constraints whereas, amongst, personal constraints, addiction to bad habits, 73.05 per cent of the respondents were reported this constraint followed by lack of knowledge about stress management techniques reported by 64.72 per cent of the respondents.

With regards to recommendations of group discussion, Government should draw the weather insurances of every farmer instead of taking premium from them. The farmers' should be made aware about the different aspects of stress management and make them capable to perceive that change for their sustainable livelihood which may further help to improve their quality of life. The possible adaptation measures should be cost effective and feasible. The weather forecasting system should be developed village wise so as to take accurate decisions. Disputes with family are the major reason of stress which was due to weak financial conditions and mis-behaviour of the family members hence, Government should start mass program to aware the farmers about brotherhood or importance of family relationship. Secondly, farmers were also reported that to manage or to reduce stress most of the farmers consume alcohol and Ghutkas. Hence, farmers suggested to ban the alcohol and Ghutkas shops specially at village level. Government should fence their field to protect from wild animals In combating stress management, they opined that they should get adequate and timely credits, accurate weather information. They emphasized on developing suitable varieties that can withstand to adverse stress and non shuttering varieties of soybean and mung.

CHAPTER I

INTRODUCTION

Without stress, there would be no life”

(Selye Hans)

1.1 Background information

“Stress: A Growing Plague.” “Stress: The 21st Century Epidemic. Stress has become a pervading feature of people’s life in modern world. The modern world which is said to be a world of achievements is also a world of stress. Stress is everywhere, whether it is in the family, agriculture, business organization, enterprise, institute or any other social or economic activity. Right from birth till death, an individual is invariably exposed to various stressful situations.

Despite tremendous advancements in science and technology, and remarkable growth of economy and sources of luxury, people all over the world seem to experience stress in various spheres of their lives. Consistently psychosomatic and psychological disorders are increasing, the feelings of frustration and dissatisfaction with life in general reflect the stress being experienced by people.

In the past also, the societies were not entirely free from stress. However, the causes of stress in those societies were episodic in nature, low in severity and frequency. But during the last two decades the span of psychosocial stress has drastically increased. The basic reason being the changed physical and socio-cultural environment of the contemporary societies and life style of the people. Peoples’ life has become more demanding, complicated, mechanical and dependent running by the clock. Ever increasing needs and aspirations, high competition, pressures of meeting deadlines, un-certainty of future and weak social support system have made the life of people stressful in modern societies.

+The term 'Stress' is discussed not only in everyday conversations but has also become an issue to attract widespread media attention. Different people have different views about it as stress can be experienced from a variety of sources.

Modern living has brought with it, not only innumerable means of comfort, but also a plethora of demands that tax human body and mind. Now-a-days everyone talks about stress. It is cutting across all socio economic groups of population and becoming the great leveler. Not only just high pressure farmers are its key victims but it also includes labourers, slum dwellers, working women, businessmen, professionals, and even children. Stress is an inevitable and unavoidable component of life due to increasing complexities and competitiveness in living standards and working condition. The speed at which change is taking place in the world today is certainly overwhelming and breathe taking. In the fast changing world of today, no individual is free from stress and no profession is stress free. Everyone experiences stress, whether it is within the family, business, organization, study, work, farming or any other social or economical activity. Stress has become the core concern in the life of everyone, but everybody wants stress-free life. Stress is a subject which is hard to avoid. Stress is a part of day-to-day living. Every individual is subjected to stress either knowingly or unknowingly. Stress, long considered alien to Indian lifestyle, is now a major health problem / hazard.

Stress in the agricultural sector has posed a particular challenge for researchers and policy makers, since farming operates in an unusual climatic context:

Concept of Stress

Stress is the sum total of all non specific biological phenomenon elicited by adverse external influences. One feels stressed when one is confronted with unexpected. It is a multidimensional concept and has variety of usages in different fields which vary according to

specific focus and purpose. Stress can be categorized in different ways: Hypo-stress: little pressure or boredom can be a source of stress. Eu-stress: optimum pressure leading in maximizing performance by an individual. Hyper-stress: excessive pressure leading to hyper-stress. Distress: prolonged stress leading to distress.

Stress is difficult to define precisely. The concept of stress was first introduced in the life sciences by Selye Hans in 1936. It was derived from the Latin word 'stringere'; it meant the experience of physical hardship, starvation, torture and pain. Selye Hans, 1936 defined stress as "the non-specific response of the body to any demand placed upon it". Further, stress was defined as "any external event or internal drive which threatens to upset the organism equilibrium" (Selye Hans, 1956). Another definition given by Stephen Robbins (1999) stress has been stated as "a dynamic condition in which an individual is confronted with an opportunity, constraint or demand related to what he / she desires and for which the outcome is perceived to be both uncertain and important." During the late 18th century, stress denoted "force, pressure, strain or strong effort, referring primarily to an individual or to an individual organs or mental powers. Lim, (2009) defines stress as those challenges which excite us and keep us on our toes, and without which life for many people would become dull and ultimately not worth living.

According to Selye (1956) stress is "any external event or internal drive which threatens to upset the organismic equilibrium".

Cofer and Appley (1964) defined stress as a state of an organism where he perceives that his wellbeing is endangered and that he must direct all his energies to its protection.

Lazarus (1966) referred stress a state of imbalance with in an organism that is elicited by an actual/perceived disparity between environmental demands and the organism's capacity to cope with these demands; and is manifested through variety of physiological, emotional and behavioural responses.

Wolf and Goodell (1968) defined stress as a dynamic state within an organism in response to a demand for adaptation.

McGrath (1970) defined stress as a perceived imbalance between demand and response capacity under conditions where failure to meet demand has important consequences.

Cox (1978) has described three classes of definitions. Stress can be variously thought of as a response, i.e. the stress response to an extreme stimulus; as a stimulus i.e. as the stressor itself as an intervening variable.

Spielberger (1979) defined stress in two different ways. According to him, it is a dangerous potentiality, harmful/unpleasant external situation /conditions (stressors) that produce stress reaction; and secondly to the internal thought, judgment, emotional state and physiological process that are evoked by stressful stimuli.

Ryhal and Singh (1996) stated that stress is the state of an organism it perceived that its well-being is endangered and that it must direct all its energies to its protection.

In the present study stress was defined as the occurrence of harmful/unpleasant external situation/conditions in the life of individual farmer, related to individual level, family level and at farming level that produce stress reaction and secondly to the internal thought, judgment, emotional state and physiological process that are evoked by stressful stimuli.

Stress is not only negative. It may also bring out the best in individuals at times. It may induce an individual to discover innovative and smarter way of doing things. This positive dimension of stress is called as eustress. But usually the term stress has a negative implication and this negative aspect of stress is termed distress.

It is interesting to note that, stress has two faces. It is a good servant, but a bad master. In other words, it can be one's best friend or worst enemy. A certain amount of stress is necessary to achieve success, but undue stress causes distress. Although we tend to think of stress as caused by external events, events in themselves are not stressful. Rather it is the way in which an individual interpret and react to events that makes them stressful. Stress is received by different people differently. If two people experience the same amount stress or pressure, one may take it as positive or healthy types or the other may accept it as negative. Stress is often referred to as having negative connotation. The calamitous consequences of stress can affect an individual in three ways i.e. physiological, psychological and behavioral.

Stress has now become an area of concern for all types of occupations. There is little doubt, however, that some professions have fared worse than others. The transactional perspective of stress emphasizes the role of 'cognitive appraisal' and 'coping responses'. A stressful transaction begins with primary cognitive appraisal, which a situation requires as an effective response to avoid or reduce physical or psychological threat or harm, and a secondary appraisal that no completely effective response is immediately available. Any event or situation is not stressful in itself. It becomes a source of stress only when the focal person appraises it as to be a threat and to exceed his or her capability to deal with it. The person makes the best response possible and actively defines and shapes stressful transactions by means of his cognitive appraisals and management of stress. This is the reason that same situation or event is differently responded to by different persons. The concept of stress is bound to person and is a subjective experience.

The agricultural sector encompasses a large variety of activities that has seen a number of major changes in recent years. These changes, along with a distinctive rural life and work related problems may considerably influence stress levels in farming communities.

Agriculture, also called farming, is “the cultivation of animals, plants, fungi, and other life forms of food, fiber, bio-fuel, drugs and other products used to sustain and enhance human life”

More specifically, the activities in which a farmer or farm workers might engage in, or manage, within the definition of agricultural activities, includes:

- Land clearing, grading, contouring, ditching, fencing, ploughing, tilling, planting, cultivating, fertilizing, weed, pest and disease control, spraying, pruning, trimming, harvesting;
- Constructing of farms and stock ponds, irrigation ditches and systems;
- Breeding, birthing, feeding and the care of animals, birds, honey bees, and fish;
- Repair, maintenance and incidental construction of agricultural equipment, structures, or machinery;
- The storage of agricultural products and machinery; and produce processing, packing, and sales.

Work in the agriculture sector is characterized by working long hours, as livestock require constant care and crops need to be planted and harvested within specific time frames. The Fifth European Working Conditions Survey (EWCS) showed that 45.3% of workers in the agriculture sector worked more than 48 hours per week. This was the highest observed percentage amongst all sectors. Furthermore, 45% of agriculture workers reported working more than 10 hours a day on at least three occasions a month. Similar results highlighting the long working hours of agriculture workers have been observed in other national surveys from the United States and the United Kingdom. The long hours worked by agriculture workers means that they often work weekends as well.

The farmers have to be worked in the following situation.

Isolation

Isolation and lone working can be a source of concern in the agriculture sector. Although there are some studies that show farmers do not feel socially isolated other studies have shown that this is a key issue of concern. However, available evidence demonstrates an association between poor social support and increased stress symptoms, depression and suicide rates amongst farmers.

Due, in part, to the rural location of most farms means farmers and agricultural workers might not receive adequate or lower level of work-related social support. Factors prevalent in remote areas (e.g., poor local transport, slower pace of life, and limited access to public services) can increase the feelings of isolation a farmer feels, and can make help seeking behavior more difficult. Furthermore, the long hours that agriculture workers face can also have a detrimental impact on their work-life balance.

In addition, to social isolation, there are a number of agriculture tasks (e.g., land cultivation, sowing, plant protection operations, harvesting, fence mending) that are characterized by lone working. Such work tasks can place the worker in a vulnerable position should an accident or injury occur, as the worker might not be in a position to handle the situation independently and colleagues might not be aware of or available should an incident occur. Not only can the actual incident be detrimental to the health of an agriculture worker, but the concern with having to deal with a potentially difficult situation on their own (e.g., machine blockages and repairs, bull handling) can also be distressing and a potential source of stress to an agriculture worker.

Financial uncertainty

Agriculture outputs, be it crop or animal products, are vulnerable to market risks and competition, which can be a significant source of stress for farmers. In fact, some research studies have found that the main contributing factor for depression and suicide in farmers was

financial difficulty. The role of financial uncertainty as a contributor towards work-related stress is seen in the findings of two research surveys that identify finances as the biggest source of stress amongst farmers.

Planning difficulties

The reality of the agriculture sector is that, it is vulnerable to a number of external factors that workers have little control over. These include the seasonal nature of agriculture and stock problems. Plans made by farmers might become redundant or difficult to implement due to changes in the weather or stock problems. Therefore, rainfall, falling crop price and disease outbreak are some examples of external factors that make planning ahead in the agriculture sector a real challenge for many farmers to control and predict; which, in turn, can be a source of stress for farmers.

Seasonality

Weather conditions can differ considerably, with research demonstrating weather to be a significant concern for farmers, with a potential detrimental impact on the mental health of farmers. Destructive weather conditions have the ability to affect individual farms, such as when a field gets destroyed by hail or frost. Poor weather conditions can affect a group of farms or community when their crops are destroyed by excessive rainfall, or entire regions of crops and livestock can be affected by weather conditions that include droughts or floods . Farms that are involved in crop plantation are particularly vulnerable, as they may sustain heavy losses or may need additional planning and effort to save their crops . The inability to influence the season/weather, disrupted plans and crop losses, extra financial and labour input present possible challenges that can contribute towards work-related stress symptoms.

Stock problems

Stock crises generally apply to livestock farming and farm produce. The stock crises may occur at a farm, community and/or regional level. The economic effects of such situations are shared by entire rural communities, but farmers are particularly affected. Overcoming each stock crisis requires significant work on the farmers' part. For crop farmers, along with the challenge of dealing with crop disease and pests, the possibility of damaged crops is another source of stress for farmers as well.

Administrative duties and understanding policy developments

The administrative burden for farmers has grown significantly in recent years. These duties may include: preparing large numbers of documents when claiming for subsidies, accounting stock or crop, selling their produce, filling in tax documentation, and complying with occupational safety and health requirements or other inspections. While larger farms may be able to outsource administrative roles, farmers from smaller farms often have to integrate these additional demands into their existing workload. Changes in legislation can also be a source of concern for farmers as they may be forced to change existing forms of practice. In a series of interviews with Danish farmers, Leskinen observed that farmers had negative perceptions on new regulations and they felt that insufficient support was provided to cope with additional administrative duties due to these regulations. A survey by Booth and Lloyd of farmers from the South West of England found that 43.00 per cent of respondents reported the amount of paper work as 'a little' stressful, and 54.00 per cent reported this work demand to be extremely stressful 'a lot'. The same survey also identified new legislation and paperwork to be the two biggest concerns for farmers. A similar observation was made in a different study by Simkin and colleagues, where farmers found the implementation of new legislation stressful. However, Simkin and colleagues also found that some farmers benefited from this change in legislation and, therefore, appreciated the

implementation of these new policies. This perhaps suggest that whether or not a farmer perceives a benefit from the policy changes, may be associated with whether it is viewed as potential source of stress or not.

Dangerous working conditions

Percentage of workers reporting exposure to physical risk at least a quarter of the time in agriculture sector

Breathing in smoke, fumes, powder or dust, (24.4%), Handled chemical substances (23.3%), Exposure to infectious material, (14.3%) Tiring or painful postures (72.3%), Carrying or moving heavy loads (65.1%), Standing or walking (88.70%), Repetitive hand or arm movements (72.50%), High temperatures (48.70%), Low temperature (59.60%).

(Source: Fifth European Working Conditions Survey)

Exposure to these physical hazards can led to numerous health concerns. The agriculture sector contains numerous physical hazards that can contribute to or interact with other potential sources of stress, which may have direct or indirect implications for worker's health.

In the distress prone area in Vidarbha of Maharashtra State, the farmers are facing the above same situation which resulted in to stress and suicides.

Stress affects not only our physical health but our mental well being, too. To successfully manage stress in everyday lives, individual can learn to relax and enjoy life. The best way to manage stress is to prevent it. This may not be always possible. So, the next best things are to reduce stress and make life easier.

This stress response can be debilitating. Over time, this "fight or flight" response can have a negative impact on health, performance, and wellbeing. For example, stress has been linked to the six leading causes of death (heart disease, accidents, cancer, liver disease, lung ailments, suicide) (e.g., Sapolsky, 1996; Schneiderman, Ironson, & Siegel

2005); absenteeism from work, increased medical expenses, and loss of productivity (e.g.,

Atkinson, 2004; Schneiderman et al., 2005); cognitive impairment, depression, and other mental illness (e.g., Hammen, 2005; McEwen & Seeman, 1999; Schwabe & Wolf, 2010; Wang, 2005); and aggression and relational conflict (e.g., Bodenmann, Meuwly, Bradbury, Gmelch, & Ledermann, 2010).

Stress refers to any environmental, organizational and individual or internal demands, which require the individual to readjust the usual behaviour pattern. Degree of stress results from events or situations that have potential to cause change. Stimuli or situations that can result in the experience of stress are called stressors. There are three major sources of stress- environmental, individual and organizational.

Environmental stress is not only caused by the factors intrinsic to farming, but also influenced by the environmental or extra agricultural sectors. Stress results because of the individual's interaction with environmental stimuli or factors such as societal or technological changes, political and economical uncertainties, financial condition, community conditions climatic uncertainties, etc. The stress which an individual experiences in an environment is carried with him in another environment also, thus increasing the stress and causing stress to others also.

Mental stress may be accompanied by anger, anxiety, depression, nervousness, irritability, tension and burden. Physical stress is accompanied by high blood pressure, digestive problem, ulcers and indigestion, palpitation, chest pain, skin disorder muscle tension, head ache, loss of appetite, restlessness, ulcers, shut down of menstrual cycle, impairment of fertility among male and depletion of vitamin C,B and D in the body.

Stress can be either temporary or long term, mild or severe, depending mostly on how long it continues, how powerful they are and how strong the person's recovery powers are. But major stress problems are sustained for long period and many people go in high depression and committing suicide due to not tolerant the pressure of high stress.

In country like India farmers are committing suicides. The initial stage of suicide, is thinking of unpleasant things happening in life which creates stress.

The data regarding suicides of farmers in India, Maharashtra and distress prone districts (06) of Vidarbha presented hereunder.

Table 1. Number of farmers' suicides in India during the year 1995-2016

Year	Male	Female	Total	Year	Male	Female	Total
1995	8295	2425	10720	2006	14664	2396	17060
1996	NA	NA	NA	2007	14509	2123	16632
1997	11229	2393	13622	2008	14145	2051	16196
1998	12986	3029	16015	2009	14951	2417	17368
1999	13278	2804	16082	2010	13592	2372	15964
2000	13501	3102	16603	2011	12071	1956	14027
2001	13708	2576	16284	2012	11951	1803	13754
2002	15308	2663	17971	2013	10489	1283	11772
2003	14701	2463	17164	2014	10889	1471	12360
2004	15929	2312	18241	2015	11028	1574	12602
2005	14972	2158	17131	2016	10026	1432	11458

(Source: ncrb.nic.in 2017.)

Table 2. Number of farmer's suicides in Maharashtra during the year 1995-2016

Year	Male	Female	Total	Year	Male	Female	Total
1995	978	105	1083	2006	4111	342	4453
1996	1767	214	1981	2007	3968	270	4238
1997	1600	317	1917	2008	3573	229	3802
1998	1938	471	2409	2009	2692	180	2872
1999	2050	373	2423	2010	2947	194	3141
2000	2492	530	3032	2011	3093	244	3337
2001	2945	591	3536	2012	3483	303	3786
2002	3155	540	3695	2013	3020	126	3146
2003	3381	455	3836	2014	3726	278	4004
2004	3799	348	4147	2015	2492	392	3228
2005	3638	288	3926	2016	2050	1002	3052

(Source: ncrb.nic.in 2017.)

Table 3. District wise number of farmer's suicides in selected Distress Prone Districts of Vidarbha during 2001-2016

Year	Name of District					
	Amravati	Yavatmal	Buldhana	Akola	Washim	Wardha
2001	11	17	8	6	7	03
2002	20	38	9	7	6	24
2003	41	52	14	21	6	14
2004	101	142	85	46	44	29
2005	102	167	81	43	26	26
2006	270	360	306	174	185	154
2007	265	359	193	125	177	128
2008	264	311	195	165	126	87
2009	220	325	103	136	121	100
2010	283	309	137	200	122	126
2011	254	240	126	177	89	113

2012	190	238	153	178	83	109
2013	167	231	111	136	60	100
2014	209	266	111	156	88	134
2015	306	386	189	195	108	164
2016	323	255	219	148	82	105
Total	3026	3696	2040	1913	1330	1416
Total farmers Suicides in Six (06) Distress Prone Districts during 2001 to 2016 =13,421						

(Source: Commissioner Office Amravati Division, 2017)

Symptoms of stress

Stress can have both short and long term responses. The symptoms of stress may be caused due to any organic illness of the body, but may also be regarded as the signs or symptoms of excessive stress. The bodies of different individuals do not react in a similar way when under stress; hence diverse symptoms of stress occur when the individual experiences work stress or any other stressful situation. Some of the symptoms of stress are problems on their own and can aggravate the stressful situation being experienced while other symptoms, if not managed, can have serious consequences on the performance and health of the individual.

Various authors have categorized symptoms of occupational stress, as follows:

1. Psychological symptoms – are the emotional and cognitive problems experienced by the individual under conditions of job stress. The emotional reaction to stress has been identified as fear, guilt, panic, denial, anger, feeling numb, aggression and irritability; while the cognitive reactions are confusion, disorientation, uncertainty, confusion, poor decision-making etc ("Symptoms of Stress", n.d).

2. Physical symptoms – These occur, when the body adapts to a physical threat by the release of adrenaline in the body. This excess adrenaline in the body allows it to fight the stressor and assists in survival.

Selye (1974) suggests that the physical symptoms are more difficult to quantify, as there may be an overlap between these symptoms of occupational stress and other aspects of the individual's life. The physical symptoms have been characterized as fatigue, dizziness, skin diseases, weakness, chills, headaches, cardio-vascular disease etc. Certain physical symptoms, i.e. cardio-vascular disease and gastro-intestinal conditions are the most common of the physical symptoms, and are proven to be caused by stressful working conditions. These are more prominent and are often found in the Type A personality (Sutherland & Cooper, 1990).

3. Behavioural symptoms – There can be significant changes in the person's behaviour when exposed to stress over time. These have been characterized as increased consumption of alcohol and drug abuse, absenteeism, inability to rest, changes in speech pattern, being accident prone etc.

The buildup of any of the above mentioned symptoms of stress can have serious mental and physical ill-effects on the individual, thereby causing the person's performance to suffer (Marshall & Cooper, 1981).

The concept of stress management

The process of stress management is named as one of the keys to a happy and successful life in modern society.

Stress management refers to the wide spectrum of techniques and psychotherapies aimed at controlling a person's levels of stress, especially chronic stress, usually for the purpose of improving everyday functioning.

Coping strategies aim to treat the stress problem by managing internal/external demands from environment, which individuals appraised as endangering their resources.

When individuals experience stress or face demanding situation, they adopt ways of dealing with it, as they cannot remain in a continued state of tension. How the individual deals with stressful situations is known as 'coping' or management of stress. There are two major targets of coping: changing ourselves or changing our environment. Coping refers to a person's active efforts to resolve stress and create new ways of handling new situations at each life stage (Erikson, 1959) The goals of coping include the desire to maintain a sense of personal integrity and to achieve greater personal control over the environment. Then he modifies some aspects of the situation or the self in order to achieve a more adequate person-environment fit. Coping thus, is the behaviour that occurs after the person has had a chance to analyze the situation, take a reading of his or her emotions and to move to a closer or more distant position from the challenge.

In McNamara's conception (2000), coping strategies are defined as the defense mechanisms aimed at resolving internal conflict. Stress management as a general treatment approach to a wide variety of adaptations and health problems. Stress management, as a treatment, is universal with no one for whom treatment is unneeded or inappropriate. Edelman and Mandle (1998) stated that stress management is a critical component of a healthy lifestyle. They stated that healthy behaviors, such as good nutrition and exercise, might help strengthen individuals' resistance to stress.

Peiffer (2001) indicated that dealing with stress in a positive way is another way for managing stress. From all of the viewpoints, coping strategies are focused on reactions to stressed outcomes. In contrast, stress management is focused on not only dealing with stress as it occurs but also building resilience and preventing stress.

This level is concerned with increasing self-awareness, improving stress management skills, such as education, training to develop stress resistance, and coping strategies. Tertiary level stress management is 'symptom directed' and aims to rehabilitate the stressed

person. Tertiary level stress management is a curative approach for individuals that are suffering from the effects of exposure to stress, which might involve counseling services.

1.2 Need and Importance of Study

Farming is one of the top high stress occupations. Working in the agriculture sector is known to be a very physically and mentally demanding job. Within the European agriculture sector, 42.00 per cent of workers reported that work had a negative impact on their health. In Finland, a postal survey of 555 farms found that 55.00 per cent of respondents experienced stress in farm work. The detrimental impact that work can have on workers' health is partly due to the different psychosocial hazards faced by farmers and workers in this sector, such as: long working hours, isolation, financial uncertainty, planning difficulties, administrative demands, and the interaction between stress and exposure to multiple physical risks.

Stress disturbs the equilibrium of the body. It affects physically, emotionally and mentally and physical and mental health is equally important. In India, farmer suicides had been reported from various states, viz., Maharashtra, Andhra Pradesh, Punjab, Karnataka and Orissa.

Maharashtra, one of India's most prosperous states is currently facing an epidemic of farmer suicides especially in the Vidarbha region.

In the distress region of Maharashtra State the farmers are committing suicides. There may be several reasons for committing the suicides. It is fact that the reasons or aspects which compelled to do the suicides of the farmers are stress. It has been inferred that the high suicide rates associated with farming are indicative of the stress currently faced within the occupation. But if the farmers have the coping/management ability of the adverse conditions or skill of management of stress, the suicides would not have occurred. Numbers of

studies have been conducted on suicides of farmers and Central as well as State Government has providing the financial package to prevent the suicides even though farmers suicides are continued and no concrete reasons have emerged to prevent suicides of the farmers.

The process of stress management is named as one of the keys to a happy and successful life in modern society and ultimately for farmers.

It is, therefore, to know the extent of stress management behaviour of the farmers in distress prone area of Vidarbha, the present research has been undertaken which will help to sort out the problems of suicide and management strategies of stress.

The present study will be designed to assess the stress management by the farmers in distress prone area of Vidarbha with the following specific objectives.

1.3 Objectives of the study

1. To study the personal, socio-economic, communication, situational and psychological characteristics of the farmers.
2. To assess the perception about the concept of stress and stress mindset of the farmers.
3. To develop and standardize the scale of stress and stress management of the farmers
4. To analyze the impact of stress on farmers behaviour
5. To study the relationship between selected characteristics with stress management of the farmers.
6. To study the constraints encountered by the farmers in stress management.

1.4 Scope of the study

About 70.00 per cent of Maharashtra's land area is semi-arid to arid, supporting agriculture that is largely dependent upon monsoon rainfall. Precipitation is concentrated in just a few months of the year and is highly variable in frequency, intensity and geographic coverage causing stress to the farmers.

Most of the incidences of farmers' suicides have been reported from the six districts of Western Vidarbha region of the state. These districts are Amravati, Yavatmal, Akola, Wardha, Buldhana and Washim. The frequent crop failure and indebtedness is observed to be one of the major causes of the agrarian distress and thereby farmers' commit suicides in the state of Maharashtra. Most of the farmers' who committed suicides belonged to the category of dry land owners. Uncertainty is the fundamental characteristic of Indian monsoon and the degree of uncertainty is high in Vidarbha region, compare to the rest of Maharashtra.

Any policy towards farmers' stress management taking the above into consideration, this research attempted to address the following inquiry in distress prone districts of Vidarbha.

1. How do farmers' perceive stress?
2. How do farmers' perception about stress and stress mindset trends relate to those of scientists?
3. What are the stress management practices adopted by the farmers' to mitigate stress?

The present study "Stress Management of the Farmers' in Distress Prone Area of Vidarbha' tries to find the actual stress management of the farmers to mitigate the stress at individual level, family level and farm level.

The information will be definitely useful to the central and state government planners, social workers, researchers to formulate long and short term strategies for stress management to mitigate the stress.

The study “personal, socio-economic, communication, situational and psychological causes of stress of farmers in distress prone area of Vidarbha region” tries to find the various stressors/causes, which lead to aggregation of different risk factors with an individual victim.

It will help to reach to some concrete conclusion about the causes of stress and stress management strategies in farming community of distress prone area of Vidarbha region.

It will give the information about the relationship of different personal, socio-economic, communicational, situational and psychological characteristics of the farmers who are in stress.

1.5 Limitations of the study

Being a student’s research project the study has been carried out with the following limitations

1. At the time of data collection it was observed that, farmers of the study area were facing the stressful situations. Therefore, the objectivity of the data would be limited to the readiness, honesty and opinions expressed by the farmers.
2. The study was restricted to the six distress prone districts of Vidarbha, namely, Akola, Buldana, Washim, Yavatmal, Wardha and Amravati, Therefore, The findings have limited application. However they will be applicable to the same or similar situation like other distress prone districts of Vidarbha or any region of India or World.
3. The present study being the student research project and considering the constraints of time, money, travelling and other facilities did not permit researcher to conduct study with larger sample than the present one.

4. Instrument of data collection was developed after discussion with the various experts, reviewing various literature, but as causes of stress and stress management is a complex issue and includes so many. It may be possible that some important components might have skipped out which may be considered by other research workers in future. Thus, there is a scope for further improvement in the instrument of this nature in the future. Less research in the field perhaps may not give idea to locate these aspects.
5. Finally, this study relies on farmers' recall of causes of stress and stress management. This imposes a limitation in this study as it could have been difficult for most farmers' to remember past events. However, the use of multiple methods of data collection helped in addressing the limitation.

1.6 Organization of Thesis

As per the thesis manual prescribed by the University and for the sake of convenience in its presentation, entire thesis has been divided into five chapters with respective nomenclature sequentially as: Introduction, Review of Literature, Methodology, Results and Discussion and Summary and conclusions besides requisite certificates otherwise necessary at the beginning and Literature Cited, schedule format, and Vita at the end.

“Introduction” is the first chapter which introduces about the frame work of the topic under study which includes background information, concept of stress, various definitions of stress given by different authors, causes of stress in farming, stress management symptoms of stress, need and importance of study, objectives of the study, scope of the study and limitations of the study.

The second chapter is “Review of literature”. It relates to an account of theoretical frame of references and findings of earlier studies on the topic. The findings emerged out of the investigations conducted by the researchers in the past have been categorically presented. An

attempt has been made to analyze the trend of findings. The conceptual model and research hypotheses were developed for the present study and are presented in this chapter.

The third chapter is an important chapter and has been designated as “Methodology”. It deals with methods and procedures employed for conduct of entire study. It includes aspects such as locale of study, regarding study area, research design, sample and sampling technique, pre-testing and administration of interview schedule, variables included in the study and their quantification strategy and statistical method used.

The detailed procedure about development and standardization of scale about causes of stress and stress management have been given.

The fourth chapter succeeding the Methodology is Socio-economic features which included socio-economic features of Vidarbha and specially six distress prone districts. The fifth chapter is “Results and Discussion”. In this chapter findings emerged out of the present investigation have been suitably presented in tables and data depicted have been appropriately interpreted and thoroughly discussed for appropriateness or otherwise. Findings presented have been supported with findings obtained by the researchers in past. The readability of the documented data has been enhanced by transforming it into proper figures, graphs and charts.

Results and Discussion was followed by the last chapter “Summary and Conclusions” which included not only the study results but also other details have been summarized in brief and suitable conclusion drawn based on the obtained findings study and seventh chapter deals with the Implications and suggestions for future scope. The implications emanated from the findings have been presented into two parts i.e. Implication for action and implication for future research

Implications, literature cited; appendices and vita have been placed at the end.

1.7 Hypotheses

Based on the literature on stress and stress management in farming community, it is indicated that, farming is one of the high top stress occupation. Mental/physical health is equally important to every human being. The process of stress management is named as one of the keys to a happy and successful life in modern society and ultimately for farmers.

Number of studies have been conducted on suicides of farmers and Central as well as State Government have providing the financial package to prevent the suicides even though farmers suicides are continued and not concrete reasons have been emerged to prevent suicides of the farmers.

The research study entitled stress management of farmers in Distress Prone Area of Vidarbha may leads to some concrete solution to prevent suicides or stress free life, as mental issue incorporated in the research is very important for taking decision in any field.

Considering the findings of various research studies, the assumed nature of relationship between variables was worked out and following research hypothesis was framed on various aspects of study in accordance with the objectives of the study.

The hypotheses farmed are presented in null form (Ho) as below.

Ho = There is no significant relationship between selected personal, socio-economic and psychological characteristics of respondents with stress management of the farmers.

CHAPTER II

REVIEW OF LITERATURE

Consulting relevant literature on the topic of the study is an essential aspect of research. The researcher has to review the literature at every stage. It is not a one shot exercise but a continuous process. In the present chapter, the reviews of previous research studies are presented. While going through the literature, researcher noticed the scarcity of scientific studies on Stress management of the farmers in Vidarbha Region of Maharashtra state. Moreover very few scientific studies conducted outside the state of Maharashtra and other countries were noticed on the theme of present study.

In this chapter, researcher has made an attempt to review the available literature, which has direct and indirect bearing on the topic; the review so collected has been presented under the following sub heads.

- 2.1 Theoretical Orientation of stress
 - 2.1.1 Concept and definition of stress
 - 2.1.2 Types of stress
- 2.2 Independent Variables
 - 2.2.1 Personal characteristics
 - 2.2.2 Socio-economic characteristics
 - 2.2.3 Situational characteristics
 - 2.2.4 Communication characteristics
 - 2.2.5 Psychological characteristics
- 2.3 Perception about the concept of stress and stress mind set
- 2.4 Intervening Variables
 - 2.4.1 Causes of stress in farmers' life
- 2.5 Impact of Stress
- 2.6 Stress management
- 2.7 Constraints
- 2.8 Conceptual Model of Study
- 2.9 Research Hypotheses for the Study

2.1 Theoretical Orientation of stress

2.1.1 Concept and definition of stress

The word stress is derived from the Latin word “stringere” which meant literally to draw tight and was used in the 17th century to describe hardship, strain, adversity or affliction. These root words refer to the internal feelings of constriction many feel under stress. During the late 18th century, stress denoted “force, pressure, strain or strong effort, referring primarily to an individual or to an individual organs or mental powers. Cartwright, (1997) as cited in lim, (2009)

Fontana (1989) as cited in chowhiu, (2009) defines stress as those challenges which excite us and keep us on our toes, and without which life for many people would become dull and ultimately not worth living. At the other end of the scale, stress represents those conditions under which individuals have demands made upon them that they cannot physically or psychologically meet, and that lead to breakdown at one or other of these levels. Therefore, stress is a life-saver, at the other end of the spectrum a life-destroyer. The meaning of ‘demands’ mentioned above is equivalent to ‘stressors’.

2.1.2 Types of Stress

Stress is inevitable from the moment of birth. One definition of life is “the continual process of solving problems,” and all problem solving involves pressure, conflict, and frustration – in other words, stress Selye (1978) as cited in Lim, (2009) stated that no one can live without experiencing some degree of stress all the time. You may think that only serious disease or intensive physical or mental injury can cause stress. This is false. Crossing a busy intersection, exposure to a draft, or even sheer joy are enough to activate the body’s stress mechanism to some extent. Stress is not even necessarily bad for you; it is also the spice of life, for any emotion, any activity, causes stress.”

Therefore, stress is widely accepted to have two opposite effects on individuals – good stress (eustress) and bad stress (distress). Han Selye, who often referred to as the “father of stress”, was the first to distinguish between good stress (eustress) and bad stress (distress). He also noted that eustress provides challenges that motivate individuals to work hard and meet their goals meanwhile distress results from the stressful situations that persist over time and produces negative health outcomes. Broadly, it can be concluded that the acceptable levels of stress help to improve the individuals’ performance while excessive amounts of stress can lead to a decreased performance.

2.1.2.1 Eustress (Positive or Good Stress)

Eustress is good or positive stress and arises in any situation or circumstance that a person finds motivating or inspiring (Seaward, 2004). Seaward also stated that situations that are classified as eustress are enjoyable and for this reason are not considered to be a threat. Besides, Selye (1978) as cited in Lim, (2009) stated that pleasurable, satisfying experiences came from eustress. Eustress heightens awareness, increases mental alertness and often leads to superior cognitive and behavioral performance. Eustress may supply the arousing motivation for one individual to create a work of art, another an urgently needed medicine and scientific theory. Analysis of Stress Management among Professionals in the Nigerian Construction Industry

2.1.2.2. Distress (Negative or Bad Stress)

Generally, stress and distress are been thought as interchangeable terms. Perhaps, this is because common sense suggests that stress is something bad. According to Selye (1978) as cited in Lim, (2009) distress is “damaging or unpleasant stress”. Therefore, distress can be refers to the negative effects of stress that drain of energy and surpass ones capacities to cope. Expressed in these terms, stress is much the same as a state of anxiety, fear, worry, or agitation.

Broadly, there are two kinds of distress namely acute stress and chronic stress (Seaward, 2004). Acute stress is the result of short-term stressors. Acute stress occurs, usually quite intense, and then disappears quickly (Seaward, 2004). Meanwhile chronic stress is long-term stress resulting from the unrelenting demands and pressures that go for interminable periods of time. The danger of chronic stress is that some people just get used to it, lose hope, and give up searching for solutions. Meanwhile, the physical and mental resources are depleted.

2.2 Independent Variables

Based on the review of literature on causes of stress and stress management studies, a range of farmers' personal, socio-economic, situational, communication characteristics, and psychological characteristics that increase farmers' awareness about causes of stress and influence farmers' decision to adapt stress management techniques are hypothesized to influence farmers' stress management in the Vidarbha region.

2.2.1 Personal characteristics

1) Age

Virk *et al.* (2001) conducted a study on occupational stress and work motivation in relation to age, job level and type-A behaviour. He reported that age and job level can have strong influence on job stress.

Jain and Gunthey (2001) studied dual role and mental health among 120 working and non working women of 25 to 45 year age range. The result revealed that the stress experienced by women varied with age.

Rastogi and Kashyap (2003) conducted a study on "occupational stress and work adjustment among working women". Sample consisted of 150 nurses, clerks, and teachers. The average age of the sample is quite matured and experienced, which help them to ignore the stress and maintain the smooth adjustment in the organization.

Tajvar *et al.* (2008) in their study on “Determinants of health – related quality of life in elderly in Tehran. Iran”. reported that age was negatively affected the health related quality of life on physical health than mental health. In other words, increase in age may not result in deterioration of their mental health if they had satisfactory living conditions.

Deressa *et al.* (2008) and Nhemachena (2009) noted that age of the farmer did not seem to be significant in influencing adaptation

Gavhane (2012) reported that out of twelve victims, six were young (up to 35 years) and remaining six were middle aged (36-50 years).

Tejashree Kacchawah (2013) in her study on, “Factors responsible for farmers suicide in Yavatmal district.” observed that. 36.67 per cent victims were found in young age category followed by 33.33 per cent found in middle age group and 30.00 per cent were found in old age category. The data revealed that from all age group more than one third victims were observed in young age category.

Seema Tandekar (2014) observed that maximum number of the respondents (46.66%) belonged to middle age category followed by old age (36.00%) and only (17.34%) of the respondents belonged to young age category.

Deepali Gosavi (2015) in her study on, “Farmer suicide in Washim District of Vidarbha” observed that 40.00 per cent victims were under young and middle age followed by 20 percent old age.

Manisha Gujar (2017) indicated that maximum number of the respondents (47.33%) belonged to middle age category followed by old age (32.00%) and only little more than one fifth (20.67%) of the respondents belonged to young age category.

Rani Palskar (2018) indicated that maximum number of the respondents (48.33%) belonged to middle age category followed by old age (23.34%) and only 28.33 per cent of the respondents belonged to young age category.

From the above studies, it can be concluded that younger age group is more susceptible to stress due to higher expectation and lack of life experiences in short period and older age group experience stress due to the increase in the responsibilities.

2) Education

Anita Gill and Singh (2006) the farmers suicides from Punjab state revealed that among small and marginal farmers the maximum number of suicide were reported, whereas, most of the suicide victim's were illiterate.

Chand and Monga (2007) examined higher education can combat stress and burn out related problems among the faculty members of the universities.

Kale (2008) revealed that out of total sample, 16.50 per cent were illiterate and from 83.50 per cent literates majority had education between primary level of high school level education, while 9.50 per cent victims were having higher secondary school level education and only 4.00 per cent passed college education.

Moghariya and Smardon (2010) observed no marked differences in level of concern between different levels of education, age groups, farmer types or income levels.

Gavhane (2012) found that out of twelve victims, only two victims possessed educational standard above higher secondary level. Two were illiterate and remaining having education up to 10th standard.

Seema Tandekar (2014) noted that little less than half of the respondents (48.66%) were educated up to college level, followed by one third of the respondents (33.34%) who were educated up to high

school level whereas (13.34%) of respondents were educated up to middle school level and only (4.66%) of the respondents were educated up to primary school level.

Manisha Gujar (2017) observed that highest percentage of the respondents (29.33%) were in middle school level, followed by (26.00%) respondents in high school level. whereas (18.67%) of the respondents were in primary schools level, (12.67%) of respondents were functionally literate and in college level and only 0.66 per cent of the respondents were in illiterate category.

Rani Palskar (2018) observed that little more than one fourth (25.84%) of the respondents were educated up to higher secondary school level, followed by equal proportion (20.00%) of respondents were educated up to primary school and high school level whereas, 18.33 per cent of the respondents were educated up to middle school level and the respondents who were educated up to college level and illiterate were 10.00 per cent and 5.83 per cent respectively.

It was observed from the reviews that, most of the victims were had no or low level of education those were unable to cope up with the adverse situation arise suddenly.

3) Marital status

Halim (1984) stated that most of the young women labourers 82.70 per cent were unmarried.

Mishra (2006) reported that 55.00 per cent suicide cases were in the age group of 31-50 years and 80.00 per cent recently married.

Seema Tandekar (2014) observed that, majority (77.33%) of the respondents were married followed by little less than one fifth (19.33%) per cent from them were widow/widower/divorce and remaining (3.34%) were unmarried.

Manisha Gujar (2017) reported that majority (80.00%) of the respondents were married followed by 16.00 per cent of them who were unmarried and only 4.00 per cent were widow/widower/divorcee.

From the above reviews, it can be inferred that, majority of the respondents were married and having more responsibilities. Therefore, they might be in stress but can manage it if they know the techniques of stress management.

4) Family type

Vashishtha and Mishra (1998) observed that social support from the family, coworkers, supervisors and other people could minimize stress among the employees.

Gupta (2001) mentioned that the increasing amount of life stress was blamed by many sociologists for the rise in the number of suicides. Stress is fast building in all sections of society. In our country, the joint family used to be a major stress absorber. With the breakup of the joint family system, particularly in the cities, individuals are feeling apart. They don't know whom to depend on during periods of crisis. Stress prone individuals are unable to combat this fast developing stress.

Bhattacharyya (2002) reveals that the joint families are disappearing from India, the values of sharing community feelings are also disappearing very fast. Now, the individuals as well as the families are also becoming very self centric. The madness for quick money has made these individuals ignorant of human values.

Mishra (2006) reported that in 55% cases, it was observed that the individual concerned had not discussed his/her problem with family members.

Suri (2006) stated there are some of the social factors responsible for farmers distress like break-up of joint families, individualization of agriculture operations.

Kamathe (2007) observed that 68.90 per cent of the deceased farmers had nuclear family, while one third (31.00%) of the deceased farmers had joint family.

Gavhane (2012) reported that out of twelve victims, exactly half of the victims were living in nuclear family.

Tejashree Kacchwah (2013) observed that maximum 61.67 per cent victims were from joint type of family and 38.33 per cent victims belonged to nuclear family.

Kale (2014) observed that maximum 63.00 per cent victims were from nuclear type of families and 37.00 per cent victims belonged to joint family.

Seema Tandekar (2014) found that majority of the respondents (88.66%) were belongs to nuclear family and rest of the respondents (11.34%) were belongs to joint family.

Deepali Gosavi (2015) conducted her study on farmers suicide in Washim district- of Vidarbha-A case study and found that 70.00 per cent of the respondents were found in joint family where as 30.00 per cent were in nuclear family.

Manisha Gujar (2017) found that majority of the respondents (74.00%) were belonged to nuclear family and rest of the respondents (26.00%) were belongs to joint family.

It may be concluded from the above studies that, majority of the respondents were belonged to nuclear family. This may be one of the reasons to create the stress conditions. It is also revealed that the joint family acts as major stress absorber.

5) Family size

Deressa (2003) analyzed perception of farmers' to climate change and revealed that household size have significant impact on the perception of farmers' to climate change and on adaptation to climate change.

According to Sant Gadge Baba Amravati University interim report (December 2006) on farmers' woes in Vidarbha majority of the respondents (59.00%) having family size below four.

Deshmukh *et al.* (2007) revealed that the percentage of the families between 1 to 5 members size group was highest in Vidarbha (71.7%), it is followed by 6 to 10 members family size group (25.85%). Among the districts, in Buldana it was highest 79.17 per cent families were categorized under 1 to 5 members and in Wardha district it was 35 per cent families comes under 6 to 10 members family size.

Kamthe (2007) reported that 52.70 per cent of the deceased farmers had medium size (4 to 6 members) of family while 40.50 per cent and 6.80 per cent deceased farmers had small (up to 3 members) and big (above 6 members) sized families respectively.

Tizale (2007) there is a possibility that households with many family members may be forced to divert part of the labour force to off-farm activities in an attempt to earn income to ease the consumption pressure imposed by a large family size.

Kale (2008) observed that majority 61 per cent suicide concentrated in medium size family having 4-6 members, 25 per cent large family, 10 per cent small family.

Gbetibouo (2009) indicated that the influence of household size on the decision to adapt is ambiguous. Household size as a proxy to labour availability may influence the adoption of a new technology positively as its availability reduces the labour constraints (Teklewold *et al.*, 2006).

Gbetibouo (2009) examined that large household will be more willing to choose the other category as an adaptation option. The other category includes adaptations such as soil conservation techniques, chemical treatments that are labour-intensive especially in small-scale farming, which involves household labour.

Gavhane (2012) observed that out of twelve victims, eleven suicides concentrated in medium size family.

Kale and Mankar (2012) observed that over half of selected families were concentrated in small size family members followed by 30 per cent under medium size 10 per cent large family and 1.67 per cent large family.

Tejashree Kacchwah (2013) revealed that majority 53.33 per cent suicides were concentrated in medium size family having 4 to 6 family members. While more than one forth 26.67 per cent victims having small family size (up to 3 members) followed by 20.00 per cent victims having large family size (7 to 9 members).

Seema Tandekar (2014) found that maximum number of the respondents (76.66%) had small family size followed by medium (13.34%) and large (10.00%) size of families.

Manisha Gujar (2017) revealed that maximum number of the respondents (68.00%) had small family size followed by medium (28.00%) and large (4.00%) size of families respectively.

Small family size was the predominant in most of the studies referred above.

From the above reviews it can be inferred that larger the family size stress can be manage by sharing their feelings with each other for geeting the solutions.

6) Land holding

Deshpande (2002) identified the profile of the landholding size of the victims in Karnataka. It showed that victims were largely concentrated between farm groups of two and 10 acres, but there were a few cases where the size of holding was even more than 20 acres.

Naik (2006) reported that the average size of land holdings in Maharashtra fell from 4.28 hectares to 1.87 hectares over the period between 1970 and 1996.

In Maharashtra government report (2006) it was reported that 28.00 per cent of the deceased farmer had land 2-3.75 acres, while 11.00 per cent farmers had 1-2 acres of land.

Kale (2008) observed that majority (43.50%) of victims were small farmers having land holding 1.01 to 2.00 ha, 23.50 per cent marginal up to 1.00 ha. 20.50 per cent and 12.50 per cent of victim had semi medium and medium land holding respectively.

Deshmukh *et al.* (2010) observed that 80.00 per cent deceased farmers had small land holding.

Anonymous (2009) In study conducted on Studies on Social Dynamics of Cotton Production in Distress Areas in four States i.e. Andhra Pradesh, Karnataka, Punjab and Maharashtra during 2007-2009, it was observed that the average land holding was in the range of 1.63 hectare to 2.44 hectare and mostly rainfed (except Punjab).

Gavhane (2012) found that out of twelve farmers, six victims were small farmers (1.01 to 2.00 ha) and two were marginal land holder (up to 1 ha), while remaining four victims were having semi medium and medium land holding.

Tejashri Kacchawah (2013) found that out of sixty suicide victims, 55.00 per cent victims have small land holding (1.01 to 2.00 ha).

Seema Tandekar (2014) revealed that relatively higher proportion of respondents (35.34%) belonged to small category of land holding 1.00 to 2.00 ha followed by the semi medium farmer one third (33.34%) having land 2.01 to 4.00 ha, medium farmers (18.66%), marginal farmers (8.66%). Very few (4.00%) were large farmers i.e. above 10.00 hectars of land holding.

Manisha Gujar (2017) that as per selection criteria of the respondents equal proportion of them (33.33%) were observed in marginal, medium, semi-medium category of land holding.

In majority of the cases revealed above, the farming had small to marginal land holding. Hence, the annual income might be insufficient to fulfill their daily needs.

7) Farming experience

Baswarajaiah (2001) conducted a study on impact of Edira Watershed development programme on farm families in Mahaboobnagar district of Andhra Pradesh, indicated that 29.17 per cent of respondents had low farming experience followed by medium (45.00%) and high (25.83%).

Reddy Prasad (2003) in his study differential Innovation Decision and Attitude of Rice Growing Farmers towards Eco-Friendly Technologies in Andhra Pradesh found that majority of rice growing farmers (71.00%) fall under the category of medium farming experience followed by high (19.00%) and low (9.40%) categories.

Nhemachena and Hassan (2007) suggested that more experienced farmers' are more likely to adapt than the less experienced. Farmer experience increases the probability of uptake of all adaptation options. Highly experienced farmers' are likely to have more information and knowledge on changes in climatic conditions and crop and livestock management practices. Experienced farmers' are usually leaders and progressive farmers' in rural communities and those can be targeted in promoting adaptation management to other farmers' who do not have such experience and are not yet adapting to changing climatic conditions.

Rathod (2007) in his study on sustainable livelihood of the lambani farmers in Hyderabad Karnataka observed that majority of the lambani farmers had possessed the medium farming experience (66.00%) followed by high (25.23%) and low (8.67%) farming experience.

Jain *et al.* (2010) in their study related to adaptation to drought by the farmers' examined that the group of farmers' consist of about 51 per cent farmers' having 11 to 30 years experience of agriculture

followed by 31 to 50 years experience (41.00%), zero to 10 years experience (6.00%) and 51 to 60 years experience (2.00%).

It was observed that medium experience was possessed by majority of the respondents.

Researcher, therefore, expected that experienced farmers' have high skills in farming techniques and management and are able to spread risk when facing stressful situation by exploiting strategic complementarities between activities such as crop-livestock integration or crop management and reduce or manage the stress effectively.

8) Occupational sources

Bhagyalakshmi (1997) reported that 56.06 per cent of farm women had agriculture as main occupation, 35 per cent had agriculture and dairy activities and the remaining 8.66 per cent had agriculture and goat rearing activities as their occupation

Purnima (2004) in her study on women self help group dynamics in the north coastal zone of Andhra Pradesh found that 47.50 per cent of the respondents had labour + subsidiary occupation, followed by (21.25%) subsidiary + agriculture (19.58%) and labour + subsidiary + agriculture (11.67).

Rathod (2007) in his study on sustainable livelihood of the lambani farmers in Hyderabad Karnataka observed that nearly three fourths (73.3%) of the lambani farmers belonged to farming + wage earners category followed by farming + livestock (8.66), farming alone (6.67), skilled wage earners (4%), farming + business (2.66%), farming + services (2.66) and wage earners (2%).

Swaminathan (2007) stated that 70 per cent of our population still rural with farming as the principal source of livelihood.

Anonymous (2007^a) stated that small farmers couldn't sustain on agriculture alone. There was a need to inculcate amongst the small farmers a streak of entrepreneurship so that it is easier for them to

sustain their families by diversifying which is not possible if they continue to solely depend on agriculture.

Goel (2006) stated that the farmers of Western Maharashtra had not committed suicide because they cultivate crops with planning. They also engage themselves in the supplementary occupations.

Kale (2008) observed that 70.50 per cent engage in farm labour for wages, 20 per cent engage in farming, 6.50 per cent were engage in non professional business with farming. Only 2 deceased farmers (1.00%) possessed dairy as an allied occupation through buffalo rearing in additional to farming.

Kale (2011) revealed that majority of victims (70.50%) were engaged in farm labour for wages earning as a supportive endeavor to farming and majority of them were marginal and small farmers. While 20.00 per cent victims were have only farming as their main occupation and they did not have a any backup system, mostly they were medium (4.01-10.00 ha.) landholders. Whereas 6.50 per cent deceased, farmers were doing either caste related or other non-professional business with farming. Monthly income from salary/pension was noted in 2.00 per cent victims; out of these three were holding class IV service and one have a pension of his father. Only two deceased farmer (1.00%) were possessed dairy as an allied occupation through buffalo rearing in addition to farming.

Seema Tandekar (2014) found that occupational status have maximum respondents (86.00%) belonged to only farming occupation followed by farming and service (6.00%), farming and business (5.34%) and farming and labor (2.66%).

Manisha Gujar (2017) observed that relatively higher proportion of the respondents (58.00%) belonged to only farming occupation followed by farming and business by one fifth of the respondents (20.00%), farming and service (12.67%) and farming and labor (9.33%).

From the above reviews it can be inferred that, farming was the major occupation of the farmers followed by other wages.

2.2.2 Socio-economics characteristics

9) Expenditure pattern

Doss (1999) in his study on testing among the models of intra household resource allocation quoted that 1991-1992 household survey of Ghana shows that the share of assets owned by women has a significant impact on household expenditure decisions.

Velgu (2001) in his study on role of migration in four villages in Mahaboobnagar and Anantpur districts in Andhra Pradesh Rural livelihood programme (APRLP), Hyderabad, reported that a total annual expenditure of Rs. 11750/-and Rs. 16100/- were observed in rural households of Srikakulam and Mahaboobnagar districts of A.P respectively.

Narayanamoorthy (2006) cleared that the average annual consumption expenditure of the farmer households (ACEFH) for the Maharashtra was Rs. 32268/-. The ACEFH has exceeded the annual income (Rs. 29556/-) of the farmer households in Maharashtra. This clearly suggests that Maharashtra farmers are in economic distress and the income that they get from all sources is not even enough to meet the consumption expenditure of the households.

Anonymous (2009) In study conducted on Studies on Social Dynamics of Cotton Production in Distress Areas in four States i.e. Andhra Pradesh, Karnatak, Punjab and Maharashtra during 2007-2009, it was found that expenditure pattern found significantly associated with powerlessness, meaninglessness, isolation and self estrangement.

Seema Tandekar (2014) found clearly indicates that there was a variation in the expenditure pattern among the farmers. Majority of the respondents (72.66%) had the low annual expenditure up to Rs. 55000/- followed by little less than one fifth (19.34%) farmers had medium

expenditure between Rs. 55000/- to 110000/- and (8.00%) farmers had high expenditure above Rs. 110000/- of annual expenditure.

Manisha Gujar (2017) reported that respondents (82.67%) had the low annual expenditure up to Rs. 55000/- followed by 16.67 per cent farmers had medium expenditure ranging from Rs. 55000/- to 110000/- and 0.66 per cent farmers had high annual expenditure above Rs. 110000/-.

Rani Palskar (2018) indicated that there was a variation in the expenditure pattern among the farmers. More than one third (40.83%) of respondents had annual expenditure up to Rs.1,00,000/-. Little more than one fifth (23.33%) of respondents had annual expenditure between Rs. 1,00,001/- to 1,50,000/- followed by, 19.17 per cent of the respondents had the annual expenditure between Rs.1,50,001/- to 2,00,000/- whereas, 16.67 per cent of respondents had the annual expenditure above Rs. 2,00,000/-.

It observed from the above reviews that, relatively higher proportion of the farmers had low annual expenditure.

10) Annual income

Deshpande (2002) observed that the average income of the victim's household was in the range of Rs. 2,000 to Rs. 48000 per annum against Rs. 5,000 to Rs. 44,000 for control farmers.

According to Sant Gadge Baba Amravati University interim report (December 2006) on farmers' woes in Vidarbha observed that majority 78.58 per cent respondents had annual income up to Rs. 25000.

Kale (2010) observed that majority of suicides were concentrated having annual income up to Rs. 25,000 (62.00%) and between Rs. 25,001 to Rs.50,000 (29.00%). The average annual income of all annual victims' households was Rs. 27,924.

Gavane (2012) found that among twelve victims, the annual income ranges from Rs. 10,800/- to Rs. 90,000/.

Kale and Mankar (2012) observed that farming contributed near about half (49.8%) share over one third (34.42) by wage earning.

Kacchwah (2013) observed that 30.00 per cent of victims had annual income in the range of Rs. 75001/- to 100000/-. followed by 28.33 per cent of victims had annual income between Rs. 50001/- to 75000/-, one fourth 25.00 per cent victims had annual income in the range of Rs. 25001/- to 50000/-. Only 16.67 per cent deceased farmers had annual income above Rs. 100000/-.

Seema Tandekar (2014) revealed that, majority of the farmers (61.34%) comes under annual income up to Rs.60000/- followed by little more than one fifth (22.00%) had income ranging from Rs. 60001/- to Rs.120000/-, (6.00%) comes under annual income ranging from Rs. 180001/- to Rs. 240000/-, (5.33%) comes under annual income ranging from Rs. 120001/- to Rs.180000/- and another (5.33%) comes under annual income above of Rs.240000/-.

Manisha Gujar (2017) observed that that, relatively higher proportional of the farmers (53.33%) comes under annual income up to Rs.60000/- followed by near about one fourth (21.33%) had ranging from Rs. 60001/- to Rs.120000/-, 6.68 per cent respondents comes under annual income group ranging from Rs. 180001- to Rs.240000, 5.33 per cent respondents comes under annual income group ranging from Rs. 120001/- to Rs. 180000-,and only (3.33%) per cent comes under annual income group above of Rs 240000-.

Rani Palskar (2018) revealed that, relatively higher proportion (39.16%) of respondents comes under the annual income ranging between Rs.50,001/- to 1,00,000/-, followed by 37.50 per cent of them had annual income up to Rs. 50,000/-, whereas 11.66 per cent of the respondents had annual income between Rs. 1,00,001/- to 1,50,000/- followed by, 7.52 per cent of respondents comes under annual income ranging from Rs. 1,50,001/- to 2,00,000/- Very meager of (4.16%) of

respondents were observed in having annual income above Rs. 2,00,000/-.

It is assumed from the above reviews that, majority of the farmers were observed in annual income which is not enough to fulfill their daily needs.

11) Social participation

Participation in social activities opens an avenue for interaction with others and likely to add in existing fund of knowledge and hence the variable social participation was considered in the present study.

Dhuware and Pande (2002) noted that social participation had significant association with adoption of watershed management practices.

Deressa *et al.* (2008) observed that social networks play distinct roles in adoption of agricultural technologies: they act as conduits for financial transfers that may ease farmers' credit constraints, provide information about new technologies, and facilitate co-operation among farmers' to allow the costs and benefits of adaptation to be shared

It is therefore assumed that, farmers' with active social participation can withstand to stress by sharing their feelings with others and manage the stress effectively.

12) Access to credit

O'Brien *et al.* (2000) indicated that despite numerous adaptation options that farmers' are aware of and willing to apply, the lack of sufficient financial resources to purchase the necessary inputs and other associated equipment (e.g., purchasing seeds, acquiring transportation, hiring temporary workers) is one of the significant constraints to adaptation. Furthermore, 60 percent of the respondents who did not adapt cited lack of financial resources as the main constraint to adaptation. The results showed that access to credit increases the

likelihood that farmers' will take up portfolio diversification and buy feed supplements for their livestock. Having access to credit indeed increased the likelihood of choosing portfolio diversification by 3 percent.

Deressa (2003) analyzed perception of farmers' to climate change and revealed that access to credit have significant impact on the perception of farmers' to climate change and on adaptation to climate change.

Gbetibouo (2009) noted that access to credit, has a positive effect on adaptation behavior and argued that access to credit has a positive and significant impact on the likelihood of using soil conservation, changing planting dates, and using irrigation. This result implies the important role of increased institutional support in promoting the use of adaptation options to reduce the negative impact of climate change

Benedicta *et al.* (2010) suggested that access to credit /loan facilitates adaptation to new technology and climate change as access to cash allows farmers' to purchase inputs like seeds of improved varieties and fertilizer. The positive correlation between adaptation to climate change and the availability of credit was observed in the study.

Tiwari (2012) argue that as per official figure of administration out of 3 million cotton farmers' only 25 percent farmers' have been covered under institutional banks and crop loan disbursement target is less than 40 percent of NABARD credit outlay to the region and credit crunch has been issue as debt trapped farmers' are credit starved and is one of factor of despair in agrarian crisis, hence, demanded central intervention for crop loan restructuring in select blocks where re-sowing is being done.

Koshti (2013) revealed that 65.00 per cent of farmers' had access to credit availability while, 35.00 percent of them farmers' had no access to credit

Researcher therefore hypothesized that, with more financial and other resources at farmers' disposal, farmers' are able to make use of all their available information to manage the stress. For instance, with financial resources and access to markets farmers' are able to hospital for treatment, buy new crop varieties, and other important inputs they may need to change their practices to suit the forecasted stress.

2.2.3 Situational characteristics

13) Agricultural Infrastructural facilities

Ghosh (2006) stated that rural infrastructure turned out to be an important factor not only for increasing agricultural productivity and output but also for alleviation of rural poverty. The development of rural infrastructure is a necessary condition of agricultural development and alleviation of poverty.

Kalamkar (2006) revealed that as per the CMIE infrastructure index, Maharashtra state has good compatible score, ranks sixth position, but the index has fallen during last two decades. Also stated that Vidarbha region is infrastructurally underdeveloped area of the state and is a strong case for increasing investment in rural infrastructure.

Kurukulasuriya (2006) found that ownership of heavy machinery significantly and positively increased net farm revenue on African crop land and adaptation to climate change.

Narayanamoorthy (2006) reported that the status of rural infrastructure were very poor in Vidarbha region. The coverage of irrigation in Vidarbha region was only 13 per cent to total cropped area.

Suruchi Bhadwal (2006) estimated that adaptive capacity, at the local level, is influenced by factors such as: asset ownership which includes land, house, cattle, pump sets, tractors, tillers and threshers; access to public goods and facilities such as banking, education and health services; infrastructural support including irrigation, markets and proper communication network; and alternative employment options.

Koshti (2013) revealed that while considering total infrastructure availability of five components, majority (80.00 %) of respondents were having medium infrastructure availability for their farming business in adapting to climate change and variability, and one fifth of them (20.33%) had high infrastructure availability. It is also noticed that not a single farmer was found in low agricultural infrastructure availability.

This study expected that ownership of more farm assets (land and machinery) and agriculture infrastructures improves farmers' ability to cope with farm related stress.

14) Health

Roy *et al.* (2004) stated that economic opportunities are difficult to be used if a person is handicapped by ill health or illiteracy. Education and health are recognized to be the two distinct influences, which can promote the freedom and capability of individuals to make use of available opportunities.

Gesa and Klaus (2005) revealed that family members infected with the HIV diseases could no longer contribute to agricultural production to the same extent. Relatives have to spend time caring for the sick. Lower levels of production are causing income to fall. At the same time the affected families are facing increased financial outlay for health costs leaving even less money to secure their food status

Guruswamy and Abraham (2006) stated that only 20 per cent of Indians were covered by public health care and the rest take recourse to the private sector. Evidently even many Indians below the official poverty line seek medical care from the private sector. Financing ones own health care is clearly a burden for the poor in India. Even where the services are available, medicines and drugs are often not available.

Jacob (2006) stated that physical illnesses like disease of the nervous system, multiple sclerosis, huntington's disease, brain and spinal cord injury, seizure disorders, malignant neoplasm's, HIV/AIDS, peptic ulcer disease, chronic obstructive pulmonary disease, especially in men, chronic hemodialysis - treated renal failure, systemic lupus erythematosus, pain syndromes, functional impairment etc. are the risk factors associated with an increased risk of suicide.

Wang (2006) studied the perceived work stress and imbalance between work and family or personal lives and current mood or anxiety disorders. Results showed that work stress and imbalance between work and family or personal lives were independently associated with mood and anxiety disorders. There was no evidence that the perceived work stress interacted with the imbalance between work and family or personal lives to increase the likelihood of having mental disorders.

Anonymous (2007^b) stated that a regular drunker farmer of 30 year old from village Adegaoon (Chimur, Vidarbha) committed suicides by hanging. The farmer become a regular drunker after the death of his two daughters, who died of ailments (an illness) within month.

Kale (2008) observed that 19 per cent ill health victim. One fourth mental health. Risk of suicide is 3-12 times greater as psychiatric illness patients than that of the non patients. 15.79 per cent were nervoused.

Kale (2008) observed that in one forth (25.00%) deceased farmers, ill health of his family members has been observed. While three forth (75.00%) victims were free from family health problems.

Deshmukh *et al.* (2010) observed that, about 13.20 per cent deceased farmers were affected by serious disease. Nearly 9.80 per cent farmers were mentally imbalance.

Kale (2011) observed that the personal health problems of the deceased victim were identified in 32.50 per cent of the cases.

Tejashree Kacchwah (2013^a) reported that the personal health problem was noted in 26.67 per cent deceased farmers, who committed suicide in Yavatmal district, while majority 73.33 per cent were free from health problem.

Tejashree Kacchwah (2013^b) revealed that majority 91.67 per cent deceased farmers, family health was not the problem and in 8.33 per cent deceased farmers, ill health of their family members were observed.

Seema Tandekar (2014) indicated that, maximum number of the respondents (68.00%) were found free from health problem whereas (32.00%) respondents has health problem found.

Manisha Gujar (2017)observed that, maximum number of the respondents (53.33%) were free from health problem and (46.67%) respondents were having health problem.

It is therefore assumed that farmers' with better health conditions and facilities can withstand stress and manage different stressful situation effectively.

15) Indebtedness

According to Deshpande (2002) in 5.31 per cent cases marriage of daughters is the one of the reason for indebttness and distress.

Anita Gill (2004) revealed that the reduction of differentials between return and cost of production, the increasing uncertainty of weather as well as a dependence on borrowed credit at a higher rate of interest from informal lenders were the reasons responsible for increasing indebtedness among the farmers of Punjab.

Kumar and Rao (2004) found that the victims obtained the credit from multiple sources and moneylenders (89 per cent).

Deshpande and Prabhu (2005) stated that the Situation Assessment Survey of the National Sample Survey Organization has reconfirmed the gravity of the distress by revealing that 48 per cent of the farmers were indebted and that 61 per cent of them in rural India were prepared to abandon their vocation.

Gavhane (2012) stated that among twelve victims, all victims were indebted and had debt of both institutional and non institutional sources.

Seema Tandekar (2014) revealed that maximum number of the respondents (71.34%) had low debt up to Rs. 60000/- followed by little more than one fourth (26.00%) of the respondents had medium debt in range between Rs. 60001/- to Rs.120000/- and only (4.00%) of the respondents had high debt above Rs.120000/-.

Manisha Gujar (2017) that maximum number of the respondents (57.33%) had low debt up to Rs. 60000/- as found in low category, followed by (22.67%) of the respondents had comes under high category above Rs.120000 and one fifth of the respondents (20.00%) had medium debt ranging from Rs.60001/- to 120000/-.

Rani Palskar (2018) revealed that little less than one third (30.00%) of the respondents had debt between Rs. 1,00,001/- to 1,50,000/- followed by little less than one fourth (24.17%) of the respondents had debt between Rs.50,001/- to 1,00,000/- The respondents 16.67 per cent who had debt above Rs. 2,00,000/- while 15.83 per cent of the respondents had debt between Rs.1,50,001/- to 2,00,000/- and only 13.33 per cent of the respondents had debt up to Rs. 50,000/-.

Thus, from the review, it is clear that uncertainty of weather leads to continuous crop failures and put the deceased farmers' in viscous cycle of indebtedness resorting to the extreme step of suicides by the aggrieved farmers' in distress prone districts.

16) Technology Utilization

Fan *et al.* (2000) reported that distinguished between direct and indirect effects of agricultural growth due to agricultural research. The direct effect arises in the form of benefits the poor perceive from higher income through growth in agricultural production. The indirect effects come from increased rural wages, employment and decreased food prices.

Lipper (2001) has advocated that GIS techniques can be used to incorporate spatial analysis into the determinants of rural poverty or food insecurity, or into issues that are important for alleviating poverty and food insecurity. This could include the determinants of migration, participation in off-farm labour activities, product market participation and crop choice or technology adoption. One of the most common applications is to the analysis of the causal relationship between poverty and the environment, where few links have been found, often because of technical estimation or data limitation.

Apdpip (2002) stated that advancement of science and technology in the laboratories is not reaching the poor in the field. Pro-poor science and technologies can help the poor in each stage of the value chain of the livelihoods. Science can help in pre-production, production, harvesting, post-harvesting, local value addition and production of new products, which will certainly increase income of the producers.

Rathod (2007) in his study on sustainable livelihood of the lambani farmers in Hyderabad Karnataka observed that the fact that 62.67 per cent of the lambani farmers belonged to low technology utilization category, followed by (29.33%) medium technology utilization and high technology utilization (8%).

Amresh (2012) in the study assessment of livelihood status of farmers in distress prone area revealed that, in case of technology utilization nearly half (49.33%) of the respondents were included in the

medium category of technology utilization whereas, 32.67 per cent respondents who were in the low technology utilization. only 18.00 per cent of respondents were included in the high technology utilization category

Snehalata Borahade (2017) revealed that in case of technology utilization above one thirds (86.00 %) respondents were included in medium level of technology utilization, whereas, 09.50 per cent respondents who are in high technology utilization category and only 04.50 per cent families are included in low technology utilization category.

Thus, it can be concluded from above reviews that, farmers who were utilizing more technologies can get more income which helps to reduce the stress.

17) Labour Availability

Deressa *et al.* (2008) noted that farmers' generally cannot afford to invest in irrigation technology that would allow them to adapt to climate change or sustain their livelihoods during climatic extremes, such as drought. Additionally, farmers' are often unable to mobilize sufficient family labour or afford hired labour to make the necessary changes.

Ogodo and Scott (2008) observed the results presented at a conference entitled 'How can African agriculture adapt to climate change? Results and Conclusions for Ethiopia and Beyond' held in Nazareth (11–13 December) and indicated that about half of the farmers' said they were not adapting at all to changes in temperature and rainfall. They blamed a lack of information followed by shortages of labour, land and money.

Koshti (2013) indicated that most of the farmers' under the study area face the paucity of labour and was observed in low category (60.33%). Nearly one third falls in medium category (30.67%). Very few farmers' were having high labour availability (9.00%).

From the above reviews it can be concluded that, availability of skill labours in peak time helps to reduce the stress.

18) Access to market

Lapar and Pandely (1999) found that in the Philippines access to markets significantly affected farmers' use of conservation technologies.

Mano *et al.* (2003) observed that input markets allow farmers' to acquire the inputs they need such as different seed varieties, fertilizers and irrigation technologies. At the other end, access to output markets provides farmers' with positive incentives to produce cash crops that can help improve their resource base and hence their ability to respond to stress management

Maddison (2006) noticed that long distances to markets decreased the probability of farm adaptation in Africa and that markets provide an important platform for farmers' to gather and share information. Further those farmers' who are situated close to the market where they sell their produce are also more likely to adapt to climate change.

Nhemachena and Hasan (2007) observed that the farmers' with access to credit and market have higher chances of adapting to changing climatic conditions. Access to affordable credit increases financial resources of farmers' and their ability to meet transaction costs associated with the various adaptation options they might want to take. For instance, with financial resources and access to markets farmers' are able to buy new crop varieties, new irrigation technologies, and other important inputs they may need to change their practices to suit the forecasted and prevailing climatic conditions.

Koshti (2013) stated that most of farmers' had access to market within 13 km (48%). The proportion of farmers' having market access in between 14 to 19 kms were 28.33 percent, whereas, 23.67 percent had access to market above 19 kms. The overall mean distance to market access was 14.58 km. It is inferred that most of important agricultural inputs required by the farmers' for their farms were not available in their villages. Distance definitely increases the cost of

production. Normally under study area farmers' has to pay Rs.50/- per quintal as transportation charges for selling his produce in the market for average distance of 15 km. Distance more than 15 km increases the transportation cost.

These studies expected that, easy access to markets for inputs and outputs helps to take timely decisions and improves farmers' ability to manage the stress.

19) Productivity of major crops

Kumar and Rao (2002) conducted the study in Warangal district of Andhra Pradesh to elicit the reasons for suicide of cotton farmers' in 1988 and concluded that the family members of deceased farmers' perceived heavy loss of crop due to incidence of pest and diseases (100%), Debts to moneylenders (100%), high cost of cultivation (84.60%), spurious pesticides in the market (57.60%), lack of adequate irrigation water (57.60%), tenant /leased farming (53.60%) were the reasons for the suicide of farmers'. Secondly, he also revealed that in India 70.00 percent area being grown under rainfed condition and seasonal incidence of pest and diseases in irrigated areas leading to instability in yield per unit area and fluctuating production levels in cotton crop was one of the factor for the suicide of cotton farmers'.

Adejuwon (2004) revealed that crops distribution and agricultural production depends largely on range of distribution of geography in terms of temperature and moisture. Temperature has been high factor can bring positive effects for crop distribution in the Poland region (Sadowski, 2008) but negative effects in the Tropics one (Cruz *et al.*, 2007).

Bharambe *et al.* (2004) examined that the average production of the principal crops of the Vidarbha region is below the national average. They also revealed that the productivity of the land is closely related to the inherent soil characteristics.

Naik (2006) reported that the food grains production in Maharashtra State averages just 103 kg per hectare compared to Punjab's 1032 kg. Sugarcane and cotton are not economically viable in the Maharashtra State because of their relatively poor productivity.

Narayanan *et al.* (2006) relating to agricultural production, showed that adverse climate change effects, like increase in frequency of extreme events, may have an impact on production and availability of food grains.

Palanisami *et al.* (2010) noticed that the climate variables (rainfall and temperature) are influencing the productivity of paddy, where as in case of maize, the proportion of irrigated area has maximum affect in increasing the productivity.

Phuong (2011) estimated that temperature increase has both positive and negative effects on crop yield (Nyong, 2008; Adejuwon, 2004). However, in general, increasing temperature has been found to reduce yield and quality of many crops, most importantly cereal and feed grains (Adams *et al.*, 1998). Results of high temperature increased the physiological development (Adejuwon, 2004) such as higher respirations, shorter periods of seed formation and lower biomass production (Adams *et al.*, 1998) and hastened maturation and consequently reduce crop yield (Sadowski, 2008; Adejuwon, 2004).

Koshti (2013) reported that the proportion of area under kharif cotton and soybean was 34.94 per cent and 19.40 per cent, respectively during the year 2001-2002. While the share of area under kharif cotton was increased in 2011-2012 by 5.95 per cent, whereas, the area under soybean was also significantly enlarged by 16.79 per cent during 2011-2012. At the same time, the area under jowar was decreased significantly by 8.76 per cent during 2011-2012 compared to 2001-2002. Similarly, the area under mung is also decreased remarkably by 10 percent as compared to 2001-02 in the study area.

From the above review it may thus concluded that, the Indian agriculture suffers from low yields per hectare, volatility in production and wide disparities in productivity over regions and crops, also suggests that cultivators of all crops had affected. Secondly it was also noticed that heavy losses due to crop failure due to climate change is one of the major reason for taking painful decision of suicide by the farmers' in the study area resulted from distress. Researcher assumed that farmers' perceptions that their lands are infertile may be a first step in the adaptation process. They may, therefore be more likely to adopt any adaptation techniques that will help to improve their productivity and avoid the stressful situation.

2.2.4 Communication Characteristics

20) Mass media exposure

Dhuware and Pande (2002) found significant association of mass-media exposure with adoption of watershed management practices.

Mehta (2007) evaluated that the agricultural sector in the country has not developed to the desired extent due to many challenges. In many pockets, especially in remotes places farmers' are still relies on traditional agriculture. They are yet to come out of old methods and systems. Information technology and communication, though developing rapidly has not reached such places. Technical support is the need of the hour in today's fast changing environment.

Jain *et al.* (2010) in their study related to adaptation to drought by the farmers' reported that the farmers' used electronic (like television and *Aakashvani*) and print media (national and local dailies) for gaining agricultural information in respect of forecasting on climatic factors, occurrence of diseases and insects pests epidemic along with the operational remedies to overcome the situations and minimize its adverse effects on crops.

Nzeadibe and Ajaero (2010) analysed that perception is arguably related to awareness level and availability of information on a phenomenon. The spatial behavior and behavioral responses of individual and communities are often framed around their perception and problems.

Koshti (2013) revealed that 72.00 per cent and 62.00 per cent of farmers' having radio and television respectively. Further it was noted that negligible proportion of farmers' subscribed news paper and magazines. (15.00 % and 4.33 % respectively) While no one subscribed for internet. It is also observed that 51.67 per cent of the farmers' listened radio sometimes and 35.67 per cent viewed television sometimes. 26.33 per cent of the farmers' were regular viewers of agricultural programmes and 20.33 percent were regular radio listeners. In case of magazines books and newspapers, majority of the farmers' never had an access to these sources for seeking agricultural Information on climate change (95.66 % and 85.00 % respectively). None of the farmers' ever use the internet as source of mass media for seeking information on climate change. Further is reported that nearly two third of farmers' (58.33%) were using the mass media at low level followed by 26.00 per cent of them having the mass media exposure at medium level. Relatively low proportion of the farmers' under study area (10.67 %) used no mass media. Very meagre (5.00 %) proportion of the farmers' falls under group having high level of mass media exposure.

Researcher expected that farmers who notice stress and are aware about stress management techniques due to various mass media sources would take up remedial measures to manage the stress.

21) Extension contact

Due to exposure to various information seeking sources farmers get influenced to do something new to manage stress. From this point of view, the extension contact has been considered for the present study.

Maddison (2006) noted that farmers' who have enjoyed free extension advice and who are situated close to the market where they sell their produce are also more likely to adapt to climate change.

Rathod (2007) in his study on sustainable livelihood of the lambani farmers in Hyderabad Karnataka observed that nearly three-fourth of the lambani farmers had low extension contact followed by medium extension contact (23.33%) and high extension contact (3.33%).

Erenew (2010) in his study on livelihood activities of Tibetan rehabilitants of mundgod-a socio-economic analysis in Karnataka state reported that Majority of them belong to medium level of extension contact (66.67%).

Koshti (2013) indicated that over half of the farmers' (61.00%) had low contact with various extension agencies for seeking information on climate change followed by one third farmers' (33.33%) who had moderate extension contact. Meagre percent of farmers' (5.67%) had high extension contact with various extension agencies.

Seema Tandekar (2014) indicates that, large majority of the respondents (93.34%) had medium extension contact followed by (4.00%) had low extension contact and (2.66%) had high extension contact.

Manisha Gujar (2017) reported that little more than half (52.67%) had medium extension contact followed by above one fourth (26.00%) of respondents who observed in low and (21.33%) of them found in high category of extension contact.

This study expected that, regular extension contacts by the extension personnel helps farmers' to undertake timely decisions as well as to improve farmers' ability to adjust stressful situation. However, the studies referred above were indicated the medium level of extension contact.

22) Access to weather information

Deressa (2003) analyzed perception of farmers' to climate change and revealed that information on climate change have significant impact on the perception of farmers' to climate change and on adaptation to climate change.

Maddison (2006) blamed national and regional climate forecast and research institutions for poor linkages in terms of the speed and quality of delivering information to local farmers'.

Rao (2008) in his study noted that weather based Agro-Advisory Service (AAS) for farmers' of arid region based on medium weather range forecasts of NCMRWF, Noida were initiated in 1998 to minimize the risks from weather and weather induced pests and diseases. Contingency plans showing suitable crops and varieties for early, normal and late onset of monsoon were prepared. A survey on economic benefits accrued due to AAS showed that advisory particularly on early warning of cold waves, rainfall during critical stages of crops helped in enhancing yield by 36.00% in pearl millet, 19.00% in clusterbean, 11.00% in mustard and 33.00% in cumin compared to the yield obtained from non-AAS farmers'.

Gbetibouo (2009) found that information on temperature and rainfall has a significant and positive impact on the likelihood of using different crop varieties: it increases the livelihood of using different crop varieties by 17.60 percent.

IIED (2009) evaluated those weak agriculture departments, extension systems that hamper farmers' uptake of new adaptation technologies.

Koshti (2013) reported that major group of farmers' had no access to weather information (88.33%). Only 11.67 percent had access to weather related information.

This study expected that, timely and accurate access to weather forecasts helps farmers' to undertake farm activities during contingency situation and to take timely decisions to manage the farm related stress.

2.2.5 Psychological Characteristics

23) Optimism

Scheier *et al.* (1986) showed a significant positive relation emerged between optimism and different aspects of life, such as coping strategies focalized on the problem, looking for social support and emphasis of the positive aspects of the stressful situation.

Affleck, Tennen, and Apter (2001) it was revealed that optimistic asthma patients were less attentive to increases in pain than pessimistic asthma patients. Similarly, optimists reported attending less to painful sensations than pessimists in a sample of elderly osteoarthritis patients. In addition to its associations with less attention to pain, optimism has also been reported to promote better pain-related functioning, less psychological distress, and less engagement in maladaptive cognitive processes such as pain catastrophizing.

Giltay *et al.* (2004) noted that dispositional optimism predicted less probability of mortality in general and of cardiovascular mortality in particular. These data have been confirmed in a subsequent longitudinal study on a population of males aged between 64 - 84 years in which an inverse correlation was reported between dispositional optimism and the risk of cardiovascular death.

Schofield *et al.* (2004) found that optimism did not predict lower mortality rates among lung cancer patients. Also studies concerning the immune system turned out contrasting results

Ironson *et al.* (2005) showed how dispositional optimism, less avoidant coping strategies and lower level of depression positively influence progression of the illness in patients suffering from AIDS.

Martinez *et al.* (2005) reported that the relation between physical health and optimism is as important as that between optimism and mental health described in their study. Further found that optimism is correlated with better physical well-being compared to pessimism. Moreover, in contrast with optimism, pessimism is correlated with excessive somatic complaints.

Giltay *et al.* (2006) raised the question of using psychotherapy to promote an optimistic disposition in pessimistic subjects, thus developing an efficient strategy to fight depression. Evidence regarding this subject has emerged also from studies carried out on victims of catastrophic events such as natural disasters.

Knight and Elsaid (2006) in the study on Optimism: The Significance of Individual Contribution and Perception, *Research and Practice in Human Resource Management*, observed that, the perception of optimism is directly related to the actual mean score of the individual member contribution of optimism. The ascertaining of optimism can be effectively completed by any participating member of a group. The more optimistic the individual within a group, the more optimistic the perception of the group's optimism.

Nes and Segerstrom (2006) *observed that dispositional optimism was found to be positively correlated with those coping strategies ideated to eliminate, reduce or manage the stressors and negatively correlated with those employed to ignore, avoid or distance oneself from stressors and emotions*

Rasmussen *et al.* (2006) confirmed that optimists tend to use coping strategies that focalize on the problem more frequently compared to pessimists. When these strategies cannot be enacted, optimists resort to adaptive strategies that focalize on the emotions, for example, acceptance, humour and positive re-assessment of the situation.

Hart *et al* (2008) reported Positive and negative expectations regarding the future are important for understanding the vulnerability to mental disorders, in particular mood disorders and found an inverse correlation between optimism and depressive symptoms.

Researcher hypothesized that farmers who are optimistic about future will be less stressful than the pessimistic farmers.

Anonymous (2017) conducted study on Assessment Self Efficacy and Stress Mindsets Measures of the Farmers in Distress Prone Area of Vidarbha. It is revealed from the study that maximum number of the respondents (55.00%) were observed in medium optimism level followed by little more than one fourth (26.00%) and 19.00 percent who were observed in high and low level of optimism respectively.

Rani Palskar (2018) 21 indicated that, majority of the respondents (70.83%) were observed in medium level of optimism followed by less than one fifth (15.00%) and 13.33 per cent who were observed in low and high level of optimism level respectively.

It is expected from the study that higher the optimism lower will be stress in farmers life by understanding law of nature.

24) Quality of life

Crandall (1980) in his study on Happiness Psychology: Is Social Interest Associated with Happiness? Observed that there was a significant positive correlation between social interest and happiness for both measures of happiness in the total sample. However, only one of the two happiness measures was significantly correlated with social interest among men. Moreover, only one of the two happiness measures was significantly correlated with social interest among women. The measure of happiness that was significantly correlated with social interest among men was different from the measure of happiness that was significantly correlated with social interest for women.

Wrosch and Scheier (2003) evidenced two variables capable of influencing quality of life: optimism and adaptation of purpose. Both in fact exert a fundamental role in adaptive management of critical circumstances in life and of goals to reach.

Kung *et al.* (2006) examined the relation between optimism-pessimism and quality of life in patients with cancer of the neck, head or thyroid. In all the subjects, optimism was associated with better quality of life in both the scales of the physical and mental components.

Jochen *et al* (2013) observed that farmers clearly associate with the term 'quality of life' the term 'freedom', which goes with being a farmer: They highlighted that their job (still) offers 'a kind of independence' and that they can be 'their own boss'. They can work and live 'in accord with the natural seasons' and they cherish having the opportunity to 'bring up their children in the countryside'. This positive appraisal of farm life is also reflected in the future perspective, which all farmers estimate as rather positive up to clearly positive. Furthermore it becomes clear that the majority of the farms (19) does not pursue the goal of accelerated growth with investments, but rather plan to secure the existence of their farms.

It is expected that good quality of leads to good satisfaction of every one's life hence good quality of life farmers may be less stressful than the poor quality of life farmers.

25) Powerlessness

Fetsch (2014) suggested during the High Plain Daily Conference on Managing stress, anger, anxiety and Depression on Dairy Farms that, feelings of powerlessness from working on a multigenerational farm, where they had little power and more financial pressure and debt load, may contribute to higher stress levels among younger farmers.

Anonymous (2009) in study conducted on Social Dynamics of Cotton Production in Distress Areas in four States i.e. Andhra Pradesh, Karnatak, Punjab and Maharashtra during 2007-2009, it was observed that Majority of the cotton growers had moderate to high level of powerlessness.

Thus, it could be concluded from the above reviews that, more the powerlessness more will be stress and vice-versa.

26) Social Isolation

Hughes *et al.* (2004) said in their study that the characteristics of the high and low/average social isolation and high and low/average loneliness groups are summarized and there were no sex differences in social isolation, but isolated individuals were more likely to be older and unmarried with limited education and lower wealth. Social isolation also was associated with limiting longstanding illnesses such as chronic lung disease, arthritis, impaired mobility, and depressive symptoms. Further found that 918 (14.1%) of the 6,500 participants in ELSA had died by the census date, with a higher rate among men than women (16.3 vs. 12.3%, $P < 0.001$). Both social isolation and loneliness were associated with all-cause mortality; the absolute proportions of deaths were 21.9 vs. 12.3% in the high and low/average isolation groups and 19.2 vs. 13.0% in the high and low/average loneliness groups, respectively.

Anonymous (2009) in study conducted on Studies on Social Dynamics of Cotton Production in Distress Areas in four States i.e. Andhra Pradesh, Karnataka, Punjab and Maharashtra during 2007-2009, it was observed that Majority of the cotton growers had moderate to high level of isolation.

Luo *et al.* (2012) reported that loneliness predicted all-cause mortality over a 6-y period independently of demographic factors and health behaviors, but associations no longer were significant after

baseline health, functional limitations, and depressive symptoms were taken into account.

Udell *et al.* (2012) studied that people who live alone or lack social contacts may be at increased risk of death if acute symptoms develop, because there is less of a network of confidantes to prompt medical attention.

Reseracher expected that, having low social isolation less will be stress and vise-versa as it helps to mange the stress by sharing their feelings or any adverse situations in their life.

27) Spirituality

Fernando and Chowdhary (2010) surveyed executives in organizations listed on the Australian Stock Exchange. The results indicate that spiritual well-being is correlated with and predictive of idealism.

Chand and Koul (2012) in their study on workplace Spirituality, organizational emotional ownership and Job satisfaction as moderators in Coping with Job Stress found that spirituality helped workers cope with work related stress.

It can be inferred from the above reviews that, spirituality helps to mange the stress.

28) Self esteem

Penninx *et al.* (1998) reported that the protective nature of self-esteem is particularly evident in studies examining stress and/or physical disease in which self-esteem is shown to safeguard the individual from fear and uncertainty. This is reflected in observations of chronically ill individuals. It has been found that a greater feeling of mastery, efficacy and high self-esteem, in combination with having a partner and many close relationships, all have direct protective effects on the development of depressive symptoms in the chronically ill.

Zimmerman (2000) noted that subjective well-being significantly correlates with high self-esteem, and that self-esteem shares significant variance in both mental well-being and happiness.

Garber and Flynn (2001) found that negative self-worth develops as an outcome of low maternal acceptance, a maternal history of depression and exposure to negative interpersonal contexts, such as negative parenting practices, early history of child maltreatment, negative feedback from significant others on one's competence, and family discord and disruption

Eroland and Orth (2011) reported that self-esteem development across the lifespan have found that self-esteem decreases during the transition to adolescence and then increases gradually over the course of adulthood, before declining in old age.

Conley (2014) hypothesized that self-esteem scores would be greater in the gardening group. However, a significant effect was not found and both groups scored within the normal range.

Anonymous (2017) conducted study on Assessment Self Efficacy and Stress Mindsets Measures of the Farmers in Distress Prone Area of Vidarbha and observed that little more than half (52.00%) of the respondents were observed in medium level of self esteem followed by more than one fourth (27.00%) of them were in low level of self esteem and little more than one fifth (21.00%) were in high level of self esteem.

Rani Palskar (2018) indicated that, majority (72.50%) of the respondents were observed in medium level of self-esteem followed by, 17.50 per cent of respondents were observed in low level of self-esteem and 10.00 per cent of respondents were observed in high level of self-esteem.

29) Self efficacy

According to Bandura and Cervone (1986) a low sense of self-efficacy should be associated with negative achievement behaviors (e.g., low effort and persistence); however, as noted above several investigators. It is further stated that people with high confidence in their capabilities handle stress related factors effectively and approach difficult tasks as challenges to be mastered rather than as threats to be avoided.

Betoret (2006) reported in their study conducted in Spain revealed that teachers with a higher self efficacy were less stressed and more motivated and satisfied in their profession

Anonymous (2017) conducted study on Assessment Self Efficacy and Stress Mindsets Measures of the Farmers in Distress Prone Area of Vidarbha. It is revealed from the study that, maximum number of the respondents (61.00%) were observed in medium optimum level of self efficacy followed by little more than one fifth (21.00%) and 18.00 percent who were observed in low and high level of self efficacy respectively.

Rani Palsakar (2018) observed that relatively higher proportion of the respondents (67.50%) were observed in medium level of self-efficacy followed by little less than one fifth (18.33%) and 14.17 per cent who were observed in low and high level of self-efficacy respectively.

Reseracher expected that higher the self efficacy of the farmers lower will be the stress because of their positive confidence level which helps to increase their optimism level and ultimately reduce or manage the stress effectively.

2.3 Perception about Concept of Stress and mindset measures of Farmers

Shambharkar (1997) conducted his research study on involvement of farmers in feedback management in agriculture with reference to soybean crop and revealed that maximum number of the respondents (66.66%) were unaware about the concept of feedback

whereas 27.34 per cent perceived feedback incorrectly. By feedback most of the respondents they only mean the problems. A very few respondents (6.00%) perceived feedback correctly.

Xu (2007) in research study suggests that families who reinterpret initial negative to more positive meanings of their overall crisis situation are more likely to be in control of their stressors, to find possible solutions to crisis situations, and to adapt well eventually to the crisis . This ultimately helps the family to re-establish a state of equilibrium, balance, or homeostasis following the crisis.

Anonymous (2017) conducted study on Assessment Self Efficacy and Stress Mindsets Measures of the Farmers in Distress Prone Area of Vidarbha indicated that, maximum number of the respondents (59.00%) were observed in medium level of stress mindset followed by one fourth (25.00%) and 16.00 percent who were observed in low and high level of stress mindset respectively.

Rani Palsakar (2018) revealed maximum number of the respondents i.e. 58.33 per cent were observed in medium level of stress mindset followed by little more than one fourth (26.67%) and 15.00 per cent who were observed in high and low level of stress mindset respectively.

2.4 Intervening Variables

2.4.1 Causes of stress in farmers' life

Moolgaard and Miller (2000) conducted study on manage stress to increase farm Safety shown that there are differences in the ways that farmers experience stress. The National Agricultural Safety Database cites the statistics that younger farmers, specially those younger than 50, report more stress than older farmers. Farmers in dairy or mixed, (for example, grain and livestock), operations report higher stress than those in grain only [or single-product] operations. Farmers employed in off-farm jobs report more stress than full-time farm operators.

Farm women may experience additional stressors. Besides working as a full partner in the farm business, many farm women have full responsibility for home and family matters. A farm woman with an off- farm job faces very difficult demands in addition to being the traditional nurturer for the rest of the family.

Simkin *et al.* (1998) reported in a study of 500 farmers in England and Wales, that, the major stressors were government regulations, paperwork, financial difficulties and health related problems.

Booth and Lloyd (1999) a study of 1,343 Iowa farm residents identified their top ten stressors to include death of a spouse, death of a child, disabling injury of a family member, disabling injury to oneself, foreclosure on a mortgage or loan, divorce, machinery breakdown during harvest, loss of crop to weather, loss of crop to pests or disease and severe weather conditions.

Simkin *et al.* (2003) identified in other studies that, the top stressors as economic factors, work overload, relationship issues, coping with new legislation, excessive paperwork, and media criticism.

Firth *et al.* (2006) A study of 1,015 individuals from 669 New Zealand farms reported that their leading stressors were “increased work load at peak times,” “dealing with workers’ compensation,” “bad weather,” and “complying with health and safety legislation”.

Freeman *et al.*(2008)reported that one of the most stressful intergenerational farming/ranching issues is the transfer of the family ranch/farm from one generation to the next and the need to keep it stable and operating in order to sustain profitability. The more Pileup of stressors and the more previous life stressors that a family faces, the more at-risk they are for high stress and strain. They further concluded that not surprisingly, higher stress levels often result in lowered satisfaction with family life style, personal well-being, and an increase in probability of health, emotional, and relational difficulties. They are more at risk for accidents that could lead to injury or fatality (National Safety Council,

1976-2012). Additionally, they are at risk of experiencing relationship problems including family, marital, and parenting difficulties; psychological distress for children and adolescents; increased risk of domestic violence, alcohol, and other.

Fetsch (2014) suggested during the High Plain Daily Conference on Managing stress, anger, anxiety and Depression on Dairy Farms that, feelings of powerlessness from working on a multigenerational farm, where they had little power and more financial pressure and debt load, may contribute to higher stress levels among younger farmers. He further pointed out that All families deal with stressors and crises at some level. Families that are at increased risk for suffering from crisis have limited social support, coping strategies, family cohesion, flexibility and support, and negative appraisal of their situation. They are at higher risk for falling apart rather than adapting healthily to a crisis. Additionally, families experiencing more non-normative stressors, such as financial strain, non normative care giving, or ambiguous loss are at higher risk (High plain Daily Conference, 2014).

Seema Tandekar (2014) indicates that maximum number of the respondents (72.66%) comes under medium stress level followed by (16.67%) respondents comes under high stress level and (10.67%) respondents comes under low stress level.

Pooja Shinde (2015) conducted her research study on farmers suicide in Wardha district of Vidarbha-A case study. In one of her case study of suicidal farmer Shri.S achin Ramrao Khadse observed that Victim was tensed due to conflicts and disagreements on various issues with his wife also all responsibilities of family fall on victim. However, the entire burden of decision making in the context of agrarian operations had fallen on the Sachin alone. His father become old, who could not participated in it and was not interested in agriculture due to old age. The loan could not be repaid due to low productivity. Actually, the attitude of Sachin was against the debt, however the poor economic condition forced him to take loan, which stressed him to ill health. He became thin and

failed to repay the loan. He became addicted to smoking to get rid of his depression. He was not sharing his problems with his family. So, he started feeling lonely.

He was under stress as his elder brother was killed in an accident also he had dispute with his wife on various issues.

Increasing indebtedness, low productivity, family problems and several responsibility he became depressed. The victim decided to commit suicide by taking insecticide consumption.

Pooja Shinde (2015) in her second case study, she observed that A marginal farmer Atul Aanaji Khadse aged 29 years educated up to 9th standard and belonged to *Kunbi* caste. He had family of 5 members and living in joint family. He was married one year before the incidence. He started working in the farm since last 5 years on 2.5 acre of land. Annual income of his family from farming was Rs. 18,000 which was very low and expenditure on that was higher, also it was increased due to marriage. There was no crops since 3 years in his farm. So, it was difficult for victim to fulfill necessary requirement of his family. He was cultivating 2.5 acre of land. The farm land was irrigated seasonally by canal water. In his 2.5 acre land he was cultivating cotton and soybean.

He was facing the problem of insufficient water since last 5 to 6 years. Before the incident he had debt of Rs. 1,50,000 taken from Bank of India. His younger brother was agricultural labour earning Rs. 150 per day on the farm. His mother registered herself in self help group named Aahilya. His father was noticed about the tense situation and stress his son. But he was not willing to share his problem with his father. He started feeling lonely. Another son left the house after the suicide of his brother. Further she concluded that Marginal farmer with 2.5 acre of cultivating land, Insufficient water to irrigate the crops since 5-6 years. Increased debt and crop failure led him to distress also behaving loan of moneylender. He was married recently, increased the annual expenditure. Very low income and expenditure was high. He had debt of Rs. 1,50,000/-

from State Bank of India. He didn't shared his problems/ difficulties with anybody.

Pooja Shinde (2015) concluded in her research study that Shankarrao Ramkrushna Mandavkar aged 50 years educated up to 10th and belonged to *Kunbi* caste. He had family of 7 members and living in joint family. He had unmarried two sons and two daughters. He had started working in the farm since last 20 years on 3.5 acre of land. Annual income of his family from farming was Rs. 25,000 which was very low and expenditure on that was higher. So it was difficult for victim to fulfill necessary requirement of his family. Before the incident he had debt of Rs. 60,000 taken from Maharashtra Bank with 12 percent interest. There was no crop since 2 years in his farm. He had debt of Rs. 60,000/- from Maharashtra Bank.

Pooja Shinde (2015) Manik Laxman Shende Aged 62 years educated up to 10th and belonged to *Kunbi* caste. He had family of 14 members and living in joint family. He had four sons. His two sons were married and two were unmarried before the incident He had started working in the farm since last 17 years on 4 acre of land. Annual income of his family from farming was Rs. 30,000 which was very low and expenditure on that was higher. So it was difficult for victim to fulfill necessary requirement of his family. He possessed 4 acres of rainfed land. In this 4 acre of land they were cultivating the crops cotton and pigeon pea. There was no crop since 2 years in his farm.

Before the incident he had debt of Rs. 80,000 taken from State Bank of India Rs. 30,000 for his farm and 60,000 for his wife's treatment. Elder two sons were doing farming and another two son were auto driver. His wife had a problem of cancer since 2 years. Expenditure on medicine for her was near about Rs. 60,000. She was under treatment. This was reason of frustration. The problem increased day by day to pressed by the repayment of the loan and all responsibilities. The victim became addicted to smoking to get rid of his depression. Indebtedness and crop failure due to natural calamities were the main reasons for

victim's depression. Before incident of his suicide he faced death of his wife in 2006. After his wife's death he felt lonely. So, he decides to commit suicide.

Pooja Shinde (2015) indicated in one of case study that Manohar Aanaji Choudhari aged 50 years educated up to 10th standard and belonged to *Kunbi* caste. He had family of 4 members and living in Nuclear family. He had started working in the farm since last 15 years on 4 acre of land. Annual income of his family from farming was Rs.30,000 which was very low and expenditure on that was higher. So, it was difficult for victim to fulfill necessary requirement of his family.

He possessed 4 acres of rainfed land. They depended on well water. In this land they were cultivating soybean and Gram. He had a son and a daughter. Due to excess rain water in proceeding year it became difficulties to take crop. That's why there was no crop since last 3 years. Also he had debt of Rs.70,000 taken from State Bank of India. His son was doing farming. His daughter ran away from house and without permission she got married with her desired partner.

It made victim mentally disturbed he used to say," My daughter was proud but now she is dead for me." She is not ashamed of her behavior so why we should care about her. Victim gone under mental stress and was not able to tolerate his mental depression. His son tried to convincing by saying what happens if sister ran away," I am always for you." Then he started to help his father to carry out all the agriculture operation. She always wanted to do a job but after this situation he decided to work in farm rather than doing a job.

Victim's wife has under psychiatric stress for which there is need sometimes to console her with love and affection. The women residing near their house started blaming victim and victim's wife for their daughter behavior. They were not showing co-operation, was not inviting them in any occasion of village. Residing their neighbour started commenting victim's wife. So, she gone under pressure and was not able

to tolerate their passing comments. Also increasing indebtedness and crop loss victim depressed. So, he decided to commit suicide. On December 22, he committed suicide by taking insecticide consumption.

Pooja Shinde (2015) conducted case study of suicide farmer Gajanan Pandurang Bavne and concluded that the victim was aged 32 years educated up to 4th standard and belonged to *Kunbi* caste. He had family of 4 members and living in Nuclear family. He had a son and a daughter. He started working in the farm since last 6 years on 3.5 acre of land which was depend on rain water. Annual income of his family from farming was Rs. 26,000 which was very low and expenditure on that was higher, also it was increased due to marriage. There was no crops since 2 years in his farm. So, it was difficult for victim to fulfill necessary requirement of his family. In his 3.5 acre land he was cultivating cotton and soybean.

Before the incident he had debt of Rs. 60,000 out of which Rs.40,000 taken from Co-operative Bank and he had borrowed Rs.20,000 from moneylender. Due to flood there was no crop since three years in his farm led him to distress. He has two brothers who were living separately since 7 years. Victim son was of eight years old and had problem of kidney stone by birth. The victim was worried about the rising expenses on him. As the crop failed he could not manage money. The moneylender increased the pressure four month before suicide of victim since then family was under tremendous pressure to repay the loan. He was also despaired as he had not enough money to invest in agriculture and for his son treatment. He was not able to share his problem with his wife. His wife observed that the victim was under stress. So she asked him about his problems.

Victim felt lonely. He became addicted for drinking and tobacco chewing to get rid of his depression. Increasing indebtedness and crop failure due to flood were the another reasons for victim depression. So, he decided to commit suicide on April 28, he committed suicide by consuming insecticide. The wife got compensation of

Rs,100,000 out of which Rs.70,000 they were fixed in bank and Rs.30,000 spent for the treatment of kidney stone. After the incident victim wife feeling lonely and tensed about his sons and daughter education. Her situation is not good as compared to other family members. They need help to increase their standard of living.

Pooja Shinde (2015) concluded that A semi medium farmer Ramesh Ganpat Mahakalkar aged 55 years educated up to 4th standard and belonged to *Teli* caste. He had family of 4 members and living in Nuclear family. He had one son and one daughter. He had been looking after all the agrarian operations and managing a landholding of 8 acres for last 30 years. The victim was hard worker. There was 5 acres of rainfed land and remaining 3 acres is irrigated. For this they had to depend on well water with help of electric motor.

Annual income of his family from farming was Rs. 60,000 which was very low and expenditure on that was higher. There was no crops since 3 years in his farm. So, it was difficult for victim to fulfill necessary requirement of his family. The farm land was irrigated seasonally by well water. Victim and his wife participated in various farm activities with help of bullock pair along with some basic farm implements. He was cultivating cotton and soybean on 8 acre of land.

He took loan on account of crop to the tune of Rs. 40,000 from Co-operative Bank. However, the entire burden of the decision making in the context of agrarian operations has fallen on the victim alone. His son could not participate in it and not interested in agriculture due to the uncertainty of yield. The loan could not be repaid due to the low productivity which stressed him to think again and again to repay the loan due to the inadequate supply of water. The yield decreased and the cost of cultivation increased from the last two years which led to raise huge problem of arranging money for next cultivation. Increasing indebtedness and crop failure were reasons for victim's depression. So, he decided to commit suicide and he committed suicide by hanging. "He was moody in nature, some time did not follow the instructions of the family and did

whatever he wants” said victim’s son. He was not able to repay the loan, because low productivity of the farm and eccentric behavior of nature. After the death of victim his son took all the responsibilities. Now his son was trying to repay the loan by working hard on his farm and presently the wife of victim has gone back to her natal house permanently.

1. Semi- medium farmer with 8 acre of cultivating land.
2. Insufficient water to irrigate the crops since 6 years.
3. Increasing indebtedness and low productivity.
4. Very low income and expenditure was high.
5. He had debt of Rs. 40,000/- from Co-operative Bank.
6. He didn’t shared his problems/ difficulties with anybody.

Pooja Shinde (2015) in her another case study of the farmers suicide indicated that Marotrao Bhagwanji Mate aged 55 years educated up to 3rd standard and belonged to *Kunbi* caste. Victim was head of the family; he had family of 7 members and living in joint family. His wife was not staying with him due to some dispute between them. They have two sons namely Pravin and Arun among them Arun was married. He started working in the farm since last 40 years on 3.5 acre of land. Annual income of his family from farming was Rs. 27,000 which was very low and expenditure on that was higher. There was no crops since 3 years in his farm. So, it was difficult for victim to fulfill necessary requirement of his family.

He was cultivating 3.5 acre of land. He possessed 3.5 acres of rainfed land depended on canal water. In his 3.5 acre land he was cultivating cotton and soybean. Before the incident he had debt of Rs. 100,000 taken from State Bank of India. His elder son was doing farming and due to small land holding. He has worked as agricultural labour on other farm. His socio-economic condition was too critical to observe. He had attack of paralysis due to which his sons and wife were tensed. There

were many problems in their family. Victim was head person in his family as his age increased, he was not able to do farming.

The problem increased day by day to pressed by the repayment of the loan and all responsibilities. The victim became addicted to drinking to get rid of his depression. He was under medical treatment due to paralysis in private hospital. Indebtedness and crop failure were the reasons for victim depression. Secondly, his increased regular spending money on his medical treatment resulted, in his decision of commit suicide by consuming insecticide. The family got compensation in form of Rs.100, 000 out of which Rs.70,000 were fixed in bank and Rs.30,000 used to repay for loan. Further, she concluded in her research study that case study farmer were belonged to small land holding farmer with 3.5 acre of cultivating land, increasing indebtedness and low productivity, Very low income and expenditure was high, he had debt of Rs. 1,00,000/- from State Bank India, he was suffering from paralysis, worried about rising expenses to cure his ailment, he had no moral support of his wife, he didn't shared his problems with anybody, and victim was addicted of alcohol.

Deepali Gosavi (2015) conducted her research study on 'Farmers suicide of Washim district in Vidarbha-A case study' and observed that in one of her case study of farmer namely Vilas Govind Raut a forty years old was tensed about his sons education and medical expenditure on accidents. He was a small farmer so unable to fulfill families requirement and increasing indebtedness led him to commit suicide.

Deepali Gosavi (2015) reported in another case study of suicide farmer that, farmer, Rustma Kondaba Kapse was *Kunabi (OBC)* from village Umrakapse who had experience of farming near about 30 years. There was no educational background in his family but Rustma had taken education upto 8th standard. Rustma a 45 years old farmer was suffering from appendix also had tension of crop failure and increasing

indebtedness. His elder son was forcing for re-development of house but he was not mentally prepared for that. All these things made him depressed and finally by hanging he committed suicide.

Deepali Gosavi (2015) revealed in other case study of suicide farmer that, farmer Ramesh Sakharam Gangavane 35 years young farmer belonged to *Vanjari* caste. He was head person in his family of 5 members. He was small farmer owned 2 acre of farm land of shallow type. Further she reported that Ramesh was under stress due to low productivity, unavailability of water for crop, low income and increasing indebtedness. Ramesh was kind in nature and disturbed by the incident of cheating by friend. All these things led him to choose the way of suicide by taking poison.

Deepali Gosavi (2015) concluded in other case study of suicide farmer Shri. Ghansham Manohar Dhurve, farmer belongs to *Gaund Adivasi* caste had studied upto 4th Std. Ghansham a 46 years old farmer was frustrated due to crop failure, fall in economic condition, low productivity, family problems. He started thinking that he is a looser and unable to fulfill the demand of children and required needs of his family so he committed suicide.

Deepali Gosavi (2015) indicated in the case study of suicide farmer ShriDevchand Haridas Rathod a marginal farmer of 35 years had educated upto 8th standard and belonged to *Banjara* caste was disturbed by increasing indebtedness, crop failure. Further his wife's weird behavior with his parents made him depressed. He had no child even after four years of marriage. He was frustrated by relatives taunts and comments. All these depressions made him to take decision of suicide and finally he committed suicide.

Deepali Gosavi (2015) revealed in the case study of suicide farmer Shri Dattaram Laxman Bharsakade a 55 years old farmer belonged to *Mang* caste. He had educated upto 5thstd. He had farming experience up to 40 years was depressed about economic condition and

changing behaviour of his son. Also, there was no sufficient income through farming as he owned only two acres of land. Daily disputes in family, thoughts to arrange money, increasing indebtedness made him mentally disturbed and finally he committed suicide by hanging.

Deepali Gosavi (2015) concluded in the case study of suicide farmer ShriVishvanath Prabhuji Khatake, a 55 years old farmer belonged to *Shelar* caste. He had educated upto 4thstd. He had land upto 2 acres of land which is rainfed and shallow type was depressed due to consistently crop failure, increasing indebtedness, increasing medical expenses. Victim was under burden of arranging money and continuously under pressure of repayment of loan so he decided to commit suicide and on February 5, 2008 he committed suicide.

Deepali Gosavi (2015) reported in the case study of suicide farmer Chandrakant Parashuram Humbad a 35 years young farmer belonged to *Open* caste had educated upto 10th std. He was married to Savita who is educated upto 7th std. Victim had farming experience near about 20 years. They have children namely Prem and Dhanashri. Now there are six members in the family. The main occupation of victim was farming. In 6 acres of land he was cultivating cotton, soyabean, tur. His one of the sister is mentally challenged. She is unable to understand anything So, victim's family members did marriage of his sister for which victim was not ready. His sister was unable to understand about her marriage. Victim was very depressed due to her marriage. But, because of other family members he said yes for her marriage. To fulfill the demand of dowry and other expenses he borrowed loan of Rs.90,000 and Rs.30,000 from his friends and relatives. Total Rs.1,10,000 was expended on his sister's marriage. Her husband was ready to marry her only for money. After six month of her marriage her husband sent her to her natal house for money. He gave all the money to his sister which he kept for sowing. She was not mentally ready to go to her husband's home because her husband used to beat her for money. She was scared to go but family members sent her there. This situation of her sister made victim

mentally disturbed and he made disputes with all the family. He was under pressure of consistent crop failure and increasing indebtedness. Also, he was mentally disturbed by his sister's incident and committed suicide.

Deepali Gosavi (2015) revealed in the case study of farmer Shri Kailas Sitaram Aaglave that a 29 years old farmer belonged to *Gond Adivasi* caste. He had educated upto 2nd std. he had farming experience near about 15 years having 5 acres of land which was rainfed. The annual income was Rs.30,000. Victim's father was suffering from blood pressure and rheumatism so there was more expenditure on the treatment and medicine. Continuously, 3 years crop failure made fall in economic condition of victim due to which he was unable to give the medicines on proper time to his father. His father had a mild heart attack and doctor said to give all the necessary medicines on proper time. Victim had started blaming himself for that. Year after year he was taking loan for farming but there was no crop and no income to repay the loan. It made victim stressed due to which sometimes he was behaving weird.

His sister is married before 8 years. For her marriage he had borrowed loan of Rs. 60,000. After 3 years of marriage she was unable to become pregnant. Her husband and his family members started abusing her and sent her to natal house. This was the second reason of his depression. He was depressed by fall in economic condition, crop failure, father's heart attack, sister's condition after marriage. He used blame himself for inability of him to arrange money. He committed suicide.

Deepali Gosavi (2015) revealed that a farmer Suryabhan Mahado Dewale 50 years old farmer belonged to *Kunabi* caste. He was educated upto 5thstd. He had farming experience of 35 years. There were six members in his family before the incident of suicide having 2 acres of land in which he was cultivating soybean. The land was shallow type. The annual income was near about Rs.30,000/-. He had borrowed loan of Rs.35,000/- from Grameen bank. Also from relatives, friends and moneylenders he had taken loan up to Rs. 30,000. Total debt was near

about Rs. 65,000/-. It was not possible for him to repay the loan. He had not his own house. There was not electricity connection in his house. Again to dig out well he had taken loan of Rs. 30,000/- from moneylender. The total amount of loan was up to Rs. 95,000/-. He used to say, "there is no production from plot. If there will not be production how we can repay the loan?", said his wife. To repay the loan he was working as a welder taking in point of view income will increase so it will be easier to repay the loan was depressed due to regular crop loss, increasing cost of cultivation, increasing indebtedness, family disputes made him mentally disturbed and finally on March 13, 2008 he committed suicide by taking poison.

Vidya Kalpe (2015) conducted research study on 'Farmers suicide in Yavatmal district of Vidarbha-Case study' concluded in one of her case study that Nandu Laxman Ghatol 17 years young farmer belongs to *Gavali* caste. He was young in his family of 5 members. He was doing farming since 6 years, because his father was mentally disturbed and unable to undertake responsibilities of the whole family. He was living in nuclear family having 4 acres of land, annual income of his family from farming was Rs 25,000/- which was very low and expenditure on that was higher, so it was difficult for Nandu to help to carry out necessary requirement of his family. She further observed that and disturbed by crop failure, low productivity, unavailability of water, low income, increasing indebtedness, sister's marriage and his father was mentally disturbed. All these things led him to choose the way of suicide by taking poison.

Vidya Kalpe (2015) revealed that in case study of Shri. Motiram Dattatray Durge 50 years old farmer belongs to *Teli* caste. He was head of the family having 5 members. He was a small farmer who owned 3 acres of land which was rainfed and shallow type of land. He had been working in the farm for 35 years. Further it was reported that Durge stressed about decrease in economic condition, crop failure, indebtedness, changing behaviour, his wife's health problem and daughter in law made the burden on victim's mind. So he committed suicide by consuming insecticide and ended his life.

Vidya Kalpe (2015) concluded in case study of Datta Ramdhan Rathod 32 years old farmer belongs to *Banjara* caste. He was head of the family and family having 5 members. He was a small farmer owned 3 acres of land which was rainfed and shallow type. He had been working in the farm for 18 years. There was no educational background in his family but he had taken education upto 4th standard and his wife was illiterate. Victim had taken loan upto Rs 70,000/- for cultivation purpose from Co-operative Bank and Rs. 10,000 was taken from moneylender. There was no crop since 3 to 4 years but indebtedness was increasing year by year, so Datta was under stress about economic condition and changing behaviour of his wife. Also there was no sufficient income through farming as he owned only three acres of land. Daily disputes in family, thoughts to arrange money, increasing indebtedness made him mentally disturbed and finally he committed suicide by hanging.

Vidya Kalpe (2015) In another case study of Ramchandra Narsing Rathod it is revealed that 65 years old farmer belongs to *Banjara* caste. He was the head person in his family of 8 members. He possessed semi-medium category of land holding farmer, owned 6 acres of farm land which was rainfed and moderately deep. He started working in the farm since last 40 years. Annual income of his family from farming was Rs 50,000/- which was very low and expenditure on that was higher. He took Rs 2,00,000 from Central Bank and also he had taken Rs. 30,000 from moneylender, as crop loan but failed to repay the loan. Hewas tensed about wife's health problems and due to crop failure his indebtedness was increasing hence he was unable to tolerate his tension and then committed suicide.

Vidya Kalpe (2015) conducted case study of Anandrao Babarao Jire and indicated that the victim was 41 years old farmer belonged to *Vadar* caste and looking after all the agricultural operations and manages a land holding of 8 acres since 25 years. He took loan upto 1,50,000/- from Central Bank in 2011. Again 2012, he took loan from Central Bank about Rs. 40,000/- with 4% interest. Further it is reported

that Anandrao was introvert in nature. He was disturbed by son's education, daughters marriage, wife's health problem. He was under stressed due to low productivity, economic condition, indebtedness. Thus, being introvert by nature led him to choose the way of suicide by insecticide consumption.

Vidya Kalpe (2015) In the case study of Devidas Bapurao Kinake it is reported that the victim was 42 years old farmer belongs to *Gond* caste. He was the head person in his family of 4 members. He was small farmer owned 3 acres of farm land which was rainfed and shallow type. He started working in farm since last 25 years. He also worked along with his family members as a agricultural labour, having annual income of victim was up to Rs. 35,000. Before the incidence, his son suffering from problem of stomach pain and also problems of urine stone. There was a lot of expenditure on his medical treatment and medicines. for this purpose he borrowed Rs. 15,000/- from money lender before one and half years. In kharif season of 2006-2007 he borrowed Rs. 35,000/- from Co-operative Bank for cultivated cotton and wheat in rabi but due to a unaccountable act of nature and particularly deficit rain at germination, forced him to re-sowing as the first sowing operation failed. As the crop failure, he can not manage money. So he was in deep thought and can not communicate properly in his family because of rising expense of his daughter's treatment. The money lender increased the pressure five to six months before suicide of victim, from that the family was under tremendous pressure to repay the loan. However, the total loan amount of Rs. 50,000 from money lender and formal institution rises question how to repay?

Further it is concluded that the victim was tensed about his son's health problem and also due to crop failure his indebtedness was increasing so he was unable to tolerate his tension. All these things led him to choose the way of suicide by consumption of insecticide.

Vidya Kalpe (2015) narrated in her research study that Liladhar Daulatrao Gaikawad 45 years old farmers belongs to *Banjara* caste. He was the head person in his family of 4 members. He was small farmer owned 2.5 acres of farm land which was rainfed and shallow type. He started working in farm since last 25 years. He had one son and one daughter both were doing studies. The family had been working on 2.5 acres of land. In this land they cultivating the crops cotton and wheat crop.

Annual income of his family from farming was Rs. 37,000/- which was very low and expenditure on that was higher. It was difficult for Liladhar to help to carry out necessary requirement of his family.

Before the incidence victim had loan upto Rs. 36,000/- from the co-operative bank and Rs. 15,000 from lender. There were no crop and yield from agriculture since last 3 years due to the excess rain water gets stagnated in his farm and crop was damaged. As crop failure he can not manage money so he was in deep thought and can not communicate properly with his family.

The money lender increased the pressure 7 to 8 months before suicide of victim from that the family was under tremendous pressure to repay the loan. However, the total loan amount of Rs. 51,000 from money lender and formal institution rises question how to repay. He was unable to tolerate all this frustration. Hence, family disputes were occurring day by day because of Liladhar changing nature. It was not possible him to share his problems with his family member, because of family disputes, he committed suicide on April 07, 2008 by insecticide consumption. After his death his family faced many problems his son took responsibilities and farming with his mother. They got compensation of 1 lakh out of which some amount spend on his daughter education and remaining amount deposited in bank.

Vidya Kalpe (2015) conducted case study of Kashinath Doma Meshram and observed that the victim was 60 years old farmer belongs to *Mahar* caste. He was the head person in his family of 7 members. Annual income of his family from farming was Rs. 29,000 which was very low and expenditure on that was higher. At the age of 58 he suffered from Blood Cancer, due to this he was not involved in the various farm practices. It was difficult for victim to fulfill necessary requirement of his family, this was the first reason of the victim's frustration. Further it was concluded that Kashinath was old aged and suffering from Blood Cancer. He was worried about the rising expenses to cure his ailment. Also he had an outstanding loan of Rs. 90,000/- from formal source, but not able to repay due to crop loss. In this condition Kashinath hanged himself and ended his life.

Manisha Gujar (2017) observed that in case of machinery breakdown at a critical time (28.66%) respondents had some stress, (23.33%) respondents had moderate stress (16.6%) respondents had no stress and (16.00%) respondents had less stress. (10.00%) had substantial stress had (4.00%) high stress. (1.33%) had tremendous stress. With regards to rising expenses (30.00%) had some stress, (23.33%) had moderate stress, (20.66%) had less stress, (10.00%) had substantial stress, (8.66%) had stress, (7.33%) had no stress, where as stress about Government policies and regulations(30.00%) had moderate stress, (26.00%) had some stress, (16.00%) had less stress. (12.00%) had substantial stress (9.33%) had no stress, (4.00%) had high stress. (2.66%) had stress. Further it is reported that as regards to stress events feeling isolated on the farm respondents (29.33%) had some stress followed by (21.3%) with moderate stress,(12.66%) with substantial stress, (10.00%) with no stress, and (1.33%) with tremendous stress. Worrying about market conditions (25.62%) respondents had moderate stress followed by (23.33%) with some stress, (22.60%) with little stress, (15.33%) with no stress, (6.00%) with substantial stress, (3.33%) with high stress, (2.00%) with tremendous stress. In case of Problems with a

partnership respondents (25.33%) had moderate stress followed by (23.33%) with no stress, (22.00%) with moderate stress, (20.00%) with little stress, (7.33%) with substantial stress, (3.30%) with high stress where as with regards to major change in financial state (26.66%) respondents had moderate stress followed by (22.00%) with some stress, (18.66%) with some stress, (13.30%) with substantial stress, (13.30%) with high stress, (2.66%) with tremendous stress. Likewise it is reported that there is more or less stress to the farmers amongst selected items by the researcher.

In case of overall stressful events it is further reported that indicates that maximum number of the respondents (72.67%) comes under medium stress level followed by (12.00%) of the respondents comes under high stress level and (15.33%) of the respondents comes under low stress level.

2.5 Impact of Stress

Jins Joy and Radhakrishnan (2013) in their study it is indicated that that male workers have given more importance to the factor that Experience headache, increased blood pressure (52.6) followed by become increasingly distressed and irritable (51.92), unable to relax, sleep and concentrate (51.84), feel tired, depressed and anxious (51.04), experience low back pain, joint and neck pain (50.74), increased smoking / alcohol consumption (50.42), decreased commitment to work (49.38), moodiness / withdrawal from other people (48.86), increased absenteeism (45.48), difficulty in thinking logically (42.72). Whereas in case of female workers, it is clear that female workers have given more importance to the factor experience headache, increased blood pressure (55.52), experience low back pain, joint and neck pain (54.2), become increasingly distressed and irritable (53.44), unable to relax, sleep and concentrate (52.7), feel tired, depressed and anxious (50.5), decreased commitment to work (48.96), moodiness / withdrawal from other people

(47.7), difficulty in thinking logically (47.62), increased absenteeism (45.62), increased smoking / alcohol consumption (45.3).

Uma Devi (2011) reported that 92% of respondents from >40 age group felt high level of stress impact on body followed by 87% from 35 -39 age group, 82% from 30 -34 age group and 63% from 20 -29 age group. Stress impacts on body lead to head aches, fatigue, Hypertension, Coronary artery diseases, Skin disease etc., 93% of respondents from 35 -39 age group felt high level of stress impact on mind followed by 91% from the age group of 30 -34 and 80% from the rest age groups. Depressions, Anger, Irritability, Mood swings, Lack of self-confidence etc., are the symptoms of stress on mind which leads to serious effect on individual. Whereas impact of stress on behavior, 91% from 20 -29 age group felt high level of stress impact on behavior followed by 89% from the age group of 30 -34, 83% from 35 -39 and 80% from 20 -29 age group. Stress impacts on behavior leads to Unsafe behavior pattern, Speech disturbance, and even suicidal tendencies etc., Further in case of emotions 94% from 20 -29 age group felt high level of stress impact on emotions followed by 91% from the age group of 30 -34, 87% from 35 -39 ages and 75% from above 40 years. Emotional impact of stress on individual leads to Alienation, apprehension etc., causes absenteeism, employee turnover and low productivity etc.

2.6 Stress Management

Cohen and Wills (1985) conducted study on Stress, social support, and the buffering hypothesis and observed that the relevance of the type of support or relationship to the problem or stress may also determine the likelihood of observing a buffering effect.

Tibblin et al. (1986) and Welin *et al.* (1985) first studied two cohorts of men, one born in 1913 and the other in 1923, living in Gothenberg, Sweden's second largest city. In both cohorts, subsequent mortality through 1982 was inversely related to the number of persons in the household and the men's level of social and outside home activities at

the time of the 1973 baseline interviews and examinations. These effects remained 'significant net of age and baseline levels of systolic blood pressure and serum cholesterol, smoking habits, and perceived health status.

Orth-Gomer *et al.* (1986) analyzed the mortality experience through 1981 of a random sample of 17,433 Swedish men and women, aged 29-74 at the time of their interview, in the 1976 or 1977 Swedish Surveys of Living Conditions. An IS-item index of frequency of contact with family, friends, neighbors, and coworkers was significantly predictive of subsequent mortality net of age, sex, education, employment status, immigrant status, physical exercise, smoking, and health status as indexed by reports of chronic conditions.

Misra and Mckeen (2000) conducted study on college student academic stress and its relation to their anxiety, time management and leisure satisfaction and reported that time management behavior can also be linked to a better psychological functioning in that it reduces stress levels for University students. It is further suggested that time management behavior positively influence psychological aspects such as personal well beings, work and life satisfaction.

Griffiths (2003) conducted research study on time management in tele-work and other outcome work environment and found that there is existence of a positive relationship between time management behavior and job satisfaction among employees from diverse organization.

Claessens (2004) studied perceived control of time: Time management and personal effectiveness at work and observed positive link of time management behavior such as short term planning to perceived control of time, sale performance, college grade, spending time on high priority tasks and health. Conversely, time management is negatively related to job-induced and somatic tension, strain and psychological distress.

Sikthingnanavel (2006) explored the effect of select yogic practices on stress of working women of 15 normal female volunteers. The suitable parameters were used before and after 10 days training programme. The results show that there is a greater improvement in the reduction of stress in the experimental group than the control group.

Xu (2007) family researchers have found that family members with high self-esteem and self efficacy are able to cope more effectively with stress than those with lower self-esteem. (Self-efficacy is a person's assessment of their abilities to perform specific tasks in relation to their own goals and standards rather than in comparison with others' capabilities).

Seema Tandekar (2014) 23 clearly indicates that maximum number of the respondents (53.33%) were observed in medium physical stress management category, followed by nearly one fourth of them (26.66%) were in very good physical stress management category and (18.00%) respondents had followed poor physical stress management. Further is reported that in case of mental stress management maximum number of the respondents (58.00%) were observed in medium mental stress management category followed by little less than one fourth (23.34%) of the respondents were found in very good mental stress management category and little less than one fifth (18.66%) of them were in poor mental stress management category. In case of overall stress management it is inferred that maximum number of the respondents (72.66%) had followed medium overall stress management, (14.67%) respondents had followed very good overall stress management and (12.67%) respondents had followed overall poor stress management.

Manisha Gujar (2017) indicates that maximum number of the respondents (60.00%) had followed medium physical stress management, (28.67%) respondents had followed poor physical stress management and (11.33%) respondents had followed very good physical stress management. Thus, it is concluded from above findings that, more than half of the farmers (60.00%) followed medium stress management

where as in case of mental stress management she further reported that, maximum number of the respondents (74.67%) belonged to medium mental stress management, category less than one fifth (15.33%) of the respondents had belonged to very good mental stress management category and only few (10.00%) to respondents had belonged to poor mental stress management category and in case of overall stress management, maximum number of the respondents (71.33%) had overall medium stress management category followed by(16.66%) very good management category of the more than one tenth (12.00%) respondents had in poor stress management.

2.7 Constraints

Deepali Ghatul (2013) revealed that the less holding and the bad habits were major personal constraints. They contributed to the personal constraints to the extent of 45 and 22 percent, respectively. The natural constraints like salinity 45 %, non availability of quality irrigation water 32 % and aberrant weather conditions were of major concern. The technical constraints comprised of the lack of awareness of modern technology and different schemes 32 % followed by the non availability of inputs like quality seeds 26 % and fertilizers, insecticides, pesticides etc by 23 %. The economic constraints constituted the low prices for farm produce 43 % and the market availability 23 %. As regards the total constraints, it was further noticed that the highest number of respondent farmers (85.39%) had a medium level of constraints followed by (14.6%) of the farmers having high level of constraints. No farmer was with a low level of constraints.

2.8 Conceptual Model of Study

During the course of investigation the researcher is required to develop a conceptual / theoretical model for empirical testing after collecting relevant facts. A model helps in rational thinking about the research problem. A theoretical model represents the perceived relations among the concepts and variables used in the present study. It indicates

the type of data to be collected and techniques of analysis to be employed. Considering the findings of past research studies and review of literature on the topic, it has been conceptualized that the individual has certain characteristics that determines causes of stress and stress management techniques.. Two set of variables namely, independent and dependent variables were considered. The independent variables include personal, socio economic, communication, situational, and psychological characteristics and causes of stress of the farmers'. The dependent stress management in terms of physical and mental stress. The conceptual framework is presented in Fig. 1.

2.9 Research Hypotheses for the Study

As defined by Goode and Hatt (1952) "A hypothesis, which can be put to a test to determine its validity. It may see contrary to, or in accord with common sense. It may prove to be correct or incorrect. In any event, however, it leads to an empirical test." In studying the relationship between variables, research hypotheses are formulated which state the anticipated relationship between the variables. However, for statistical test it becomes necessary to formulate null hypothesis. A null hypothesis states that there is no relationship between the variables. If a null hypothesis is rejected on the basis of a statistical test, it is assumed that there is a relationship between the concerned variables.

In light of the postulated conceptual framework and based on objectives of the study as well as the assumptions, the following hypotheses were formulated and presented in the null form (H_0):

H_0 : There is no relationship between the farmers' selected characteristics and their causes of stress

H_0 : There is no relationship between the farmers' selected characteristics and their stress management techniques.

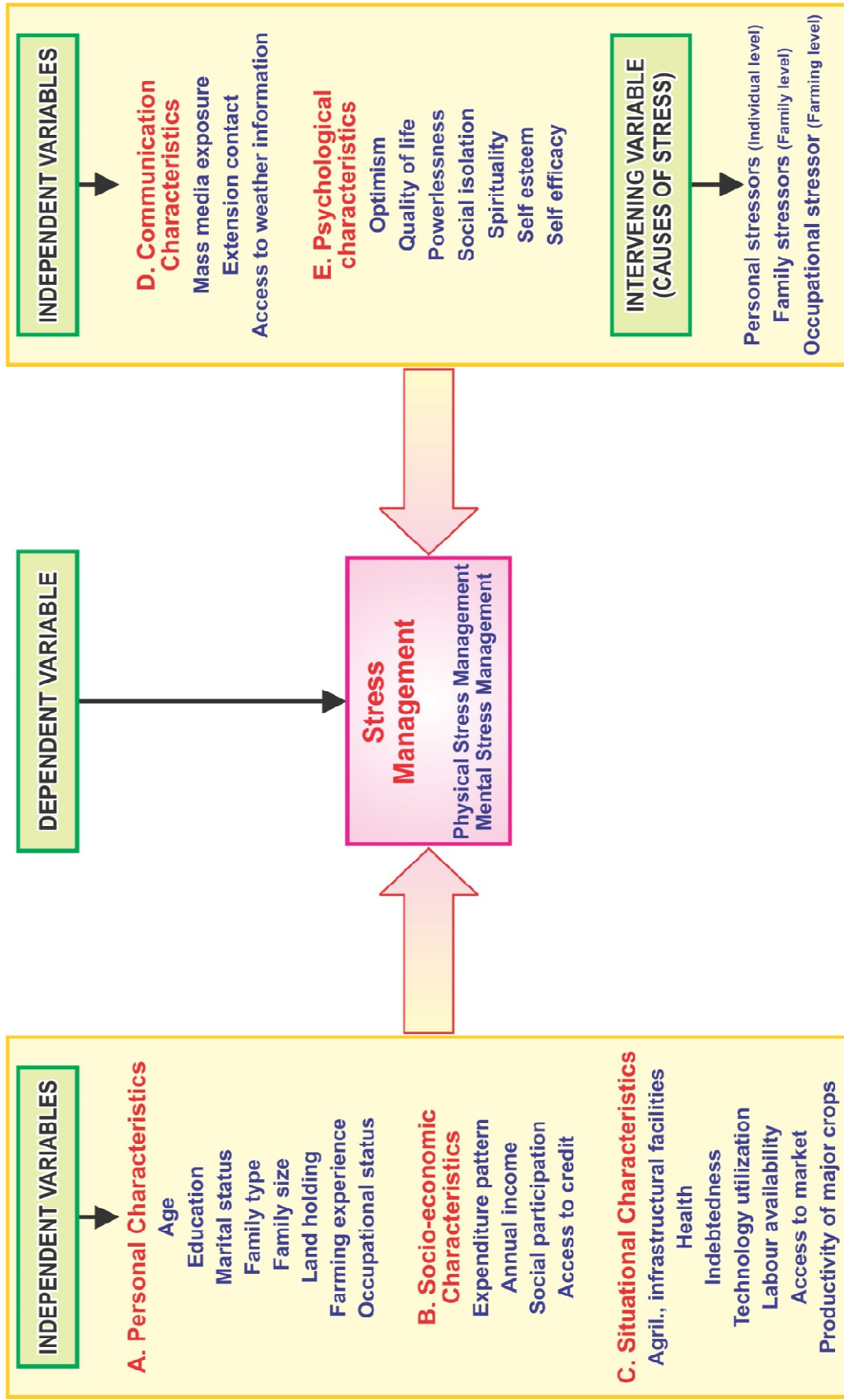


Fig. 1. Conceptual Research model of the study

CHAPTER III

METHODOLOGY

The researcher during the course of investigation has to use standardized measurement techniques and needs to develop various techniques, tools and procedures for the research being conducted. The term and concepts used need to be appropriately defined and their measurement techniques are to be standardized and accurately measured. Appropriate tools for collection of data were selected, developed and used. The present chapter deals with the concepts and their definitions, research methods and procedures used, procedure of standardization of empirical measures and the techniques used in the present investigation. The same have been described with relevant details under the following subheads:

- 3.1 Locale of the study
- 3.2 Research design and research approach
- 3.3 Sample and sampling plan
 - 3.3.1 Selection of Taluka's and Villages
 - 3.3.2 Selection of respondents
- 3.4 Development of data collection instrument
 - 3.4.1 Pre-testing of Interview Schedule
- 3.5 Collection of data
- 3.6 Variables and their measurements
- 3.7 Operationalization, scoring and categorization of variables
 - 3.7.1 Independent variables
 - 3.7.2 Intervening variable
 - 3.7.3 Dependent variables
- 3.8 Statistical Methods used
 - 3.8.1 Mean
 - 3.8.2 Standard deviation
 - 3.8.3 Correlation coefficient (r)
 - 3.8.4 Multiple regressions.

3.1 Locale of Study

Out of 11 districts of Vidarbha, the present study was undertaken in purposively selected, Akola, Buldana, Washim, Amravati, Wardha and Yavatmal districts of Vidarbha region of Maharashtra State as distress prone districts. The above six districts are considered as distressed districts in the report of fact finding team on Vidarbha - of Planning Commission, GOI (2006) and also been endorsed in the address speech of HE Governor of Maharashtra state before the first Joint Session of State Assembly in 2010.

Furthermore, the rationale for purposive selection of these six districts was the findings of Human Development Report of Maharashtra 2002, in which the human development index of these districts were comparatively low amongst the 35 districts of Maharashtra.

In 2004, the State Government in its memorandum submitted to the Central Government stated that, the drought situation had continued to deteriorate in the course of the year. Nearly half the state, especially the regions of Vidarbha had received less than average rainfall (Table 4).

Table 4. Rainfall short falls in 2004 district

District	Average	Actual mm	Shortfall %
Akola	710	399	-44
Amravati	829	561	- 32
Buldhana	680	512	-25
Wardha	905	741	-18
Washim	848	476	-44
Yavatmal	888	587	-34

(Source: Regional Meteorological Centre, Mumbai.)

Seeing that rainfall is concerned, year 2004 was declared as drought year for Vidarbha in last decade, wherein, shortfall of rains was observed in all the districts of Vidarbha. One of the important reason was the farmers in these districts are committing suicides. Hence, it was also considered as one of the base for the selection of region as well as districts as study area.

3.2 Research Design and Research Approach

Selection of the research design is an important part and hence due consideration is needed for selection of the research design. The researcher made the use of exploratory and analytical design of social research, since the emphasis of the study was to find causes of stress of farmers' and stress management which in turn was conceptualized as behavioural components. Research approach was used to investigate causes of stress amongst farmers' and their stress management techniques to secure greater insight into the practical aspects of the problem. Exploratory and analytical design of research are ideal for such study as it allows in-depth investigation that can be used to understand potential scenarios and illustrate practical applications of ideas and concepts.

3.3 Sample and Sampling Plan

Sampling has been an age old practice in everyday life. It has been established that, the sample survey if planned properly, can give very precise information. Since in a survey, a part of the population is only surveyed and inference is drawn about the whole population, the results are likely to be different from the population values. But the advantage with the sample survey is that this type of error can be measured and controlled. Similarly, the errors which arise due to human factors at the stage of ascertainment and processing of data can be eliminated considerably by employing properly trained persons in surveys. The other advantages of sample surveys are it is less time consuming, involves less cost, greater scope in special coverage and greater operational facilities as compared to complete enumeration.

3.3.1 Selection of Taluka's and Villages

3.3.1.1 Selection of Taluka's

The taluka-wise, village-wise and farmers-wise list of farmers suicides was obtained from respective collectorate office of the district. On the basis of suicidal talukas in the six respective districts, one taluka from each selected district was selected by lottery method. Thus, from six districts, six talukas were selected based on the suicides of the farmers which may be because of stress.

3.3.1.2 Selection of Villages

From the list obtained from collector office of the respective district, the list of villages, where the farmers committed suicides was considered and proportionate numbers of villages were randomly selected from each taluka by lottery method of random sampling and from each taluka four (04) villages were selected. Thus, from six selected talukas total, 24 villages were selected. The randomly selected villages are shown in Table 5.

Table 5. Selected district, talukas and villages and number of farmers

Sr. No.	District	Taluka	Name of selected villages	Number of villages selected
1.	Akola	Akola	Myspur	04
			Nimbi Malokar	
			Shivapur	
			Chandur	
2.	Buldana	Chikhali	Haralkhed	04
			Dhanori	
			Karkhed	
			Pimpalkhed	
3	Washim	Karanja (Lad)	Khanapur	04
			Vilegaon	
			Gaiwal	
			Shelwada	

4	Amravati	Morshi	Sawarkhed	04
			Nimbi	
			Lehagaon	
			Yerala	
5	Yavatmal	Darvaha	Chikhali Ramnath	04
			Bhandegaon	
			Kinhi Valagi	
			Shelodi	
6	Wardha	Wardha	Tuljapur	04
			Wadner	
			Umari Meghe	
			Waygaon	
			Total	24

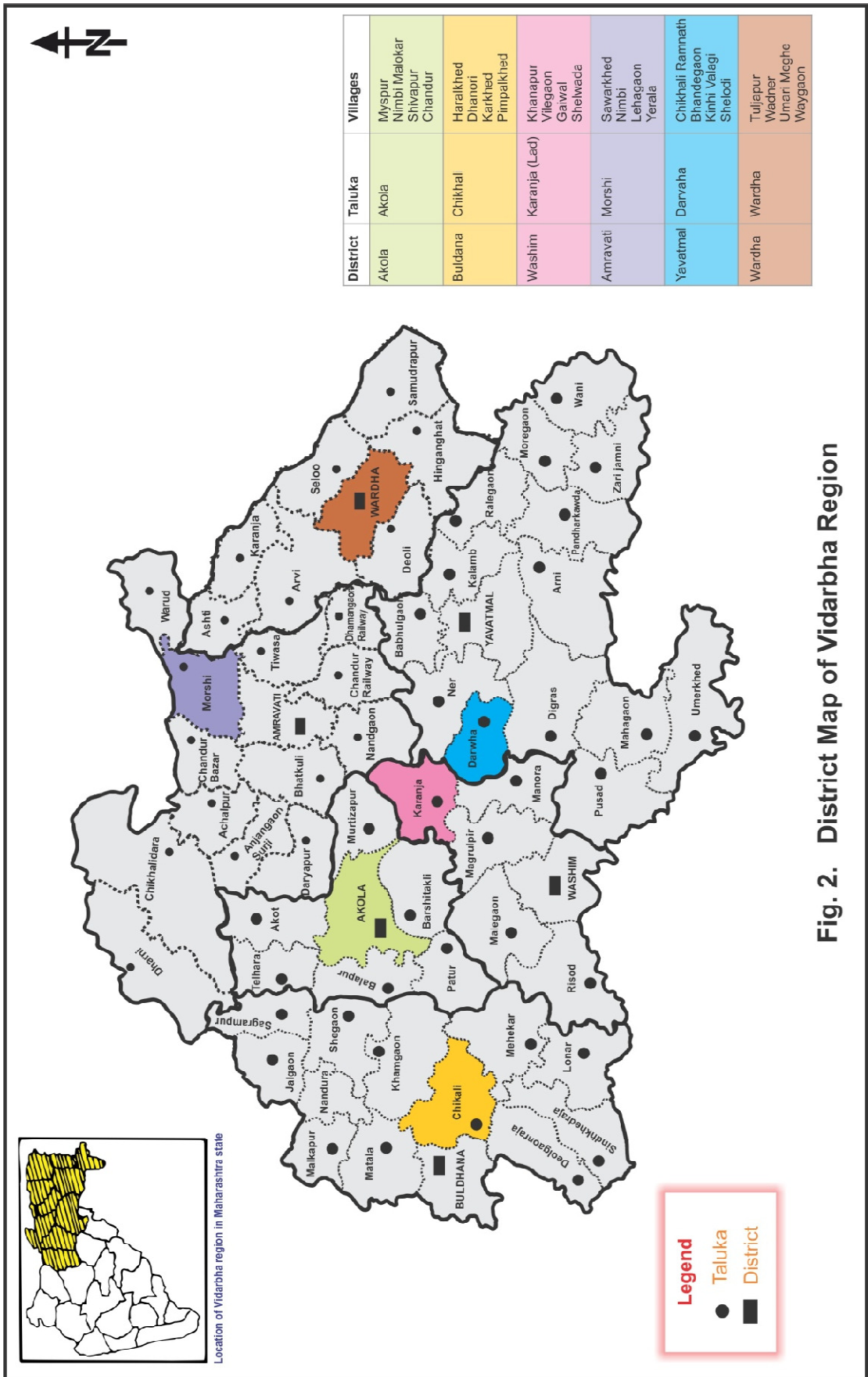
3.3.2 Selection of respondents

In the previous research studies on suicides of farmers, it is evidence that, maximum number of the farmers were committed suicides having dry land upto 4.00 ha., who were in debt, and having no irrigation facilities. Hence, for the selection of respondents, the farmers having dry land, debt and no irrigation facilities were considered as selection criteria for selection of respondents. From each selected village, the list of farmers was obtained from talathi/ Sarpanch, bank officials and key informants of the village based on the selection criteria. Amongst the selected list, 15 farmers were selected randomly from each selected village and from four selected villages and from each selected taluka 60 farmers were selected. Thus, 360 farmers were selected from 24 villages of six talukas of distress prone districts of the Vidarbha region. To know the stressful situation of the individual farmer, he/she was interviewed by considering the actual situation and cross checked by key informants of the village, with their neighbours and local leaders and assess the causes of stress and its management.

3.4 Development of Data Collection Instrument

The study started with obtaining a 'helicopter view' of the discourse by examining online news coverage on the topic. After this initial assessment, the study was broadened to include material such as opinion documents, press releases; formal resolutions, informative material, speeches, blogs, and additional online newspaper articles. Sources were collected using both internet searches and reviewing secondary literature sources. There are number of methods and techniques used for data collection. Most commonly used method for data collection is either questionnaire or interview schedule. Since the need of study was to meet the respondents and get the perfect responses, it was necessary to opt for interview schedule, which gives the interviewer the freedom of observing the respondent while receiving the responses. Interview schedule is a principle mode of data collection. Hence, the process of development of schedule holds equally important position in the conduct of any research study.

The first part of the interview schedule deals with the general information of the respondent and the personal, socio-economic, communication, situational and psychological characteristics of the respondents. The second part of the interview schedule was devoted to the close ended questions to record causes of stress of farmers' and stress management techniques and standardized scale to measure causes of stress and stress management adopted by the farmers' The interview schedule so developed was discussed with the members of advisory committee, experts in the field of Extension Education, psychiatric doctors and considered their suggestions and comments. Necessary modifications were incorporated in order to receive the most accurate responses. Thus, the interview schedule was ready for pre-testing.



3.4.1 Pre-testing of Interview Schedule

With a purpose to detect mistakes and overcome the shortcomings in the interview schedule prepared so far and also to achieve simplicity, clarity, reliability, practicability, anticipated interpretation, appropriate logical sequence and to avoid ambiguity, the exercise of pre-testing was undertaken. The schedule was hence, administered on 10 per cent of sample, that is, 36 farmers' in non-sample area. The data collected were thoroughly examined, studied to detect the unfamiliar words, vagueness, complexity of questions and proper use of language included in the interview schedule. Necessary changes in the statements were made on the basis of observations made in the pre-testing. The interview schedule was then finalized and the same was printed for the final data collection (Appendix – VIII).

3.5 Collection of Data

Considering the nature of study at hand, the data were collected with the help of structured and pre-tested interview schedule developed for this purpose. All the data were collected from the respondents at their residence or at farm or Grampanchayat through personal interview. Before administration of the schedule to the respondents they were explained the purpose of conducting the research study and data collection from them. Moreover, they were also assured that the information provided by them will be kept confidential and will only be utilized for writing the research report as a whole. This facilitated to establish the rapport with them so as to get the free and frank responses and thereby the reliable data. A total of 360 randomly sampled farmers' were interviewed using a structured interview schedule with closed and open ended questions, focus Group Discussions, group discussions with key informants and review of secondary data were also conducted.

The information on farmers' personal, socio-economic, communication, situational and psychological characteristics including standardization of scale of causes of stress was obtained from the

respondents in the first part of the interview schedule. The data regarding stress management techniques used by them was obtained on parameter/indicators identified and finalized during the construction and standardization of scale. The scale was administered to the respondents during the course of data collection. While establishing the rapport with them, they were not fully aware with the concept of stress and stress management techniques. Therefore, researcher was explained to them in detail prior to administration of schedule for eliciting their responses.

The details about construction and standardization procedure for all the scale developed have been furnished in subsequent paragraphs.

3.6 Variables and their Measurements

The importance of any research study mainly depends on the variables taken into account and the subsequent results obtained as a result of measuring the same with respect to the objectives defined.

Table 6. Variables and their measurements

Sl. No.	Name of the Variables	Measurement procedure
Independent variables		
A	Personal characteristics	
1	Age	The chronological age of farmer in completed years at the time of data collection was considered as a score as such
2	Education	The standards of formal education accomplished by farmer considered as a score.
3	Marital status	Individual farmer was asked whether he/she got married and was categorized accordingly.
4	Family type	Procedure as followed by Thakare (2004)
5	Family size	Actual number of members living in a family. Total number of family members was considered as score of the family size of the farmer

6	Land holding	Total hectares of land possessed by an individual respondent at the time of interview was obtained and respondents were categorized as per the norms of Maharashtra Government.
7	Farming experience	Number of years from which the farmer was engaged in farming. Years of engagement on farm was considered as his score
8	Occupational sources	Actual livelihood sources of individual farmer. Procedure developed by Venkataramiah (1985) with slight modifications was used
B Socio-economic characteristics		
9	Expenditure pattern	Actual expenditure was considered for categorization
10	Annual income	Income in rupees received by the farmer and his family member derived from all sources in a year was considered as a score.
11	Social participation	Schedule was developed and score was worked out.
12	Access to credit	Availability of credit sources and possibility of getting credit. Treated as dummy variable taking 2 if a farmer had access to credit 1 otherwise
C Situational characteristics		
13	Agril. Infrastructural facilities	AIF index was developed as per procedure followed by Kale (2011).
14	Health of the respondent/family Members	Procedure followed by Kale (2008).
15	Indebtedness	Total outstanding debt amount of institutional and non-institutional credit sources towards the farmer. The actual debts amount in rupees towards the farmer was considered as score of indebtedness
16	Technology utilization	Procedure as followed by Krishna Prasad (2005) was used with suitable modifications

17	Labour availability	Extent of use of own labour as well as hired labour by an individual farmer and the quality of work they performed. A weightage of '2' score was assigned for 'yes' and '1' for no type of response.
18	Access to market	Distance of input market to which farmer could frequently visit for purchase of seeds, pesticides, fertilizers, weedicides etc. distance in km. was considered for analysis.
19	Productivity of major crops	Area, production and per hectare yield of major crops, taken by farmer during 2011-12 and 2015-16 was considered
D	Communication characteristics	
20	Mass media exposure	Number of contacts with the mass media sources of information for seeking information about stress management related to occupational stress, individual stress and family stress. A schedule was developed and score worked out.
21	Extension contact	Frequency of contact of the farmer with the personnel of different extension agencies to get information on stress management related to occupational stress, individual stress and family stress. A schedule was developed and score worked out.
22	Access to weather information	Availability of weather related information from nearby research station to which farmer could take the decisions related to sowing, harvesting and other weather related aspects like timings of rains etc. Treated as dummy variable taking 2 if a farmer had access to weather information 1 otherwise
E	Psychological characteristics	
23	Optimism	Optimism scale developed by Scheier and Carver (1992) was used with suitable modifications
24	Quality of life	Scale developed by Cummins (1997) was used with suitable modification
25	Powerlessness	Procedure developed by Sao Paulo (2009) was used.

26	Social isolation	Procedure developed by Biordi and Nicholson (2013) was used.
27	Spirituality	Scale developed by Underwood and Tershi (2002) was used.
28	Self esteem	Scale developed by Rosenberg (1965) with suitable modification
29	Self efficacy	Scale developed by Roy (2009) was used with suitable modification
F	Intervening variable	
	Causes of stress	Developed and standardized scale to measure, causes of stress
G	Dependent variable	
1	Stress Management (Physical and Mental)	Developed and standardized scale to measure stress management

3.7 Operationalization, Scoring and Categorization of Variables

3.7.1 Independent Variables

3.7.1.1 Personal and Socio-economic Characteristics

A. Personal

i) Age

Age of a farmer can generate or erode confidence on stress management. In other words, with age a farmer have number of experiences or knowledge of different risk in their life. However, there are mixed results as to the direction of influence. It was hypothesized that younger farmers have more probability of adopting technologies but more stressful.

The 'age' was conceptually defined as the chronological age of an individual in completed years. In current study, age was operationally defined as chronological age of the individual farmer in completed years at the time of interview. For relational analysis, actual age in years was considered as score. Standard categorization of selected farmers according to their age was done as follows.

Sl. No.	Age	Years
1	Young	Upto 35
2	Middle	36 to 50
3	Old	Above 50

ii) Education

Education is absolutely necessary to achieve sustainability in life by creating an empowered and capable citizenship with the knowledge, skills and values needed for local innovation and scale up of stress management. Level of education was assumed to increase household ability to obtain, process, and use information relevant to stress management. Education is, therefore, expected to help in managing the stress effectively. Evidence from various sources indicates that there is a positive relationship between the education levels of the farmers. Therefore, farmers' with higher levels of education are more likely to better manage the stress. The variable was, therefore, selected.

Conceptually, Education is defined as formal schooling passed by an individual. For the present study, education was operationally defined as formal schooling standard passed by the individual farmer from primary school to University degree. Number of classes passed by the farmer was considered as his/her educational score, and was used for relational analysis. Standard categorization was done on the basis of educational level of the selected farmers as follows.

Sl. No.	Educational level	Standard
1	Illiterate	No Schooling
2	Primary school	1-4
3	Middle school	5-7
4	High school	8-10
5	Higher secondary school	11-12
6	College	Above -12

iii) Marital status

It is assumed that married person has more responsibilities which may causes stress and attachment in the family which may help to manage the stress. Therefore this variable was selected for study.

An individual respondent was asked whether he/she got married or not. Thus, marital status of the respondents was considered during research. The respondents were categorized on the basis of their marital status and was score as follows.

Sl. No.	Marital status	Scores
1	Unmarried	1
2	Married	2

iv) Family type

Taking into consideration the relationship of the family members, the families of the respondents were categorized into following two groups.

Nuclear family: A family unit consisting primarily a husband, wife and their unmarried children.

Joint family : A family unit having at least two married couples, living in common residence and where the males were related as father –son or as brother-brothers. Scoring for nuclear and joint family was done as follows.

Sl. No.	Family type	Scores
1	Nuclear	1
2	Joint	2

v) Family size

Large family members may be forced to divert part of the labour force to off-farm activities in an attempt to earn income in order to ease the consumption pressure imposed by a large family size (Yirga,

2007). Large family size is normally associated with a higher labour endowment, which would enable a household to accomplish various agricultural tasks and also helpful for sharing the stressful situation which ultimately may help to manage the stress.

Conceptually, family size refers to the actual number of members living in a family. In the present study, family size was operationally defined as the number of family members living in the family including the farmer. For relational analysis total number of family members was considered as score of the family size of the farmer and categorization was done as follows.

Sl. No.	Family Size	Family members
1	Small	Up to 3
2	Medium	4 to 6
3	Large	7 and above

vi) Land holding

Land holding is an indicator of wealth and social status and influence within community and it is hypothesized to increase stress management level. Farmers' with larger land size can afford the expenses on new agricultural technologies and also can bear the risk in case of failure of crop. This means that farmers' who have relatively large size land holdings will be more initiated to manage the stressful situation.

Sl. No.	Land holding	Range in hectares
1	Marginal	Upto 1.00 ha
2	Small	1.01 to 2.00 ha
3	Semi-medium	2.01 to 4.00 ha

In the present study marginal to semi-medium land holding was considered based on the previous research studies on suicides of the farmers where the maximum number of the farmers were observed from these categories of land holding who committed suicides.

Conceptually, land holding is the actual hectares of land possessed by the individual. It includes cultivated, uncultivated, and un-irrigated land. In the present study, land holding was operationally defined as the total hectares of land possessed by the individual farmer. Total hectare of land possessed by the individual farmer was considered for analysis.

vii) Farming experience

Experience will improve farmers skill in management of stressful events related to farming. A more experienced farmer may have a lower level of uncertainty about the technology’s performance. Farmers’ with higher experience appear to have often full information and better knowledge to know the stressful events related to agriculture practices. Hence, it was hypothesized to affect stress management positively.

Conceptually, farming experience refers to the number of years of actual farming experience. For the present study, farming experience was operationally defined as the number of years from which the farmer was engaged in farming. Years of farmer engagement on farm was considered as his/her score. The distribution of farmer according to their farming experience was done in following three categories by equal interval method.

Sl. No.	Farming experience in years (Years)
1	Up to 14
2	14-28
3	Above 29

viii) Occupational sources

It refers to the main occupation of an individual respondent, used as main source of income. The scoring of occupational status was done with the help of socio-economic scale developed by Venkataramiah (1985) with slight modifications. However, the respondents were categorized as follows.

Sl. No.	Occupation	Score
1	Farming + farm labour	1
2	Only farming	2
3	Farming + subsidiary business	3
4	Farming + business	4
5	Farming + service	5

B. Socio-economic

ix) Expenditure pattern

It is assumed that high or low expenditure pattern affects on the quality of life and causes the stressful situation in individual's life. Hence, it was considered for the present study.

It was operationally defined as the annual expenditure of an individual respondent on food, education; housing, agriculture (crop cultivation) clothing, health, travelling, taxes (House, water) electricity and religious functions were considered. One score for each item was assigned. Later on, scores of each item were summed up and respondents were categorized as low expenditure pattern, medium expenditure pattern and high expenditure pattern based on equal interval method as follows.

Sl. No.	Expenditure pattern	Rupees
1	Low expenditure pattern	(Up to 1,99,300/-)
2	Medium expenditure pattern	(Rs.1,99,301 to 2,31,400/-)
3	High expenditure pattern	(Above Rs. 2,31,400/-)

x) Annual income

Annual income is believed to be the main source of capital for purchasing agricultural inputs and minimize the stress. Thus, those farmers with a relatively higher level of income goes to hospital in stressful situation or are likely to purchase improved seeds or other

essential agricultural inputs in response to manage the agricultural related stress.

Conceptually, annual income refers to the gross annual income of an individual from all available sources. In present study, annual income was operationally defined as gross income in rupees received by the farmer and his family members from all sources during the year. For further analysis, the actual income earned by the individual farmer and his family members from all sources was considered as score. The categorization of the selected farmer on the basis of their annual income was done as follows based on equal interval method.

Sl. No.	Income per annum (Rs.)
1	Up to Rs. 50,000
2	50001 to Rs. 1,00,000
3	1,00000 to 1,50,000
4	1,50,000 to 2,00000
5	Above Rs. 200000

xi) Social participation

Social participation has been operationally defined as the participation of individual farmer in formal and informal organizations. It is, therefore, hypothesized that those farmers' who participated in some social organization as member or leader are more likely to manage the stress. A numerical score of 1 was assigned for the membership in informal organization, whereas, a score of 2 was assigned for the office bearer in informal organization. Similarly a score of 3 was assigned for the membership in formal organization, whereas, a score of 4 was assigned for the office bearer in the formal organization. The score was summed up for obtaining the total social participation score of the household's farmer. On the basis of obtained minimum and maximum score of participation, the farmers' were categorized, as follows.

Sl. No	Social participation	Score range
1	No participation	0
2	Low	up to 1
3	Medium	2 to 3
4	High	above 3

xii) Access to credit

Availability of credit eases the cash constraints and allows farmers' to buy/ purchase inputs such as fertilizer, improved crop varieties, insecticides/pesticides or to maintain the health which ultimately may helps to manage the agricultural related stress or other stressful events. Researches on adoption of agricultural technologies indicated that there was a positive relationship between the level of adoption and the availability of credit (Yirga, 2007; Pattanayak *et al.*, 2003). Operationally access to credit in present study refers to easy and timely availability of money to farmer to buy inputs such as fertilizer, improved crop varieties, insecticides/pesticides and to maintain health related issues. It was measured in terms of whether respondents had access to credit in terms of availability of credit sources and possibility of getting credit. Farmers' who have access to credit may overcome their financial constraints and therefore buy agricultural inputs and maintain his/her health which may help to manage the stress. Farmers' without cash and no access to credit will find it very difficult to manage the different levels of stresses. It was expected that access to credit will increase the probability of management of stress. It was treated as dummy variable taking 2 if a farmer had availability of credit 1 otherwise. Different credit sources utilized by farmers' were also found out. Categorization of farmers' according to access to credit was done as follows.

Sl. No.	Accessibility	Score
1	Access	2
2	No Access	1

C. Situational

xiii) Agril. Infrastructural Facilities

As per Fosu *et al.* (1995) agricultural infrastructure services includes 11 components that are; irrigation and public access to water, means of transportation, storage services, commercial infrastructure, processing infrastructure, public services, agricultural research and extension services, communication and information services, land conservation services, credit and financial institutions, and finally, health and education services.

As per the review agricultural infrastructure is a very vast topic and needs to be searched in separate study. In present study, five important basic indicators of agricultural infrastructure were selected for study. These are inputs, credit sources, information sources, transport facilities and post harvest infrastructure facilities. Hence operationally agricultural infrastructure refers to the various input, credit, information, transport and post harvest amenities available to farmer for his farming operations with them and in his village or nearby vicinity to reduce their vulnerability to stress. For measurement of agricultural infrastructure facilities, a schedule developed by Kale (2010) was used and responses obtained as adequate, inadequate and not available with scoring of 3, 2 and 1 respectively.

In input infrastructure, 14 items were selected. Related to availability of inputs, sources of credits include four items, information infrastructure includes 13 items, transport facilities included 6 items and under post harvest infrastructure 6 items were selected. Thus, for agriculture infrastructure includes total 43 items under 5 indicators. Hence, the minimum score of an individual farmer was 43 and maximum score was 129. The sum of score of all items of the agriculture infrastructure administered to the farmer was computed which indicated the agriculture infrastructure facility score for particular selected farmer. The raw score such obtained was converted into AIF index for the above

5 indicators separately and also in aggregate form, with the help of following formula.

$$\text{Agriculture Infrastructure Facility Index (AIF)} = \frac{\text{Obtained infrastructure facility score}}{\text{Obtainable infrastructure facility score}} \times 100$$

On the basis of equal interval of the agriculture infrastructure facility index, the farmers' were categorized as follows:

Sl. No.	Agricultural infrastructure facilities	Index range
1	Low	Up to 33.33
2	Medium	33.34 to 66.66
3	High	Above 66.66

xiv) Health of the respondent/family members

Conceptually health is defined as a state of complete physical, mental, and social well being of an individual and not a mere absence of disease or infirmity.

Operationally farmers health or family health indicates the health status of farmer and their family members during last five years. The responses about farmer health and their family members were collected. Here any obvious existence of chronic disease/ handicap like handicap by birth / accidents, cancer, leprosy, HIV infection, cardiac disorders, asthma, genetic disorder, liver/ kidney problem, tuberculosis, diabetes, mentally ill, besides other diseases etc were considered. with farmer and their family members were noted due to which farmer was not functioning normally. Following Kale (2008) for existence of every disease one score was allotted. Thus, total number of diseases with individual farmer indicates the total score of his health. The obtained score of an individual farmer and his/her family was used for further relational analysis. Categorization of selected farmers was done according to the

presence or absence of health problem with them following equal interval method.

Sl. No.	Number of health problems/diseases
1	No problem
2	Low(up to 1)
3	Medium(2 to 3)
4	High(above 3)

xv) Indebtedness

Conceptually indebtedness is defined as an obligation to pay money to another party. In the present study it was assumed that almost every farmer may have an obligation to pay debt, which he had taken, that may be from institutional or non-institutional sources.

Operationally, indebtedness was defined as the total outstanding debt amount of institutional and non-institutional credit sources towards the farmer. For further relational analysis, the actual debts amount in rupees towards the farmer was considered as score of indebtedness. The categorization of the farmers' on the basis of their indebtedness was done as followed by Kale (2008).

Sl. No.	Amount of Debts in Rs.
1	No debts
2	Up to Rs. Up to Rs.50, 000/-
3	Rs.50,001 to 1,00000/-
4	Rs.100,001 to 1,50,000/-
5	Above Rs. 1,50,000/-

xvi) Technology utilization

Technology utilization pattern was defined as the utilization of various production and post harvest technologies by an individual respondent for increasing production from occupational activities for

maximizing production, incomes for improving their livelihoods and ultimately helpful for reducing the stress.

A schedule was developed for measuring technology utilization pattern which consist of 9 items such as type of crop, type of seed, farm power, irrigation equipment, fertilizer management, plant protection measures and harvest and post harvest aspects.

Sl. No.	Items		Score
1	Type of crop		Cash crop-2, other crop-1
2	Type of seed		Certified/improved-2, Local/own-1
3	Farm implements types		Tractor drawn-2. Other-1
4	Possession of drought animals		Yes-2, No-1
5	Possession of irrigation equipments		Yes-2, No-1
6	Manures and fertilizers	Types	Organic-1, Chemical-2, and Both-3
		Selling of FYM	Yes-1, No-2
7	Type of plant protection		a) Pesticide-1, b) Fungicide-2 c) Both-3
8	Plant protection equipments		a) Sprayers-1, b) Dusters-2, c) Power sprayers-3
9	Harvesting methods by		Machine-2, Manually-1

The scores in each item were summed up to arrive at the technology utilization score. The respondents were categorized based on the range of the scores by equal interval method.

Sl. No.	Technology utilization	Score range
1	Low technology utilization	Up to 33.33
2	Medium technology utilization	33.34 to 66.66
3	High technology utilization	Above (66.66)

xvii) Labour availability

Availability of labour is likely to influence the gross margin of the innovation. A farm with larger number of workers per hectare (unit) is more likely to be in a position to try and continue using a potentially profitable innovation and it was expected to influence agricultural related stress management positively. Labour availability was operationally defined as the extent of use of own labour as well as hired labour by an individual household farmer and the quality of work they performed. Following Madiwalar (2012), a weightage of '2' score was assigned for 'yes' and '1' for no type of response, the scoring pattern followed.

Sl. No	Labour availability	Score
1	Engagement of family labour	Yes-2, No-1
2	Engagement of hired labour	Yes-2, No-1
3	Adequacy of labour	Adequate-3, Somewhat adequate-2, Inadequate-1
4	Labour wages out side	More-2, Less-1
5	Skillfullness of labour engaged	Highly skillful-3, moderately skillful-2 and less skillful -1

Selected farmers' were then classified on the basis of obtained maximum and minimum scores in three classes of high, medium and low labour availability. The maximum obtainable score was 12 and minimum was 5.

Sl. No.	Labour availability	Score range
1	Low	Up to 6.00
2	Medium	7 to 10.00
3	High	Above 10.00

xviii) Access to market

Distance to the nearest market and the frequency of contact that the farmer maintains with it is likely to influence adaptation or stress management. The closer they are to the nearest market, the more likely it is that the farmer will receive valuable information and reduce the stress. Consequently distance was expected to influence adaptation negatively. It is also hypothesized that the lesser the distance to output and input markets, the more adaptation to stress management. Proximity to market is an important determinant of stress management, presumably because the market serves as a means of exchanging information with other farmers' (Maddison, 2007).

It was operationally defined as the distance of input market to which farmer could frequently visit for purchase of seeds, pesticides, fertilizers, weedicides etc. The distance in kilometer was recorded and use as score for relational analysis. Categorization of selected farmers' was done in three categories on the basis of their maximum and minimum distance to market in kilometers as follows.

Sl. No.	Distance (km)
1	Up to 10
2	11 to 18
3	Above 18

xix) Productivity of major crops

Conceptually, productivity is per hectare yield of crops. Productivity is one of the important variable in this study because it contributes directly to gross income of the farmer and it was assume that the most of farmers' were having low productivity or crop failure during previous subsequent years may be due to vagaries of nature.

In present study, Productivity was operationally defined as per hectare yield of major crops, taken by farmer during the years 2011-

12 and 2015-16. For measurement of productivity, the actual area of land put by farmers' under different *Kharif*, *Rabi* and summer crops and their obtained yield in qts./ha. were considered. The average productivity of the different crops in qts./ha. was worked out. For relational analysis this variable was not considered due to inequality in the type and number of crops grown by the selected respondents.

D. Communication Characteristics

xx) Mass media exposure

Mass media plays the greatest role in creating awareness in shortest time possible over large area of coverage. As far as awareness is prerequisite for behavioural change its role cannot be underestimated. It is expected to have positive influence on stress management behavior of households and manage the stress. Moreover, Maddison (2006) and Nhemachena and Hassan (2007) showed that access to information through extension increase the chance of stress management by individual. Thus, this study also hypothesized that access to information increases chance of reducing the stress.

Mass media exposure was operationally defined as the mass media sources consulted by the individual farmer' for seeking technical information about stress management at individual, family and occupational level. It was measured in terms of frequency of contact with different media (TV, radio, internet, magazines and news papers). The numerical scores of 3, 2 and 1 were assigned for always, sometimes and never responses, respectively. The sum of scores of sources consulted by the individual farmer indicates the mass media exposure score for the particular farmer. In this way, mass media exposure score for the entire farmers' was calculated. On the basis of maximum and minimum mass media exposure score obtained by the selected farmers' categorization was done as follows:

Sl. No.	Category	Score
1	No exposure	0
2	Low	1 to 6.33
3	Medium	6.34 to 8.66
4	High	Above 8.66

xxi) Extension Contact

The variable represents extension service as an important source of information, knowledge and advice to smallholder farmers' in Vidarbha. Empirical results revealed that extension contact has an influence on farm households' adoption of new technology which may help to reduce the stress related to agriculture. Following this argument, extension contact was hypothesized, in this study, to influence farmers' decision to manage the stress effectively.

Conceptually, it is referred as the frequency of contact of the individual with the personnel of different extension agencies to get information on farm technology during the cropping season and also to get the information to reduce the stress. In the present study it was operationally defined as the frequency of contact of the farmer with the personnel of different extension agencies to get information on farm technology during the cropping season to reduce the adverse situation or to reduce the stress.

This variable was measured, considering the frequency of contact of individual farmer with various extension functionaries' viz., agricultural assistant, extension officer, agricultural officer, private agency, extension personnel, university scientist, progressive farmers' and psychiatric doctor. Scoring procedure for frequency of contact was as follows.

Frequency of contact	Score
Never	0
Whenever problems occurs/arise	1
Once in a month	2
Once in a fortnight	3
Once in a week	4
Twice or more in week	5

The score for extension contact was summed up for all the extension personnel contacted by him. The higher score reveals higher contacts with extension personnel by the respondent. The respondents were categorized based on the maximum and minimum scores obtained by the farmers' by adopting equal interval method.

Sl. No.	Extension contact category	Score range
1	Low	Up to 12.33
2	Medium	12.34 to 17.66
3	High	Above 17.66

xxii) Access weather information

It was operationally defined as the availability of weather related information from the nearby research station or from media/extension agencies through which farmer could access and take the decisions related to sowing, harvesting and other weather related aspects like timings of rains etc. it was treated as dummy variable taking 2 if a farmer had access to weather information and 1 otherwise. Obtained score was used for relational analysis. Categorization of farmers' was done in to two categories, according to their access to weather information in 'yes' and 'no' category.

E. Psychological

xxiii) Optimism

Positive and negative expectations regarding the future are important for understanding the vulnerability to mental disorders, in particular mood and anxiety disorders, as well as to physical illness. A significant positive relation emerges between optimism and coping strategies focused on social support and emphasis on positive aspects of stressful situations.

Optimism may significantly influence mental and physical well-being by the promotion of a healthy lifestyle as well as by adaptive behaviours and cognitive responses, associated with greater flexibility, problem-solving capacity and a more efficient elaboration of negative information. Hence, in view of the importance of this variable in stress management researcher hypothesized to select this variable for the present study.

Optimism is a form of positive thinking that includes the belief that we are responsible for our own happiness, and that more good things than bad will continue to happen. Optimists believe that bad or negative events are rare occurrences, and that it is not their fault when something bad happens, but is due to something external.

According to Oxford dictionary optimism is defined as hopefulness and confidence about the future or the success of something:

According to Merriam Webster dictionary optimism is defined as a feeling or belief that good things will happen in the future: a feeling or belief that what you hope for will happen.

In the present study optimism was operationally defined as hopefulness and confidence of individual farmer to get success in future by managing stress effectively.

To measure this variable, scale developed by Scheier and Carver (1992) was used with suitable modifications.

There are 10 statements in the scale out of which statement No 3,6 and 8 are negative statements. The statements in the scale were on three point continuum as agree, cannot say and disagree with score 3,2 and 1 respectively and reverse score was assigned to the negative statements. The respondents were classified based on frequency and percentage. Later on raw score was converted in to index with the following formula

$$OI = \frac{\text{Actual score obtained}}{\text{Maximum obtainable score}} \times 100$$

Then the respondents were grouped into low, medium and high optimistic based on equal interval method.

xxiv) Quality of life

Quality of life is the subjective judgment of the extent to which one is living the good life. This perception of the good life may be based on feelings of happiness, meaning in life and inner peace.

If a person is happy, has inner peace and perceive that his or her is meaningful then person could be viewed as being successful and achieving high quality of life.

Quality of life is both objective and subjective, each axis being the aggregate of seven domains: material well-being, health, productivity, intimacy, safety, community, and emotional well-being. Objective domains comprise culturally-relevant measures of objective well-being. Subjective domains comprise domain satisfaction weighted by their importance to the individual.

In the present study, it is referred as subjective judgment of the extent to which individual farmer perceives feelings of happiness, meaning of life and inner peace helping him/herof the aggregate seven domain as material well being, health, productivity, intimacy, safety, community, and emotional well-being up to the satisfaction of the individual farmer.

To measure this variable, scale developed by Cummins (1997) was used with suitable modification. It was measured on three point continuum as fully satisfied, partially satisfied and not satisfied with score 3,2 and 1 respectively. The obtained raw score was converted in to index with the following formula.

$$QLI = \frac{\text{Obtained score}}{\text{Maximum obtainable score}} \times 100$$

Later on respondents were categorized on three categories as low, medium and good quality of life based on equal interval method.

xxv) Powerlessness

Stress may be caused by issues and situations over which one feel ones do not have power, control or influence. People with a tendency to perfectionism and having everything under control are more prone to this type of stress. Keeping in view the importance of power in work, researcher thought to select this variable for the present study. The quality of lacking strength or power; being weak and feeble.

It is operationally defined as the feeling of farmer about lacking of strength or power or being weak in taking any decision. To measure this variable the procedure used by Sao Paulo (2009) was used. It was measured on three point continuum as agree, cannot say and disagree with score 3,2 and 1 respectively. All the statements in the scale are negative hence reverse scoring was given and the respondents were classified based on frequency and percentage. Later on the raw score were converted in to index with the following formula.

$$PI = \frac{\text{Obtained score}}{\text{Maximum obtainable score}} \times 100$$

And finally respondents were categorized as low medium and high powerlessness based on equal interval method.

xxvi) Social Isolation

A/c to Psychology dictionary Isolation is the condition of being separated from other individuals.

Social isolation is the inadequate quality and quantity of social relations with other people at the different levels where human interaction takes place.

A/c to Biordi and Nicholson (2013) Social isolation is the lack of an individual's engagement in an interactive web of key relationship.

In the present study it is operationalized as the lack of good relations of an individual farmer with nearest and dearest person with whom he/or she made the interaction.

To measure this variable, procedure developed by Biordi and Nicholson (2013) was used. The scale has two parts 1 is external isolation and other is internal isolation amongst which sub items are given in each social isolation category. It was measured on three point continuum as agree, can not say and disagree with score 3, 2 and 1 respectively

Later on the raw score were converted in to index with the following formula.

$$SI = \frac{\text{Obtained score}}{\text{Maximum obtainable score}} \times 100$$

And finally respondents were categorized as low medium and high social isolation based on equal interval method.

xxvii) Spirituality

Depression is the most common mental health problem in general and has been the focus of much of the research exploring the relationship between spirituality and mental health. The evidence shows a positive association between church attendance and lower levels of depression amongst adults, children and young people in UK. It also

shows that belief in a transcendent being is associated with reduced depressive symptoms.

Similar research has examined the relationship between spirituality and anxiety or stress. Quantitative research demonstrates reduced levels of anxiety in a number of populations, including medical patients in later life, women with breast cancer, middle aged people with cardiac problems and those recovering from spinal surgery.

Therefore researcher selected this variable for the present investigation

Spirituality in psychology is mean a belief or relationship with some higher power defined. It is also known as dimensions of wellness, creative force, divine being or infinite source of energy.

Spirituality is something everyone can experience which helps us to find meaning and purpose in the things we value and can bring hope and healing in times of suffering and loss encourages us to seek the best relationship with ourselves, others and what lies beyond.

In the present study spirituality is operationally defined as experience of by an individual farmer to find meaning and purpose in the things that value and can bring hope and healing in times of suffering which bring infinite source of energy.

To measure spirituality of individual respondent, scale developed by Underwood (2011) was used with suitable modifications. The scale has 15 statements measured on two point continuum as Yes and No with score, 2 and 1 respectively. Respondents were classified based on frequency and percentage. Later on the raw score were converted in to index with the following formula

$$SI = \frac{\text{Obtained score}}{\text{Maximum obtainable score}} \times 100$$

And finally respondents were categorized as low medium and high spirituality based on equal interval method

xxviii) Self esteem

Self esteem will help us at work by developing the confidence and confidence and positive attitude will enable us to look and feel best.

In many cases people who end up having poor self-esteem actually have met adversity and challenges and treated others well, and do have a basis for feeling good about them. However, for various reasons, including a tendency towards depression, anxiety or obsessive perfectionism, a habit of engaging in cognitive distortions, or because they have been abused or exploited they may not recognize these accomplishments and actions as meaningful. Thus keeping in view of the importance of self esteem this variable was taken into consideration.

Self-esteem has been generally defined as the evaluation of the self; it is an effective response to one's self-description. The evaluation refers to a judgment of one's worth and what is being judged is one's perception of who one is, or one's self-concept.

In psychology, self-esteem reflects a person's overall evaluation or appraisal of her or his own worth or value.

The original definition presents self-esteem as a ratio found by dividing one's successes in areas of life of importance to a given individual by the failures in them or one's "success / pretensions".

In the present study self esteem is operationally defined as feeling or judgment of self value or worth by an individual farmer to judge his/her success or failure.

To measure this variable scale developed by Rosenberg (1965) with suitable modification. The scale has 10 statements out of which statement no 3, 9 and 10 are negative and remaining all statements are positive. It was measured. It was measured on three point continuum

as agree, can not say and disagree with score 3,2 and 1 respectively and reverse score was assigned to negative statement.

Respondents were classified based on frequency and percentage. Later on the raw score were converted in to index with the following formula

$$SI = \frac{\text{Obtained score}}{\text{Maximum obtainable score}} \times 100$$

And finally respondents were categorized as low medium and high self esteem based on equal interval method .

xxix) Self efficacy

It is assumed that people with a strong sense of self-efficacy view challenging problems as tasks to be mastered, develop deeper interest in the activities in which they participate, form a stronger sense of commitment to their interests and activities and recover quickly from setbacks and disappointments. Whereas, people with a weak sense of self-efficacy, avoid challenging tasks, believe that difficult tasks and situations are beyond their capabilities, focus on personal failings and negative outcomes and quickly lose confidence in personal abilities. To manage the stress knowing of self efficacy of the farmers is important. Therefore, this variable is selected for the study.

According to Albert Bandura (1977) self-efficacy is "the belief in one's capabilities to organize and execute the courses of action required to manage prospective situations." In other words, self-efficacy is a person's belief in his or her ability to succeed in a particular situation. Bandura described these beliefs as determinants of how people think, behave, and feel.

In the present study it is operationally defined as self efficacy is the belief in individual farmer's ability to manage the stress .

To measure this variable, scale developed by Roy (2009) was used with suitable modification.

The scale consists of 20 statements which was measured on three point continuum as agree, cannot say and disagree with score 2, 1 and 0 respectively.

The raw score was converted in to index with the following formula

$$SEI = \frac{\text{Obtained score}}{\text{Maximum obtainable score}} \times 100$$

Later on respondents were classified as high self-efficacy, medium self-efficacy and low self-efficacy based on equal interval method.

3.7.1.2 Intervening Variables

i) Causes of Stress

Construction of scale for measurement of stress of farmers

In the psychological view, stress is generally used to describe a response to demands that is greater than an individual's ability to cope, which disrupts the individual's physical or mental equilibrium and poses a threat to the individual's general well-being (Lazarus and Folkman, 1984).

In the present study, it is operationally defined as, response to demands of individual farmer that is greater than his/her ability to cope which disrupts the his/her physical or mental equilibrium and poses a threat to his/her well being.

In the present study it is operationally defined as a response to demands of individual farmer that is greater than his/her ability to cope which disrupts the his/her physical or mental equilibrium and poses a threat to his/her well being.

The method of Thurstone's (1929) Equal Appearing Interval and Likert's (1932) Summated rating are the two scaling techniques that are well known as technique of scale development. In the present study,

the methods of summated rating suggested by Likert (1932) and Edwards (1957) was followed for construction stress scale. It requires less number of judges to start with and consumes less time (Jha and Katiyar, 1972). The procedure followed for construction and standardization of stress was adopted and as such for construction of stress scale. Similarly, the following steps were followed for construction and standardization of stress scale.

- 1) Collection of stress items
- 2) Deciding relevancy of stress items of the scale
- 3) Item analysis
- 4) Selection of items
- 5) Testing reliability of the scale
- 6) Testing validity of the scale
- 7) Norms for use of the scale

1) Collection of stress items

The basic aim of framing and preparation of item pool was to develop a set of statements that will reveal the agreement or disagreement with each respondent towards causes of stress of farmers in distress prone area of Vidarbha.

Statements were collected by referring books, journals, theses, internet and other relevant literature on the topic. The experts in the field of extension education, agricultural economics, department of psychology and the advisory committee members were also consulted. All statements related to the causes of stress at individual level, family level and farming level were initially framed. These statements were examined in the light of criteria as suggested by Edwards (1957) in order to screen the same. After thorough screening, statements that were factual, ambiguous, double barreled, difficult etc. were eliminated.

Thus, in, individual level related stress 22 family level related stress 23, and farm related stress 23. Thus, total 68 statements were finally selected and retained for further analysis

2) Deciding relevancy of stress items of the scale

Since there was an equal opportunity that, the statements chosen initially may not be relevant equally in measuring the causes of stress of farmers in distress prone area of Vidarbha, thus the procedure of item relevancy was adopted. The items selected were subjected to an expert panel of judges to determine the relevancy and their subsequent screening in order to include the same in the final interview schedule.

A list of these statements was sent by post and mailed to a panel of 120 judges (experts), who were selected from the discipline of extension education Agricultural Economics and psychology department. They were requested to critically evaluate or check each statement for its relevancy for assessing the causes of stress of farmers in distress prone area of Vidarbha.

The responses were obtained on a three-point continuum namely, 'most relevant', 'relevant' and 'not relevant' with a score of 3, 2 and 1 respectively. Out of 120 judges, only 70 judges responded. Out of 70 responses, 10 responses were incomplete, therefore only 60 responses were considered. The appropriateness score of each statement was worked out by adding the scores on the rating scale for all the 60 experts.

On the basis of these judgments, the relevancy percentages were worked out for all the statements individually by using the following formula given below.

$$\text{Relevancy percentage} = \frac{\text{Sum of most relevant response} + \text{Sum of relevant response}}{\text{Maximum score of response}} \times 100$$

Relevancy weightage was obtained by the standard formula:

$$\text{Relevancy weightage} = \frac{\text{Most relevant response} \times 3 + \text{Relevant response} \times 2 + \text{not relevant}}{\text{Maximum possible score of response}} \times 100$$

The mean relevancy score was obtained by the standard formula:

$$\text{Mean relevancy score} = \frac{\text{Most relevant response} \times 3 + \text{Relevant response} \times 2 + \text{not relevant}}{\text{Number of judges responded}} \times 100$$

Using these criteria, the items were screened for their relevancy. Accordingly, items having relevancy percentage of more than 75, relevancy weightage of more than 0.75 and mean relevancy score of more than 2.45 were considered for further item analysis.

Applying the criteria of more than 0.75 relevancy weightage 3 major indicators and 68 statements were selected and subjected to further item analysis.

These judgments' were used to work out the Relevancy Percentage (RP) of each performance item by using following formula.

$$\text{Percentage (RP)} = \frac{\text{Sum of most relevant response Relevancy score} + \text{Sum of relevant response score}}{\text{Maximum possible score}} \times 100$$

Considering the relevancy percentage, the performance items were screened for their relevancy. Accordingly, items having relevancy percentage of more than 75 were considered. Using these criteria, 62 items having more than 75 relevancy percentage were selected and is presented in Appendices II, IV and VI.

3) Item analysis

Final selection of the items was made on the basis of item analysis. Item analysis is an important step towards constructing a valid

and reliable scale. It was again considered essential to delineate the statements that can discriminate between persons holding different attitudes. The main aim of item analysis is generally for item discrimination and ascertaining item difficulty. The statements identified on the basis of relevancy percentage were subjected to further item analysis.

The judges were asked to give their response to each statement on three point continuum namely, 'most relevant', 'relevant' and 'not relevant' 3, 2 and 1. The scores for each individual on the scale were computed by summing up the scores of the individual item responses. The respondents were arranged in the descending order according to their total score. Two criterion groups were formed by taking 25.00 per cent of the respondents having highest scores and 25 per cent of the respondents having lowest scores.

These scores were then used for testing of mean difference with the help of t-test. The formula used for the calculation of t-values was as follows:

$$t = \frac{X_H - X_L}{\sqrt{\frac{\Sigma X^2_H - \frac{(\Sigma X_H)^2}{n} + \Sigma X^2_L - \frac{(\Sigma X_L)^2}{n}}{n(n-1)}}$$

where,

- t = critical ratio
- X_H = Mean score on a given statement for the high group
- X_L = Mean score on a given statement for the low group
- ΣX²_H = Sum of squares of the individual scores in the high group
- ΣX²_L = Sum of squares of the individual scores in the low group
- n = Number of respondents in each group

The t-value is a measure of the extent to which a given statement differentiates the high group from the low group. The t-value for all the indicators was computed. The maximum value was 7.221 and minimum 1.970. Items from this list retained after relevancy weightage having 't' value equal to or greater than 1.806 were selected for inclusion

in the final scale. The 't' values equal to or greater than 1.806 at $n_1 + n_2 - 2$ degrees of freedom indicate that the average response of the high and low group to an item differs significantly. Finally, only those statements were considered which were significant.

4) Selection of items

The value of critical ratio (t) for all the items were computed and arranged in descending order. On the basis of item analysis the items having 't' value less than 1.80 were finally rejected and those with more than 1.80 't' value were retained for inclusion in the final format of the scale. In this way, all 63 statements have equal to or greater than 1.80 't' value and so all these were selected for the final scale. The selected item along with their 't' values are depicted in Appendices- III, V and VII

5) Testing reliability of the scale

Guilford (1954) gave a definition of reliability as the proportion of true variance of a set of measurement. A scale is said to be reliable when it consistently produces same results when applied to the same sample (Goode and Hatt, 1952). Kerlinger (1964) defined reliability as the accuracy or precision of a measuring instrument. According to Anastasi (1968), reliability is the consistency of scores obtained by the same individual when re-examined with the same test on different occasion or with different sets of equivalent items, or under other variable examining conditions.

The two commonly used techniques of testing reliability of the scales are test-retest and split-half techniques. The major test-retest method was used for judging the reliability of scale developed for measuring causes of stress of farmers in distress prone area of Vidarbha.

a) Test-retest method

The test- retest method of measuring reliability consists of administering the test items to the subjects at two different times and later determining the correlation between the test and retest scores. Using this

technique, the scale was administered to 10.00 per cent of sample, 36 farmers of a non-sample area and the responses were obtained from them. After an interval of fifteen days, the same sets of respondents were re-administered with the same set of statements. The responses were obtained on five point continuums as 'No stress, little stress, moderately tolerable stress, high stress and tremendously high stress, with scores of 1,2,3,4, and 5 respectively.

Thus, two sets of responses were obtained and when these sets were correlated, the reliability co-efficient was obtained. A product moment correlation co-efficient (r) was computed between the two sets of scores for the scale with help of formula given below-

$$r = \frac{\Sigma XY - \frac{(\Sigma X)(\Sigma Y)}{N}}{\sqrt{\Sigma X^2 - \frac{(\Sigma X)^2}{N}} \sqrt{\Sigma Y^2 - \frac{(\Sigma Y)^2}{N}}}$$

Where,

r	=	Coefficient of correlation between X and Y scores
ΣX	=	Sum of scores of first test
ΣY	=	Sum of scores of second test
ΣXY	=	Sum of product of scores of two tests
ΣX^2	=	Sum of squares of first test
ΣY^2	=	Sum of squares of second test
N	=	Size of the sample

The value of 'r' computed was 0.91 and found significant at 0.01 level of probability. The reliability of the scale was justified since, the value of 'r' was found to be significant. Reliability coefficient computed by this method is called coefficient of stability. The consistency of scores obtained on testing and re-testing is referred to as the temporal stability. The correlation co-efficient indicating temporal stability is known as the co-efficient of stability (Singh,1986). The significant 'r' value therefore indicates that the scale is stable and measures causes of stress of farmers in distress prone area of Vidarbha. Split-half method

In absence of two equal forms of the test the split-half method is often used in estimating test reliability. A reliability coefficient of this type is also called a coefficient of internal consistency. The consistency of scores obtained from two equivalent sets of items of a single test after a single administration, is referred to as the internal consistency of the test scores. The correlation coefficient indicating internal consistency is known as the coefficient of internal consistency (Singh, 1986). The scale items were first divided into two equal halves by separating odd and even statements to represent two independent sets of statements. These two sets were administered to 36 respondents from non-sampled area. The responses were obtained on five-point continuum as No stress, little stress, moderately tolerable stress, high stress and tremendously high stress, with scores of 1,2,3,4, and 5 respectively.

The total scores of each respondent on the two sets were worked out by adding scores of all items. The correlation coefficient was computed between the two sets of scores obtained from the group of 36 respondents. The reliability coefficient calculated for the stress scale scale by following this procedure was 0.91 and found significant at 0.01 level of probability. It was indicative of high reliability of the constructed stress scale.

6) Testing validity of the scale

A scale possesses validity when it actually measures what it claims to measure (Goode and Hatt, 1952). Guilford (1954) said that a test is valid when it measures what it is purported to measured. According to Kerlinger (1964) the commonest definition of validity if epitomized by the questions like are we measuring what we are measuring? The emphasis in this question is on what is being measured? Anasthasi (1968) stated that the validity of a test is concerned with whether or not the test covers a representative sample of behaviour domain to be measured. English and English (1961) said that the validity of a scale is the property which ensures that the obtained test scores measure the variable that is supposed to measure. Anasthasi (1968) also emphasized

that the validity of a test concerns with what the test measures and how well it do so. The validity of the scale refers to the degree to which the scale is capable of achieving the aims or purposes it is intended to serve.

It was necessary to find out whether the scale developed for measuring causes of stress of farmers in distress prone area of Vidarbha was valid or not. For this the content and construct validity were therefore ascertained.

a) Content validity

Kerlinger (1964) defined content validity as the representativeness or sampling adequacy of the content, the substance, the matter, and the topics of a measuring instrument. Content validity is also called as face validity (Garret and Woodworth, 1967) as it refers not to what a test actually claims to measure but to what it appears to measure superficially (Singh, 1986). It is the validity when it appears to measure whatever the author had in mind, what he thought he was measuring. Ascertaining face validity is very useful in deciding whether the items are relevant to the attitude under study.

The main criterion of the content validity is how well the content of the scale adequately covered the various aspects of causes of stress of farmers in distress prone area of Vidarbha. As the contents of the causes of stress were drawn from the list of statements developed in consultation with literature, experts in the field and judge' s opinion, it was assumed that the scores obtained by administering the scale measuring the causes of stress of farmers in distress prone area of Vidarbha and nothing else.

b) Construct validity

A construct is a sort of concept, which is formally proposed with definition and is related to empirical data (English and English, 1958). Kerlinger (1964) defined construct as a concept with additional meaning of having been created for a special scientific purpose. According to Nunnally (1970), a construct indicates a hypothesis which tells us that a

variety of behaviours will correlates with one another in studies of individual differences and / or will be similarly affected by experimental treatments.

Kerlinger (1964) stated that construct validity is one of the most significant advances of modern measurement theory and practice. Anasthasi (1968) defined construct validity as the extent to which the test measures a theoretical construct or trait. The construct validity is the degree to which the scores on a scale can be accounted for the explanatory construct of a sound theory. The construct validity was tested by using 't' test. Respondents were categorized in two groups and difference of means was found out by 't' test. There was significant difference in the 't' value in the high and low group statements. The subjects having highest 't' value were selected and included in the scale.

The content validity and construct validity have thus reasonably established the validity of stress scale developed for measurement of causes of stress in distress prone area of Vidarbha.

7. Norms for use of scale

The final format of the causes of stress scale consisted of three major indicators as individual level, family level and farming level causes of stress. Amongst each indicator 24, 15 and 21 statements were framed respectively. For each statement, the response was elicited on different continuum and score was assigned as per each different measuring parameter. The total score for each respondent was calculated by adding up the scores of all statements in the scale. Statements are measured by scores like 1, 2,3,4,5 to 'No stress, little stress, moderately tolerable stress, high stress and tremendously high stress , 'index was computed.

$$\text{Stress Index} = \frac{\text{Actually obtained stress scores}}{\text{Maximum obtainable stress scores}} \times 100$$

The categorization of the respondents were further classified into three categories based on the equal interval method of formation of classes by considering the range of obtained score.

Sl. No.	Overall stress level	Score range
1	No stress	(up to 37.33)
2	Low	(37.33 to 43.55)
3	Medium	(43.56 to 49.77)
4	High	(49.78 to 55.99)
5	Tremendously high	(Above 55.99)

3.7.2.1 Stress management

Construction of scale for measurement of stress management of the farmers

Conceptually Stress management refers to the wide spectrum of techniques and psychotherapies aimed at controlling a person's levels of stress, especially chronic stress, usually for the purpose of improving everyday functioning.

Coping strategies aim to treat the stress problem by managing internal/external demands from environment, which individuals appraised as endangering their resources.

In McNamara's conception (2000) coping strategies are defined as the defense mechanisms aimed at resolving internal conflict. According to Lazarus and Monat and Lazarus (1991) described stress management as a general treatment approach to a wide variety of adaptations and health problems.

Thus, stress management in the present study was operationally defined as use of different techniques and psychotherapies to prevent, acceptance of universal truth and coping strategies to control stress of farmers.

Stress management was studied in terms of mental stress and physical stress.

The method of Thurstone's (1929) Equal Appearing Interval and Likert's (1932) Summated rating are the two scaling techniques that are well known as technique of scale development. In the present study, the methods of summated rating suggested by Likert (1932) and Edwards (1957) was followed for construction stress management scale. It requires less number of judges to start with and consumes less time (Jha and Katiyar, 1972). The procedure followed for construction and standardization of stress management was adopted and as such for construction of stress scale. Similarly, the following steps were followed for construction and standardization of stress management scale.

- 1) Collection of stress management items
- 2) Deciding relevancy of stress management items of the scale
- 3) Item analysis
- 4) Selection of items
- 5) Testing reliability of the scale
- 6) Testing validity of the scale
- 7) Norms for use of the scale

1) Collection of stress items

The basic aim of framing and preparation of item pool was to develop a set of statements that will reveal the agreement or disagreement with each respondent towards stress management of farmers in distress prone area of Vidarbha.

Statements were collected by referring books, journals, theses, internet and other relevant literature on the topic. The experts in the field of extension education, Agricultural economics and the advisory committee members were also consulted. All statements related to the physical stress management and mental stress management was initially framed. These statements were examined in the light of criteria as

suggested by Edwards (1957) in order to screen the same. After thorough screening, statements that were factual, ambiguous, double barreled, difficult etc were eliminated.

Thus, in all 96 statements were finally selected and retained for further analysis.

2) Deciding relevancy of stress management items of the scale

Since there was an equal opportunity that the statements chosen initially may not be relevant equally in measuring the stress management of farmers in distress prone area of Vidarbha, thus the procedure of item relevancy was adopted. The items selected were subjected to an expert panel of judges to determine the relevancy and their subsequent screening in order to include the same in the final interview schedule.

A list of these statements was sent by post and mailed to a panel of 120 judges (experts), who were selected from the discipline of extension education and Agricultural Economics. They were requested to critically evaluate or check each statement for its relevancy for assessing the stress management of farmers in distress prone area of Vidarbha.

The responses were obtained on a three-point continuum namely, 'most relevant', 'relevant' and 'not relevant' with a score of 3, 2 and 1 respectively. Out of 120 judges, only 70 judges responded. Out of 70 responses, 10 responses were incomplete, therefore only 60 responses were considered. The appropriateness score of each statement was worked out by adding the scores on the rating scale for all the 60 experts.

On the basis of these judgments, the relevancy percentages were worked out for all the statements individually by using the following formula given below.

$$\text{Relevancy percentage} = \frac{\text{Sum of most relevant response} + \text{Sum of relevant response}}{\text{Maximum score of response}} \times 100$$

Relevancy weightage was obtained by the standard formula:

$$\text{Relevancy weightage} = \frac{\text{Most relevant response } \times 3 + \text{Relevant response } \times 2 + \text{not relevant}}{\text{Maximum possible score of response}} \times 100$$

The mean relevancy score was obtained by the standard formula:

$$\text{Mean relevancy score} = \frac{\text{Most relevant response } \times 3 + \text{Relevant response } \times 2 + \text{not relevant}}{\text{Number of judges responded}} \times 100$$

Using these criteria, the items were screened for their relevancy. Accordingly, items having relevancy percentage of more than 75, relevancy weightage of more than 0.75 and mean relevancy score of more than 2.35 were considered for further item analysis.

Applying the criteria of more than 0.75 relevancy weightage 2 major indicators and 96 statements were selected and subjected to further item analysis.

These judgments' were used to work out the Relevancy Percentage (RP) of each performance item by using following formula adopted by Patil *et al.* (1996).

$$\text{Percentage (RP)} = \frac{\text{Sum of most relevant response Relevancy score} + \text{Sum of relevant response score}}{\text{Maximum possible score}} \times 100$$

$$\text{Percentage (RP)} = \frac{\text{Sum of most relevant response Relevancy score} + \text{Sum of relevant response score}}{\text{Maximum possible score}} \times 100$$

Considering the relevancy percentage, the performance items were screened for their relevancy. Accordingly, items having relevancy percentage of more than 75 were considered. Using these criteria, 75 items having more than 75 relevancy percentage were selected and is presented in Appendices VIII and X.

3) Item analysis

Final selection of the items was made on the basis of item analysis. Item analysis is an important step towards constructing a valid and reliable scale. It was again considered essential to delineate the statements that can discriminate between persons holding different attitudes. The main aim of item analysis is generally for item discrimination and ascertaining item difficulty. The statements identified on the basis of relevancy percentage were subjected to further item analysis.

The judges were asked to give their response to each statement on three point continuum namely, 'most relevant', 'relevant' and 'not relevant' 3, 2 and 1. The scores for each individual on the scale were computed by summing up the scores of the individual item responses. The respondents were arranged in the descending order according to their total score. Two criterion groups were formed by taking 25.00 per cent of the respondents having highest scores and 25 per cent of the respondents having lowest scores.

These scores were then used for testing of mean difference with the help of t-test. The formula used for the calculation of t-values was as follows:

$$t = \frac{X_H - X_L}{\sqrt{\frac{\sum X_H^2 - \frac{(\sum X_H)^2}{n} + \sum X_L^2 - \frac{(\sum X_L)^2}{n}}{n(n-1)}}$$

where,

t	=	critical ratio
X_H	=	Mean score on a given statement for the high group
X_L	=	Mean score on a given statement for the low group
ΣX_H^2	=	Sum of squares of the individual scores in the high group
ΣX_L^2	=	Sum of squares of the individual scores in the low group
n	=	Number of respondents in each group

The t-value is a measure of the extent to which a given statement differentiates the high group from the low group. The t-value for all the indicators was computed. The maximum value was 7.971 and minimum 2.106. Items from this list retained after relevancy weightage having 't' value equal to or greater than 1.80 were selected for inclusion in the final scale. The 't' values equal to or greater than 1.80 at $n_1 + n_2 - 2$ degrees of freedom indicate that the average response of the high and low group to an item differs significantly. Finally, only those statements were considered which were significant.

4) Selection of items

The value of critical ratio (t) for all the 96 items were computed and arranged in descending order. On the basis of item analysis the items having 't' value less than 1.80 were finally rejected and those with more than 1.80 't' value were retained for inclusion in the final format of the scale. In this way, all 96 statements have equal to or greater than 1.80 't' value and so all these were selected for the final scale. The selected item along with their 't' values are depicted in Appendices-IX and XI.

5) Testing reliability of the scale

Guilford (1954) gave a definition of reliability as the proportion of true variance of a set of measurement. A scale is said to be reliable when it consistently produces same results when applied to the same sample (Goode and Hatt, 1952). Kerlinger (1964) defined reliability as the accuracy or precision of a measuring instrument. According to Anasthasi (1968), reliability is the consistency of scores obtained by the same individual when re-examined with the same test on different

occasion or with different sets of equivalent items, or under other variable examining conditions.

The two commonly used techniques of testing reliability of the scales are test-retest and split-half techniques. The major test-retest method was used for judging the reliability of scale developed for measuring stress management of the farmers in distress prone area of Vidarbha.

a) Test-retest method

The test- retest method of measuring reliability consists of administering the test items to the subjects at two different times and later determining the correlation between the test and retest scores. Using this technique, the scale was administered to 10.00 per cent of sample, 36 farmers of a non-sample area and the responses were obtained from them. After an interval of fifteen days, the same sets of respondents were re-administered with the same set of statements. The responses were obtained on five point continuums as strongly agree, agree, undecided, disagree and strongly disagree with scores of 5,4,3,2 and 1 respectively.

Thus, two sets of responses were obtained and when these sets were correlated, the reliability co-efficient was obtained. A product moment correlation co-efficient (r) was computed between the two sets of scores for the scale with help of formula given below-

$$r = \frac{\Sigma XY - \frac{(\Sigma X)(\Sigma Y)}{N}}{\sqrt{\Sigma X^2 - \frac{(\Sigma X)^2}{N}} \sqrt{\Sigma Y^2 - \frac{(\Sigma Y)^2}{N}}}$$

Where,

r	=	Coefficient of correlation between X and Y scores
ΣX	=	Sum of scores of first test
ΣY	=	Sum of scores of second test
ΣXY	=	Sum of product of scores of two tests
ΣX ²	=	Sum of squares of first test
ΣY ²	=	Sum of squares of second test
N	=	Size of the sample

The value of 'r' computed was 0.89 and found significant at 0.01 level of probability. It was considered as quite high to justify the reliability of the scale.

Reliability coefficient computed by this method is called coefficient of stability. The consistency of scores obtained on testing and re-testing is referred to as the temporal stability. The correlation coefficient indicating temporal stability is known as the coefficient of stability (Singh,1986). The significant 'r' value therefore indicates that the scale is stable and measures stress management of farmers in distress prone area of Vidarbha.

b) Split-half method

In absence of two equal forms of the test the split-half method is often used in estimating test reliability. A reliability coefficient of this type is also called a coefficient of internal consistency. The consistency of scores obtained from two equivalent sets of items of a single test after a single administration, is referred to as the internal consistency of the test scores. The correlation coefficient indicating internal consistency is known as the coefficient of internal consistency (Singh, 1986). The scale items were first divided into two equal halves by separating odd and even statements to represent two independent sets of statements. These two sets were administered to 36 respondents from non-sampled area. The responses were obtained on three-point continuum as The responses were obtained on three point continuums as 'poor, average, and good, with scores of 1,2,3, respectively.

The total scores of each respondent on the two sets were worked out by adding scores of all items. The correlation coefficient was computed between the two sets of scores obtained from the group of 36 respondents. The reliability coefficient calculated for the job performance scale by following this procedure was 0.81 and found significant at 0.01 level of probability. It was indicative of high reliability of the constructed attitude scale.

6) Testing validity of the scale

A scale possesses validity when it actually measures what it claims to measure (Goode and Hatt, 1952). Guilford (1954) said that a test is valid when it measures what it is purported to measure. According to Kerlinger (1964) the commonest definition of validity is epitomized by the questions like are we measuring what we are measuring? The emphasis in this question is on what is being measured? Anastasi (1968) stated that the validity of a test is concerned with whether or not the test covers a representative sample of behaviour domain to be measured. English and English (1961) said that the validity of a scale is the property which ensures that the obtained test scores measure the variable that is supposed to measure. Anastasi (1968) also emphasized that the validity of a test concerns with what the test measures and how well it do so. The validity of the scale refers to the degree to which the scale is capable of achieving the aims or purposes it is intended to serve.

It was necessary to find out whether the scale developed for measuring causes of stress of farmers in distress prone area of Vidarbha was valid or not. For this the content and construct validity were therefore ascertained.

a) Content validity

Kerlinger (1964) defined content validity as the representativeness or sampling adequacy of the content, the substance, the matter, and the topics of a measuring instrument. Content validity is also called as face validity (Garret and Woodworth, 1967) as it refers not to what a test actually claims to measure but to what it appears to measure superficially (Singh, 1986). It is the validity when it appears to measure whatever the author had in mind, what he thought he was measuring. Ascertaining face validity is very useful in deciding whether the items are relevant to the attitude under study.

The main criterion of the content validity is how well the content of the scale adequately covered the various aspects of stress management of the farmers in distress prone area of Vidarbha. As the contents of the causes of stress were drawn from the list of statements developed in consultation with literature, experts in the field and judge's opinion, it was assumed that the scores obtained by administering the scale measuring the stress management of the farmers in distress prone area of Vidarbha and nothing else.

b) Construct validity

A construct is a sort of concept, which is formally proposed with definition and is related to empirical data (English and English, 1958). Kerlinger (1964) defined construct as a concept with additional meaning of having been created for a special scientific purpose. According to Nunnally (1970), a construct indicates a hypothesis which tells us that a variety of behaviours will correlate with one another in studies of individual differences and / or will be similarly affected by experimental treatments.

Kerlinger (1964) stated that construct validity is one of the most significant advances of modern measurement theory and practice. Anastasi (1968) defined construct validity as the extent to which the test measures a theoretical construct or trait. Bhopale and Nikhade (1994) defined the construct validity as to whether the test measures the same construct for which it is constructed and determined by correlating item score with total test score. The construct validity is the degree to which the scores on a scale can be accounted for the explanatory construct of a sound theory. The construct validity was tested by using 't' test. Respondents were categorized in two groups and difference of means was found out by 't' test. There was significant difference in the 't' value in the high and low group statements. The subjects having highest 't' value were selected and included in the scale.

The content validity and construct validity have thus reasonably established the validity of stress scale developed for measurement of causes of stress in distress prone area of Vidarbha

7. Norms for use of scale

The final format of the causes of stress scale consisted of three major indicators as individual level, family level and farming level causes of stress. Amongst each indicator 39 and 45 statements were framed respectively. For each statement, the response was elicited on different continuum and score was assigned as per each different measuring parameter. The total score for each respondent was calculated by adding up the scores of all statements in the scale. Statements are measured on three point continuums as 'poor, medium, and good, with scores of 1,2,3 respectively, 'index was computed.

$$\text{Stress Index} = \frac{\text{Actually obtained stress scores}}{\text{Maximum obtainable stress scores}} \times 100$$

The categorization of the respondents were further classified into three categories based on the equal interval method of formation of classes by considering the range of obtained score.

Sl. No.	Overall stress management level	Score range
1	Poor	(Up to 56.20)
2	Medium	(56.21 to 62.65)
3	Good	(Above 62.65)

Overall stress management index

Thus, by developing the items/statements with all selected indicators, farmers stress management index/scale was developed and standardized. The responses from individual farmers were elicited on five point continuum as strongly agree, agree, undecided, disagree and strongly disagree with score 5, 4, 3, 2 and 1 respectively. The raw score was converted in tom index and respondents were categorized as poor

stress management level, medium stress management and good stress management level.

Perception of farmers about concept of stress

Perception- “It is the process by which we receive information or stimuli from our environment and transform it into psychological awareness”. It is interesting to see that people infer about a certain situation or phenomenon differently using the same or different sets of information.

The simple meaning of perception is becoming aware of something via the senses. In *Psychology* perception is Recognition and interpretation of sensory stimuli based chiefly on memory. Insight, intuition, or knowledge gained by perceiving. The capacity for such insight.

For this research purpose, Perception towards stress is operationally defined as the awareness knowledge gained by the individual farmer' towards the positive and negative effects of stress.

With regard to the assessment of farmers' perception towards stress and usefulness of its management, researcher first look at what are the sources/causes of stress and perceived management strategies. Descriptive statistics based on summary counts of the structured interview schedule will be used to gain insights into farmers' perceptions of stress and usefulness of its management. To measure this variable, responses from individual respondent will be asked to state the concept of stress and usefulness of its management on three point continuum as correct, incorrect and do not know with score 2, 1 and 0 respectively.

Assessment of stress mindset measures of the farmers

In the context of stress, one's *stress mindset* can be conceptualized as the extent to which one holds the belief that stress has enhancing consequences for various stress-related outcomes such as

performance and productivity, health and wellbeing, and learning and growth (referred to as a “stress-is-enhancing mindset”) or holds the belief that stress has debilitating consequences for those outcomes (referred to as a “stress-is-debilitating mindset”).

In the present study stress mindset is operationally defined as the extent to which an individual farmer holds his /her belief that stress has enhancing consequences for various stress related outcomes such as performance and productivity, health and wellbeing and learning and growth.

To measure this variable, procedure adopted by Alias J. Crum *et al.* (2012) was used. The responses from individual respondent was judge on four point continuum as, neither Agree nor Disagree, agree and strongly agree with score 1, 2, 3, and 4 respectively.

Impact of stress on farmers’ behaviour:

Impact is defined as the strong impression or effects of anything on individual.

In the present study, it is operationally defined as the effects of stress on behavior of the individual farmer.

To measure this variable, individual farmer was asked about changes in their behavior on the basis of before and after the stress by considering 2011-12 as base year.

The behavioural aspects such as drinking, smoking, etc were considered. 1, 2, 3,4,5,6....etc score was assigned to each aspect for the quantitative measurement. Base year for calculating the stress was considered as 2011-12.

The impact was calculated with the following formula

$$\text{Impact of stress} = \frac{\text{After stress} - \text{Before stress} \times 100}{\text{Before stress}}$$

Later on, the respondents were classified based on frequency and percentage.

Constraints encountered by the farmers in stress management

Constraint is operationally defined as the difficulties encountered by an individual farmer in managing stress. To measure this variable individual farmer was asked to state the constraint faced by him/her in managing stress and the respondents were classified on the basis of frequency and percentage.

3.8 Statistical Methods to Be Used

3.8.1 Mean

Mean will be calculated by summing all the individual scores and dividing it by the number of cases, the formula will be,

$$\bar{X} = \frac{\sum \bar{x}}{N}$$

Where,

\bar{X} = The Arithmetic Mean

N = number of cases

X = A score of 'x' series

\sum = sum of

3.8.2 Standard deviation

It is calculated by following formula :

$$S.D = \sqrt{\frac{\sum (\bar{X} - \bar{X})^2}{N}}$$

Where,

S.D = Standard deviation

\bar{X} = Mean

X = Score of each respondent

N = Number of respondent.

3.8.3 Correlation coefficient (r)

Karl Pearson's correlation coefficient is used for measuring relationship between two variables.

$$r = \frac{\sum xy}{n} \frac{(\sum X)(\sum y)}{n} \sqrt{\frac{\sum X^2 - \frac{(\sum X)^2}{n}}{\sum y^2 - \frac{(\sum y)^2}{n}}}$$

Where,

r= Correlation coefficient

y= Dependent variable

x= Independent variable

n = Total number of respondents.

3.8.4 Multiple regressions

Multiple Regression Analysis

Multiple regression analysis was employed to find out the relative contribution of the independent variables towards each of the dependent variables. The multiple regression equation fitted was;

$$Y = a + b_1x_1 + b_2x_2 + \dots + b_nx_n$$

Where,

Y = Dependent variable

x_i = Independent variables $i = 1, 2, \dots, n$

b_i = Partial regression coefficient $i = 1, 2, \dots, n$

a = Constant

n = Total number of independent variables

The significance of the regression coefficient (b) was tested using the 't' test. The calculated t-value was tested against the Table value of t at (n-2) degrees of freedom. It was considered to be significant, if the calculated value of 't' was greater than the table at either 0.01 or 0.05 level of probability.



Plate 1. Data collection in village Myspur, Tq. Akola, Dist. Akola



Plate 2. Data collection in village Nimbi Malokar, Tq. Akola, Dist. Akola



Plate 3. Data collection in village Shivapur, Tq. Akola, Dist. Akola



Plate 4. Data collection in village Chandur, Tq. Akola, Dist. Akola



**Plate 5. Data collection in village Haralkhed,
Tq. Chikhali, Dist. Buldana**



**Plate 6. Data collection in village Dhanori,
Tq. Chikhali, Dist. Buldana**



Plate 7. Data collection and Group discussion in village Pimpalkhed, Tq. Chikhali, Dist. Buldana



Plate 8. Data collection in village Khanapur, Tq. Karanja (Lad), Dist. Washim



**Plate 9. Data collection in village Vilegaon,
Tq. Karanja (Lad), Dist. Washim**



**Plate 10. Data collection in village Gaiwal,
Tq. Karanja (Lad), Dist. Washim**



Plate 11. Data collection and Group discussion in village Gaiwal, Tq. Karanja (Lad), Dist. Washim



Plate 12. Data collection in village Sawarkhed, Tq. Morshi, Dist. Amravati



**Plate 13. Data collection in village Lehagaon,
Tq. Morshi, Dist. Amravati**



**Plate 14. Data collection and Group Discussion in village Shelodi,
Tq. Darvaha, Dist. Yavatmal**



**Plate 15. Data collection in village Kini Valagi,
Tq. Darvaha, Dist. Yavatmal**



**Plate 16. Data collection in village Chikhali Ramnath,
Tq. Darvaha, Dist. Yavatmal**



Plate 17. Data collection in village Bhandegaon, Tq. Darvaha, Dist. Yavatmal



Plate 18. Data collection and Group Discussion in village Bhandegaon, Tq. Darvaha, Dist. Yavatmal (In depth interview)



**Plate 19. Data collection in village Tuljapur,
Tq. Wardha, Dist. Wardha**



**Plate 20. Data collection and Group Discussion in village
Waygaon, Tq. Wardha, Dist. Wardha**



**Plate 21. Data collection in village Wadner,
Tq. Wardha, Dist. Wardha**



**Plate 22. Data collection in village Umari Maeghe,
Tq. Wardha, Dist. Wardha**

CHAPTER IV

SOCIO-ECONOMIC FEATURES OF THE STUDY AREA

4.1 Vidarbha Features

Maharashtra state has six revenue divisions viz., Mumbai, Pune, Nasik, Aurangabad, Amravati and Nagpur. Vidarbha area includes Amravati and Nagpur revenue divisions comprising eleven districts viz., Buldhana, Akola, Washim, Amravati, Yavatmal, Wardha, Nagpur, Bhandara, Gondia, Chandrapur and Gadchiroli. Washim and Gondia are newly formed districts bifurcating Akola and Bhandara districts respectively. Nagpur division includes Bhandara, Gondia, Chandrapur, Gadchiroli and Wardha are the eastern districts of Vidarbha. The western districts are Buldana, Akola, Amravati, Yavatmal and Washim. The western districts are known for its cotton crop and the eastern region is for good quality of rice. Vidarbha as a whole contributes cotton, rice, jowar, millets, oilseeds, soybean, citrus, forest timber etc. The Vidarbha region is by and large a tract of dry land agriculture lies in between 170 57' - 210 46' N Latitude and 750 57' - 800 59' E Longitude and crops suffers due to variation of climate change. More so, the cropping pattern has been shifted from cereals to non-cereals cash crop i.e. soybean major shift from sorghum crop as well as slight decrease in cotton hacters. This region is having agrarian economy with around 70% of population living in rural areas and 80% of the rural population dependent on agriculture, either as cultivators or labourer. Out of 97.23 lakh ha of geographical area, Vidarbha has a net cultivated area of 49.98 lakh hectares with 10.29 lakh hectares being cultivated for more than once due to limited irrigation facilities. The average annual rainfall ranges from 700 mm at the West to 1700 mm at the East. Region is divided into three agro-climatic zones based on rainfall, soil types and vegetation.

Western Vidarbha zone :	Rainfall 700 to 950 mm
Central Vidarbha Zone :	Rainfall 950 to 1250 mm
Eastern Vidarbha zone :	More than 1250 mm

4.2 Socio Economic Features of Yavatmal District

Yavatmal district is one of the four districts of Amravati revenue division in Vidarbha region of Maharashtra state. The position of the district is between 19⁰-29' and 20⁰ 41' north latitude and 77⁰ 18' and 70⁰ 9' east longitude. Average height of the district from sea is 434 meters. Yavatmal district is surrounded by six district of Maharashtra viz. Wardha (69km) on the north-east side, Amravati (92km) on the north side, Akola (156km) on the south-west side and Chandrapur (148km) on the south-east side. The district has Adilabad, Andhra Pradesh on its south side.

The total geographical area of the district is 13847 Sq.kms. It accounts for 29.50 per cent of the total area of Amravati division and 4.35 per cent of the area of state. Area wise the district ranks first in Amravati division and eighth in the state. The climate of the district is in general hot and dry with temperature 15⁰ C in winter to 46⁰ C in summer. The district receives rains from south-west monsoons during the period from June to October. The intensity of rainfall is highest in the month of August. The main rivers of the district are Wardha and Painganga flowing along the northern and southern boundaries of the district.

The soils of the district as a whole are uniformly good in texture. The colour of the soil varies from dark to broom. The soils of the district suffer mainly from mixture of limestone, sloping surface and excessive admixture of sand. However, it is very fertile in the alluvial tract. The total area under forest is 230200 ha. This accounts for nearly 15 per cent of the total geographical area of the district. The district has a total geographical area 13.52 lakh ha. About 9.25 lakh ha is under cultivation which constitutes 64 per cent of the total area. The irrigation facilities are inadequate in the district as against the state average per

cent. The district has 6 per cent area under irrigation. Nearly 85 per cent of the total land is irrigated by well water.

There are two important crop growing seasons in the district. The monsoon season which commences from June is called as *Kharif* season. Crops grown in this season are mostly sown in third and fourth week of June to first week of July. The second season is *Rabi* season (winter season). Crops like wheat, gram and sunflower are sown in this season in months of October or November. Generally, cotton, soybean, groundnut, sugarcane are grown as commercial crops and jowar, wheat and pulses are gram as food crops in the district. Crop rotations like soybean – wheat, soybean – gram – vegetables, green gram – sunflower – groundnut, green gram – wheat are commonly followed by farmers' of the district. Sugarcane cultivation is also showing an increasing trend, with the establishment of three sugar factories.

In 2011, Yavatmal had population of 2,775,457 of which male and female were 1,425,593 and 1,349,864 respectively. There was change of 12.90 percent in the population compared to population as per 2001. In the previous census of India 2001, Yavatmal District recorded increase of 18.35 percent to its population compared to 1991.

There is a large tribal population in the district accounting for 25 per cent i.e. 4.50 lakhs population.

The initial provisional data suggest a density of 204 in 2011 compared to 181 of 2001. Average literacy rate of Yavatmal in 2011 were 80.70 compared to 73.62 of 2001. If things are looked out at gender wise, male and female literacy were 88.58 and 72.41 respectively. For 2001 census, same figures stood at 84.09 and 62.52 in Yavatmal District. With regards to Sex Ratio in Yavatmal, it stood at 947 per 1000 male compared to 2001 census figure of 942 (Anonymous h, 2011).

Yavatmal is industrially backward district of Vidarbha region. There are few large scale industries in the district. The cottage and small scale industries are almost agro based industries. The cotton and village

industries are traditional like smithy, carpentry, pottery, weaving, oil crushing, shoe making, bricks and tie making. There are other agro based industries like ginning and pressing oil mills saw mills etc. established at Taluka head quarters. MIDC has developed two industrial estates in the district. The Lohara industrial estate is situated at 6 km from Yavatmal. One large scale industrial unit is functioning at Lohara viz., Syntex mills. On the whole there are 176 small scale industrial units registered with district industrial centre (DIC) and 7432 labourers are working in the above unit.

4.3 Socio-Economic features of Akola District

Akola district is situated in the Central East of Maharashtra state finding its place 20.170 to 21.16 0 North latitude and 76.70 to 77.40 East latitude. Total geographical area of Akola district is 5471 sq. kms. This contributes 1.76 per cent area of the Maharashtra state. District has part of 'Satpuda' hills in its North referred as 'Gawilgarh ' ranges. Some of the ranges of 'Ajantha' hills are situated in Patur Panchayat Samiti. The total area under forest in the Akola district is 787 sq. kms. This computed for 14.38 per cent of the total geographical area of the district. Out of the total geographical area of the district 77157 kms, falls under reserved forest area.

The district is surrounded by Amravati and Yavatmal district in the East, Washim and part of Yavatmal in South and Buldhana in West. Amravati district is situated on North latitude 20°32' to 21°46' and East longitude 76°37' to 78°37'. On Eastern side is Wardha district, on Southern side is Yavatmal district and Baitul (Madhya Pradesh) is on North East. The total geographical area of Akola district is 5,417 sq km. Out of which 4, 50,000 ha area under cultivation. As much as 30,718 ha of land are irrigated. Net irrigated area is 5.24 % of the net cropped area. Regarding soil type of Akola district 16.99 per cent of total area has coarse shallow, 72.99 per cent medium black and only 10.62 per cent deep black soils

The average annual rainfall of Akola district ranged between 750 to 850 mm and temperature fluctuate between 80°F to 110°F. The highest maximum temperature recorded at Akola was 47.8° C (118.0° F) on May 22, 1947. The lowest minimum temperature was 2.2° C (36.0° F) on February 9, 1887. On an average there are 48 rainy days (i. e. days with rainfall of 2.5 mm. or more) in a year in the district. Major Rivers in the district are Purna, Morna, Katepurna, Uma and Nirguna. Katepurna dam is lifeline for drinking water supply of the Akola city.

In 2011, Akola had population of 1,818,617 of which male and female were 936,226 and 882,391 respectively. There was change of 11.60 percent in the population compared to population as per 2001. In the previous census of India 2001, Akola District recorded increase of 20.58 percent to its population compared to 1991. The initial provisional data suggest a density of 321 in 2011 compared to 287 of 2001. Total area under Akola district is 5,673sq.km. Average literacy rate of Akola in 2011 were 87.55 compared to 81.42 of 2001. If things are looked out at gender wise, male and female literacy were 92.89 and 81.91 respectively. For 2001 census, same figures stood at 88.91 and 73.44 in Akola District. With regards to Sex Ratio in Akola, it stood at 942 per 1000 male compared to 2001 census figure of 938. The average national sex ratio in India is 940 as per latest reports of Census 2011 (Anonymous, i, 2011).

Akola district is one of the industrially backward districts in Vidarbha Region. Industries are mostly agro based. Oil and dal mills, ginning and pressing units and agro based units are the main SSI units. There are also medium/major industries in the district which include textile, fertilizer, juice making, pesticides, plastics etc.

It is identified as one of the distressed districts in Vidarbha region and covered under PM's package to provide relief measures to farmers'. There are 91 branches of 22 Commercial Banks, 26 branches of Vidarbha Kshetriya Gramin Bank and 67 branches of DCCB, in the district. The credit flow in the district was Rs.216.95 crores in 2008-09, Rs. 428.20 crore in 2009-10 and Rs.695.93 crore in 2010-11. The Annual

Credit Plan for the year 2011-12 has envisaged credit flow of Rs. 912.12 crore.

Agriculture is the predominant activity in Akola district. Jowar, wheat, bajra are the major food crops in the district whereas, cotton is the major cash crop. Besides this crop, pulses and oilseeds like safflower, sunflower, soybean, groundnut etc., are also cultivated in the district. Horticultural crops are gradually being preferred by farmers' due to support under NHM/EGS. The area under horticulture crops in Akola district is 0.28 lakh ha. i.e. 5.16 % of total geographical area.

Cotton is a major cash crop cultivated on a large scale in Akola district. Suitable hot climate and black soil required for this crop is available in the district. During the year 2010-11, an area of 185000 ha was under cotton cultivation and the production was 296000 bales. Productivity of cotton crop was 272 kilo/ha during the year 2010-11. There are good marketing arrangements for sale of cotton. Services of Cotton Federation and APMC are available for selling Cotton.

The NAIS scheme is under implementation in the district. Farmers' availed insurance for cotton, jowar, mung, soybean, tur, and udid crops. As per *Kharif* review booklet of department of agriculture, 1,87,634 farmers' took crop insurance involving premium of Rs.1422.78 lakh during *Kharif* 2011. Farmers' are likely to receive a claim of Rs 296.27 lakh for the year 2010. The claim amount will be received in respect of cotton and other crops. All talukas of the district have been included under weather insurance (unpredictable weather and low rainfall etc.) in respect of Cotton crop. The Panjabrao Deshmukh Krishi Vidyapeeth established in the year 1969 is rendering extension services / guidance to the farmers' in Vidarbha area in general and Akola in particular for adoption of modern farm techniques, through various training programmes organized for farmers'.

4.4 Socio-Economic features of Buldhana District

Buldhana district lies between 19⁰ 51' and 21⁰ 17' north latitudes and 76⁰ 38' and 76⁰ 40' east longitudes and is to north corner of Maharashtra. It is surrounded by Khandwa district of M.P in north, Jalna district of Marathwada region in south, Akola and Amravati in east and Jalgaon in west.

The north portion of district consists of Satpuda mountain ranges. Similarly the west portion of district particularly Chikhali and Mehkar tahsils consist of Ajanta mountain ranges. It is at 360 meter high from mean sea level. The soils are varied in structure and texture. It varies from black soils particularly in Chikhali and Mehkar, deep black cotton soils in Malkapur, Jalgaon jamod and khamgaon tahsils. Other region generally consists of murmad types of soils which are considered as less fertile.

The climate of Buldhana district is hot and dry although this city is cold and have healthy atmosphere. Some of the tahsils like Malkapur, Nandura, Jalgaon jamod, Sangrampur, Shegaon, Khamgaon are very hot in summer. This district having annual rainfall ranges between 750-800 mm. There were wide variations in average rainfall and number of rainy days within different tahsils of district.

The details of land use pattern of Buldhana district are as, Area for land utilization statistics (ha) 9671, area under forest 83 ha, Barren and uncultivable land 483 ha, Land put on non Agricultural use 511 ha., Cultural waste land-263 ha, Permanent pasture and other grazing land-13392 ha, land under miscellaneous tree crops and groves not included in net area sown-10 ha., current fallows-174 ha., Other fallows-272 ha., Net area sown-6684 ha., area sown more than once-1695 ha., gross cropped area-8379 ha., cropping intensity-125.36 per cent. (Source: Agricultural statistical information Maharashtra state, 2009)

There are two important crop seasons i.e. *Kharif* and *Rabi* where as in summer season land generally remains fallow and preparatory tillage operations are under taken.

Cotton, jowar are important crops grown in *Kharif* season on large scale. Tur, mung, udid, are also grown in *Kharif* on large scale. Soybean crop is grown by the farmers on large area. Wheat and gram are important *Rabi* crops grown in the area. Linseed, sunflower, safflower, some spices and vegetable, fruit crop are also grown in *Rabi* season wherever the sources of irrigation is mostly through wells and canals. Crop rotation crops were as Cotton + tur + jowar, Soybean + tur, Cotton+ mung / udid, Cotton + tur, Cotton+ tur + jowar +mung and Cotton + mung

Agricultural inputs like seed, manure, fertilizers, insecticides, pesticides etc. are required by the farmers are made available to them through number of agricultural service centers established at district level and block level. Maharashtra State Seed Corporation Ltd., Dr. PDKV, Akola and other private seed companies supply the quality seeds to the farmers. The farm inputs are made available to the farmers by co-operative societies and nationalize banks functioning at block level, panchayat samiti also provide inputs to the farmers. Co-operative society supply input against the loan sanctioned by the District Central Co-operation Bank to individual cultivator.

For the marketing of agricultural produce, agricultural produce market committees are functioning in the districts. All the tehsils having facilities of regulated markets functioning in the districts. These sub-markers are connected with roads and having facilities of banking, electricity etc.

4.5 Socio-Economic features of Wardha District

Wardha District is located in the Vidarbha region of Maharashtra state and is named after its most important river, the Wardha. The river Wardha forms its northern boundary from its point of confluence with one of its left bank tributaries, the Kar river, just a

kilometer east of the village Salora in the extreme northeast of the district. The district lies between 20°15 N and 21°21N latitudes and 78°30 E and 79°15 E longitudes

The district is bounded on the west and north by Amravati District, on the south by Yavatmal District, on the southeast by Chandrapur District and on the east by Nagpur District. The boundaries with Amravati and Yavatmal districts are identified by the river Wardha. The district covers 6,309 sqkm and the district had a population of 1,300,774, of which 26.28% were urban as of 2011 census. The percentage of population living in rural areas in Wardha District is far higher than in the state as a whole.

It has been experiencing a distress situation in agriculture over the last decade and has been identified as one of the six districts where a special package to alleviate agricultural distress was launched by the government of Maharashtra in the year 2005. Further to this, in the year 2006, Wardha was one of the thirty-one districts identified by the Government of India as prone to agriculture-related suicides and has received a rehabilitation package involving short-term and long-term measures to be implemented during 2006–2009.

The climate here is tropical. In winter, there is much less rainfall in Wardha than in summer. The Köppen-Geiger climate classification is Aw. The average temperature in Wardha is 27.3 °C. Precipitation here averages 1018 mm.

In case of land use pattern in Wardha district, (Area '000 ha) geographical area 629, cultivable area-473, forest area-77, land under non agricultural use-41, permanent pastures-46, cultivable waste land-5, barren and uncultivable land-17, land under miscellaneous tree crops and groves-5 current fallows-37 and other fallows-29 (Source: District Socio economic Review 2009 of respective district pub by Govt. of M.S., Mumbai).

The district has an area of 342.93 square miles under forest, of which 333.73 square miles are in charge of Forest department and remaining 9.20 square miles in charge of Revenue department. The forest area 14.13 per cent of the total geographical area as against 17.56 per cent for the whole of the state of Maharashtra. The type of soil generally found in Wardha district can be distinctly subdivided as Morand (Dark brownish or black colour), Bardi(Found in hilly region with large boulders and rocks), Kali (Black soil) and Khardi (Deep black soil)

Soybean, Cotton, Kharif jowar, tur, mung, wheat, groundnut, chickpea, sugarcane, sweet potatoes are raised in the district. The area is the undulating plateau surface around the large market village of Karanja and the economy is market oriented, orange orchard culture.

The Chinese proverb "exchange your kind of crop rather than land". It indicates the importance of crop rotations. To maintain the fertility status of the soil by improved method, crop rotations are essential for a farmer. Cotton, soybean and jowar are the three important crops grown in kharif season in the district. Mung, urid, rice, tur, groundnut are also grown on fairly large scale. Wheat is an important rabi crop grown in the area, gram also common in rabi season. Intercrops viz. pea, cowpea and gram can be taken in mandarin orchards. The crop rotation are commonly followed in the district are as follows. Cotton - Hybrid jowar - 2 years rotation, Cotton - mung – wheat Hy. Jowar - Gram – Cotton.

Irrigation facilities are necessary to develop the agriculture and necessary for the economic development. Rivers, wells, bandaras and minor projects are the main sources of irrigation in the district.

The input like seed, manures, fertilizers, insecticides, pesticides etc. are required by the farmers. Quality seeds can be made available to the farmers through number of Agriculture service centres, established in Wardha district, MSSC and other private seeds companies have been making arrangement for the supply of quality seeds of different

field crops flowers, vegetables. Panchayat samiti and cooperative societies also provide the farm inputs.

For the marketing of agricultural products, agricultural market committees are functioning in the district. These marketing committees are connected with roads and are having banking, electricity and other infrastructure facilities. The prosperity of orange plantations is very well reflected in the larger size of the settlements in the area in comparison to those farther out on the plateau, a fairly large number of market centres and their fairly close spacing about 2 to 2.5 km on an average.

Bullock carts and tractors and auto are main means of transportation of agricultural produce and inputs.

4.6 Socio-Economic Features of Amravati District

Amravati district lies between 20°32' and 21°46' North latitude and 76°-37' and 78°-27' East latitude. It occupies an area of 12,6235 square kilometers. Amravati district consists of 14 tahsils viz., Amravati, Bhatkuli, Achalpur, Dhamangaon Railway, Nandgaon Khandeshwar, Morshi, Anjangaon, Daryapur, Chandur Railway, Tiwasa, Chikhaldara, Warud and Dharni. Mandarins can be grown successfully in all frost free tropical and subtropical regions upto 1,500 m above M.S.L. (Mean Sea Level) An annual rainfall of 100-120 cm and temperature ranging from 10°-35° C is suitable for cultivation of the crop.

There is a boundary of the Baitul district of Madhya Pradesh of North side, Yavatmal district on South, Wardha district on East side and Akola district on West side of Amravati district. The district boundaries along the Tapi River on the North-West in around 1.6 km North-West of Bhokhar-Bardi village as far as the village khand and to a distance beyond it, deviates to the south of the river upto point 3 km East of the village Kat-kumbha. The river Wardha forms the entire boundary of the district. The boundary on the west stretches along the both of the Satpuda hills.

The climate of the district remains very hot in summer and cold in winter. The temperature in the month of May is generally high. Average maximum and minimum annual temperature of the district is 33.1°C and 21.3°C respectively. Summer and winter seasons are sometimes extreme.

Amravati district falls in medium and assured rainfall zone of Maharashtra state having an average annual rainfall 850 mm. The rainy season spreads over June to September. There was no regularity in rainfall during last few years. Amravati district receives 90 per cent of the rainfall from the South-West monsoon. There are occasional showers in the cold weather.

Amravati district is rich in fertile black cotton soil and alluvial soil. The richest tracts are found in the valleys of Purna and Wardha rivers. This soil swells considerably due to addition of water and dries up with cracks on loosing the moisture. The pH of the soil is 7.5 to 8.5 besides the Wardha and Purna river, so the tract is fertile. The central part of Amravati is also having fertile soils. Near the hills on southern border, shallow and inferior soil determinates.

It revealed that total geographical area of district is 12,310 hundred hectares and net sown area is 61.65 per cent of the total geographical area, gross cropped area is 65.07 per cent of the total geographical area. Land is prepared by ploughing, levelling and removing weeds. The land utilization in Amravati district were as total geographical area-122100 ha., land under forest-31800 ha., land not available for cultivation-52000 ha., land put to non agricultural use-34000 ha., barren and uncultivable land-18000 ha., land not cultivable other than barren land-63000 ha., permanent pasture and other grazing land-38000 ha., land under miscellaneous tree crop-7000 ha., cultivable waste land-18000 ha., fallow land-39000 ha., current Land-22000 ha., other Fallow-17000 ha., net area sown-759000 ha., area sown more than once-42000 ha., and gross cropped area-801000 ha (Source : District-wise Statistical Information of Maharashtra,2015-2016)

The Chinese proverb “exchange your kind of crop rather than land”. It indicates the importance of crop rotations. To maintain the fertility status of the soil by improved method, crop rotations are essential for a farmer. Cotton, soybean and jowar are the three important crops grown in kharif season in the district. Mung, urid, rice, tur, groundnut are also grown on fairly large scale. Wheat is an important rabi crop grown in the area, gram also common in rabi season. Intercrops viz. pea, cowpea and gram can be taken in mandarin orchards. The crop rotation are commonly followed in the district are as follows.

Cotton - Hybrid jowar - 2 years rotation

Cotton - mung – wheat

Hy. Jowar - Gram - Cotton

Data of cropping pattern of Amravati district revealed that cotton is a most important cash crop and occupies a leading position in the cropping pattern of Amravati district. In fact Amravati district ranks first in acreage, under cotton 39.47 per cent among all the district of Maharashtra and covers little over eight parts of the area as cotton in the state. In kharif season crops grown were Paddy, Jowar, Bajara, Tur, Mung, Udid, Groundnut, , Soybean Cotton while in rabi season, the crops grown were as Gram, Wheat, Safflower, Linseed, Sesamum, Sunflower and Mustard. In summer season the crops in the districts were Summer groundnut, Sunflower whereas annually grown crops were Sugarcane, some fruits and vegetables crops ((Source: D.S.A.O.,Amravati)

Irrigation facilities are necessary to develop the agriculture and necessary for the economic development. Rivers, wells, bandaras and minor projects are the main sources of irrigation in the district. Number of wells in use in the district is 42,260. About 98 per cent wells are provided with pump sets.

The input like seed, manures, fertilizers, insecticides, pesticides etc. are required by the farmers. Quality seeds can be made available to the farmers through number of Agriculture service centres,

established in Amravati district, MSSC and other private seeds companies have been making arrangement for the supply of quality seeds of flowers, vegetables and food grains. Panchayat samiti and cooperative societies also provide the farm inputs.

For the marketing of agricultural products, agricultural market committees are functioning in the district but there was no regulated market for flowers. There was the small shop for marketing of flowers. Thus, out of 14 tahsils. 11 tahsils are having the facilities of regulated market. These marketing committees are connected with roads and are having banking, electricity and other infrastructure facilities. Amravati city is connected to Bombay-Hawara rail route via Badnera.

Bullock carts and tractors and auto are main means of transportation of agricultural produce and inputs. The farms of flower cultivators are nearer to the Amravati local market.

4.7 Socio-Economic Features of Washim District

The district is located in the Vidarbha Region of Maharashtra; India Washim is located in the eastern region of Vidarbha. Akola lies to its north, Amravati lies to its northeast, Hingoli lies to its south, Buldhana lies to its west, Yavatmal lies to its east.

The geographical coordinates of Washim District are 76 degree 7 East Longitude and 19 degree 61 North Latitude. The entire district has divided into 6 talukas, which are Mangrulpir, Manora, Karanja, Washim, Risod and Malegaon. There are as many as 789 villages forming part of the Washim District in Maharashtra. The entire district occupies an area of about 5150 sq kilometre. The district had a population of 1,197,160 of which of 2011. The soil of the district is basically derived from volcanic trap rock and it is quite fertile. It is classified into categories as coarse soil found in south, medium black soil in the plain and deep black soil found in river valley. The Washim district extreme climate the weather during winter is too cool, while in summer it is too hot. The average minimum and maximum temperature extremities observed

throughout the year was 10⁰ C and 42.5⁰ C, respectively. Washim district falls in assured rainfall zone of Maharashtra state having on an average rainfall between 970 mm.

The details of land use pattern of Washim district are as follows: Total geographical area ('000 ha.) 514 ha., cultivable area-386 ha., area under forest-35 ha., barren and uncultivable land-18 ha., permanent pastures and other grazing land-34 ha., land under miscellaneous tree crops and grooves not included in net area sown-01 ha., cultivable waste land-10 ha., land put under non-agricultural use-8, current fallow land-8 ha., other Fallow land- 12 ha., (Source: District Socio-economic Review, 2011-12).

The usual cropping pattern of Washim district in kharif season and rabi season are as follows: Cotton, Soybean, Tur, Sorghum, Bajara, Green gram, Black gram and groundnut while in case of rabi season, Wheat, Sorghum, summer groundnut, Safflower and sunflower and in annually grown fruits and vegetables crops (Source: District Socio-economic Review, 2011-12)

There are two important crop seasons i.e. *Kharif* and *Rabi* where as in summer season land generally remains fallow and preparatory tillage operations are undertaken. Cotton, Jowar are important crops grown in *Kharif* season on large scale. Tur, Mung, Udid, are also grown in *Kharif* on large scale. Soybean crop is grown by the farmers on large area. Wheat and gram are important *Rabi* crops grown in the area. Linseed, sunflower, safflower, some spices and vegetable, fruit crops are also grown in *Rabi* season wherever the sources of irrigation is mostly through wells and canals. The manners in which crop rotation are commonly followed as Cotton + Tur + Jowar, Soybean + Tur, Cotton+ Mung / Udid, Cotton + Tur, Cotton+ Tur + Jowar +Mung and Cotton + Mung

Agricultural inputs like seed, manure, fertilizers, insecticides, pesticides etc. required by the farmers are made available to them through number of agricultural service centres established at district level and block level. Maharashtra State Seed Corporation Ltd (MAHABEEJ), Dr. PDKV, Akola and other private seed companies supply the quality seeds to the farmers. The farm inputs are made available to the farmers by co-operative societies and nationalized banks functioning at block level, Panchayat Samiti also provide inputs to the farmers. Co-operative society supply input against the loan sanctioned by the District Central Co-operation Bank to individual cultivator.

For the marketing of agricultural produce, agricultural produce market committees are functioning in the district. All six tahsils are having facilities of regulated markets functioning in the district. These sub-markets are connected with roads and having facilities of banking, electricity etc.

CHAPTER V

RESULTS AND DISCUSSION

The present chapter deals with the results pertaining to Stress Management of Farmers in Distress Prone Area of Vidarbha and discussion there on. The data were collected from 360 farmers spread over 24 villages across the six tahsils of six suicide concentrated districts of Vidarbha namely, Yavatmal, Akola, Washim, Buldana, Amravati and Wardha. Apart from in-depth interviews with the 360 farmers 2 Focus Group Discussions (FGDs) and 05 group discussions were also carried out in study area.

The data collected from the respondents have been suitably organized, scored, classified, tabulated and analyzed in line with the objectives of the study. The data were also subjected to statistical treatments and analysis with the help of appropriate statistical techniques and tests. The results obtained have been discussed appropriately with the logical reasoning in light of the findings of the previous researches on the topic. The results alongwith the discussion have been described under the following subheads.

A. Independent Variable

5.1 Personal and Socio-economic Characteristics

5.2 Perception about the concept of stress and stress mindset of the farmers

5.2.1 Concept of stress

5.2.2 Stress mindset

5.3 Intervening Variable

5.3.1 Stress

B. Dependent variable

5.4 Stress Management

5.4.1 Physical stress management

5.4.2 Mental Stress management

5.5 Impact of stress of on behavior of farmers

5.6 Regression analysis

5.7 Constraints encountered by the farmers in stress management

A. Independent Variable

5.1 Personal and Socio-economic Characteristics

1. Age

Age was operationally defined as chronological age of the respondents in completed years at the time of interview.

Table 7. Distribution of the respondents according to their age

Sl. No.	Age Category	Respondents (n=360)	
		Frequency	Percentage
1	Young(Up to 35)	85	23.61
2	Middle(36-50)	153	42.50
3	Old(Above 50)	122	33.89
	Total	360	100.00

It is observed from Table 7, that 42.50 per cent of the respondents were under middle age category in between 36-50 years. It was followed by (33.89%) were in old age category i.e. above 50 years and remaining 23.61 per cent were found in young age category i.e. upto 35 years. The age profile analysis of the selected farmers indicated that more or less in all age group respondents were covered under the study.

It is concluded from the above Table that higher proportion of the respondents were found in middle age category.

These findings are in consistent with the findings of Seema Tandekar (2014), Vidya Kaple (2015), Snehalata Borhade (2017),

2. Education

Education is absolutely necessary to achieve sustainability in life by creating an empowered and capable citizenship with the knowledge, skills and values needed for local innovation and scale up of stress management. Level of education was assumed to increase household ability to obtain, process, and use information relevant to stress management. Education is therefore expected to help in managing

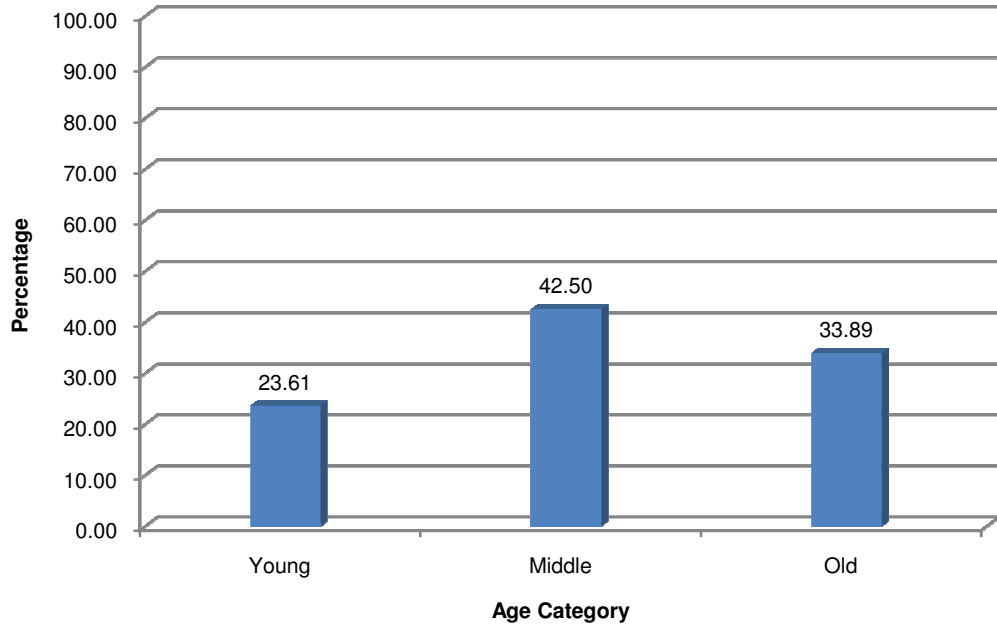


Fig. 3. Distribution of the respondents according to their age

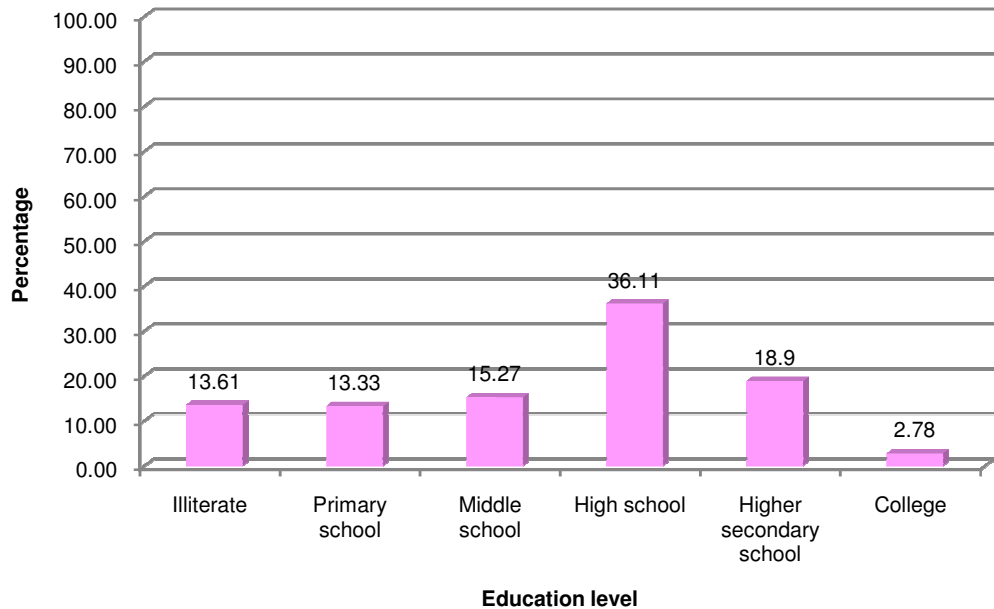


Fig. 4. Distribution of the respondents on the basis of educational level

the stress effectively. Evidence from various sources indicates that there is a positive relationship between the education levels of the farmers. Therefore, farmers' with higher levels of education are more likely to better manage the stress. The variable was therefore selected and result has been presented in Table 8.

Table 8. Distribution of the respondents on the basis of educational levels

Sl. No.	Category	Respondents (n = 360)	
		Number	Percentage
1	Illiterate	49	13.61
2	Primary school	48	13.33
3	Middle school	55	15.27
4	High school	130	36.11
5	Higher secondary school	68	18.90
6	College	10	02.78
	Total	360	100.00

It is observed from the Table 8 that relatively higher proportion of the respondents (36.11%), were educated up to high school level followed by little less than one fifth (18.90%) were educated upto higher secondary school. The respondents 15.27 per cent were educated up to middle school level of education which was followed by 13.33 per cent who were educated up to primary level and 13.61 per cent of them were illiterate. Only 2.78 per cent of the respondents were educated up to college level of education.

From the results it is concluded that, overall education level of the selected respondents were low.

These findings are in accordance with the previous research findings of Kale (2008) and Seema Tandekar (2014)

3. Marital status

It is assumed that married person has more responsibilities which may causes stress and attachment in the family which may help to manage the stress. Therefore this variable was selected for study

Table 9. Distribution of the respondents according to their marital status

Sl. No.	Marital status	Respondents(n = 360)	
		Number	Percentage
1	Married	353	98.06
2	Unmarried	07	1.94
	Total	360	100.00

It is apparent from Table 9 that, large majority of the respondents (98.06%) were married followed by very few (1.94%) were unmarried.

It is concluded from above table that, large majority of the respondents were observed in married category and they may face more family responsibilities which may cause stress and due to attachment in the family it may helps to manage the stress effectively.

The above results are corroborating to the findings of Seema Tandkar and Manisha Gujar (2017) wherein they were observed that majority of the respondents were in marriage category.

4. Family type

Distribution of the respondents according to their family type is presented in Table 10.

Table 10. Distribution of the respondents according to their family types

Sl. No.	Family type	Respondents(n = 360)	
		Number	Percentage
1	Nuclear	232	64.44
2	Joint	128	35.56
	Total	360	100.00

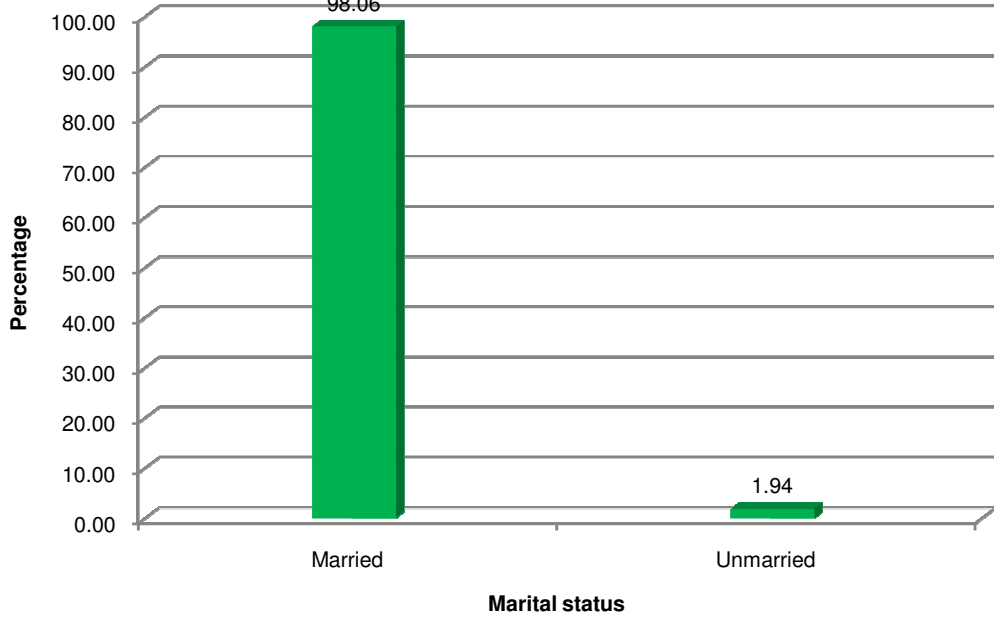


Fig. 5. Distribution of the respondents according to their marital status

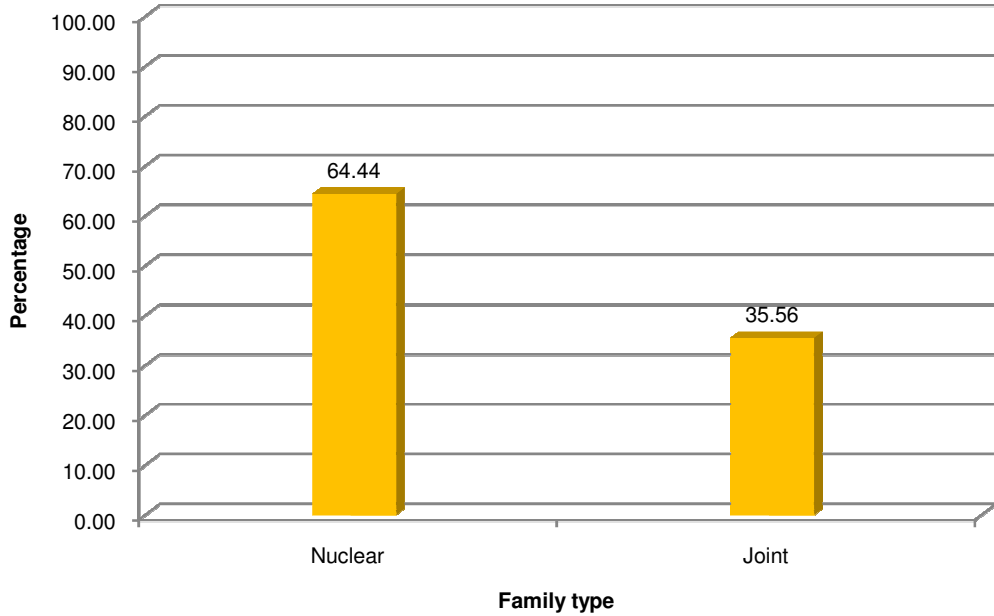


Fig. 6. Distribution of the respondents according to their family types

The data depicted in Table 10 clearly explain that maximum number of respondents (64.44%) had nuclear type of family followed by (35.56%) respondents had joint family type.

From the above findings it may be concluded that maximum number of the respondents were having nuclear family which may be difficult to manage the stress effectively because the study revealed that joint family provides the support to the individuals and hence lesser stress as compared to nuclear family. Vashishtha and Mishra (1998) observed that social support from the family could minimize the stress among individual. Further Bhattacharyya (2002) stated that joint families are disappearing from India and the values of sharing community feelings are also disappearing very fast. The madness for quick money has made these individuals ignorant of human values and these families are becoming the ruined for stress now.

These findings are also consistent with the findings of Seema Tandekar (2014) and Manisha Gujar (2017) and stated that majority of the respondents were belonged to nuclear family.

5. Family Size

Large family members may be forced to divert part of the labour force to off-farm activities in an attempt to earn income in order to ease the consumption pressure imposed by a large family size (Yirga, 2007). Large family size is normally associated with a higher labour endowment, which would enable a household to accomplish various agricultural tasks and also helpful for sharing the stressful situation which ultimately may help to manage the stress.

The bird eye view of the Table 11 indicated that maximum number of the respondents (60.56%) had medium family size having family members in the range of 4 to 6 followed by little less than one fourth (24.44%) were observed in small family size i.e up to 3 members and large (15.00%) size of families having family members above 7.

Table 11. Distribution of respondents according to their family size

Sl. No.	Family Size	Respondents (n = 360)	
		Number	Percentage
1	Small (Up to 3)	88	24.44
2	Medium (4 to 6)	218	60.56
3	Large (7 and above)	54	15.00
	Total	360	100.00

It is, therefore, inferred that majority of the respondents were concentrated to medium and small sized family. Kale (2008) also reported that more than half (61.00%) of the deceased farmers' in distress area had medium family size (4 to 6 members). Enujeke and Ofuoku (2012) also noticed that most (38.80%) of the farmers' had a household size of 5-6 household members. Koshti (2013) also reported that 59.00 per cent of the respondents were having medium family size (4 to 6).

6. Land holding

It is indicative of the economic status of an individual, cropping pattern and related aspects. It is assumed that land owned by an individual explains his ability to bear risk, to adopt innovations and to invest the land in cultivation of various crops which may helps to increase income and ultimately to manage the stress. It was found that, more is the land holding, more is the knowledge, adoption and income from farming business, and hence this variable has been considered in the present study. The distribution of the respondents according to land holding is presented in Table 12 as follows.

Distribution of respondents in the Table 12 clearly reveals that little more than half of respondents (51.39%) belonged to small category of land holding 1.00 to 2.00 ha followed by the marginal farmers little more than one fourth (26.11 %) having land ranging from 2.01 to 4.00 ha of land and little more than one fifth (22.50%) were observed in category of marginal land holding category having land up to 1.00 ha.

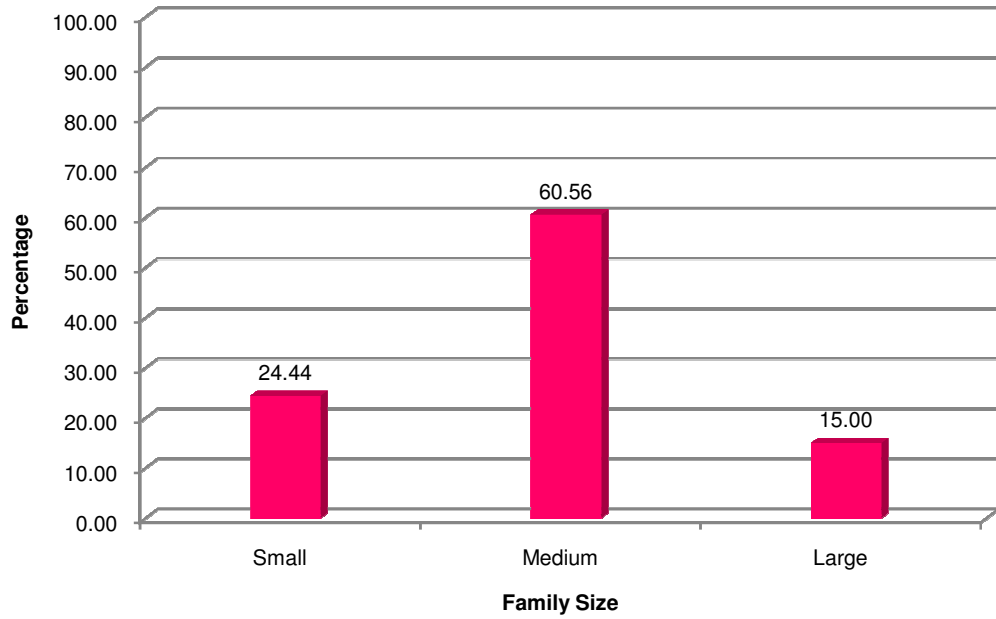


Fig. 7. Distribution of the respondents according to their family size

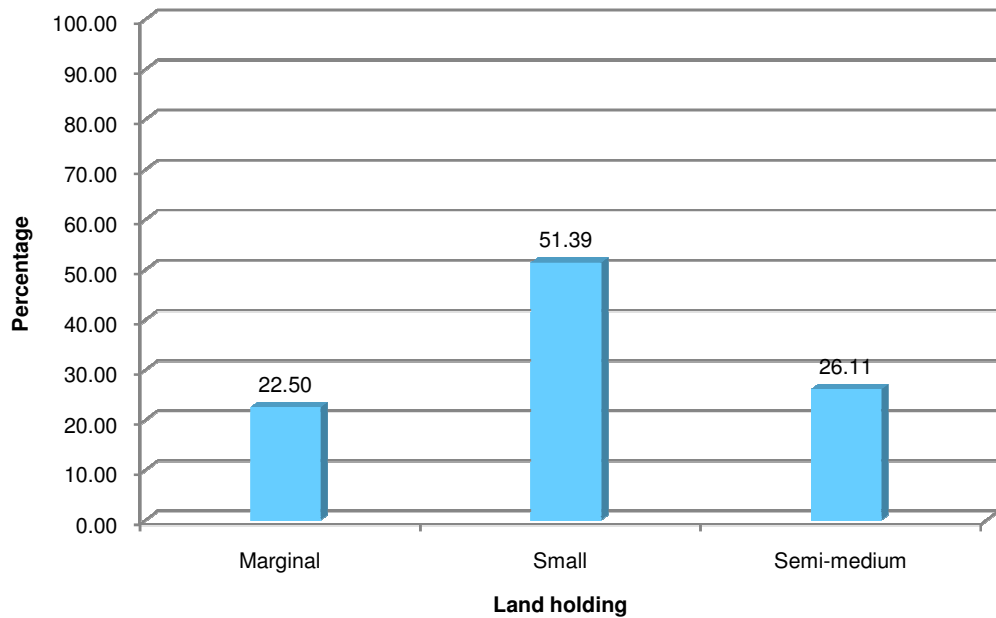


Fig. 8. Distribution of the respondents according to their land holding

Table 12. Distribution of the respondents according to their land holding

SI.No.	Land holding	Respondents (n = 360)	
		Number	Percentage
1	Marginal (Up to 1.00 ha.)	81	22.50
2	Small (1.01 to 2.00 ha.)	185	51.39
3	Semi-medium (2.01 to 4.00 ha.)	94	26.11
	Total	360	100.00

It has been concluded that from Table 12 that maximum number of respondents in study area were group in small and medium category of land holding. These groups are more vulnerable to risks and uncertainty that prevail in agricultural production and ultimately occurs the stressful situation in their life. (Maharashtra Government Report 2006), Anonymous (2009), Tejashri Kachhawah (2013) and Seema Tandekar (2014).

7. Farming experience

Farming experience plays an important role in bearing various risks in farming business. It is assumed that farming experience increases the risk bearing capacity of an individual in his farming and can withstand shocks caused due to farm related stress. Hence, farming experience has been considered in present study. The distribution of the farmers' according to their farming experience has been presented in Table 13.

The farming experience possessed by the respondents have been studied and presented in Table 13.

Table 13. Distribution of the respondents according to their farming experience

Sl. No.	Farming experience (in years)	Respondents (n = 360)	
		Number	Percentage
1	Up to 14 years	111	30.83
2	15 to 28 years	154	42.78
3	29-42 years	95	26.39
	Total	360	100.00

The data from Table 13 reveals that less than half (42.78%) of the respondents were possessed farming experience ranging from 15 to 28 years followed by 30.83 per cent of the respondents were having farmig experience up to 14 years and little more than one fourth of the them (26.39%) were having having farming experience ranging from 29-42 years.

From the above findings it can be inferred that relatively higher proportion of the respondents were having farming experience ranging from 15 to 28 years. It was noticed that the farming experience enhanced the stress management capacity of farmers' related to farming. These findings are in consistent with the findings of Rathod (2007).

8. Occupational status

It is apparent from Table 14 that, relatively higher proportion of the respondents (60.83%) were possessed farming + labour occupation followed by slightly less than one fifth of them (19.17%) were having farming as a main occupation, whereas 16.11 per cent of the respondents were possessed farming +subsidiary occupation. Negligible per cent of the respondents (2.22%) and (1.67) were having their occupation as farming + business and farming +service occupation respectively.

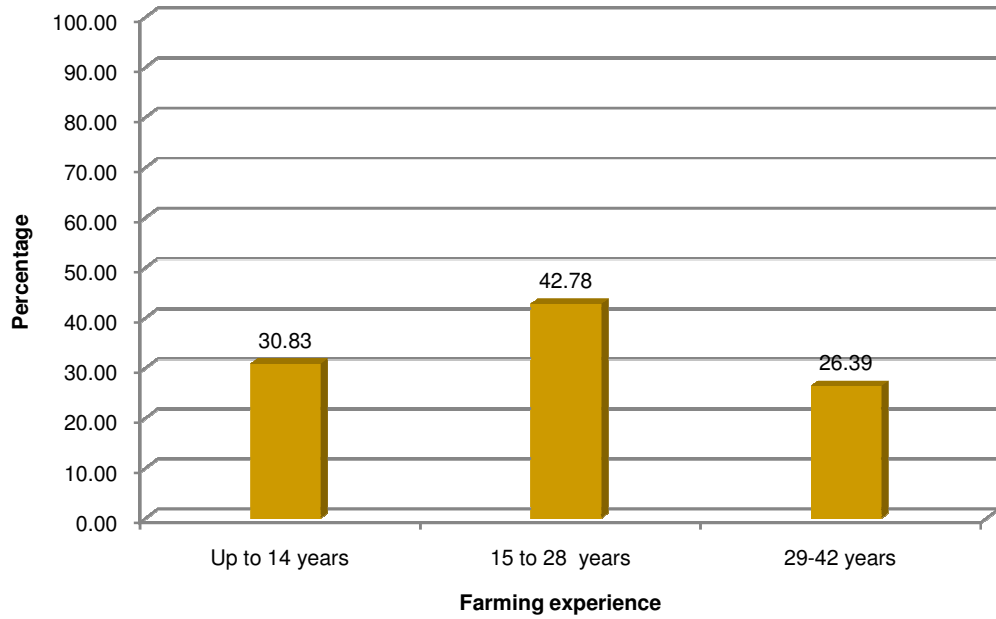


Fig. 9. Distribution of the respondents according to their farming experience

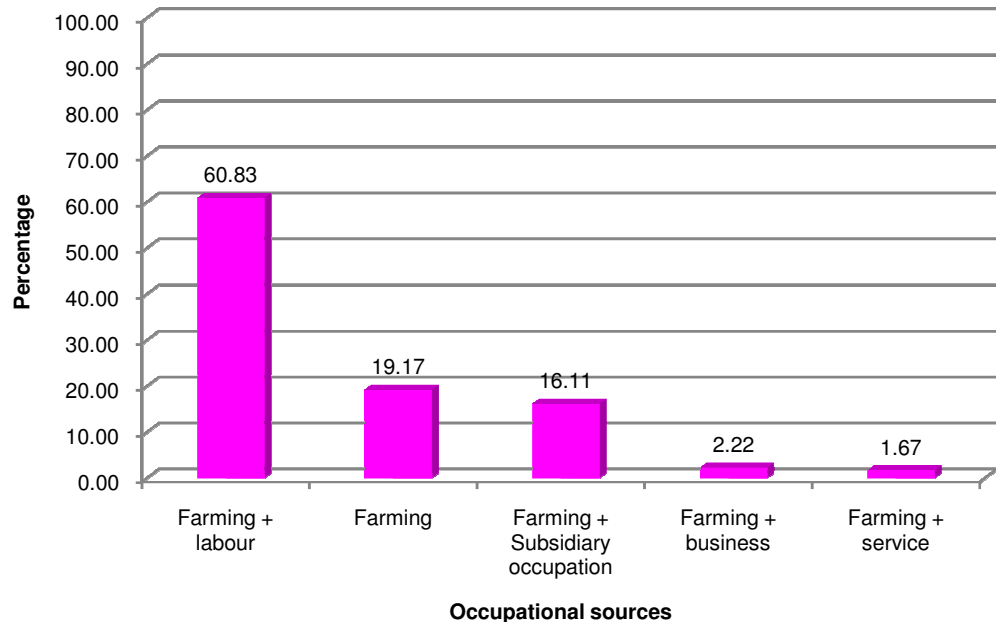


Fig. 10. Distribution of the respondents according to their occupational sources

Table 14. Distribution of selected respondents according to their occupational status

Sl. No.	Occupational sources	Respondents n=360	
		Frequency	Percentage
1	Farming+ labour	219	60.83
2	Farming	69	19.17
3	Farming + Subsidiary occupation	58	16.11
4	Farming + business	08	2.22
5	Farming + service	06	1.67
	Total	360	100.00

It is concluded from the above findings that, most of the farmers were having their main occupation as farming + labour. The findings of the Table 15 are dissimilar to the findings of Seema Tandekar (2014) and Manisha Gujar (2017) who reported that, major occupation of the farmers was farming. But it may be further inferred that, the respondents selected were having dry land farming and having land ranging from marginal to semi-medium category of land holding. Therefore it is unable to fulfill their needs and they searched for other work i.e. labour work.

9. Expenditure pattern

Expenditure pattern is indicative of the standard of living and ability of the respective group to invest under different items

In present study, actual expenditure made by the respondent, individual farmer on different livelihood items like expenditure on food, clothing, housing, education, health, festivals, lighting, marriage, agriculture etc. was studied and data presented in Table 15.

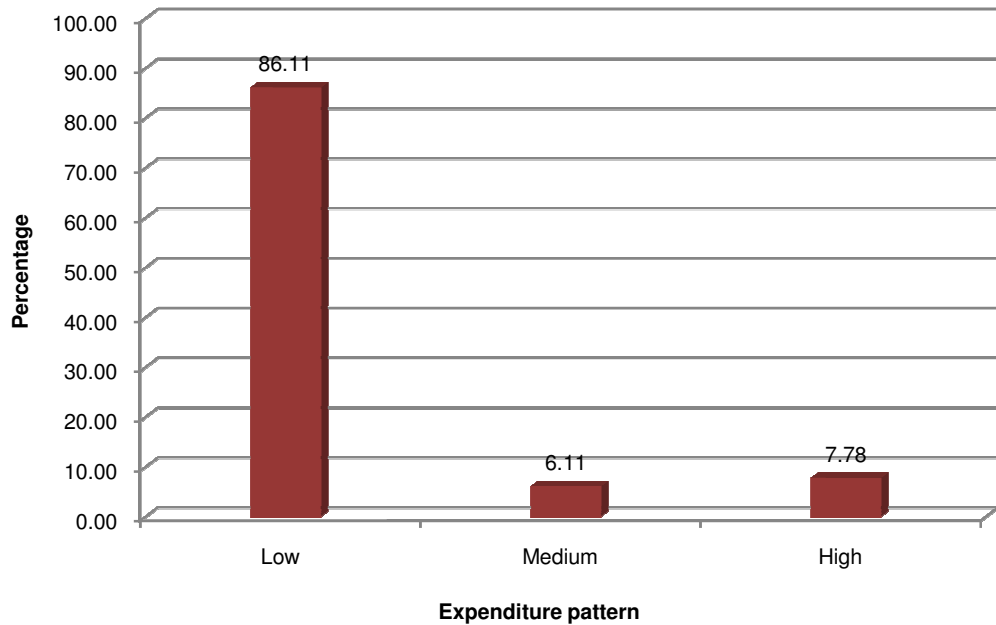


Fig. 11. Distribution of the respondents according to their levels of expenditure pattern

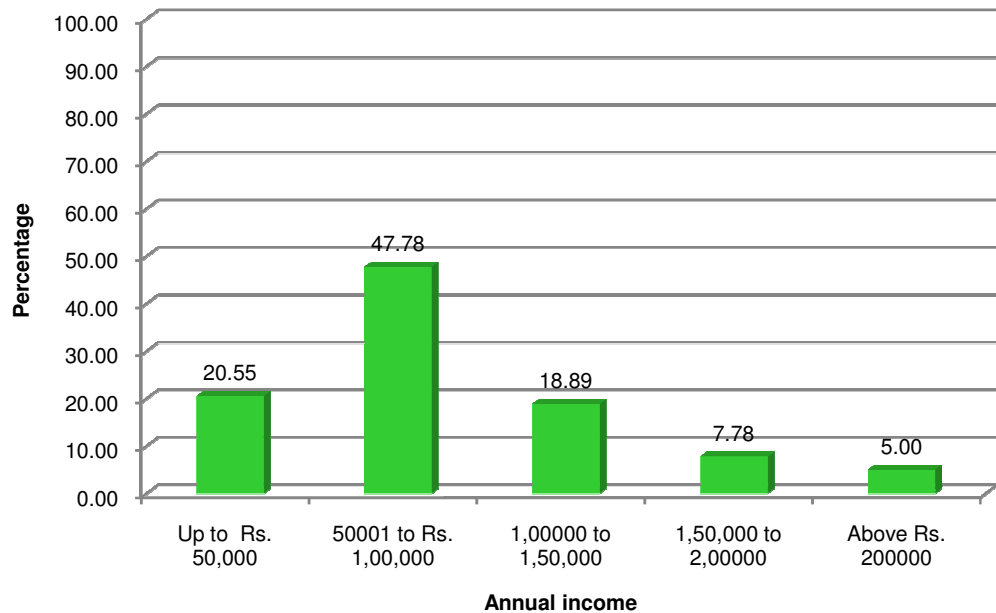


Fig. 12. Distribution of the respondents according to their annual income

Table 15. Distribution of the respondents according to their expenditure pattern

Sl. No.	Expenditure pattern	Respondents	Percentage
1	Low (Rs. Up to 199300/-)	310	86.11
2	Medium (199301 to 231400/-)	22	06.11
3	High (Above Rs.231400/-)	28	07.78
	Total	360	100.00

The data depicted in Table 15 that, large majority of the respondents (86.11%) were found in low level of expenditure pattern up to Rs. 1,99,300/- followed by very few of them 7.78 per cent and 6.11 per cent respondents were observed in high and medium level of expenditure pattern which may be due to inadequate money.

From the above findings it can concluded that, large majority of the farmers were found in low level of expenditure pattern.

Table 16. Annual expenditure pattern of the respondents on different items

Sl. No.	Expenditure Pattern	Percentage
1	Food	16.21
2	Cloths	03.48
3	Housing	03.30
4	Education	11.07
5	Health	14.26
6	Traveling	03.00
7	Electricity	02.82
8	Religious	06.67
9	Agriculture	31.97
10	Taxes	0.80
11	Other	06.42
	Total	100.00

(Average expenditure = Rs. 84,019)

It could be observed from Table 16 that out of total expenditure of overall respondents, the expenditure on agriculture had higher share contribution 31.97 per cent and expenditure on food contributed 16.21 per cent share. Expenditure on health contributed 14.26 per cent, education (11.07%) religious expenses (6.67%), others (6.42%) cloths (03.48%), housing (03.30%), travelling (03.00%), electricity (02.82%) and taxes (0.80%). The share of housing, travelling electricity and taxes have very negligible share.

The average expenditure of all selected respondents computed to Rs. 84019/-.

From the above findings it is concluded that expenditure on agriculture had higher share contributing 31.97 per cent.

10. Annual income

Annual income is believed to be the main source of capital for purchasing agricultural inputs and minimize the all types of stress. Thus, those farmers with a relatively higher level of income goes to hospital in stressful situation or are likely to purchase improved seeds or other essential agricultural inputs in response to manage the stress at different levels.

The data regarding annual income of the selected respondents have been presented in Table 17.

Table 17. Distribution of the respondents according to their annual income

Sl. No.	Income per annum (Rs.)	Respondents (n = 360)	
		Number	Percentage
1	Up to Rs. 50,000	74	20.55
2	50001 to Rs. 1,00,000	172	47.78
3	1,00000 to 1,50,000	68	18.89
4	1,50,000 to 2,00000	28	7.78
5	Above Rs. 200000	18	5.00
	Total	360	100.00

The data regarding annual income of the selected respondents revealed that, less than half of (47.78%) of the respondents were having annual income ranging from 50001 to 100000/-, followed by little more than one fifth (20.55%) respondents were having their annual income up to Rs. 50,000/- and 18.89 per cent of them were having annual income of Rs. 1,00000/- to 1,50000/-. Very few per cent of the respondents (7.78%) and (5.00%) were having their annual income of Rs. 150000 to 200000 and above 200000/- respectively.

It is concluded from the Table 17 that major group of the respondents were having their annual income ranging of Rs. 50001 to Rs. 100000/- followed by up to Rs. 50,000/- These findings are in accordance with the findings of Gavane (2012), Koshti (2013), Seema Tandekar (2014), Manisha Gujar (2017) and Rani Palskar (2018).

11. Social participation

It refers to the position occupied by farmer with regard to social participation in various formal and informal organizations in the village or outside.

Social participation has been operationally defined as the participation of farmer in formal and informal organizations in the village or outside. It is therefore, hypothesized that those farmers' who participated in some social organization as member or leader are more likely to manage the stress.

The levels of social participation have been calculated and the farmers' distribution is presented in Table 18.

Table 18. Distribution of the respondents according to levels of social participation

Sl. No	Category	Number of respondents	Percentage
1	No participation	161	44.72
2	Low (up to 1)	122	33.89
3	Medium (2 to 3)	71	19.72
4	High (above 3)	06	01.67
	Total	360	100.00

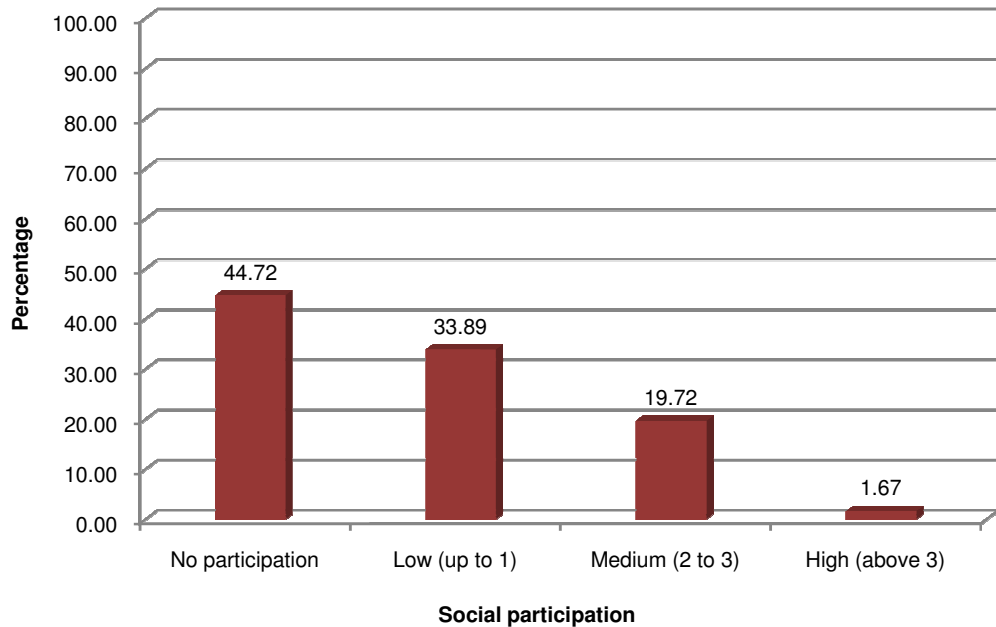


Fig. 13. Distribution of the respondents according to levels of social participation

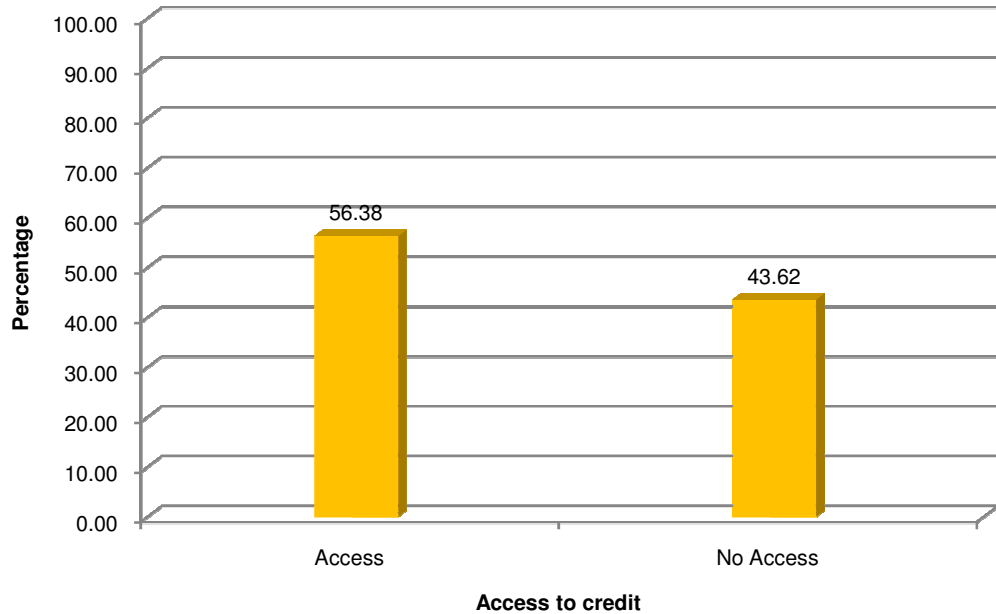


Fig. 14. Distribution of the respondents according their access to credit

Distribution of the respondents according to level of social participation presented in Table 18 and it is observed that higher proportion of the respondents (44.72%) were having no social participation followed by near about one third (33.89%) were having their social participation in low category and only one organization. Nearly one fifth (19.72%) of the respondents were having medium social participation having involvement in 2 to 3 organization and very meager percentage of them (1.67%) were having high social participation.

From the above findings it is inferred that, higher proportion of the respondents were not participated socially in any organization which is not fair to manage the stress.

Tompkins and Adger (2004) demonstrated that, community-based management enhances adaptive capacity in two ways: by building networks that are important for coping with extreme events and by retaining the resilience of the underpinning resources and ecological systems. It is, therefore, inferred that very low or no social participation of the farmers' in the study area may not aid farmers' to release the stress caused due to multiple factors including indebtedness, crop failures, climate change and variability. Non sharing of problems with others build up distress in them. It is therefore suggested that, platforms like religious discourses, lectures of eminent motivators, shall be provided in villages at regular intervals where farmers' communicates with each other and share their joys as well as sorrows and solve their problems with mutual cooperation from other farmers'. The present findings are consistent with the findings of Koshti (2013), Seema Tandekar (2014) and Manisha Gujar (2017).

12. Access to credit

Availability of credit eases the cash constraints and allows farmers' to buy/ purchase inputs such as fertilizer, improved crop varieties, insecticides/pesticides or to maintain the health which ultimately may helps to manage the agricultural related stress or other stressful

events. Researches on adoption of agricultural technologies indicated that there was a positive relationship between the level of adoption and the availability of credit (Yirga, 2007; Pattanayak *et al.*, 2003). Operationally access to credit in present study refers to easy and timely availability of money to farmer to buy inputs such as fertilizer, improved crop varieties, insecticides/pesticides and to maintain health related issues. It was measured in terms of whether respondents had access to credit in terms of availability of credit sources and possibility of getting credit. Farmers' who have access to credit may overcome their financial constraints and therefore buy agricultural inputs and maintain the his/her health which may help to manage the stress. Farmers' without cash and no access to credit will find it very difficult to manage the different levels of stresses

Table 19. Distribution of the respondents according their access to credit

Sl. No.	Accessibility	Number of respondents	Percentage
1	Access	203	56.38
2	No Access	157	43.62
	Total	360	100.00

It could be revealed from Table 19 that 56.38 per cent of farmers' had access to credit availability while, 43.62 per cent of them had no access to credit. It is quite shocking that, in spite of Government serious efforts in removing distress from Vidarbha region caused due to multiple factors including, indebtedness, and heavy pest attacks, no irrigation facilities and climate change some farmers had no access to credit. The basic requirement of easy availability of timely credit was still lacking as seen from above Table 17 that, considerable proportion of farmers' (43.62%) have no access to credit. Tiwari (2012) mentioned in his blog on 5 July, that, as per official figure of administration out of 3 million cotton farmers', only 25.00 per cent the of farmers' have been covered into institutional banks and crop loan disbursement target and that is 40.00 per cent less of NABARD credit outlay to the region and

credit crunch has been issue as debt trapped farmers' are credit starved and is one of factor of despair in agrarian crisis. Hence, there is need of central intervention for crop loan restructuring in selected blocks where re-sowing is being done. It is therefore, contingent that, farmers' should be given access to credit and at proper time. These findings are consistent with the findings of Koshti (2013).

13. Sources of credit

In order to know the sources of credits availed by the farmers'. The data was analyzed and presented in Table 20.

Table 20. Distribution of the respondents according to credits borrowed by them from different sources

Sl. No.	Source of credit	Respondents (n=360)	
		Frequency	Percentage
1	Cooperaive Societies /Banks	203	38.01
2	Money lenders	84	15.73
3	Relatives/friends	190	35.58
4	Input dealers/Salesman	57	10.68
	Total	534	100.00

It is evident from Table 20 that most of the credit (38.01 %) has been borrowed from Cooperative Society/Banks followed by 35.58 per cent of them credits came from relatives/ friends. The respondents 15.73 per cent and slightly more than one tenth (10.68%) of the respondents borrowed credits from money lenders and input dealers/salesman respectively. Credit availability from nationalized bank was not seen in the study villages. But the farmers borrowed loan from nationalized bank situated at taluka level reported that, in case of marginal farmers', earnings at the end of the crop season go into repaying loans which he had acquired for purchasing seeds, fertilizers and pesticides. Even with a good crop, farmers' barely break even, and a bad crop can spell disaster. This vulnerability is heightened by the absence of

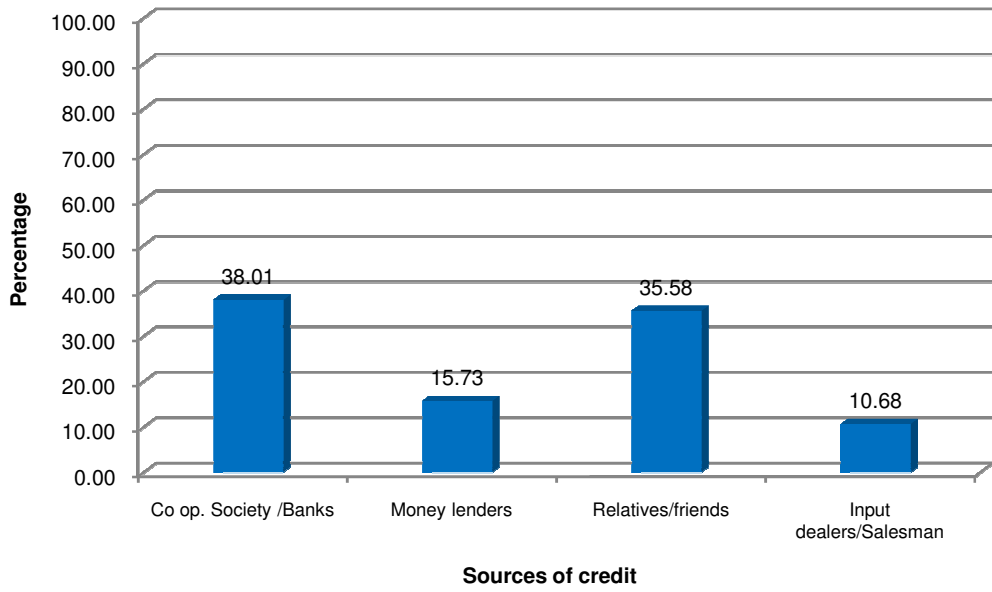


Fig. 15. Distribution of the respondents according to credits borrowed by them from different sources

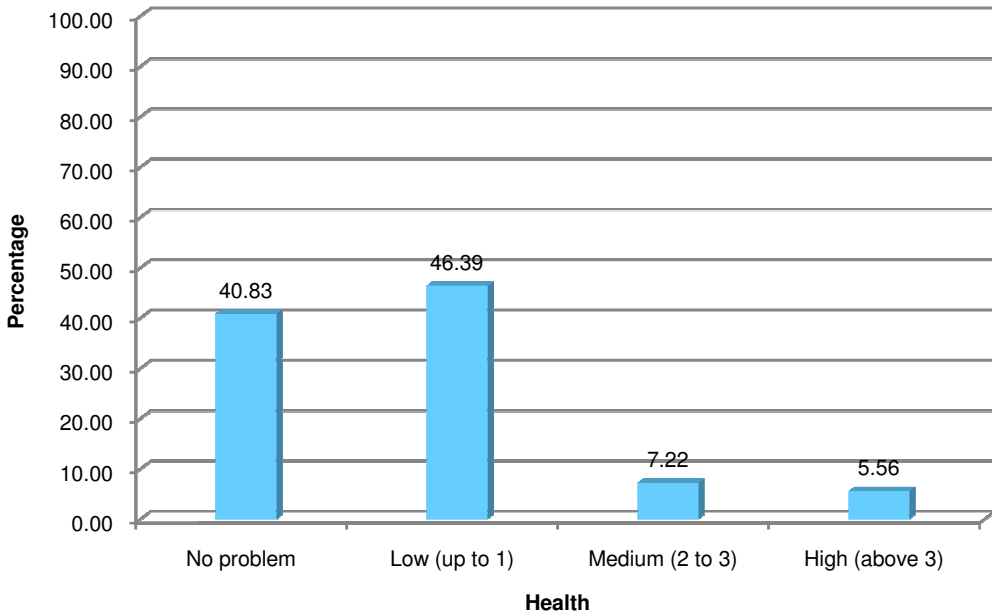


Fig. 16. Distribution of the respondents according to their health

sufficient rural credit. It is assumed that farmers' are committing suicides when cyclones or excess monsoon rains damage their crops. Poor farmers' borrow money from private lenders, who squeeze more interest than the principal amount of the loan. Illiteracy and non-availability of banking facilities, lack of structured insurance schemes or timely advice leave the poor people helpless and they face the fury of nature. Micro insurance is a solution for addressing these problems. It is, therefore, inferred that farmers' should be given access to credit through micro-credit or State Empowerment Scheme.

The findings of the above table is in accordance with the findings of Koshti (2013) where most of the farmers were having cooperative societies/ banks as a major sources of credits.

14. Agricultural infrastructural facilities

In the present research, five important basic indicators of agricultural infrastructure were selected for study. These are input, credit sources, information sources, transport facilities and post harvest infrastructural facilities. The respondent farmers' have been analyzed according to infrastructure and data is presented in Table 21.

Table 21. Distribution of the respondents according to the availability of agricultural infrastructural facilities

Sl. No	Agricultural infrastructure	Input		Credits sources		Information		Transport		Post harvest	
		Frq	%	Frq	%	Frq	%	Frq	%	Frq	%
1	Low (Up to 33.33)	72	20.00	167	46.38	47	13.05	69	19.17	159	44.16
2	Medium (33.34 to 66.66)	191	53.05	92	25.55	227	63.05	192	53.33	152	42.22
3	High (Above 66.66)	97	26.95	101	28.05	86	23.90	99	27.50	49	13.62
	Total	360	100.0	360	100.00	360	100.00	360	100.00	360	100.00

The data accessible in Table 21 revealed that, little more than half of the farmers' (53.05 %) were found to have medium input infrastructure, followed by high input infrastructure(26.95%) and one fifth (20.00%) of them had low input infrastructure.

While considering availability of credit sources, it is found that, farmers' (46.38%) had low availability of credit sources infrastructure, followed by 28.05 and 25.55 per cent had high and low credit sources infrastructure respectively.

Regarding availability of information infrastructure it is noted that (63.05%) had medium availability of information infrastructure, followed by 23.90 and 13.05 per cent having high and low information infrastructure respectively.

The availability of transport facilities as infrastructure when studied it was observed that over half (53.33%) of the farmers' had medium availability of transport facilities, followed by 27.50 per cent had high availability of transport facilities while nearly one fifth (19.17%) had low availability of transport infrastructure.

With regards to availability of post harvest infrastructure, it was noted that 46.16 per cent of the farmers' falls in category of low, medium (42.22%) and high (13.62%) post harvest infrastructure availability.

The overall scenario regarding availability of infrastructure indicates that, total infrastructure of five components when considered; majority of farmers' were came in medium infrastructure availability. While considering individual component, it could be inferred that farmers' were in dearth of easy availability of credit and adequate post harvest storage structure were lacking in combating climate change. Phuong (2011) noted that equipments for agricultural production of surveyed households were quite limited and poor, which may increase negative impacts and limit the adaptive capacity to change conditions in agricultural production. Nyong (2008) noticed that low flexibility of Nigerian farmers' to allow for

substitution in production practices, especially for export crops, cereals and other agriculture is a major limiting factor which results from low human capital, technological capacities, credit market access and infrastructure. The present findings are also consistent with the findings of Koshti (2013).

15. Health

The sound health of farmer is an indicator of his ability to cope up with the negative impacts of stress. The results pertaining to this variable have been presented in Table 22.

Table 22. Distribution of the respondents according to their health problems

SI. No.	Name of diseases	N=360	
		Number of farmers' suffered	
		Frequency	%
1	Chicken guinea	12	03.33
2	Dengue	03	0.83
3	Malaria	21	05.83
4	Physically handicap by accident / injury	04	01.11
5	Tuberculosis	05	01.39
6	Liver disorder	11	03.05
7	Hypertension (Blood pressure)	37	10.27
8	Paralysis	07	01.94
9	Diabetes	29	08.05
10	Eczema(Skin disease)	10	02.78
11	Asthma	27	07.50
12	Anemia	2	0.55
13	Epileptic fits (Fits)	09	02.50
14	Kidney stone	22	06.11
15	Pneumonia	09	02.50
16	Piles	21	05.83
17	Enlargement of prostate gland	26	07.22
18	Chronic acidity	39	10.83
19	Heart diseases	21	05.83
20	Ear diseases	05	01.38
21	Joint pain	41	11.38

Conceptually health is defined as a state of complete physical, mental, and social well being of an individual and not a mere absence of disease or infirmity (Dhingra and Rajput, 2003)

Operationally farmers' health or family health indicates the health status of farmer and his/her family members during last five years.

Data presented in Table 22 that, the proportion of the respondents who suffered from joint pain were 11.38 per cent followed by the chronic acidity reported by the respondents 10.83 per cent. Little more than one tenth (10.27%) were suffering from hypertension whereas 08.05 per cent of the respondents were suffered from diabetes. Further it is observed that the respondents who suffered from the disease, asthma were 07.50 per cent followed by 07.22 per cent of them were suffered from enlargement of prostate gland and 06.11 per cent of the respondents were suffered from kidney stone. The respondents suffering from different diseases such as piles, malaria and heart diseases (05.83%) equally. Few of the respondents were suffering from Chicken guinea (03.33), liver disorder (03.05%), skin diseases (02.78%), pneumonia (02.50%), paralysis (1.94%), ear diseases (01.38%), tuberculosis (01.39%), physically handicap by accident / injury (01.11%), dengue (0.83%) and anemia (0.55 %).

These above findings are in conformity with the report of the Anonymous (2012) that Maharashtra stands second in diseases caused due to mosquitoes like chicken guinea, malaria and dengue. Furthermore, as per District Socio Economic Analysis Report 2010-11, 389 farmers' died of disease of pneumonia and breathing, 37 from cancer, 96 from heart attacks and 32 due to kidney stone disease in the study area.

Thus, it can be concluded from the above findings that respondents in the study area were suffering from different diseases which creates the financial burdon and disturb physical and mental health of the respondents. These results are somewhat in accordance with the findings of Koshti (2013).

Table 23. Distribution of the respondents according to their health

Sl. No.	Number of health problems/diseases	Number of respondents	Percentage
1	No problem	147	40.83
2	Low (up to 1)	167	46.39
3	Medium (2 to 3)	26	7.22
4	High (above 3)	20	5.56
	Total	360	100.00

Table 23 revealed that 40.83 per cent of farmers' were free from health problems while, personal health problems were noticed in remaining 59.17 per cent household farmers' ranging from 1 to 3. Pachauri and Reisinger (2007) also indicated that climate change can affect human health through a range of mechanisms. These include relatively direct effects of hazards such as heat waves, floods and storms, and more complex pathways of altered infectious disease patterns, disruptions of agricultural and other supportive ecosystems, and potentially population displacement and conflict over depleted resources, such as water, fertile land and fisheries.

Table 24. Distribution of the respondents according to health of their family members

Sl. No.	Name of diseases	Number of farmers' family members suffered	
		Frequency	%
1	Chicken guinea	07	01.94
2	Malaria	29	08.50
3	Physically handicap by accident / injury	11	03.05
4	Liver disorder	07	01.94
5	Hypertension (Blood pressure)	22	06.11
6	Diabetes	19	05.28
7	Eczema(Skin disease)	15	04.17
8	Asthma	18	05.00

9	Epileptic fits (Fits)	06	01.67
10	Kidney stone	27	07.50
11	Piles	17	04.72
12	Enlargement of prostate gland	19	05.28
13	Chronic acidity	16	04.44
14	Heart diseases	14	03.89
15	Joint pain	31	08.61
16	Cancer	05	01.39

Data presented in Table 24 that the proportion of the respondents family member who suffered from joint pain were 08.61 per cent followed by the malaria reported as 08.50 per cent. The kidney stone disease was caused to 07.50 per cent of the respondents family members, whereas family members of the respondents suffered from the disease hypertension were found to be 06.11 per cent followed by equal proportion (05.28%) of the respondents family members were suffering from diabetes and enlargement of prostate gland respectively. The asthma disease was caused to 5.00 per cent of the family members of the respondents. Nearly one fifth (4.72%) and (4.44 %) of the family members of the respondents were suffered from piles and chronic acidity problems. Further, it is observed that the family members of the respondents who suffered from the skin, heart disease, physically handicapped by injury/accidents disease, chicken guinea, liver disorder, fits, and cancer were found to the extent of 4.17, 3.89, 03.50, 1.94, 1.67 and 1.39 per cent respectively.

According to report of WHO (2008^b) rising temperatures may increase the transmission of malaria in some locations, which already causes 300 million acute illnesses and kills almost 1 million people every year.

It is concluded that health problem of family members not only distract farmers' to keep him away from the farm but also downpour him in to financial crunches. The consequence of this situation results in missing important agricultural operations and creating distress among them and ultimately creates the stress among farmers.

16. Indebtedness

Conceptually indebtedness is defined as an obligation to pay money to another party. In the present study it was assumed that, almost every farmer may have an obligation to pay debt, which he had taken, that may be from institutional or non-institutional sources.

Operationally, indebtedness was defined as the total outstanding debt amount of institutional and non-institutional credit sources towards the farmer.

Indebtedness may cause the stress to the farmers. So to know the stress management strategies of the farmers to manage the stress, the indebtedness variable was selected for study.

Table 25. Distribution of the respondents according to their indebtedness

Sl. No.	Amount of debts in Rs.	Respondents (n = 360)	
		Number	Percentage
1	Up to Rs. 50,000/-	160	44.44
2	Rs. 50,001 to 1,00,000/-	142	39.45
3	Rs.1,00,001 to 1,50,000/-	37	10.28
4	Above Rs. 1,50,000/-	21	05.83
	Total	360	100.00

A critical view of the Table 25 reveals the fact that, relatively higher proportion of the respondents (44.44%) were in debt up to Rs. 50000/- followed by 39.45 per cent of the respondents were in

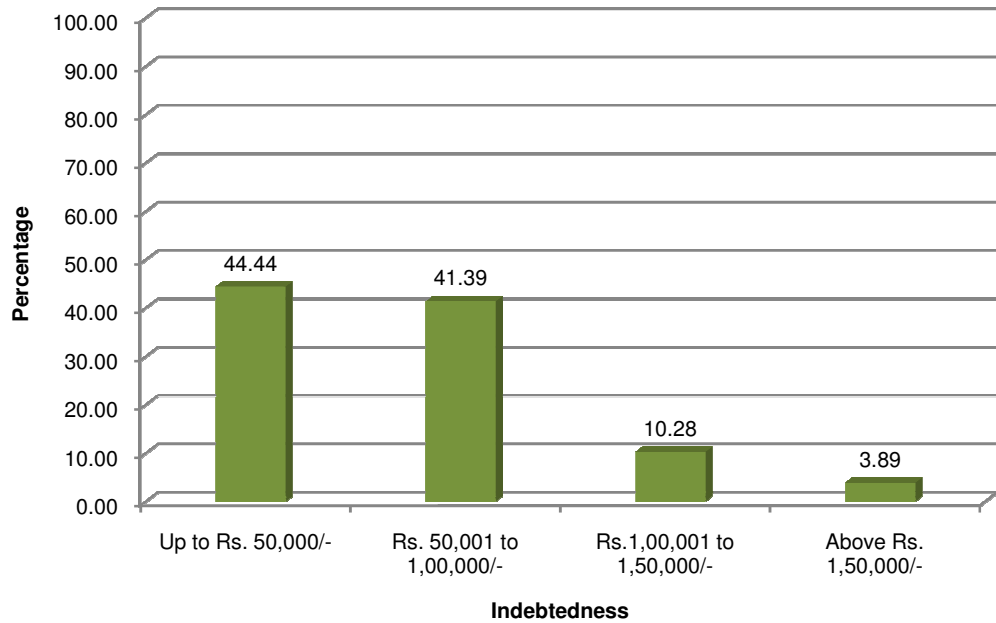


Fig. 17. Distribution of the respondents according to their indebtedness

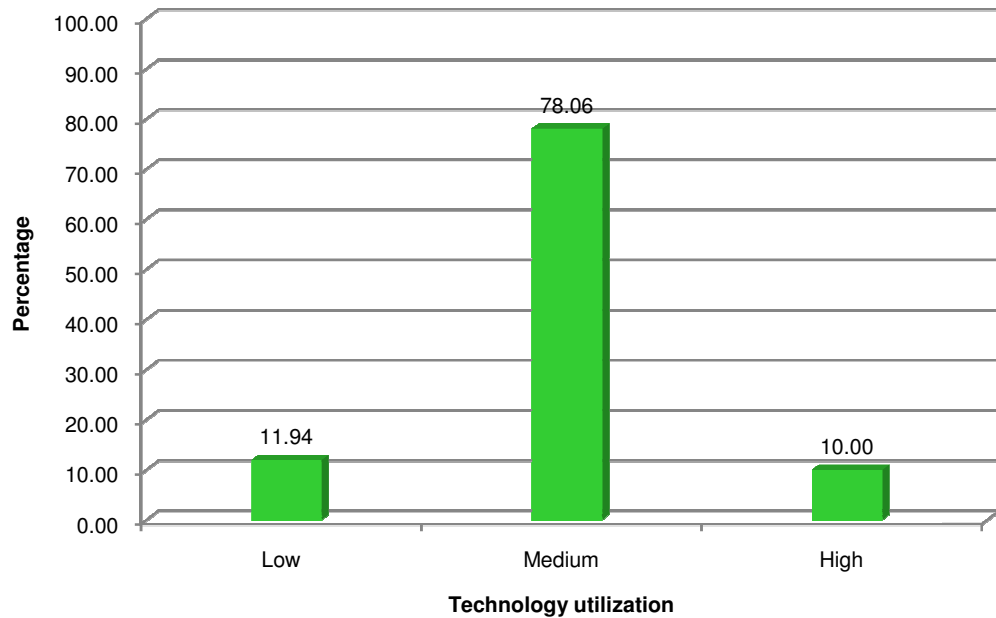


Fig. 18. Distribution of the respondents according to levels of technology utilization

indebtedness amount ranging from Rs. 500,001 to 1,00,000/- whereas, slightly more than one tenth (10.28%) were in debt of Rs. 150001 to 150,000/-. And only 5.83 per cent of the respondents were indebtedness of above Rs. 150000/-.

From the above findings it is clearly indicated that, higher proportion of the respondents were indebtedness up to Rs. 50,000/- which may be because of less and dry land holding. There may be different reasons of indebtedness such as daughters/son marriage or purchase of agricultural inputs or for their livelihood or for health point of view.

Further it may be concluded that, most of the farmers' were indebted. Indebtedness cause great deal of mental tension to an individual which may hinders to coping strategies of stress management. Furthermore indebtedness has also other side of coin and may be considered as indicator of financial status, because normally in our society, only those persons having good repayment capacity to repay the loans can get the credit easily. At the same time it is true that, indebtedness may restrict individuals to take higher risks, particularly if the debts are already mounted. Moreover stress at different levels always put the farmers' highly vulnerable to stable income to repay the loans. Therefore, it could be inferred that indebtedness of farmers' limits them to manage the stress effectively. The present findings are corroborate to the findings of Seema Tandekar (2014) and Manisha Gujar (2017).

17. Technology utilization

Technology utilization pattern was defined as the utilization of various production and post harvest technologies by an individual respondent for increasing production from occupational activities for maximizing production, incomes for improving their livelihoods and ultimately helpful for reducing the stress.

The distribution of respondents according to their technology utilization has been presented in Table 26.

Table 26. Distribution of the respondents according to levels of technology utilization

Sl. No.	Technology utilization	Frequency	Percentage
1	Low (Upto 33.33)	43	11.94
2	Medium (33.34 to 66.66)	281	78.06
3	High (Above 66.66)	36	10.00
	Total	360	100.00

The bird eye of the Table 26 indicated that majority of the farmers (78.06%) were found in medium level of technology utilization followed by more than one tenth (11.94%) of them were observed in low level category and only one tenth (10%) the respondents were found in high level of technology utilization category.

From the above Table 26, it can be concluded that majority of the farmers were having medium level of technology utilization pattern.

Similar findings were reported by Maddiwalar (2012) Snehalata Borhade (2017) who observed that majority of the respondents had medium technology utilization category, however, findings are in contradiction to the findings of Rathod (2007) who observed that majority of the respondents had low technology utilization.

18. Labour availability

Availability of labour is likely to influence the gross margin of the innovation and income. A farm with larger number of workers per hectare (unit) is more likely to be in a position to try and continue using a potentially profitable innovation and it was expected to influence adaptation positively. Labour availability was operationally defined as the extent of use of own labour as well as hired labour by an individual household farmer and the quality of work they performed.

Table 27. Distribution of the respondents according to their labour availability

Sl. No.	Category	Score range	Number of respondents	Percentage
1	Low	Up to 6	229	63.61
2	Medium	7 to 10	103	28.61
3	High	Above 10	28	7.78
	Total		360	100.00

It is apparent from Table 27 that relatively higher proportion of the respondents (63.61%) were found in low category of labour availability up to 6 labour followed by 28.61 per cent of the respondents who were found in medium category of labour availability i.e. in the range of 7 to 10 labour and only 7.78 per cent of the respondents were having labour availability above 10.

From the above findings it is concluded that major group of farmers were found in low category of labour availability. It means that during peak season farmers may be in stress due to non availability of labour and higher wages. Hence, there is a need of technologies that requires less labour and feasible to cope with negative impacts of stress.

These findings corroborate with the findings of Koshti (2013).

19. Access to market

Distance to the nearest market and the frequency of contact that the farmers' maintains with it, is likely to influence stress management. The closer they are to the nearest market, the more likely that the farmer will receive valuable information. The data related to this variable is given in Table 28.

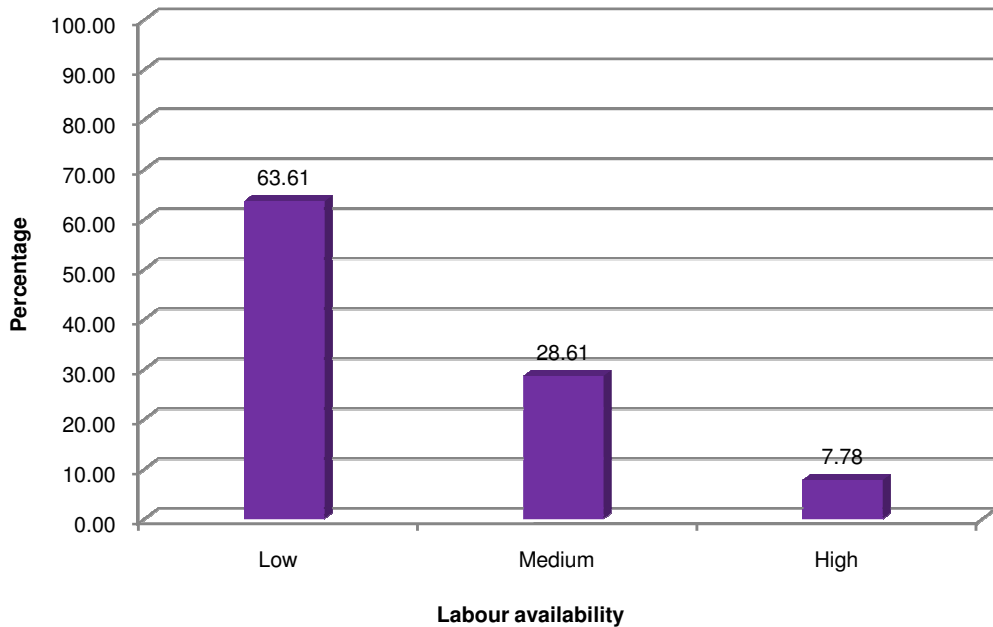


Fig. 19. Distribution of the respondents according to their labour availability

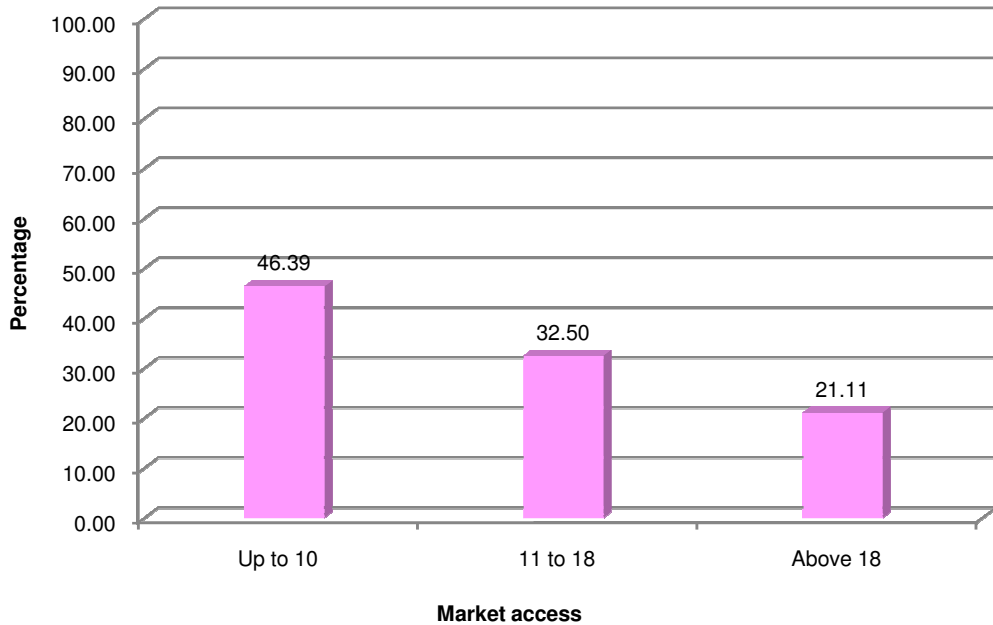


Fig. 20. Distribution of the respondents according to their market access

Table 28. Distribution of the respondents according to their market access

Sl. No.	Distance (km)	Number of respondents	Percentage
1	Up to 10	167	46.39
2	11 to 18	117	32.50
3	Above 18	76	21.11
	Total	360	100.00

It could be stated that most of the farmers had access to market within 10 km (46.39%). The proportion of farmers having market access in between 11 to 18 kms were 32.50 percent, whereas, 21.11 per cent had access to market above 18 kms. The overall mean distance to market access was 13.98 km. It is inferred that most of important agricultural inputs required by the farmers' for their farms were not available in their villages. Distance definitely increases the cost of production. Normally under study area farmers' has to pay Rs.60/- per quintal as transportation charges for selling his produce in the market for average distance of 15 km. Distance more than 15 km increases the transportation cost. These results are consistent with the findings of Koshti (2013).

20. Productivity of major crops

Conceptually, productivity is per hectare yield of crops. Productivity is one of the important variable in this study because it contributes directly to gross income of the farmer and it was assume that, the most of farmers were having low productivity or crop failure during previous subsequent years may be due to vagaries of nature.

In present study, Productivity was operationally defined as per hectare yield of major crops, taken by farmer during the years 2011-12 and 2015-16.

Table 29. Average productivity of major crops of selected farmers during 2011-12 and 2015-16

Respondents (n=360)							
Sl. No.	Crops	Area in ha.		Production in qts.		Productivity qts./ha.	
		2011-12	2015-16	2011-12	2015-16	2011-12	2015-16
1	Cotton (Bt & non Bt)	252.42	293.82	1517.04	1862.81	6.01	6.34
2	Soybean	238.20	253.44	3006.08	1647.36	12.62	6.50
3	Jowar	28.40	22.83	397.60	344.27	14.00	15.08
4	Tur	52.44	61.00	367.08	489.22	7.00	8.02
5	Mung	32.80	30.65	85.60	105.12	2.61	3.43
6	Udid	44.36	39.48	261.72	126.73	5.90	3.21
	Total major kharif (ha.)	648.62		701.22			
7	Gram	132.32	205.55	1371.04	16.03.29	7.52	8.80
8	Wheat	41.36	33.82	229.96	151.51	5.56	4.48
	Total Major Rabi (Ha.)	223.68		239.37			

An examination of data presented in Table 29 showed that kharif cotton and soybean crops dominated the cropping pattern of selected farmers'. The proportion of area under kharif cotton and soybean was 38.91 per cent and 36.72 per cent, respectively during the year 2011-12. While the share of area under kharif cotton was increased in 2015-16 by 5.90 per cent, whereas, the area under soybean was also enlarged by 2.17 per cent during 2015-16. At the same time, the area under jowar was decreased by 0.79 per cent during 2015-16 compared to 2011-12. Similarly, the area under mung and Udid is also decreased remarkably compared to 2011-12 in the study area.

The area under gram crop was highly increased by 21.00 per cent as compared to 2011-12 and replacing wheat crop and that the area under wheat crop is also decreased in 2015-16 compared to 2011-12.

Productivity analysis of major crops revealed that, there is increase in output in most of the major crops include , cotton, jowar, mung,, tur and gram whereas productivity was reduced in crops like , soybean udid, wheat. IPCC, 2007b also projected that yields from rain-fed agriculture could be reduced by up to 50% by 2020. Studies also indicated that the local varieties performed superior under more extreme conditions. Thus, there is a greater need to promote local varieties that can stand better under changing climate scenario.

It is inferred that there was a major shift from crops like wheat to gram in rabi. Plausible reasons as perceived by farmers' were the reduction in the amount of dew, bitterness of cold in recent years and paucity of water for irrigating the wheat crop. There was shift from kharif crops like mung, udid and jowar to other major crops of kharif that is cotton and soybean. As per farmers' opinion, in current years, the onset of monsoon is not uniform and if these crops are sown late, it give up less yields, similarly most of the times ,these crops are trapped in the unpredictable rains at the time of harvest. In case of jowar, continuous rains at maturity stage make the grains black and therefore fetch fewer prices in the market. The crops like cotton, soybean can at least gives sustainable yield and income. According to CIA reports, there is 3% reduction in cotton yields in 2012 due to adverse climate and delayed onset of monsoon (Daily Agrowon, 24 December, 2012). Predicted production of cotton lint is forecasted at 335 lakh bales which is 3%less than the expected.

Analysis of the food grains production/productivity data for the last decade reveals an increase in yield in few crops, whereas in other crops it appears that the negative impact of vagaries of monsoon has been large throughout the period. In this context, a number of questions need to be addressed as to determine the nature of variability of important weather events; particularly the rainfall received in a season/year as well its distribution within the season. These observations need to be coupled to management practices, which are tailored to the stress variability of the

region, such as optimal time of sowing, level of pesticides and fertilizer application etc.

21. Mass Media Exposure

Mass media plays the greatest role in creating awareness in shortest time possible over large area of coverage. As far as awareness is prerequisite for behavioural change its role cannot be underestimated. It is expected to have positive influence on adaptation behavior of households and manage the stress. Moreover, Maddison (2006) and Nhemachena and Hassan (2007) showed that access to information through extension increase the chance of stress management by individual. Thus, this study also hypothesized that access to information increases chance of reducing the stress. Mass media exposure consists of television, radio, newspaper, books, magazines, internet use etc. These sources are essential for gaining the knowledge of different activities related to climate change. Hence considering this, the sources of mass media exposure available and used by the farmers' has been studied The data regarding mass media exposure is presented in Table 30.

Table 30. Distribution of the respondents according to mass media exposure

Respondents (n=360)									
Sl. No.	Sources of information	Total no. of sources		Regular		Sometimes		Never	
		In study area	%	Frq	%	Frq	%	Frq	%
1	Radio	227	63.05	79	21.94	140	38.89	141	39.17
2	Television	213	59.61	107	29.72	132	36.67	121	33.61
3	Books/ Magazine	37	10.27	09	2.50	21	5.83	330	91.67
4	News paper	53	14.72	48	13.34	37	10.28	275	76.38
5	Mobile	215	59.72	119	33.06	96	26.67	145	40.27
6	Internet	0	--	--	--	--	--	360	100.00

It is observed from Table 30 that 63.05 per cent and 59.61 per cent of farmers' having radio and television respectively. Further, it was noted that negligible proportion of farmers' subscribed news paper and magazines/books (14.72 %) and 10.27 per cent respectively and 59.72 per cent of them were having mobile, while no one subscribed for internet.

It is also observed that 38.89 per cent of the farmers' listened radio sometimes and 36.67 per cent viewed television sometimes. 29.72 per cent of the farmers' were regular viewers of agricultural programmes and 21.94 percent were regular radio listeners.

In case of magazines books and newspapers, majority of the farmers' never had an access to these sources for seeking agricultural Information on occupational related stress, individual related stress or family related stress. (91.67%) and (76.38 %) respectively. The respondents 33.06 per cent, 26.67 and 40.27 per cent of the respondents were regularly, sometimes and never used mobile phone respectively. None of the farmers' ever use the internet as source of mass media for seeking information on the issues of various stresses. It could be concluded that though sizeable per cent of farmers' had access to mass media exposure like radio and television, but very small percentage of farmers' are exposed to mass media to obtained information on stress management regarding various stresses in their life. There is also need to increase the use of internet amongst farming community so that they can get easy access to information on stress management. This could be done by employing computer booth in every gram panchayats and information about the importance of life, truth of the life or various stress management strategies orv agricultural related progammes or daily weather forecast can be displayed on notice board for the villagers.

Table 31. Distribution of the respondents according to their levels of mass media exposure

Sl. No.	Mass Media Exposure	Score range	Number of respondents	Percentage
1	No exposure		92	25.56
2	Low	1 to 7.33	175	48.61
3	Medium	7.34 to 9.66	78	21.67
4	High	Above 9.66	15	4.16
	Total		360	100.00

It is observed from Table 31 that less than half of the farmers' (48.61%) were using the mass media at low level followed by little more than one fifth (21.67 of them having the mass media exposure at medium level. Relatively low proportion of the farmers' under study area (25.56 %) used no mass media. Meagre (4.16 %) proportion of the farmers' falls under group having high level of mass media exposure. Thus, the status of mass media exposure was relatively poor. It is, therefore, needed to improve the mass media exposure of farmers' in the villages by providing free publications to farmers', also the media should be more involved in promoting stress management strategies on various levels of life stresses in ways that will motivate farmers' to adopt stress management. The above findings are consistent with the findings of Koshti (2013).

22. Extension contact

This variable was measured, considering the frequency of contact of individual farmer with various extension functionaries' viz., agricultural assistant, extension officer, agricultural officer, private agency extension personnel, university scientist and progressive farmers' to get information on stress management related to agriculture, individual related stress or family related stress.

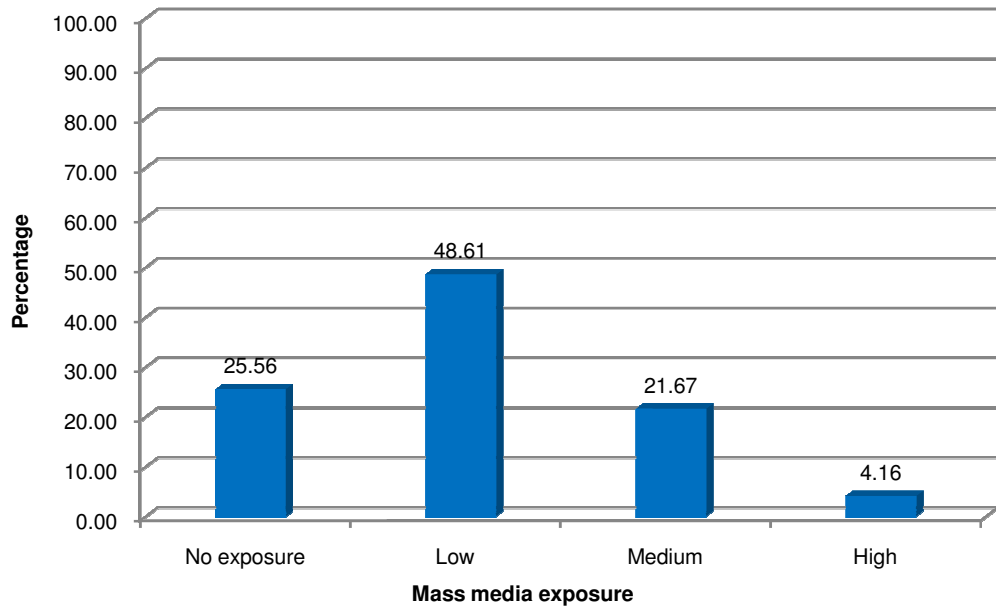


Fig. 21. Distribution of the respondents according to their levels of mass media exposure

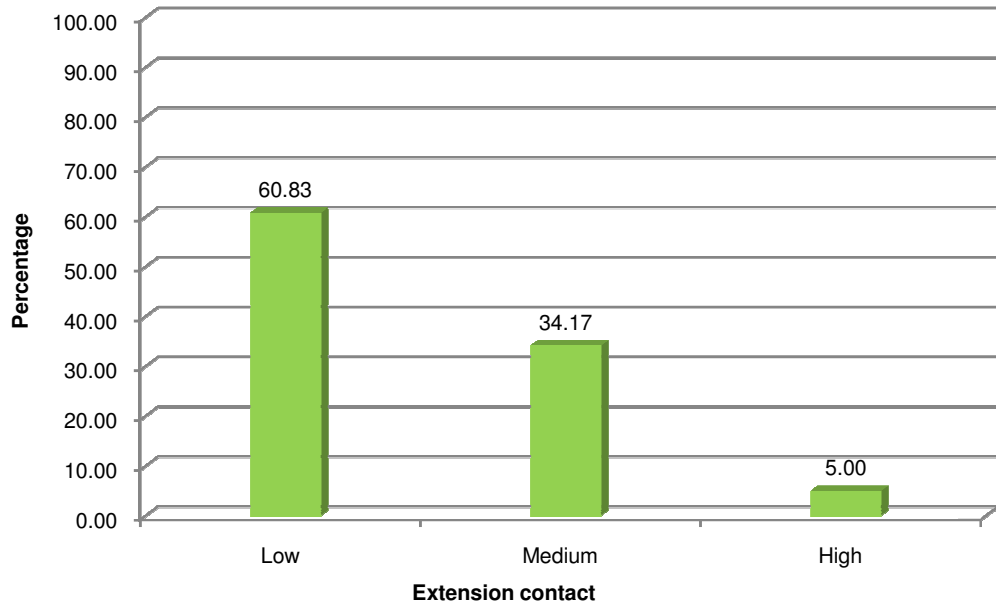


Fig. 22. Distribution of the respondents according to levels of extension contact

Table 32. Distribution of the respondents according to levels of extension contact

Sl. No.	Extension contact	Score range	Number of respondents	Percentage
1.	Low	Up to 11.08	219	60.83
2.	Medium	11.09 to 20.19	123	34.17
3.	High	Above 20.20	18	05.00
	Total		360	100.00

The distribution of farmers' according to their extension contact (Table 32) indicated that over half of the farmers' (60.83%) had low contact with various extension agencies for seeking information on stress management on agricultural , personal or family issues followed by nearly one third farmers' (34.17%) who had moderate extension contact. Meagre percent of farmers' (5.00%) had high extension contact with various extension agencies. It was observed by the researcher during the survey that the progressive farmer was the main source of extension contact for seeking information on agricultural related issues which may reduce stress. Enujoke and Ofuoku (2012) also observed that visit to other farmers' has a positive correlation with adaptation to climate change. Furthermore, noticed that farmers' access to 'farmer to-farmer' extension increases the likelihood of adaptation to climate change. This is congruent with Deressa *et al* (2009) who suggest that having access to 'farmer-to farmer extension increases the likelihood of using different crop varieties by 11.3 per cent and planting trees by 12.00 per cent.

Thus, it could be inferred that majority of the farmers' had low extension contact with various extension agencies to seek advice on different aspects of causes of stress. However; farmer to farmer extension is found effective. Hence Government extension agencies should make efforts to promote farmer to farmer extension. Effective policies must address flaws such as access to information and linking farmers' with extension services and farmers' group in order to reach small-holder subsistence farmers'. The social network through farmer-to-farmer

extension should be promoted and strengthened. The above findings are in accordance with the findings of Koshti (2013).

23. Access to Weather Information

It was operationally defined as the availability of weather related information from the nearby research station or from media/ extension agencies through which farmer could access and take the decisions related to sowing, harvesting and other weather related aspects like timings of rains, etc.

Access to reliable weather information may help farmers' to take crucial decisions related to sowing, irrigation, spraying, fertilizer application etc. which may help to reduce the agricultural stress

Table 33. Distribution of the respondents according to their access to weather information

Sl. No.	Access	Respondents (n=360)	
		Number of respondents	Percentage
1	Yes	102	28.33
2	No	258	71.67
	Total	360	100.00

It was heartening to note from Table 33 that major group of farmers' had no access to weather information (71.64%). Only 28.33 per cent had access to weather related information. Jain *et al.* (2010) also observed that almost all farmers' do not use weather forecasting information for agricultural activities. There is greater need to get availability of accurate and correct weather information to the farmers'. Unless the predicted information goes accurate and correct, farmers' will not adopt the same. These findings are in consistent with the findings of Koshti (2013).

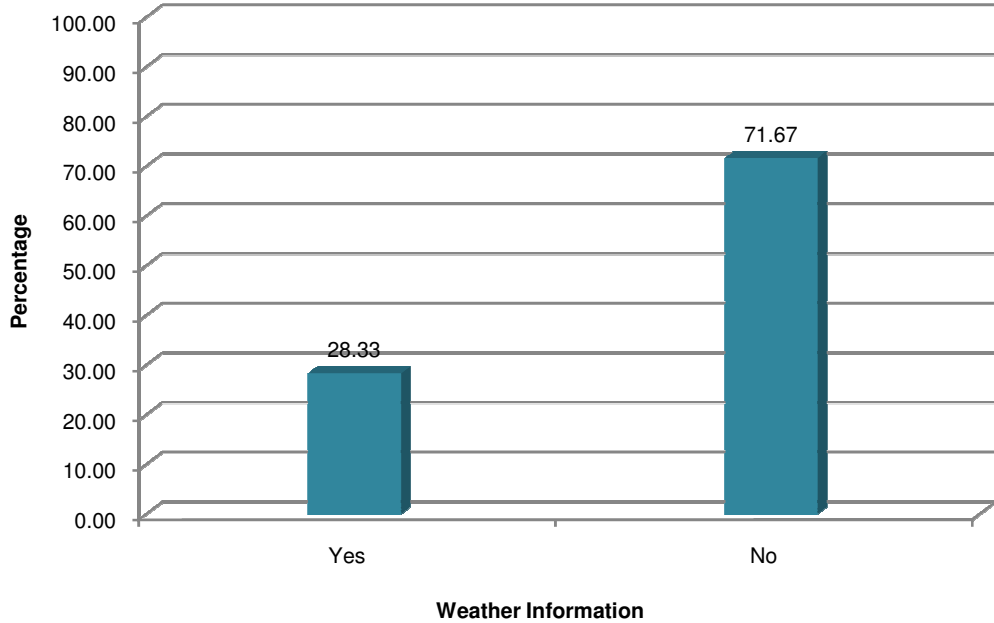


Fig. 23. Distribution of the respondents according to their access to weather information

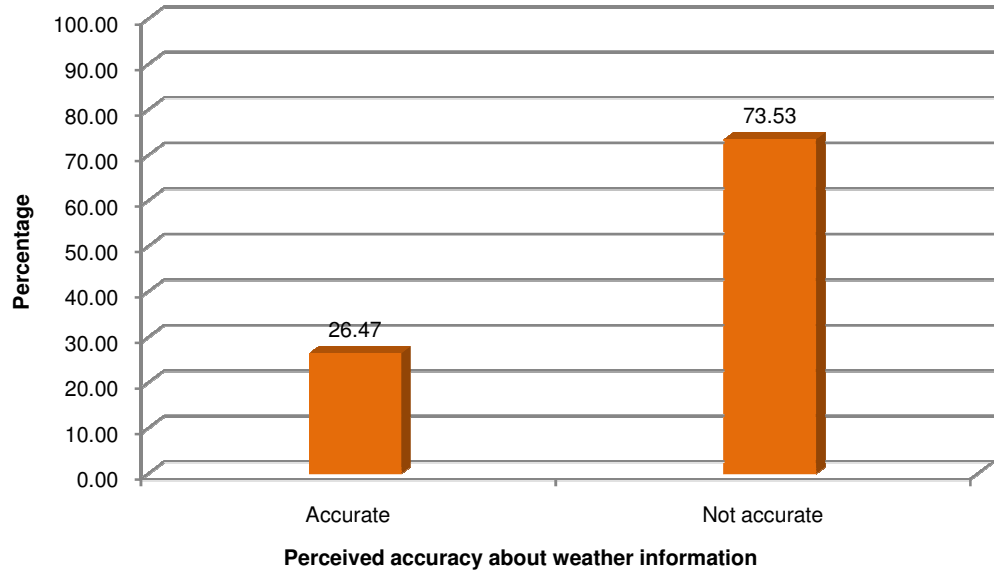


Fig. 24. Distribution of the respondents according to their perceived accuracy about weather information

Table 34. Distribution of the respondents according to their perceived accuracy about weather information

Sl. No.	Perceived accuracy	Number of respondents	Percentage
1	Accurate	27	26.47
2	Not accurate	75	73.53
	Total	102	100.00

A perusal of data indicated in Table 34 indicates that, little more than one fourth (26.47%) of the respondents perceived the weather information as accurate, whereas, 73.33 per cent found it as not accurate. Arranging seasonal calendar based on information of the warning system and traditional knowledge in production is crucial to maximize optimal conditions especially, temperature and precipitation to crop and livestock development. However, field researches in Africa suggested that there were gaps between the information needed by farmers' and that provided by the meteorological service (Blench, 1999 cited in Stigter *et al.*, 2005). In recent years, many innovative climate analytical tools have been developed and improved. These tools allow for a clear understanding of the temporal and spatial agricultural implications of short and medium-term climatic variability.

Therefore, shorter-term seasonal weather forecasting is one of the agricultural options to adjust seasonal calendar suitable for change of temperature and precipitation annually to avoid the related stress. Gender differences were also detected in access to vital information on weather alerts and cropping patterns. According to the farmers' reports, only 21.00 per cent of women had access to this information, as compared with 47.00 per cent of men. These findings illustrate that gender is a cornerstone in dealing with adaptation strategies of climate change which may reduce the stress. Gender differences in access to resources and in selecting coping strategies have to be well understood and addressed because they matter both to farmers' in their everyday experience of climate variability and to policy-makers in order to provide

institutional support and the enabling environment. Further the findings of the present research are in accordance with the findings of Koshti (2013).

24. Optimism

Positive and negative expectations regarding the future are important for understanding the vulnerability to mental disorders, in particular mood and anxiety disorders, as well as to physical illness. A significant positive relation emerges between optimism and coping strategies focused on social support and emphasis on positive aspects of stressful situations.

Table 35. Distribution of the respondents according to their opinion about optimism

Sl. No.	Statements	Respondents (n=360)					
		Agree		Can not say		Disagree	
		Frq	%	Frq	%	Frq	%
1	In uncertain times, I usually expect the best	39	10.84	53	14.72	268	74.44
2	It's easy for me to relax	80	22.22	90	25.00	190	52.78
3	If something can go wrong for me, it will. (R)	42	11.67	67	18.61	251	69.72
4	I'm always optimistic about my future	210	58.33	65	18.06	85	23.61
5	I enjoy my friends a lot	95	26.39	80	22.22	185	51.39
6	I hardly ever expect things to go my way. (R)	190	52.78	55	15.28	115	31.94
7	I don't get upset too easily.	70	19.44	85	23.61	205	56.95
8	I rarely count on good things happening to me. (R)	260	72.22	55	15.28	45	12.50
9	Overall, I expect more good things to happen to me than bad	342	95.00	00	0.00	18	5.00
10	It's important for me to keep busy	285	79.17	35	9.72	35	9.72

Optimism may significantly influence mental and physical well-being by the promotion of a healthy lifestyle as well as by adaptive behaviours and cognitive responses, associated with greater flexibility, problem-solving capacity and a more efficient elaboration of negative information. Hence in view of the importance of this variable in stress management researcher hypothesized to select this variable for the present study.

Optimism is a form of positive thinking that includes the belief that are responsible for our own happiness, and that more good things than bad will continue to happen. Optimists believe that bad or negative events are rare occurrences, and that it is not their fault when something bad happens, but is due to something external.

To measure the optimism, 10 statements were selected and Table 35 revealed that, with the opinion of the statement as, 'in uncertain times, I usually expect the best', majority of the respondents i.e. 74.44 per cent were disagree followed by (14.72%) were not given their opinion and only slightly more than one tenth (10.84%) of them were agree to this statement. Little more than half (52.78%) of the respondents were disagree to the statement as it's easy for me to relax followed by one fourth and little more than one fifth (22.22%) of them who were agree and can not say opinion respectively. With the opinion of the statement as 'if something can go wrong for me, it will', number of respondents (69.72%) and 18.61 per cent were disagree and can not opinion respectively where as only 11.67 per cent of them were agree to the this statement.' With regards to the statement as 'I am always optimistic about my future', 58.33 per cent and little less than one fourth (23.61%) of respondents were agree and disagree opinion respectively to this statement while slightly less than one fifth (18.06%) had not given any opinion. The opinion of the respondents about the statement as 'I enjoy my friends a lot', slightly more than half (51.39%) were disagree followed by little more than one fourth (26.39%) were having agree opinion and more than one fifth of them (22.22%) not given any opinion to this statement. 'I hardly

ever expect things to go my way', more than half (52.78%) 31.94 per cent and 15.28 per cent of respondents were agree, disagree, and can not say opinion to this statement respectively. The opinion about the statement as 'I don't get upset too easily' 56.95 per cent, 23.61 per cent and little less than one fifth (19.44%) of them were in disagree opinion, not said anything and agree opinion respectively might be because of not happening the upsetting events in their life. The opinion of the respondents about the statement as 'I rarely count on good things happening to me', majority (72.22%), 15.28 per cent and 12.50 per cent were agree, can not and disagree opinion. With regards to the statement as 'overall, I expect more good things to happen to me than bad', large majority (95.00%) and one fifth per cent were having agree and disagree opinion. It's important for me to keep busy, majority of the respondents i.e 79.17 per cent and equal proportion of the respondents (9.72%) were agree, can not say and disagree opinion respectively.

Distribution of respondents according to their level of optimism presented in Table 36.

Table 36. Distribution of the respondents according to their levels of optimism

Sl. No.	Optimism	Frequency	Percentage
1	Low (Up to 70.39)	71	19.72
2	Medium (70.40 to 84.49)	239	66.39
3	High (Above 84.49)	50	13.89
	Total	360	100.00

From the data presented in Table 36 it is indicated that, maximum number of the respondents (66.39%) were found in medium category of optimism level followed by little less than one fifth of them (19.72%) were falls in low and only 13.89 per cent of the respondents were having high optimism level.

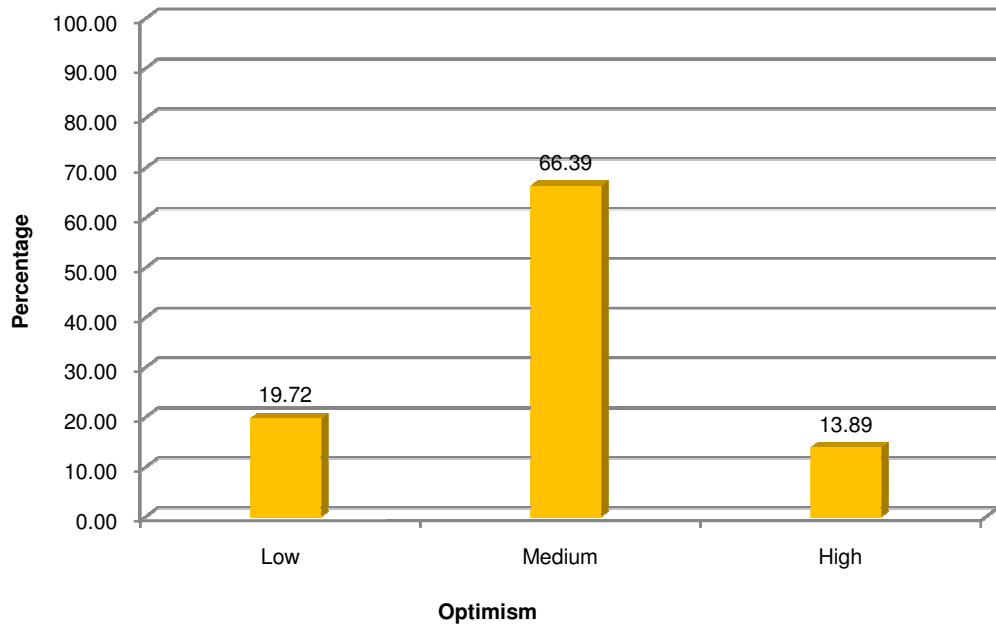


Fig. 25. Distribution of the respondents according to their levels of optimism

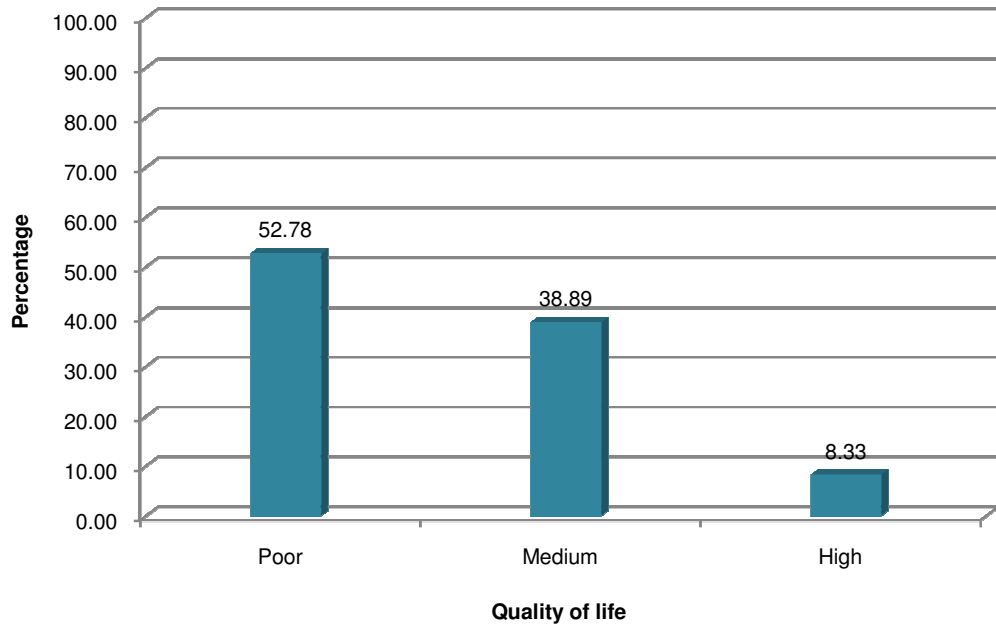


Fig. 26. Distribution of the respondents according to their levels of quality of life

From the above findings it can be inferred that, higher proportion of the respondents were observed in medium category of optimism level. These findings are in accordance with the findings of Anonymous (2017) and Rani Palaskar (2018) who reported that maximum numbers of the respondents were having low to medium level of optimism. It may be due to less land holdings and not assured sources of livelihood.

25. Quality of life

It is expected that good quality of life leads to good satisfaction of every one's life hence good quality of farmers life might be less stressful than the poor quality life farmers.

Table 37. Distribution of the respondents according to their quality of life

Sl. No.	Statements	Respondents (n=360)					
		Agree		Can not say		Disagree	
		Frq.	%	Frq.	%	Frq.	%
A.	Material						
1	My income is sufficient to fulfill my needs	3	0.83	00	00	357	99.17
2	I have required implements to my field operation	72	20.00	00	00	288	80.00
3	I am satisfied with my house	43	11.94	00	00	317	88.06
B.	Health						
4	I am satisfied with my health	115	31.94	90	25.00	155	43.06
5	I am visiting doctor frequently	181	50.28	00	00	179	49.72
C.	Productivity						
6	I have good potential to work in the farm for earning money	129	35.83	00	00	231	64.17
7	I spend my time to achieve more yield/money	149	41.39	107	29.72	104	28.89
8	I am satisfied with the education of my children	48	13.33	00	00	312	86.67
D.	Intimacy						
9	I talk to my friends whenever in stress	119	33.05	00	00	241	66.95

10	I join the religious functions happened in the village	302	83.89	00	00	58	16.11
11	In stressful situation my family members care me	199	55.27	00	00	161	44.23
E Safety							
12	I easily fall asleep	43	11.94	00	00	317	88.06
13	I am anxious person to get the things	102	28.33	00	00	258	71.67
14	I am worried person	261	72.50	00	00	99	27.50
15	I feel safe at my home	41	11.39	00	00	319	88.61
F Place in Community							
16	I am satisfied with the position in my community	161	44.72	00	00	199	55.28
17	Peoples valued me	213	59.17	00	00	147	40.83
18	Peoples ask my advise	141	39.17	00	00	219	60.83

It is evident from Table 37 that in case of material possession, near about cent per cent of the respondents (99.17 %) were not in opinion that their income is sufficient to fulfill their needs followed by very meager percentage of them (0.83%) were having sufficient incomes to fulfill their needs. Majority of the respondents (80.00%) were not having required implements for the field operation which means that they do their field operation by hiring the implements while only one fifth of them (20.00%) were having required implements for the field operation. Large majority of the respondents (88.06%) were in opinion that they are not satisfied with their constructed house while little more than one tenth (11.94%) were satisfied with the same. With regards to health issue 43.06 per cent of the selected respondents were not satisfied with their health followed by 31.94 per cent of them were satisfied with their health while one fourth (25.00%) were not given any opinion may be because of health problem may occur according to situation. Slightly more than half (50.28%) of the respondents were visiting Doctors for their own health and family health while little less than half (49.72%) of them not visiting Doctors for their own health. In case of productivity maximum number of the respondents were not agree that they have good potential to work in

the farm for earning money whereas 35.83 per cent of them were agree to this statement. Relatively higher proportion of the respondents (41.39%) were in opinion that they spend their time to achieve more money or yield followed by 29.72 per cent of them were not given any opinion may be because of availability of work cannot assumed while 28.89 per cent of the respondents disagree to the same. Large majority of the respondents (86.67%) were not satisfied with the education of their children which may be because of money problem to take higher education followed by 13.33 per cent of them were satisfied with the education of their children. In case of intimacy, more than half of the respondents (66.95%) were not sharing their feelings whenever in stress followed by 33.05 per cent of the them were sharing their feelings whenever in stress. Large majority of the respondents (83.89%) were in opinion that they were joining the religious functions happened in the village while 16.11 per cent were disagree to the same. Higher proportion of the respondents (55.27%) were in opinion that their family members care them when they were in stress which is indicative of good relationship followed by 44.23 per cent of the respondents were disagree which may be because of not good relationship. Large majority of the respondents (88.06%) were not sleep easily might be because of different problems followed by little more than one tenth (11.94%) of them were in opinion that they sleep easily. Relatively higher proportion of the respondents (71.67%) were in opinion that they were not anxious persons to get the things which may be because of different tensions followed by 28.33 per cent of them were found anxious to get the things. Higher proportions of the respondents (72.50%) were found worried followed by 27.50 per cent of the respondents were not having worry which disturbs the daily life. Large majority of the respondents(88.61%) were expressed that they are not feeling safe at heir home may be because of different worries followed by 13.61 per cent of them were found in feelings of safe at their home. With regards to place in community indicators more than half (55.28%) of the respondents were not having satisfied position in their community while

44.72 per cent of them were found satisfied with the position in the community. Higher proportion of the respondents (59.17%) were in opinion that other peoples valued them followed by 40.83 per cent of the respondents were dissatisfied with the values received from others. Maximum numbers of the respondents (60.83%) were in opinion that other peoples not ask their advise while 39.17 per cent of the respondents agree that other peoples takes their advise.

Table 38. Distribution of the respondents according to their levels of quality of life

Sl. No.	Quality of life	Frequency	Percentage
1	Poor (Up to 67)	190	52.78
2	Medium (67.01 to 80.40)	140	38.89
3	High (Above 80.40)	30	8.33
	Total	360	100.00

The data depicted in Table 38 revealed that little more than half of the respondents (52.78%) found in poor quality of life followed by 38.89 per cent of the respondents who were in the category of medium level of quality of life. Only 8.33 per cent of the respondents were observed in the category of high quality control level.

From the above table it is inferred that most of the respondents are from poor quality of life which may be the cause stress.

26. Powerlessness

Stress may be caused by issues and situations over which one feel ones do not have power, control or influence. People with a tendency to perfectionism and having everything under control are more prone to this type of stress. Keeping in view the importance of power in work, researcher thought to select this variable for the present study.

The quality of lacking strength or power; being weak and feeble is called powerlessness.

Table 39. Distribution of the respondents according to their powerlessness

Sl. No.	Statements	Respondents (n=360)					
		Agree		Cannot say		Disagree	
		Frq.	%	Frq.	%	Frq.	%
1	I feel I am not capable of making any decision	83	23.06	170	47.22	107	29.72
2	Nothing I do can change the situation I am in	254	70.56	00	00.00	106	29.44
3	My mental condition avoid me for making decision	85	23.61	186	51.67	89	24.72
4	I feel that my opinion have no value	76	21.11	127	35.28	157	43.61
5	I don't know how to deal with difficulties	93	25.84	201	55.83	66	18.33
6	I feel sad when I think, I need someone to help me	188	52.22	00	0.00	172	47.78
7	I feel, there is nothing I can to make the place I am in more pleasant	155	43.06	113	31.39	92	25.55

The data depicted in Table 39 revealed that relatively higher per cent of the respondents (47.22%) were not given any opinion of the statement about their feelings of not making any decision followed by 29.72 per cent of them were disagree about this statement while little less than one fourth (23.06%) of the respondents were given positive opinion. Majority of the respondents (70.56%) were in opinion that they can not change the situation where they are, followed by 29.44 per cent of them were in confidence that they can change the adverse situation to good situation. With the statement about the mental condition of the respondents to avoid them for making decision, little more than half (51.67%) were not given any opinion which may be because making decision may change according to situation. These were followed by little less than one fourth (24.72%) and (23.61%) who were in opinion that they can take the decision and cannot take the decision respectively. The

43.61 per cent of the respondents were said that their opinion have value whereas 35.28 per cent of them were not given any opinion which may be because of values of the person varies according to situation to situation or person to person. Little more than one fifth (21.11%) of the respondents were in feeling that their opinion have no value. More than half of the respondents (55.83%) were not said anything about to deal with difficulties followed by slightly more than one fourth (25.84%) were agree that they do not know how to deal with difficulties while little less than one fifth (18.33%) were in confidence that they can solve the arising difficulties in their life. More than half of the respondents (52.22%) were in feeling that they feel sad when they need someone to help them followed by 47.78 per cent of them said that they were not sad when they need someone to help them. The 43.06 per cent of the respondents were agree that there is nothing to make the place for their pleasure followed by 31.39 per cent of them who could not said anything which may be because of thinking that change is the rule of nature while slightly more than one fourth (25.55%) were in confidence that they can do anything for their pleasure.

Table 40. Distribution of the respondents according to their levels of powerlessness level

Sl. No.	Powerlessness category	Frequency	Percentage
1	Low	51	14.17
2	Medium	202	56.11
3	High	107	29.72
	Total	360	100.00

It is evident from Table 40 that more than half (56.11%) of the respondents were found in medium level of powerlessness followed by 29.72 per cent of them were in high category of powerlessness and 14.17 per cent of the respondents were in low category of powerlessness.

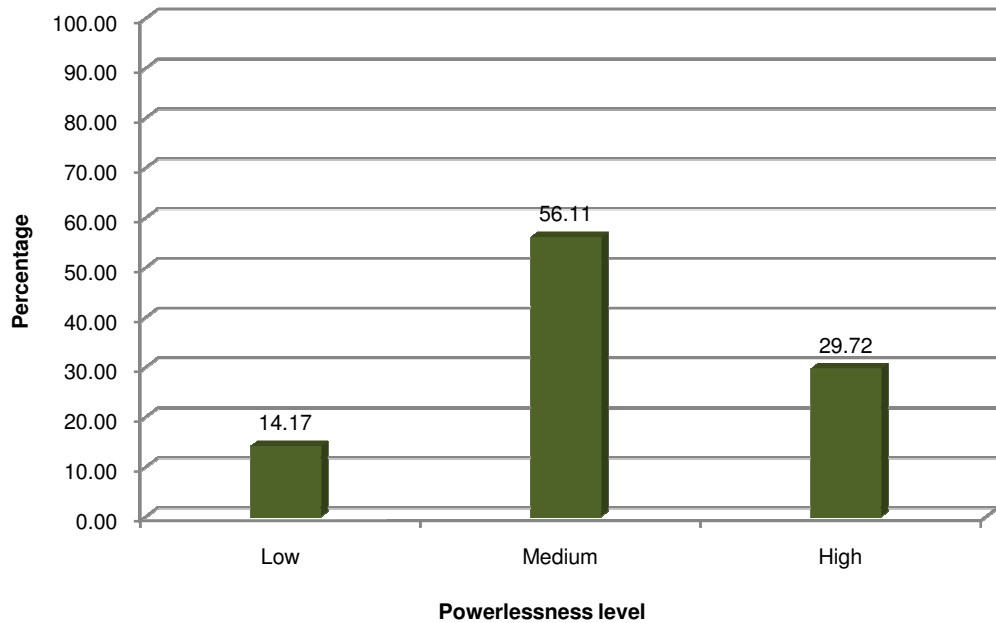


Fig. 27. Distribution of the respondents according to their levels of powerlessness level

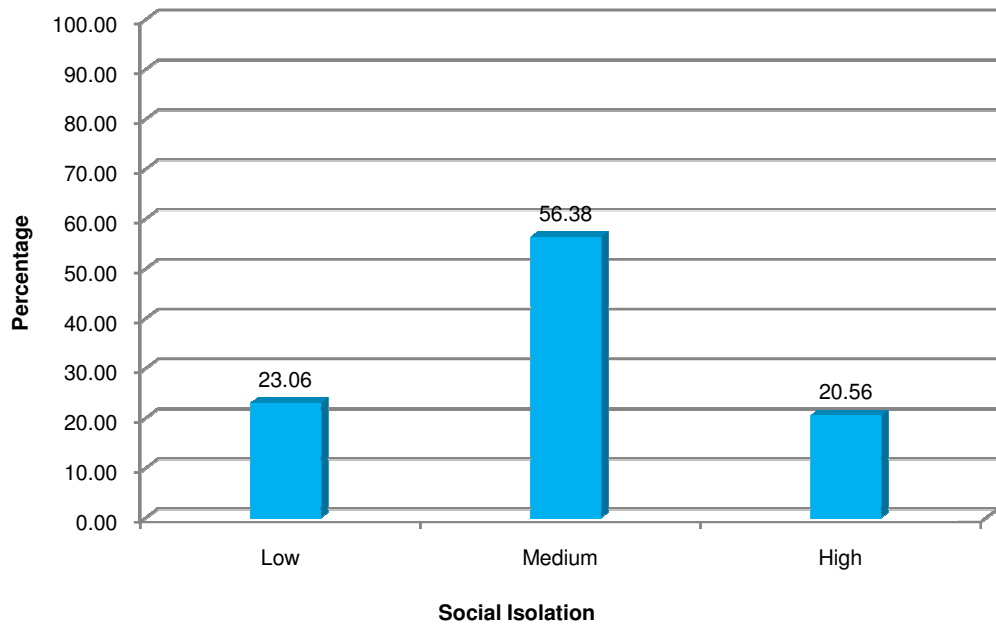


Fig. 28. Distribution of the respondents according to their levels of social isolation

Form the above table, it is concluded that, most of the farmers are medium to high level of powerlessness which may further inferred that they are in feelings that they have no power to take the decisions regarding their daily happenings in their life which might be due to low income and feelings of low status in the society.

27. Social Isolation

Social isolation is the inadequate quality and quantity of social relations with other people at the different levels where human interaction takes place. Social isolation affects on the strategies of the stress management. Adequacy of the social isolation may help to manage the stress.

Table 41. Distribution of the respondents according to their social isolation

Sl. No.	Statements	Respondents (n=360)					
		Agree		Can not say		Disagree	
		Frq.	%	Frq.	%	Frq.	%
	External social isolation						
1	I have regular contact with my neighbours / friends/ relatives	162	45.00	00	0.00	198	55.00
2	I seek social support from neighbours/ friends/ relatives	107	29.72	89	24.72	164	45.56
3	I discuss the things with neighbours/ friends/ relatives when I am in stress	104	28.89	35	9.72	221	61.39
4	I have reciprocity with neighbours/ friends/ relatives	115	31.94	00	0.00	245	68.06
	Internal social Isolation						
5	I am satisfied with social relationship	161	44.72	00	0.00	199	55.28
6	I am in feeling of loneliness	190	52.78	00	0.00	170	47.22
7	I trusted on peoples who are important to me	332	92.22	00	0.00	28	7.78

The data presented in Table 41 seen that in case of external social isolation, higher proportion of the respondents (55.00%) were not having regular contact with their neighbours/ friends and relatives followed by little less than one fourth (45.00%) of them were having regular contact with their neighbours/ friends and relatives. The 45.56 per cent of the respondents were not expected instrumental as well as emotional support from neighbours, friends and relatives which may be because of ego problem or shamefulness. This was followed by 29.72 per cent of the respondents who need social support from their neighbors, friends and relatives whereas little less than one fourth (24.72%) of them were not given any opinion which may be because of situation based. About discussing the things with neighbours, friends and relatives in stressful situation, relatively higher proportion of the respondents (61.39%) were not agree which means that they are not sharing the stressful happenings with their neighbours, friends and relatives followed by 28.89 per cent of them were sharing their problems with neighbours, friends and relatives in stressful situation and only little less than one tenth (9.72%) were not given any opinion which may be based on arising situation. Maximum number of the respondents (68.06%) does not have reciprocity with neighbor, friends and relatives while only 31.94 per cent of the respondents were having the same which may helps to manage the stress. With regards to the internal social isolation, the indicator such as the respondents were satisfied with social relationship more than half (55.28%) of the respondents were not satisfied whereas only 44.72 per cent of them were satisfied with their social relationship. More than half of the respondents(52.78%) were in feelings of loneliness which may be due to low income level, social status or not proper relationship management. Loneliness is one of the factors which inclined to commit suicide. This was followed by 47.22 per cent of the respondents who were not having loneliness which means that they were having social contacts. The 92.22 per cent of the respondents trusted on peoples who are important to them

followed by only 7.78 per cent of them were having no trust which may be because of their negative feelings or inferior complex.

Table 42. Distribution of the respondents according to their levels of social isolation

Sl. No.	Social Isolation levels	Frequency	Percentage
1	Low (Up to 66.58)	83	23.06
2	Medium (66.59 to 80)	203	56.38
3	High (Above 80)	74	20.56
	Total	360	100.00

The bird eye view of the Table 42 revealed that more than half (56.38%) of the respondents were found in medium level of social isolation followed by more than one fifth (23.06%) were in category of low social isolation. The respondents slightly more than one fifth (20.56%) were having high level of social isolation.

From the above findings it is inferred that most of the respondents were in medium level of social isolation which may be because of low income, ultimately low status in the society or may be any other psychological problems.

28. Spirituality

Depression is the most common mental health problem in general and has been the focus of much of the research exploring the relationship between spirituality and mental health. The evidence shows a positive association between church attendance and lower levels of depression amongst adults, children and young people in UK. It also shows that belief in a transcendent being is associated with reduced depressive symptoms.

Similar research has examined the relationship between spirituality and anxiety or stress. Quantitative research demonstrates reduced levels of anxiety in a number of populations, including medical patients in later life, women with breast cancer, middle aged people with

cardiac problems and those recovering from spinal surgery. Therefore researcher selected this variable for the present investigation.

Table 43. Distribution of the respondents according to their spirituality

Sl. No.	Statements	Respondents (n=360)			
		Yes		No	
		Frq.	%	Frq.	%
1	I feel God's presence	342	95.00	18	5.00
2	I experience a connection to all of life	268	74.44	92	25.56
3	During worship or other times when connecting with God, I feel joy which lifts me out of my daily concerns.	258	71.67	102	28.33
4	I find strength in my religion or spirituality	250	69.44	110	30.56
5	I find comfort in my religion or spirituality	227	63.06	133	36.94
6	I feel deep inner peace or harmony	220	61.11	140	38.89
7	I ask for God's help in the midst of daily activities	245	68.06	115	31.94
8	I feel guided by God in the midst of daily activities	250	69.44	110	30.56
9	I feel God's love for me directly	272	75.56	88	24.44
10	I feel God's love for me through others	210	58.33	150	41.67
11	I spiritually touched by the beauty of creation	280	77.78	80	22.22
12	I feel thankful for my blessings	145	40.28	215	59.72
13	I feel selfless caring for others	172	47.78	188	52.22
14	I accept others even when they do things I think are wrong	103	28.61	257	71.39
15	I desire to be closer to God or in union with the divine	265	73.61	95	26.39

The bird eye of the Table 43 shows that large majority of the respondents (95.00%) were feelings of God's presence followed by meager per cent (5.00%) of them were not in opinion about feelings of

God's presence which may be because of adverse situation in their life. With regards to experience a connection to all their life, majority of the respondents (74.44 %) were in that feelings and little more than one fourth (25.56%) were not having feelings about the same. Majority of the respondents (71.67%) were in a feeling that during worship or any other time when connecting with God they feel joy which lifts them out of their concern while 28.33 of them were not having the feelings about the same.

Maximum number of the respondents (69.44%) were in opinion that they found strength in their religion or spirituality while 30.56 of them were not having the same feelings. Relatively higher proportions of the respondents (63.06%) were found comfort in their religion or spirituality whereas 36.94 per cent of the respondents were not found comfort in their religion which may be due to feelings of superstition or no progress in their religion. Maximum number of the respondents (61.11%) were in feelings of deep inner peace or harmony while 38.89 per cent of them were not in opinion about the same. About asking for God's help in the midst of daily activities 68.06 per cent of the respondents were agree to this statement while 31.94 per cent of the respondents were not positive about the same. Higher proportion of the respondents (69.44%) were in feelings about guidance by God in the midst of daily activities followed by 30.56 per cent of them were not agree about the same. Majority of the respondents (75.56:%) were in feeling of direct love of God while little less than one fourth (24.44%) were not agree to this feelings which may be because of problems in their life. In case of feelings of love through others, higher proportions of the respondents (58.33%) were in the same feelings and 41.67 per cent of them were not in feelings about the same. Majority of the respondents (77.78%) were in opinion that they spirituality touched by the beauty of creation followed by more than one fifth (22.22%) were not agree about the same. Relatively higher proportion of the respondents (59.72%) were not thankful about the blessings of God which may be because of frequent problems in their daily life followed by 40.28 per cent of them were observed in the

thankfulness of blessings of God. More than half of the respondents (52.22%) were not in feelings of selfless caring of others while 47.78 per cent of the respondents were agree to the same. Maximum numbers of the respondents (71.39%) were not in opinion that they accept others even when others do the things which are wrong while 28.61 per cent of the respondents were accepted the same. Majority of the respondents (73.61%) were in desire to be closer to God or union with the divine while little more than one fourth (26.39%) of them were not agree to the same statement.

Table 44. Distribution of the respondents according to their levels of spirituality

Sl. No.	Spirituality level	Frequency	Percentage
1	Low	64	17.78
2	Medium	203	56.38
3	High	93	25.84
	Total	360	100.00

The data presented in Table 44 evident that higher proportion of the respondents (56.38%) were found in medium level of spirituality followed by little more than one fourth of them (25.84%) were in high level of spirituality whereas only 17.78 per cent of the respondents were in low spirituality level.

From the above table it is concluded that, relatively higher proportion of the respondents were found in medium to high spirituality level. Subconsciously spiritual persons have the strong faith on God and do the things accordingly which may help to success them in each activity. On the basis of previous research higher the spirituality level, helps to manage the stress effectively.

29. Self esteem

Our mind has the power to help us maintain a healthy physical and mental disposition when it produces high quality, positive thoughts. The physical well being and positive self esteem allow us to

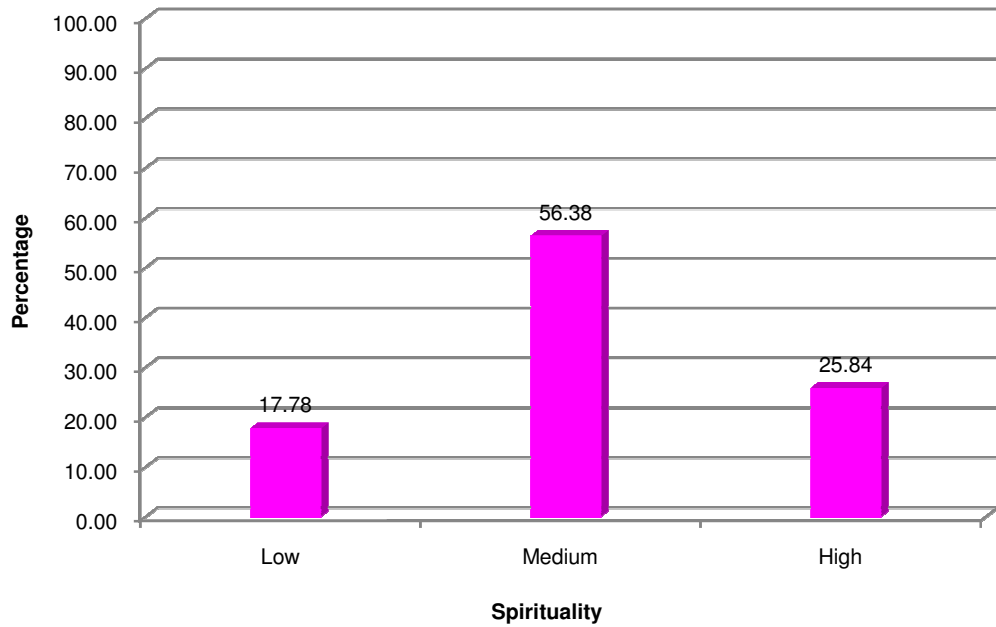


Fig. 29. Distribution of the respondents according to their levels of spirituality

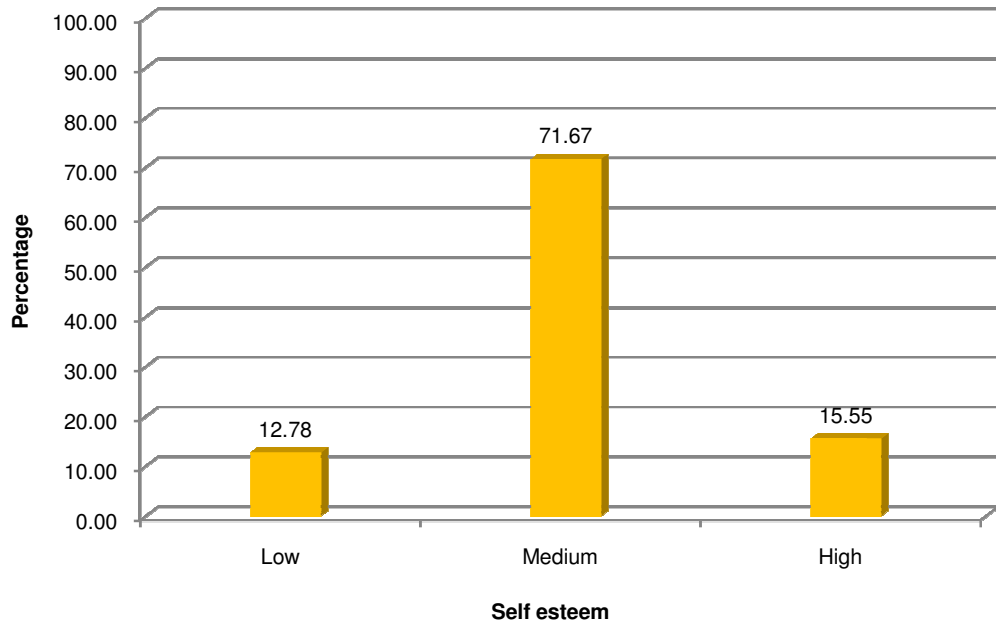


Fig. 30. Distribution of the respondents according to their levels of self esteem

energetically embrace our daily routines with more motivation, enthusiasm and inspiration. Conversely, negative thoughts encourage a downward spiraling of confidence and self-belief. Maintaining a positive mental perspective is one of the most important stress management tool on overcoming the sense of loss. Thus, in view of the importance of self esteem, this variable was selected for the study.

Table 45. Distribution of the respondents according to their self esteem

Sl. No.	Statements	Respondents (n=360)					
		Agree		Cannot say		Disagree	
		No.	%	No.	%	No.	%
1	I feel that I am a person of worth, at least on an equal plane with others	145	40.28	46	12.78	169	46.94
2	I feel that I have a number of good quality	157	43.61	107	29.72	96	26.67
3	All in all I am inclined to feel that I am a failure	203	56.39	72	20.00	85	23.61
4	I am able to do things as well as most of the other people.	133	36.94	00	00.00	227	63.06
5	I feel I do not have much to be proud of	129	35.83	00	00	231	64.17
6	I take a positive attitude towards myself	137	38.06	133	36.94	90	25.00
7	On the whole I am satisfied with myself	55	15.27	68	18.90	237	65.83
8	I wish I could have more respect for myself	295	81.94	00	00	65	18.06
9	I certainly feels useless at times	197	54.72	58	16.11	105	29.17
10	At times I think I am no good at all	209	58.06	74	20.56	77	21.39

It is evident from Table 45 that, the less than half of the respondents (46.94%) were in opinion that they were not in feelings as persons of worth, at least on an equal plane with others followed by 40.28

per cent of them were in the same feelings while more than one tenth (12.78%) of the respondents were could not said anything about the feelings that they are person of worth at least on an equal plane with others. In case of the statement, I feel that I have a number of good quality, maximum number of the respondents (43.61%) were in feelings of having number of good quality followed by 29.72 per cent of them who were not given any opinion about the same while more than one fourth (26.67%) of the respondents were not in feelings of having number of good qualities amongst them.

More than half (56.39%) of the respondents were in opinion that all in all they were inclined in feelings of failure whereas less than one fourth of them (23.61%) were in not in feelings about the same and only one fifth of the respondents (20.00%) could not said anything about the same. With regards to the statement 'I am able to do things as well as most of the other people', relatively higher proportion of the respondents (63.05%) were not in opinion that they are able to do things as well as most of the other people' which was followed by 36.94 per cent of them were in confidence that they are able to do the things as most of the other people.

In case of the statement as 'I feel I do not have much to be proud of', maximum number of the respondents (64.17%) were expressed disagree opinion and 35.38 per cent of them were in feelings that they do not much to be proud of. Taking a positive attitude towards themselves with this statement, 36.94 of the respondents were having positive attitude towards themselves followed by 36.94 per cent of them were not given their opinion about the same while, one fourth (25.00%) of the respondents were having negative attitude towards themselves. Relatively higher proportion of the respondents (65.83%) of the respondents were not in opinion that on the whole they are satisfied with themselves while 18.90 per cent of them could not said anything and only 15.28 per cent of the respondents were in satisfaction with themselves. About their wish for having more respect for themselves majority of the respondents (81.94%)

were wishing the same and only 18.06 per cent of them were not in expectation of having the more respect for themselves. 'I certainly feel useless at times' with this statement, more than half (54.72%) of the respondents were agree followed by 29.16 per cent of them were expressed disagree opinion and only 16.11 per cent of the respondents could not expressed anything may be because of thinking that everything depends on situation. 'At times I think I am no good at all" in this regards 58.06 per cent of the respondents were expressed agree opinion followed by 21.39 per cent who were disagree and nearly one fifth (20.56%) could not expressed anything about their thinking of they are not good at all.

Table 46. Distribution of the respondents according to their levels of Self esteem

Sl. No.	Self esteem	Frequency	Percentage
1	Low	46	12.78
2	Medium	258	71.67
3	High	56	15.55
	Total	360	100.00

The data presented in Table 46 reveled that majority of the respondents (71.67%) were in medium level of self esteem followed by 15.55 per cent of them were in high self esteem level whereas only 12.78 per cent of the respondents were found in low category of self esteem.

From the above findings it can be concluded that majority of the respondents were in medium level of self esteem. These findings are in accordance with the findings of Anonymous (2017) and Rani Palskar 2018.

30. Self efficacy

It is assumed that people with a strong sense of self-efficacy view challenging problems as tasks to be mastered, develop deeper interest in the activities in which they participate, form a stronger sense of commitment to their interests and activities and recover quickly from

setbacks and disappointments. Whereas, people with a weak sense of self-efficacy, avoid challenging tasks, believe that difficult tasks and situations are beyond their capabilities, focus on personal failings and negative outcomes and quickly lose confidence in personal abilities. To manage the stress knowing of self efficacy of the farmers is important. Therefore this variable was selected for the study.

Table 47. Distribution of the respondents according to their self efficacy

Sl. No.	Statements	Agree		Can not say		Disagree	
		Frq.	%	Frq.	%	Frq.	%
1	Everyone knows that I am a successful farmer	72	20.00	81	22.50	207	57.50
2	People say that I can cultivate well	109	30.28	170	47.22	81	22.50
3	I can not use all my capacities to be a successful farmer (R)	190	52.78	80	22.22	90	25.00
4	I have no difficulty to use new agricultural procedures	130	36.11	00	00.00	230	63.89
5	I am success in dealing with any agricultural problems	82	22.78	63	17.50	215	59.72
6	I can not grow good amount of crops if I would be away from traditional agricultural practices (R)	187	51.94	83	23.06	90	25.00
7	Comparing with others, I grow more amount of crops	85	23.62	58	16.11	217	60.28
8	I am failure in agricultural competition (R)	240	66.67	00	00.00	120	33.33
9	No one can defeat me in crop production	42	11.67	00	00.00	318	88.33
10	I can understand any sort of agricultural discussion	45	12.50	105	29.17	210	58.33
11	I can grow crops whether there would be any drought or heavy shower	40	11.11	55	15.28	265	73.61
12	To grow good crops, I can do more work	88	24.44	272	75.56	0.00	0.00
13	I am proud of being a successful farmer	65	18.06	295	81.94	0.00	0.00
14	I imitate good farmers	90	25.00	260	72.22	10	2.78
15	I brood as how to get good crops	215	59.72	85	23.61	60	16.67
16	I do not like to think much about less production (R)	68	18.89	00	0.00	292	81.11

17	Always I try to remove all troubles in agriculture	33	9.17	105	29.17	222	61.66
18	If luck favours, there are good amount of crops (R)	276	76.67	00	0.00	84	23.33
19	I want to find reasons when I get good crops	102	28.33	00	0.00	258	71.67
20	It is useless to devote much time to think about agriculture (R)	287	79.72	00	0.00	73	20.28

Data presented in Table 47 indicated that, opinion about successful farmer, higher proportion of the respondents (57.50%) were not said that they are the successful farmers followed by little more than one fifth of them (22.50%) not given any opinion about the same which might be in thinking that yield or income depends on climatic conditions while one fifth (20.00%) of the respondents said that they are the successful farmers.

About peoples opinion of cultivation of field, relatively higher proportion (47.22%) of the respondents could not say anything about the cultivation of field in good manner may be because of deficit of infrastructural facilities followed by 30.28 per cent of them were observed in confidence they can cultivate their field in good manner while more than one fifth (22.50%) were not in confidence about the peoples opinion that they can cultivate the field in good manner. More than half of the respondents (52.78%) were in opinion that they cannot use all their capacities to be a successful farmer, followed by one fourth of the respondents (25.00%) were said that they can use all their capacities to be succesful farmers while little more than one fifth of them (22.22%) were not given any opinion about the same. About the statement, no difficulty to use new agricultural procedures, maximum number of the respondents (63.89%) expressed disagree opinion which means that they were in difficulties in using new agricultural procedures might be due to inadequate inputs followed by 36.11 per cent of them were having no difficultuies to adopt the same. Maximum number of the respondents (59.72%) were said that they cannot deal with any agricultural problems

successfully which may be because of lack of knowledge about new agricultural technologies which was followed by more than one fifth of them (22.78%) who were in opinion that they can deal any agricultural problems while 17.50 per cent of the respondents not given any opinion about the same.

With regards to the statement as I can not grow good amount of crops if I would be away from traditional agricultural practices, 51.94 per cent, 25.00 per cent and 23.06 per cent of the respondents were agree, disagree and cannot say opinion respectively. Relatively higher proportion of the respondents (60.28%) were not in confidence that they can grow more amount of crops comparing with others which might be because of less land holding followed by less than one fourth of them (23.62%) were observed in confidence they can grow more amount of crops comparing with others while only 16.11 per cent of the respondents could not anything about the same. Higher proportion of the respondents (66.67%) were agreed that they are failure in agricultural competition followed by one third of them (33.33%) were given disagree opinion about the same. In case of statement as no one can defeat me in crop production, large majority of the farmers (88.33%) were disagree about the same while little more than one tenth of them (11.67%) were expressed positive opinion about no one can defeat them in crop production might be because of less or dry land holdings. Relatively maximum numbers of the respondents (58.33%) were in confidence that they can understand any sort of agricultural discussion which was followed by 29.17 per cent and 12.50 per cent who were given can not say and agree opinion about the same respectively. With the view about the statement as I can grow crops whether there would be any drought or heavy shower, majority of the respondents (73.61%) were not in confidence where as 15.28 per cent of them could not given any opinion while little more than one tenth (11.11%) of the respondents were in confidence that they can grow crops whether there would be any drought

or heavy shower. Majority of the respondents (75.56%) were not given any opinion about making more work to grow good crops, followed by little less than one fourth of them (24.44%) who were in confidence about the same.

With regards to be feeling proud of being a successful farmer, majority of the respondents (81.94%) were not given any opinion about feeling to be proud as a successful farmers which may be due to less land holding or specially dry land holdings while 18.06 per cent of them were having positive opinion about the same. With regards to the statement as, I imitate good farmers 72.22 per cent, 25.00 per cent and 2.78 per cent, were having can not say, agree and disagree opinion about this statement. In case of the statement as I brood as how to get good crops, 59.72 per cent 23.61 per cent and 16.67 per cent the respondents were agree can not say and disagree opinion respectively. Majority of the respondents (81.11%) were in opinion that they frequently think about less production followed by 18.89 per cent of the respondents were not thinking about the same which may be because thinking that there is no use to think about the things that can not in our hand.

With regards to the statement as, always I try to remove all troubles in agriculture, relatively higher proportion of the respondents (61.66%) were not observed in confidence that they can remove all troubles in agriculture followed 29.17 per cent of them could not given any opinion about the same while little less than one tenth of the respondents (9.17%) were in confidence to remove all troubles in agriculture. With regards to the statement as if luck favors, there are good amount of crops, majority of the respondents (76.67%) were observed in believing on luck followed by less than one fourth of them (23.33%) were given negative opinion about the same which means that they believe on their work.. In case of finding reasons when gets good crops 71.67 per cent and 28.33 per cent of the respondents where disagree and agree opinion about the same respectively. Majority of the respondents (79.72 %) were in thinking that it is useless to devote much time to think about agriculture which may

be because of the low productivity of crops, high inputs and not getting remunerative rate for the different commodity. This was followed by little more than one fifth of them (20.28%) who were thinking to do agriculture may be fact that there is no alternative for livelihood.

Table 48. Distribution of the respondents according to their levels of self efficacy

Sl. No.	Self efficacy levels	Frequency	Percentage
1	Low (Up to 65.92)	91	25.28
2	Medium (65.93-76.51)	233	64.72
3	High (Above 76.51)	36	10.00
	Total	360	100.00

It is assumed from the Table 48 that most of the respondents (64.72%) were found in medium self efficacy level followed by slightly more than one fourth of them (25.28%) were in low self efficacy level and only one tenth (10.00%) of the respondents were observed in high category of self efficacy level.

From the above table it is concluded than higher proportion of the respondents were observed in medium to low level of self efficacy. These findings are in consistent with the findings of Anonymous (2017) and Rani Palskar (2018) who were observed the similar findings.

5.2 Perception about the concept of stress and stress mindset of the farmers

5.2.1 Concept of stress

Table 49. Distribution of the respondents according to the perception of respondents about the concept of stress

Sl. No.	Perception about stress	Respondents (n=360)	
		Number	Percentage
1	Correct	37	10.28
2	In-correct	323	89.72
	Total	360	100.00

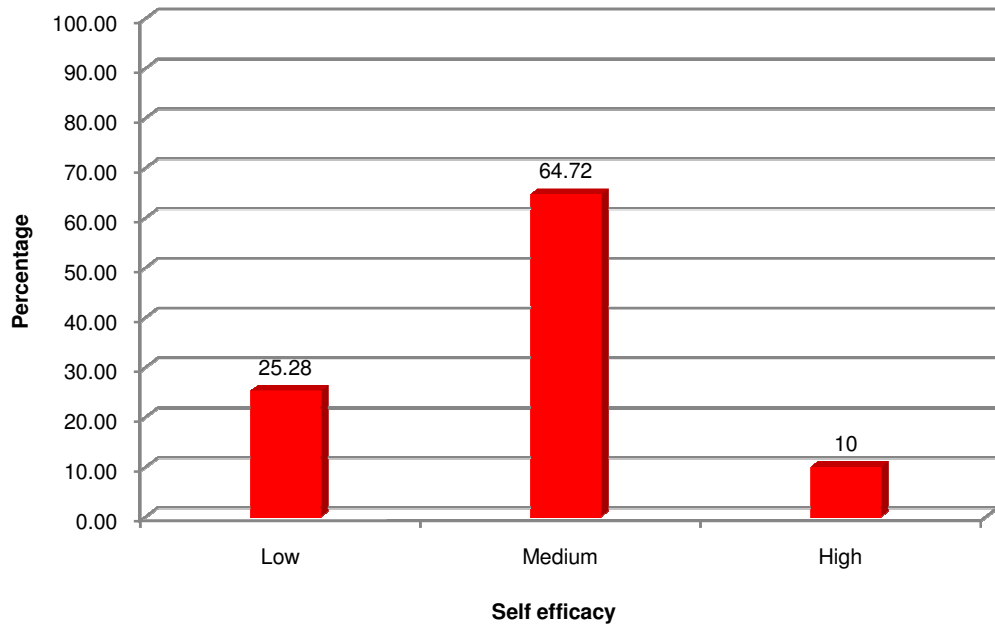


Fig. 31. Distribution of the respondents according to their levels of self efficacy

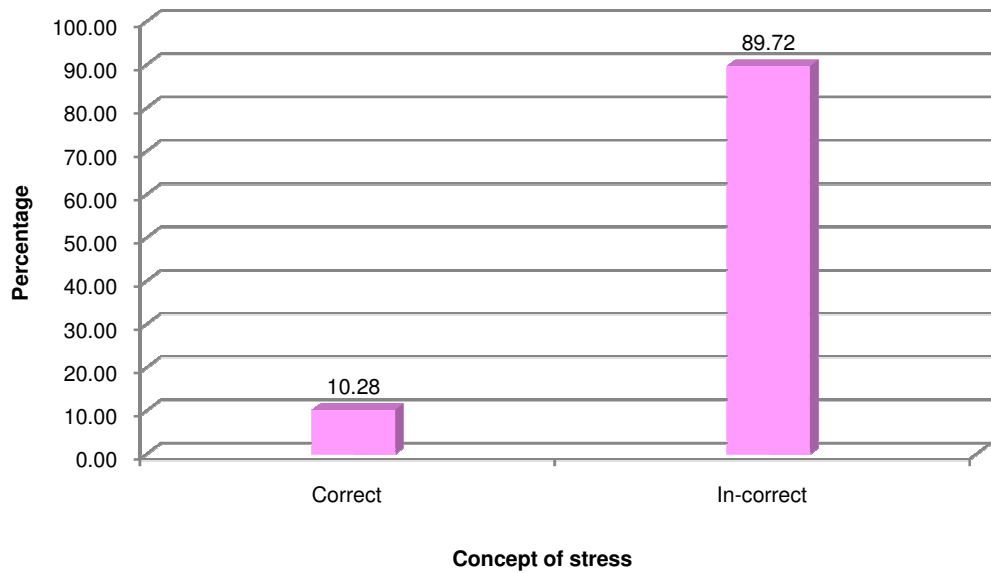


Fig. 32. Distribution of the respondents according to their perception about the concept of stress

From Table 49 it is inferred that large majority of the respondents (89.72%) were don't know about the concept of stress. They were in perception that only negative stress is the stress but when they were aware about the concept of stress, they were understood. Only little more than one tenth (10.28%) were aware about the concept of stress.

It is concluded from the above findings that majority of the respondents were not aware about the concept of stress.

5.2.2 Stress mindset

Table 50. Distribution of the respondents according to their stress mindset

Sl. No.	Statements	Respondents (n=360)					
		Agree		Cannot say		Disagree	
		Frq.	%	Frq.	%	Frq.	%
1	The effects of stress are negative and should be avoided.	95	26.39	00	0.00	265	73.61
2	Experiencing stress facilitates my learning and growth	105	29.17	27	7.50	228	63.33
3	Experiencing stress depletes my health and vitality	190	52.78	00	0.00	170	47.22
4	Experiencing stress enhances my performance and productivity	47	13.06	94	26.11	219	60.83
5	Experiencing stress inhibits my learning and growth	270	75.00	00	0.00	90	25.00
6	Experiencing stress debilitates my performance and productivity.	236	65.56	00	0.00	124	34.44
7	The effects of stress are positive and should be utilized	82	22.78	00	0.00	278	77.22
8	Experiencing stress improves my health and vitality	91	25.28	00	0.00	269	72.72

The bird eye view of the Table 50 indicated that, the stress mindset of the respondents in case of the statement as the effects of stress are negative and should be avoided the respondents (73.61%).and (26.39%) were having disagree and agree opinion. With regards to experiencing stress facilitates my learning and growth the respondents (29.17%), (7.50%), and (63.33%) were in opinion of agree, can not say and disagree respectively. In case of experiencing stress depletes my health and vitality the respondents (52.78%), (47.22%) were in opinion of agree and disagree. The stress mind set of the respondents with regards to the statement as, experiencing stress enhances my performance and productivity (75.00%) and (25.00%) were in agree and disagree, respectively. Experiencing stress inhibits my learning and growth the respondents 60.63, 26.11 and 13.06 per cent were in mindset of, disagree, can not say and agree, respectively., In case of experiencing stress debilitates my performance and productivity the respondents (75.00%) and (25.00%) were having mindset as agree and disagree. The mind set of the respondents (77.22%) and (22.78%) with regards to the statement as the effects of stress are positive .and should be utilized, were disagree and agree opinion respectively. In case of experiencing stress improves my health and vitality the respondents (72.72%) and (25.28%) were having mindset of disagree and agree to the statement.

Table 51. Distribution of the respondents according to their levels of stress mind set

Sl. No.	Stress Mindset levels	Frequency	Percentage
1	Low (Up to 74.97)	38	10.56
2	Medium (74.98 to 86.19)	261	72.50
3	High (Above 86.19)	61	16.94
	Total	360	100.00

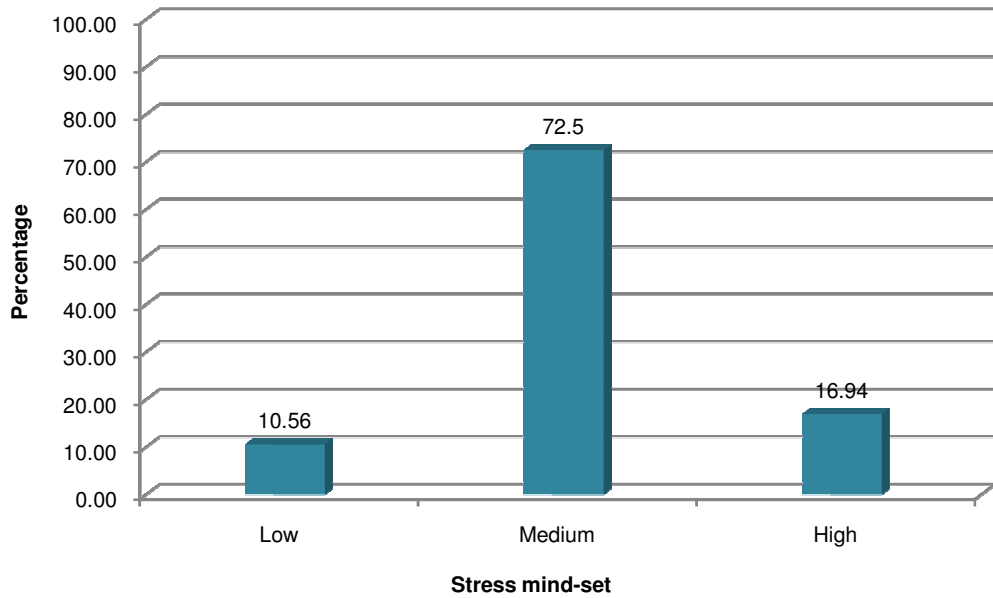


Fig. 33. Distribution of the respondents according to their levels of stress mind-set

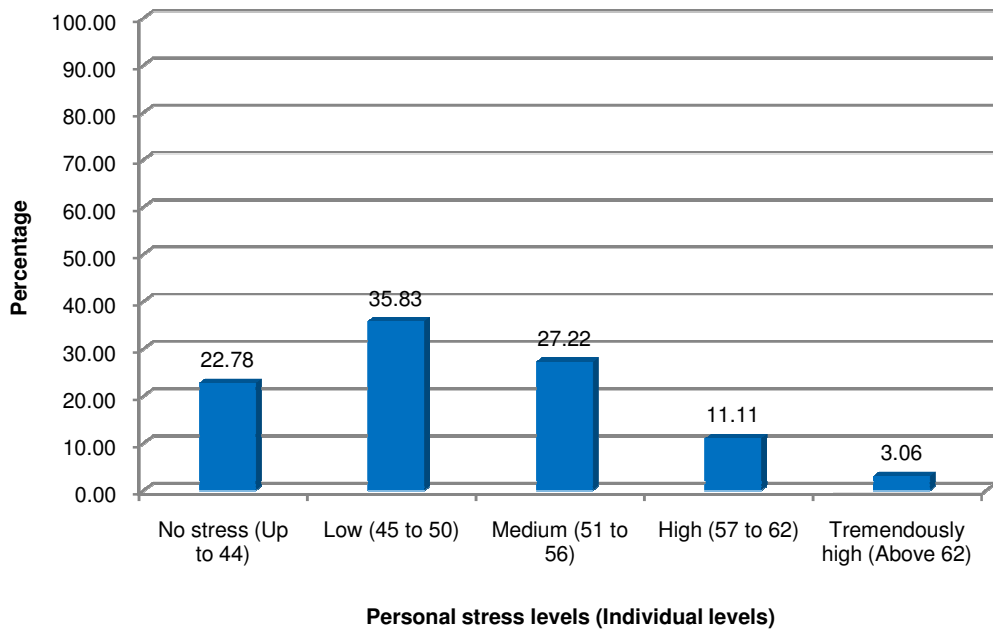


Fig. 34. Distribution of the respondents according to their personal stress levels

It is evident from Table 51 that majority of the respondents (72.50%) were found in medium stress mindset followed by 16.94 per cent of them were in high stress mindset and nearly one tenth i.e 10.56 per cent of the respondents were observed in low stress mindset level.

It is inferred from the above findings that, majority of the respondents were found in medium level of stress mindset.

5.3 Intervening Variable

5.3.1 Stress

Stress is the sum total of all non specific biological phenomenon elicited by adverse external influences.

Stress is difficult to define precisely. The concept of stress was first introduced in the life sciences by Selye Hans in 1936. It was derived from the Latin word 'stringere'; it meant the experience of physical hardship, starvation, torture and pain. Selye Hans, 1936 defined stress as "the non-specific response of the body to any demand placed upon it". Further, stress was defined as "any external event or internal drive which threatens to upset the organism equilibrium" (Selye Hans, 1956).

According to Selye (1956) stress is "any external event or internal drive which threatens to upset the organismic equilibrium".

Cofer and Appley (1964) defined stress as a state of an organism where he perceives that his wellbeing is endangered and that he must direct all his energies to its protection.

Lazarus (1966) referred stress a state of imbalance with in an organism that is elicited by an actual/perceived disparity between environmental demands and the organism's capacity to cope with these demands; and is manifested through variety of physiological, emotional and behavioural responses.

Wolf and Goodell (1968) defined stress as a dynamic state with in an organism in response to a demand for adaptation

McGrath (1970) defined stress as a perceived imbalance between demand and response capacity under conditions where failure to meet demand has important consequences.

Cox (1978) has described three classes of definitions. Stress can be variously thought of as a response, i.e. the stress response to an extreme stimulus; as a stimulus i.e. as the stressor itself as an intervening variable.

Spielberger (1979) defined stress in two different ways. According to him, it is a dangerous potentiality, harmful/unpleasant external situation/conditions (stressors) that produce stress reaction; and secondly to the internal thought, judgment, emotional state and physiological process that are evoked by stressful stimuli.

In the present study stress was defined as the occurrence of harmful/unpleasant external situation/conditions in the life of individual farmer related to individual level, family level and at farming level that produce stress reaction and secondly to the internal thought, judgment, emotional state and physiological process that are evoked by stressful stimuli.

To measure the causes of stress at individual level, family level and farming level scale was developed and standardized.

According to Selye (1956) stress is “any external event or internal drive which threatens to upset the organismic equilibrium”.

Cofer and Appley (1964) defined stress as a state of an organism where he perceives that his wellbeing is endangered and that he must direct all his energies to its protection.

Lazarus (1966) referred stress a state of imbalance with in an organism that is elicited by an actual/perceived disparity between environmental demands and the organism’s capacity to cope with these demands; and is manifested through variety of physiological, emotional and behavioural responses.

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Spielberger (1979) defined stress in two different ways. According to him, it is a dangerous potentiality, harmful/unpleasant external situation/conditions (stressors) that produce stress reaction; and secondly to the internal thought, judgment, emotional state and physiological process that are evoked by stressful stimuli.

Table 52. Distribution of the respondents according to their individual levels related stressful events

Sl. No.	Statements	Respondents (n=360)				
		No stress	Little stress	Moderately tolerable stress	High stress	Tremendously high stress
1	Major decisions being made without my knowledge	274 (76.11)	11 (3.06)	21 (5.83)	22 (6.11)	32 (8.89)
2	I am suffering from regular illness	147 (40.83)	50 (13.89)	108 (30.00)	33 (9.17)	22 (6.11)
3	Being fired at work	183 (50.82)	20 (5.56)	42 (11.67)	87 (24.17)	28 (7.78)
4	I experience major change in financial state	147 (40.83)	41 (11.39)	97 (26.95)	49 (13.61)	26 (7.22)
5	I have to go on changing to a different line of work	113 (31.39)	89 (24.72)	103 (28.61)	37 (10.28)	18 (5.00)
6	According to my expectations the	03	70	89	103	95

	financial condition is far from satisfactory	(0.83)	(19.45)	(24.72)	(28.61)	(26.39)
7	My ambitions could not be fulfilled	29 (8.06)	101 (28.06)	187 (51.94)	31 (8.61)	12 (3.33)
8	I am ashamed of my profession as my friends are in good profession	61 (16.94)	81 (22.50)	143 (39.72)	51 (14.17)	24 (6.67)
9	I am involved in a major legal dispute	289 (80.29)	12 (3.33)	17 (4.72)	21 (5.83)	21 (5.83)
10	At present I have lost interest in my farming	67 (18.61)	68 (18.89)	00.00	190 (52.78)	35 (9.72)
11	My family members suffering from a major illness	247 (68.61)	32 (8.89)	39 (10.83)	11 (3.06)	31 (8.61)
12	There is a considerable gap between my values and of the society in which I stay	95 (26.39)	98 (27.22)	117 (32.50)	33 (9.17)	17 (4.72)
13	I am generally isolated from my relatives	197 (54.72)	19 (5.28)	99 (27.50)	29 (8.06)	16 (4.44)
14	My close friends generally avoid me	189 (52.5)	83 (23.06)	39 (10.83)	29 (8.06)	20 (5.55)
15	Socio-economic status of my immediate neighbors is much higher than that of mine	90 (25.00)	101 (28.06)	97 (26.94)	45 (12.50)	27 (7.50)
16	My work is too monotonous	69 (19.17)	112 (31.11)	107 (29.72)	39 (10.83)	33 (9.17)
17	Disputes with neighbor about farm area	203 (56.39)	91 (25.28)	23 (6.39)	29 (8.05)	14 (3.89)
18	Disputes with neighbor about place of house	302 (83.89)	13 (3.61)	17 (4.73)	12 (3.33)	16 (4.44)
19	I have aspirations and qualifications, but the system does not have better positions for me	318 (88.33)	12 (3.33)	15 (4.17)	07 (1.95)	8 (2.22)

(Figures in paranthesis indicate percentage)

Data depicted in Table 52 revealed that in respect of Individual related stress, majority of the respondents (76.11%) were having no stress as they expressed that, major decisions being made with their knowledge or inputs followed by less than one tenth (8.89%) were in tremendously high stress and were in opinion that, for making major decision they were involved while 6.11 per cent, 5.83 per cent and 3.06 per cent were in stress levels of high stress, moderately tolerable stress and little stress respectively.

Relatively higher proportion of the respondents (40.83%) were having no stress as they were not suffering major personal injury or illness followed by less than one third of them (30.00%) were having moderately tolerable stress which means that personal injury or illness is at tolerable level while little more than one tenth (13.89%), 9.17 per cent and 6.11 per cent of the respondents were in little stress high stress and tremendously high stress respectively about the same.

With regards to being fired at work, 56.39 per cent of the respondents not having experience about the firing at work hence they were in stress less situation followed by little less than one fourth of them (24.17%) were in high stress and 11.67 per cent, 7.78 per cent and 5.56 per cent were observed in moderately tolerable stress, high stress and little stress respectively.

Maximum number of the respondents (40.83%) were having no major change in financial state as they could not purchased any things therefore they no any stress about the same followed by more than one fourth (26.94%) of them were in moderately tolerable stress because of major change in financial changes while 13.61 per cent 11.39 per cent and 7.22 per cent of the respondents were in high stress, little stress and tremendously high stress situation respectively.

With the statement of changing to a different line work, higher proportion of the respondents (31.39%) were in opinion that they have changed themselves in different line work hence they were not in

any type of stress followed by 28.61 percent of them were having moderately tolerable stress and little less than one fourth (24.72%), 10.28 per cent and 5.00 per cent of the respondents were in little stress, high stress and tremendously high stress level with the changing to a different line of work.

Maximum number of the respondents (28.61%) were expressed high level of stress because of their expectation the financial condition is far from satisfactory followed by more than one fourth of them (26.39%) were in tremendously high stress. The respondents 24.72 per cent, 19.45 per cent and 0.83 per cent were observed in moderately tolerable stress, little stress and no stress levels respectively.

More than half of the respondents (51.94%) were having moderately tolerable stress about not fulfillment of their ambitions might be because of less land holdings or over age situation followed by more than one fourth of them (28.06%) who expressed little stress about the same whereas 8.61 per cent, 8.06 per cent and 3.33 per cent of the respondents were in high stress no stress and tremendously high stress respectively.

Maximum number of the respondents (39.72%) were in opinion that they ashamed of their profession as their friends are in good condition which is moderately tolerable stress followed by more than one fifth (22.50%) of them were having little stress while 16.94 per cent, 14.17 per cent and 6.67 per cent of the respondents were in no stress, high stress and tremendously high stress situation respectively.

Majority of the respondents (80.29%) were not involved in major legal disputes hence they were not having any type of stress followed by equal proportion of the respondents (5.83%) were involved in such disputes and expressed that they were in high to tremendously high level of stress respectively whereas 4.72 per cent and 3.33 per cent of the respondents were having moderately tolerable stress and little stress category which might be because of not serious matter.

More than half of the respondents (52.78%) were in opinion that they lost their interest in their farming which might be because of frequent low yield, income more input or Government policies and in feelings of high stress followed by 18.89 per cent, 18.61 per cent and 9.72 per cent of them were in little stress no stress and tremendously high stress categories respectively.

Relatively higher proportion of the respondents (68.61%) were not having major problem of health of the family hence they were in stress less situation whereas more than one tenth (10.83%) of them who were in moderately tolerable stress it means that health of their family members were at tolerable limits. The 8.89 per cent, 8.61 per cent and 3.06 per cent were in little stress tremendously high stress and high stress situation respectively.

Maximum number of the respondents (32.50%) were in feelings that there is considerable gap between their values and the society in which they stay and feel moderately tolerable stress followed by 27.22 per cent of them were in little stress whereas more than one fourth of the respondents (26.39%) were having no stress as they are not in the same feelings. The respondents 9.17 per cent and 4.72 per cent were in feelings of considerable gap between their values and the society in which they stay and experienced high and tremendously high situation of stress respectively.

More than half of the respondents (54.72%) were in opinion that they are not isolated from their relatives followed by more than one fourth of them (27.50%) who said that they are somewhat isolated their relatives and feeling moderately tolerable stress while 8.06 per cent, 5.28 per cent and 4.44 per cent of the respondents were in opinion that they were in high , little and tremendously high stress respectively.

In case of statement, close friend generally avoid them, more than half of the respondents (52.50 %) were not having any type of stress because they have not the problems of avoiding their close friends followed by little less than one fourth (23.06) were having little stress

whereas 10.83 per cent, 8.06 per cent and 5.55 per cent of the respondents were in little stress, moderately tolerable stress. High stress and tremendously high stress situation respectively.

Some of the respondents were in thinking that socio-economic status of their immediate neighbors is much higher than that of them, were observed in more than one fourth of the respondents (28.06%) followed by 26.94 per cent of them were having moderately tolerable stress while more than one tenth (12.50) and 7.50 per cent of the respondents were in high and tremendously high stress levels respectively about the same.

Maximum number of the respondents (31.11%) were expressed that their work is to monotonous experiencing little stress followed by 29.72 per cent of them were having moderately tolerable stress whereas little than one fifth of the respondents (19.17%) were not having any type of stress may be because they were enjoying in their field . Only 10.83 per cent and 9.17 per cent of the respondents were having high and tremendously high stress levels about the monotonous work.

More than half of the respondents (56.39%) were not having any type of disputes about their farm therefore they were not in any type of stress followed by little more than half (25.28%) were having little stress whereas 8.05 per cent, 6.39 per cent and 3.89 per cent of the respondents were in stress levels of high stress, moderately tolerable stress and tremendously high stress respectively.

In relation to disputes with neighbours about place of house majority of the respondents (83.89%) were not having the problem and not feeling any type of stress which was followed by 4.73 per cent, 4.44 per cent, 3.61 per cent and 3.33 per cent of them were having moderately tolerable stress, tremendously high stress, little stress and high stress respectively about the disputes with neighbours about place of house.

Large majority of the respondents (88.33%) were not having any stress as they were not in opinion that they were not having any aspirations and qualifications, therefore system does not have in their

better position. This may be because of thinking that they were not qualified in that level. This was followed by 4.17 per cent of the respondents were expected the same but in tolerable stress level while 3.33 per cent, 2.22 per cent and 1.95 per cent of the respondents were observed in little stress, tremendously high stress and high stress respectively about the their aspiration and qualifications and not having in better position.

Table 53. Distribution of the respondents according to their personal (individual) stress levels

Sl. No.	Individual stress level	Respondents (n=360)	
		Frequency	Percentage
1	No stress (Up to 44)	82	22.78
2	Low (45 to 50)	129	35.83
3	Medium (51 to 56)	98	27.22
4	High (57 to 62)	40	11.11
5	Tremendously high (Above 62)	11	3.06

From Table 53, it is revealed that relatively higher proportion of the respondents(35.83%) were in low stress followed by little more than one fourth (27.22%) of them were found in medium level of stress whereas more than one fifth (22.78%) of the respondents were in no stress. The 11.11 per cent and 3.06 per cent of the respondents were found to having high and tremendously high stress category of personal stress level respectively.

It can be concluded from the above findings that, most of the farmers were in low stress level followed by medium personal level stress category.

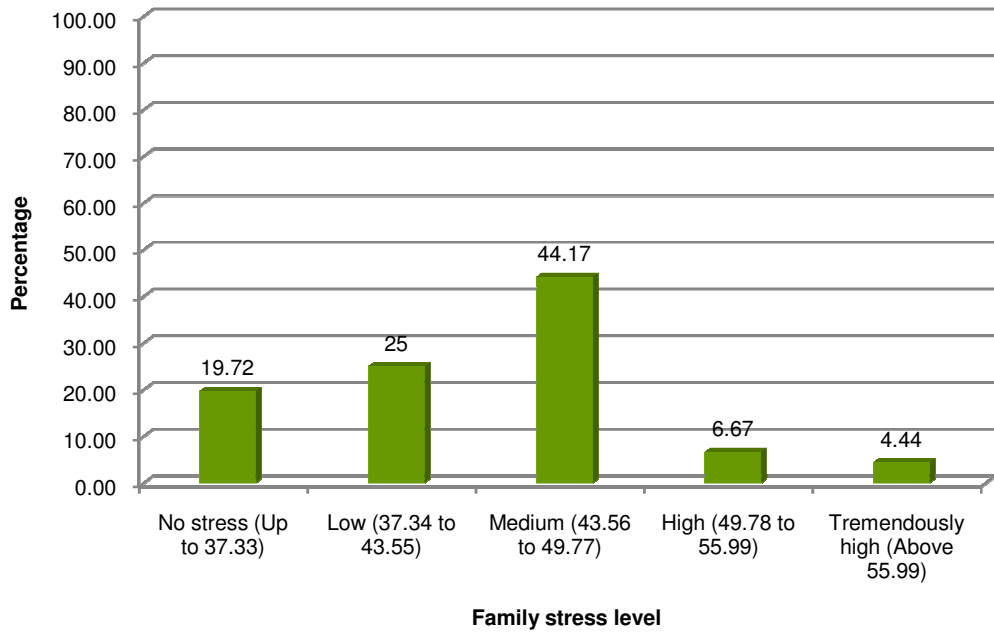


Fig. 35. Distribution of the respondents according to their family stress levels

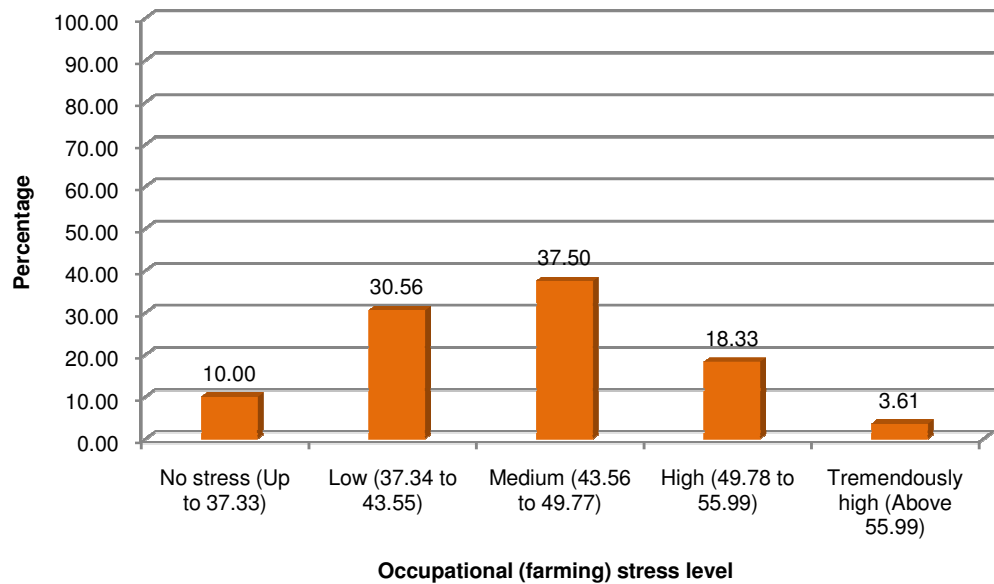


Fig. 36. Distribution of the respondents according to their occupational (farming) stress levels

Table 54. Distribution of the respondents according to their family related stressful events

Sl. No.	Statements	Respondents (n=360)				
		No stress	Little stress	Moderately tolerable stress	High stress	Tremendously high stress
1	I am unhappy about death of my parent	147 (40.83)	115 (31.95)	48 (13.33)	32 (8.89)	18 (5.000)
2	My son leaved from home	295 (81.94)	0 (0.00)	29 (8.06)	21 (5.83)	15 (4.17)
3	My daughter leaved from home	336 (93.33)	00 (00.00)	00 (00.00)	10 (2.78)	14 (3.89)
4	I have problems in balancing work and family responsibilities	203 (56.39)	85 (23.61)	37 (10.28)	15 (4.17)	20 (5.55)
5	I am in regular disputes with spouse	83 (23.06)	22 (6.11)	91 (25.28)	98 (27.22)	66 (18.33)
6	I am in troubled from my parents	127 (35.28)	41 (11.39)	123 (34.17)	39 (10.83)	30 (8.33)
7	I am in troubled from my father- in-laws	291 (80.83)	07 (1.95)	09 (2.50)	31 (8.61)	22 (6.11)
8	I faced problems with relatives in farm operating agreement	237 (65.84)	51 (14.17)	34 (9.44)	22 (6.11)	16 (4.44)
9	At present, I am pessimistic due to death of spouse	293 (81.39)	29 (8.06)	12 (3.33)	10 (2.78)	16 (4.44)
10	I am divorced person	341 (94.72)	02 (0.56)	05 (1.39)	05 (1.39)	07 (1.94)
11	Death of close family member	333 (92.50)	12 (3.33)	02 (0.56)	05 (1.39)	08 (2.22)
12	Major change in behavior of family member	102 (28.33)	47 (13.06)	85 (23.61)	97 (26.94)	29 (8.06)
13	Taking on mortgage (Home, business)	329 (91.39)	05 (1.39)	07 (1.94)	06 (1.67)	13 (3.61)
14	Separation of parent	261 (72.5)	12 (3.33)	29 (8.06)	38 (10.56)	20 (5.55)
15	My child / Children's academic progress is	286 (79.45)	19 (5.28)	22 (6.11)	21 (5.83)	12 (3.33)

	very far from satisfactory					
16	My relatives are of quarrelling nature	79 (21.94)	122 (33.89)	97 (26.94)	42 (11.67)	20 (5.56)
17	A family member in my house is suffering from an incurable disease (Permanently ill)	324 (90.00)	9 (2.50)	6 (1.67)	12 (3.33)	9 (2.50)
18	I am not finding a suitable match for my daughter/son	165 (45.83)	27 (7.50)	83 (23.06)	58 (16.11)	27 (7.50)
19	My child has developed bad habits	93 (25.83)	61 (16.95)	125 (34.72)	32 (8.89)	49 (13.61)
20	My neighbors are in the habit of picking quarrels	307 (85.27)	19 (5.28)	10 (2.78)	11 (3.06)	13 (3.61)
21	Neighbors spread rumors about me	82 (22.78)	115 (31.94)	90 (25.00)	38 (10.56)	35 (9.72)
22	I want to implement several new changes but my family members do not co-operate me	108 (30.00)	57 (15.84)	142 (39.44)	27 (7.50)	26 (7.22)

(Figures in paranthesis indicate percentage)

Data depicted in Table 54 revealed that relatively higher proportion of the respondents (40.83%) were having no stress death of parent followed by 31.95 per cent of them were in little stress might be because of their old age parent while more than one tenth (13.33%), 8.89 per cent, 15.00 per cent and one fifth per cent in moderately tolerable stress, high stress and tremendously high stress respectively.

Respondents in high stress and tremendously high stress expressed that their parents were head and responsible person in the family and some of the respondents were in no stress, little stress or moderately tolerable stress expressed that their parents were alive or old age parent.

With regards to daughter or son leaving home, majority of the respondents (81.94%) were not in such problem therefore, they were

not in stress followed by 8.06 per cent, 5.83 per cent and 4.17 per cent were having moderately tolerable stress, high stress and tremendously high stress respectively about the daughter or son leaving home.

Respondents who were facing such situation and in stress expressed that mostly son leaving home because of disputes with daughter-in-law. Some of the respondents further stated that because of bad culture in society their daughters leaving home or because of financial problems their daughter or son went out for searching job.

More than half of the respondents (56.39%) were having no problems in balancing work and family responsibility hence they were not in any type of stress followed by less than one fourth (23.61%) who were in little stress about the same whereas nearly one tenth (10.28%), 5.55 per cent and 4.17 per cent of the respondents who were in moderately tolerable stress, tremendously high stress and high stress about the problems in balancing work and family responsibility respectively.

In case of disputes with spouse, more than one fourth of the respondents (27.22%) were observed in high stress about the disputes with spouse followed by slightly more than one fourth (25.28%) were having moderately tolerable stress. Less than one fourth of the respondents (23.06%) were not having any disputes with their spouse therefore, they were happy in their family life whereas, 18.33 per cent and 6.11 per cent respondents were observed in tremendously high and little stress respectively.

It can be inferred from the above findings that, majority of the respondents (77.00%) were in disputes with their spouse. Further, they expressed that, mostly, the reasons of disputes financial problems, bad habits of the respondents and bad relationship of spouse with parent.

More than one third of the respondents (35.28%) who were in opinion that they were not having any trouble with parents or in-laws therefore, they were not in stress followed by 34.17 per cent of them were observed in moderately tolerable stress while, more than one tenth

(11.39%), 10.83 per cent and 8.33 per cent of the respondents were in little stress, high stress and tremendously high stress respectively about having any trouble with parents or in-laws.

Large majority of the respondents (80.83%) were not in trouble with father-in-law therefore they were not in stress followed by 8.61 and 6.11 per cent of them were having problems with father-in-laws and observed in high and tremendously high stress respectively. Negligible per cent of the respondents (2.50%) and 1.95 per cent were having moderate tolerable stress and little stress respectively about trouble from father-in-laws.

It can be concluded from above findings that, maximum number of the respondents (64.72%) were not having good relationship with parents or in-laws and found in trouble.

With regards to problems with relatives in farm operating agreement, maximum number of the respondents (65.84%) were not having problems of the same followed by 14.17 per cent of them were in little problems and observed in little stress whereas, nearly one tenth (9.44%), 6.44 per cent and 4.44 per cent of the respondents were in opinion of having moderately tolerable stress, high stress and tremendously high stress respectively about the same.

Majority of the respondents (81.39%) were having no stress as there were no problems of death of spouse which inferred that respondents might be in young or middle age followed by less than one tenth of them (8.06%) were in little stress while 4.44 per cent, 3.33 per cent and 2.78 per cent of the respondents were observed in tremendously high stress, moderately tolerable stress and high stress respectively about the death of spouse.

It is concluded from the above findings that only 18.61 per cent of the respondents were having problems of death of spouse.

In case divorce problems, large majority of the respondents (94.72%) were having no problems hence they were in no stress followed by few of them (1.94%) were observed in tremendously high stress problems whereas, equal proportion of the respondents (1.39%) were having moderately tolerable and high stress levels respectively and negligible per cent of the respondents (0.56%) were having little stress about the divorce problems.

It can be concluded from above results that, 5.28 per cent of the respondents who were in stress about divorce problem, might be due to court matter or more affection.

Large majority of the respondents (92.50%) were in not in death of close family member therefore, they were free from such stress followed by 3.33 per cent of them were in little stress while, few per cent (2.22%),(1.39%) and (0.56%) were in tremendously high stress, high stress and moderately tolerable stress respectively.

The results from the above findings concluded that, 7.50 per cent of the respondents were in stress invariably about death of close family members. This might be because of very close relationship or more affection or responsible person.

In case of major changes in the behavior of family members more than one fourth per cent of the respondents (28.33%) were not having such problems therefore, they were not in any stress level followed by more than one fourth of them (26.94%) who were in high stress level whereas, less than one fourth of the respondents (23.61%), more than one tenth (13.06%) and 8.06 per cent of the respondents were observed in moderately tolerable stress, little stress and tremendously high stress respectively about the major changes in the behavior of family members.

It could be concluded from the above results that, 71.67 per cent of the respondents were observed in different categories of stress about major changes in the behavior of family members which might be due to economic problems and feelings insulting in the society.

Large majority of the respondents (91.39%) were not purchased any mortgage hence, they were free from stress followed by very few of them 3.61 per cent, 1.94 per cent, 1.67 per cent and 1.39 per cent of the respondents were having tremendously high stress moderately tolerable stress high stress and little stress respectively about the same.

The results from the above findings concluded that, 8.61 per cent of the respondents were in stress at different levels regarding purchase on mortgage, might be because of financial burden.

In case of separation of parents, majority of the respondents (72.50%) were having no stress which indicates that their parents were not separated from them followed by slightly more than one tenth (10.56%), 8.06 per cent and 5.55 per cent of them were in high stress, moderately tolerable stress and tremendously high stress respectively. Very few of the respondents (3.33%) were in little stress.

It can be concluded from these findings that, more than one fourth of the respondents (27.50%) were in varied level of stress about separation of their parents. Respondents in the study area expressed that, In modern culture, spouse creates the violence in the family on very small issues and compell to separte the parents. Some of the respondents stated that reason of separation of parents were the disputes regarding ownership of farm.

Regarding dis-satisfication of child/children academic progress, majority of the respondents (79.45%) were not in stress about their child/children academic progress which clearly indicates that, they were satisfied with the academic progress of their child/children or unaware about the importance of education or might be due not understanding the importance of education. Few of the respondents (6.11%), (5.83%), (5.28%), and 3.33 per cent were observed in moderately tolerable stress, high stress, little stress and tremendously high stress respectively.

From the above results, it is inferred that slightly more than one fifth (20.55%) were observed in stress about dis-satisfaction of child/children academic progress. Some of the respondents expressed that, their child/children spending more time on mobile games, whatsapp and facebook and not concentrating on study. Whereas, majority of the respondents (79.45%) were not in stress about their child/children academic progress which clearly indicates that, they were satisfied with the academic progress of their child/children or unaware about the importance of education. Further, they expressed that, it requires money for getting the service/job and unable to earn accordingly.

In case of quarreling nature of relatives, slightly more than one third of the respondents (33.89%) were in little stress followed by more than one fourth of them (26.94%) were observed in moderately tolerable stress about the quarelling nature of relatives whereas, more than one fifth of the respondents (21.94%) were having no such type of problems therefore, they were not in stress about the same. More than one tenth (11.67%) and 5.56 per cent of the respondents were observed in high and tremendously high stress respectively.

From the above findings, it can be inferred that, majority of the respondents (78.06%) were observed in different stages of stress. Respondents in the study area stated that quarelling nature of relatives were due to disputes on ownership of farm and on money matter. More than one fifth (21.94%) of the respondents were having the trustworthy relationship with their relatives which is helpful in stress management.

Regarding family members suffering from in-curable diseases, large majority of the respondents (90.00%) were not having such problem, therefore, they were not in stress followed by 3.33 per cent of them who were observed in high stress about the same. Equal proportion of the respondents (2.50%) were observed in tremendously

high and little stress respectively whereas, few of the respondents (1.67%) were having moderately tolerable stress.

It can be inferred from the above results that 10.00 per cent of the respondents were having problem of their family members who suffered from in-curable diseases.

In case of not finding suitable match for daughter or son, maximum number of the respondents (45.83%) were not having the such type of problem followed by 23.06 per cent of the them were facing moderately tolerable stress about not finding suitable match for daughter or son whereas, 16.11 per cent, and equal proportion of the respondents (7.50%) were observed in high stress, tremendously high stress and little stress respectively.

From the above results, it can be concluded that, 54.17 per cent of the respondents were in worry about not finding suitable match for daughter or son might be due their more hopes whereas as 45.83 per cent of them were not in such problem.

About developing bad habits by child/children, more than one third of the respondents (34.72%) were observed in moderately tolerable stress and expressed that their children/child smoke sometimes with his friends followed by slightly more than one fourth of them (25.83%) were in opinion that their child/children not developed any bad habits (smoking, ghutka consumption), therefore, they were in no stress situation. Respondents (16.95%), 13.61 per cent, and 8.89 per cent were in little stress, tremendously high stress and high stress respectively.

Above findings inferred that, majority of the respondents (74.17%) expressed that, their child/children developed bad habits of smoking, ghutkas consumption and sometimes drinking which affects on economy of the family and causes stress.

Regarding, quarelling habits of neighbours, majority of the respondents (85.27%) were not in experience about picking quarrel by neighbours, therefore, they were not in stress followed by few per cent of them (5.28%), 3.61 per cent, 3.06 per cent and 2.78 per cent of them were in liitle stress, tremendously high stress, high stress and moderately tolerable stress respectively.

From the above findings, it can be concluded that, 14.73 per cent of the respondents were in stress about quarelling habit of neighbours which clearely indicates that they not in good relationship with neighbours.

About, spreading rumour by relatives/neighbours, maximum number of the respondents, (31.94%) were in little stress about the same followed by one fourth of them (25.00%) were in moderately tolerable stress. More than one fifth of the respondents (22.78%) were in no stress as they were in opinion that, their relatives/neighbours not spreading rumour about the happening in their life whereas, slightly more than one tenth (10.56%) and 9.72 per cent were observed in high and tremendously high stress respectively.

It can be infeered from the above findings that, 77.22 per cent of the respondents were in feelings that, their neighbours/ relatives spreading rumour about them and observed in little stress to tremoundously stress.

Regarding, willing to implement several changes, but their family members do not cooperate them, maximum number of the respondents (39.44%) were expressed moderate stress followed by,30.. per cent of them expressed the that they gets the support from their family members for implementing new changes, therefore, they were in no stress situation. 15.84, 7.50 and 7.22 per cent of the respondents were obereved in little stress, high stress and tremendously high stress

situation respectively about non cooperation of family members for changes

From the above findings it can be concluded that 38.06 per cent of the respondents were in stress about willing to implement several changes, but their family members do not cooperate them and observed in variation of little stress to tremendously high stress.

Table 55. Distribution of the respondents according to their family stress levels

Sl. No.	Family level stress	Respondents (n=360)	
		Frequency	Percentage
1	No stress (Up to 37.33)	71	19.72
2	Low (37.34 to 43.55)	90	25.00
3	Medium (43.56 to 49.77)	159	44.17
4	High (49.78 to 55.99)	24	6.67
5	Tremendously high (Above 55.99)	11	04.44
	Total	360	100.00

It is evident from Table 55 that less than half of the respondents (44.17%) were in medium level of family stress followed by one fourth (25.00%) of them were found in low level of family stress whereas slightly less than one fifth (19.72%) of the respondents were in no stress of family level stressors. The 6.67 per cent and 04.44 per cent of the respondents were found to be having high and tremendously high stress category of family stress level respectively.

It can be inferred from the above table that, most of the respondents were in medium family stress level followed by low level of family stress category.

Table 56. Distribution of the respondents according to their farm (occupational) related stressful events

Sl. No.	Statements	Respondents (n=360)				
		No stress	Little stress	Moderately tolerable stress	High stress	Tremendously high stress
1	Sudden and significant increase in debt load	00 (0.00)	37 (10.28)	69 (19.16)	190 (52.78)	64 (17.78)
2	I faced significant production loss due to pests	103 (28.61)	19 (5.28)	110 (30.56)	85 (23.61)	43 (11.94)
3	I faced significant production loss due to diseases	97 (26.95)	22 (6.11)	131 (36.39)	62 (17.22)	48 (13.33)
4	I have insufficient regular cash flow to meet financial obligations for daily necessities	41 (11.39)	63 (17.50)	127 (35.28)	93 (25.83)	36 (10.00)
5	I compel to make delay in planting/sowing due to bad weather	107 (29.72)	55 (15.28)	67 (18.61)	74 (20.56)	57 (15.83)
6	I have significant production loss due to bad weather	92 (25.56)	49 (13.61)	82 (22.78)	73 (20.27)	64 (17.78)
7	I get low commodity prices	15 (4.17)	47 (13.05)	110 (30.55)	105 (29.17)	83 (23.06)
8	I receive incorrect weather information	105 (29.17)	29 (8.05)	129 (35.83)	60 (16.67)	37 (10.28)
9	machinery breakdown at a critical time	265 (73.61)	05 (1.39)	29 (8.06)	42 (11.67)	19 (5.27)
10	I am worrying about rising expenses	35 (9.72)	40 (11.11)	87 (24.17)	153 (42.50)	45 (12.50)
11	I am not satisfied about Government policies and regulations	27 (7.5)	18 (5.00)	188 (52.22)	91 (25.28)	36 (10.00)
12	My loan request is turned down	185 (51.39)	42 (11.67)	49 (13.61)	44 (12.22)	40 (11.11)
13	Worrying about uncertainty of rains	00 (0.00)	90 (25.00)	141 (39.17)	99 (27.50)	30 (8.33)

14	Increased workload at peak times	127 (35.29)	00 (0.00)	74 (20.55)	99 (27.50)	60 (16.66)
15	I am in trouble of wild animals	07 (1.94)	00 (0.00)	110 (30.56)	180 (50.00)	63 (17.50)
16	Sales peoples are not paying money in time	169 (46.95)	35 (9.72)	126 (35.00)	17 (4.72)	13 (3.61)
17	I experience about frequent crop failure	95 (26.39)	17 (4.72)	87 (24.17)	98 (27.22)	63 (17.50)
18	I am expected to work on the farm as well as manage the house	118 (32.78)	72 (20.00)	98 (27.22)	37 (10.28)	35 (9.72)
19	I am worried about owing money	102 (28.33)	97 (26.94)	95 (26.39)	43 (11.95)	23 (6.39)
20	I am worried about keeping the farm in the family	117 (32.5)	38 (10.56)	161 (44.72)	35 (9.72)	09 (2.50)
21	skilled labour deficiency during peak season	223 (61.94)	42 (11.67)	67 (18.61)	17 (4.72)	11 (3.06)

(Figures in paranthesis indicate percentage)

The bird eye of the Table 56 found that, with regards to farm related stress, more than half of the respondents (52.78%) were in high stress due to sudden and significant increase in debt load followed by little less than one fifth of them (19.16%) were in opinion that they have moderately tolerable stress about the same whereas, 17.78 per cent and little more than one tenth of the respondents (10.28%) were having tremendously high and little stress respectively. None of the respondents were in no stress about sudden and significant increase in debt load which means that cent percent of the respondents were at different level of stress which is dangerous to the mental health of the farmers. These findings are somewhat supported with the findings of Seema Tandekar (2014) and Manisha Gujar (2017).

In case of significant production loss due to pests, less than one third of the respondents (30.56%) were in moderately tolerable stress followed by 28.11 per cent have no stress which means that, they don't

had such problem or taking care of crops in advance. The respondents 23.61 per cent, 11.94 percent and 5.28 per cent were in high stress, tremendously high stress and little stress respectively about the significant production loss due to pests.

From the above findings, it is concluded that, majority of the respondents (71.39%) were observed in stress about significant production loss due to pests from little stress to tremendously high stress categories. It indicates that, farmers were not protecting their crops due to lack of money to purchase of pesticides/insecticides in time or might be due to small cropped area. These findings are accordance with the findings of Manisha Gujar (2017).

Relatively higher proportion of the respondents (35.28%) were in moderately tolerable stress due to insufficient regular cash flow to meet the financial obligation followed by little more than one fourth of them (25.83%) who were observed in high stress whereas 17.50 per cent, 11.39 per cent and one tenth (10.00%) of the respondents were having little stress, no stress and tremendously high stress respectively due to insufficient regular cash flow to meet the financial obligation situation.

It can be inferred from the above results that, large majority of the respondents (90.00%) were found in more or less stress situation about insufficient regular cash flow to meet the financial obligation. These results are similar with the findings of Manisha Gujar (2017).

With the statement, delay in planting or harvesting due to weather, 29.72 per cent of the respondents reported no stress which might be due to less land holding or in thinking that others farmers facing the same problems. This was followed by little more than one fifth (20.56%) of the respondents who were having high stress about the same whereas 18.61 per cent 15.83 per cent and 15.28 per cent of the respondents were in moderately tolerable stress, tremendously high stress and little stress respectively about delay in planting or harvesting due to weather.

From the above findings it can be concluded that, majority of the respondents (70.28%) were observed in more or less stressful situation due to delay in planting or harvesting due to weather whereas, 29.72 per cent of them were having no stress and expressed that other farmers were also facing the same problem i.e in thinking that, this problem was common to most of the farmers therefore, they were not worried about the same. These findings are in consistent with the findings of Manisha Gujar (2017).

With regards to significant production loss due to bad weather, slightly more than one fourth of the respondents (25.56%) were having no stress because they were in no experience of significant production loss due to bad weather followed by more than one fifth of them (22.78%) while slightly more than one fifth (20.27%), 17.78 per cent of the respondents were observed in high stress and tremendously high stress about the same. Only 13.61 per cent of the respondents were observed in little stress about significant production loss due to bad weather.

Most of the respondents were in different levels of stress due to low commodity prices. It was reported that, 30.56 per cent of the respondents were having moderately tolerable stress followed by 29.17 per cent of them who were in high stress category and the percentage of the respondents in tremendously high stress, little stress and no stress categories were 23.06 per cent, 13.06 per cent and 4.17 per cent respectively about the low commodity prices.

It is inferred from the above findings that large majority of the respondents (95.83%) were in more or less stressful situation due to low commodity prices. Therefore, it is suggested that Government has to declare the remunerative prices of different commodity based on cost of cultivation and yield. These findings are similar with the findings of Manisha Gujar (2017).

In connection to incorrect weather information, higher proportion of the respondents (35.83%) were in moderately tolerable stress followed by 29.17 per cent of them were no stress about the incorrect weather information which clearly indicates that they were receiving correct information, while 16.67 per cent, 10.28 per cent and 8.06 per cent of the respondents were observed in high stress, tremendously high stress and little stress categories respectively about the same.

From the above findings, it can be concluded that, 70.83 per cent of the respondents were in stress variation. Therefore, it is suggested Government agencies should broadcast the information on Radio or TV or through messaging on mobiles, so that farmers could take the correct decision about sowing.

Majority of the respondents (73.61%) were not having problems of machinery breakdown at critical stage hence, they were having no stress which indicates they were not occurred such problems, while more than one tenth (11.67%) 8.06 per cent, 5.27 per cent and 1.39 per cent of the respondents were observed in facing the problems of machinery breakdown at critical stage who were in high stress, moderately tolerable stress, tremendously high stress and little stress respectively.

It is concluded from the above findings that majority of the respondents (73.61%) were not having problems of machinery breakdown at critical stage whereas, more than one fourth of them were facing the same problems and observed in more or less stress situation.

Maximum number of the respondents (42.50%) were in high stress category due to rising expenses followed by little less than one fourth (24.17%) who were in opinion that they were in moderately tolerable stress may be because of cheap food policy where as 12.50 per cent, 11.11 per cent and 9.72 percent of them were in opinion that they were in high stress, little stress and no stress categories respectively. It

means that some of the respondents were tolerating the rising expenses by borrowing money from others or some might have required amount to fulfill their daily requirement, therefore, they came under no stress or little stress or moderately tolerable stress.

More than half (52.22%) of the respondents were in moderately tolerable stress situation about Government policies and regulation followed by little more than one fourth of them (25.28%) were observed in high stress (Due to nota bandhi and paper work of getting loan) while, one tenth (10.00%) of the respondents were in tremendously high stress and they expressed that they could not do marriage of their daughter in time or not done field operations in time because of nota bandhi and also not getting money from any other sources therefore they were in tremendously high stress. Less than one tenth (7.50%) and 5.00 per cent of the respondents were having no stress and little stress respectively.

More than half of the respondents (51.39%) were not faced the problems of loan request turned down, therefore, they were in no stress which shows that, they were getting loan in time without any problems which was followed by 13.61 per cent who expressed that they were having moderately tolerable stress and also further expressed that, they were borrowed small amount of money from different sources. More than one tenth (12.22%), 11.67 per cent and 11.11 per cent of the respondents were in high stress, little stress and tremendously high stress categories respectively. High stress and tremendously high stress was judged as per opinion of the respondents who developed bad habits. (Smoking, alcoholism or frequent disputes with family).

In case of the statement as uncertainty of rains, maximum number (39.17%) of the respondents were not serious about uncertainty of rains might be because of less land holdings or thinking that this problem is common to all and falls under moderately tolerable stress category followed by 27.50 per cent of them were in high stress category whereas one fourth (25.00%) and 8.33 per cent of the respondents were

having little stress and tremendously high stress category respectively and none of the respondents were in no stress category with the problem of uncertainty of rains which means that each and every farmer were observed in stress at different levels about the same.

Relatively higher proportion of the respondents (35.29%) expressed that, they were not faced the problem of increased work load at peak time might be because of less responsibilities therefore, they were having no stress followed by 27.50 percent of them were expressed in high stress while nearly one fifth (20.55%) and 16.66 per cent of the respondents were in moderately tolerable and high stress categories respectively. They expressed that they gets easily angry or annoyed and not concentrate on the work to be done in high stress and tremendously high stress condition.

In case of trouble of wild animals, half of the respondents (50.00%) were observed in high stress followed by 30.56 per cent of them who were in moderately tolerable stress category which may be because they visit the field at night to protect the crop from wild animals while 17.50 per cent of the respondents expressed that they were in tremendously high stress and very meager per cent (1.94%) were having no problem of wild animals.

From the above findings, it can be inferred that, large majority of the respondents (98.06%) more or less were in stressful situation due to trouble of wild animals hence, it is suggested that Government should provide the subsidies to the farmers to fence their filed and protect the crops from wild animals.

Relatively higher proportion of the respondents (46.95%) were not having any problem of dealing with the sales people therefore, they were not in stress, it means that they were getting money in time followed by 35.00 per cent of the respondents were in moderately tolerable stress which indicates that they were getting money as per their requirement. 9.72 per cent, 4.72 per cent, and 3.61 per cent of the

respondents were in stress categories of little stress, high stress and tremendously high stress respectively.

With regards to crop failure, 28.06 per cent of the respondents were in moderately tolerable stress which might be because of having the resources for re-sowing, followed by more than one fourth of the respondents (27.22%) were in high stress which indicates that farmers were not having investment of the money at the initial stage and lack of money in adverse stage while, 26.39 per cent of them who were not faced the problem of crop failure hence they came under no any stress. Remaining respondents 17.50 per cent and only 4.72 per cent were in tremendously high and little stress about the same.

Maximum number of the respondents (32.78%) were not having problem of being expected to work on the farm as well as manage the house followed by more than one fourth of them (27.22%) were in moderately tolerable stress while one fifth of the respondents (20.00%) were in little stress. Nearly one tenth (10.28%) and (9.72%) of the respondents were in high and tremendously high stress category respectively.

With respect to worrying about owing money, more than one fourth of the respondents (28.33%) were not having any problem about the same as they were not in owing money followed by 26.94 per cent of the respondents were having little stress and 26.39 per cent, 11.94 per cent and 6.39 per cent were in stress categories of moderately tolerable stress, high stress and tremendously high stress respectively.

Relatively higher proportion of the respondents (44.72%) of the respondents were having moderately tolerable stress followed by (32.50%) not in worry about keeping the farm in the family which indicates that they are the optimistic about the farming in future. Nearly one tenth (10.56%), 9.72 per cent and 2.50 per cent of the respondents were in little stress, high stress and tremendously high stress categories respectively.

In respect of skilled labour deficiency during peak season, maximum number of the respondents (61.94) were not facing the same problem therefore they were not in stress might be because of less land holdings whereas, less than one fifth (18.61%) of them were in moderately tolerable stress. 11.67 per cent, 4.72 per cent and 3.06 per cent of the respondents were in little stress, high stress and tremendously high stress respectively.

Table 57. Distribution of the respondents according to their occupational (farming) stress levels

Sl. No.	Occupational stress levels	Respondents (n=360)	
		Frequency	Percentage
1	No stress (Up to 37.33)	36	10.00
2	Low (37.34 to 43.55)	110	30.56
3	Medium (43.56 to 49.77)	135	37.50
4	High (49.78 to 55.99)	66	18.33
5	Tremendously high (Above 55.99)	13	03.61
	Total	360	100.00

The critical look of the Table 57 indicated that that more than one third of the respondents (37.56%) were found in medium level of occupational stress followed by less than one third (30.50%) of them were found in low level of occupational stress whereas slightly less than one fifth (18.33%) of the respondents were in high stress of occupational level stressors. The 10.00 per cent and 03.61 per cent of the respondents were found in no occupational stress level land tremendously high stress category of occupational stress level respectively.

It can be concluded from the above findings that, higher proportion of the respondents were in medium occupational stress level followed by high level of occupational stress category.

Table 58. Distribution of the respondents according to overall stress levels

Sl. No.	Overall stress level	Respondents (n=360)	
		Frequency	Percentage
1	No stress (Up to 37.33)	63	17.50
2	Low (37.34 to 43.55)	87	24.17
3	Medium (43.56 to 49.77)	115	31.94
4	High (49.78 to 55.99)	67	18.61
5	Tremendously high (Above 55.99)	28	07.78
	Total	360	100.00

The bird eye view of the Table 58 revealed that in case of overall stress level, more than one third of the respondents (31.94%) were found in medium level of overall stress followed by slightly less than one fourth (24.17%) of them were found in low level of overall stress whereas less than one fifth (18.61%) of the respondents were having high level of overall stress. The 17.50 per cent and 7.78 per cent of the respondents were found in no stress level and tremendously high stress level category respectively.

It can be seen from the above findings that, most of the respondents were in medium overall stress level followed by low level of overall stress category.

Further it could be concluded that these stress levels are as per the total number of items but actually every farmer observed in stress due to the stressful events which made him/her long term stress.

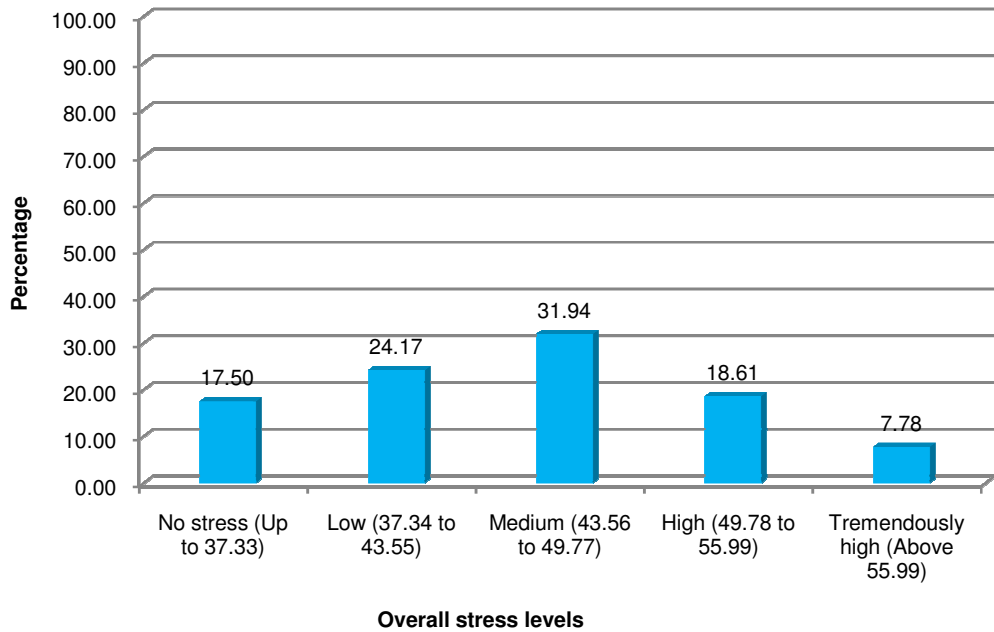


Fig. 37. Distribution of the respondents according to their overall stress levels

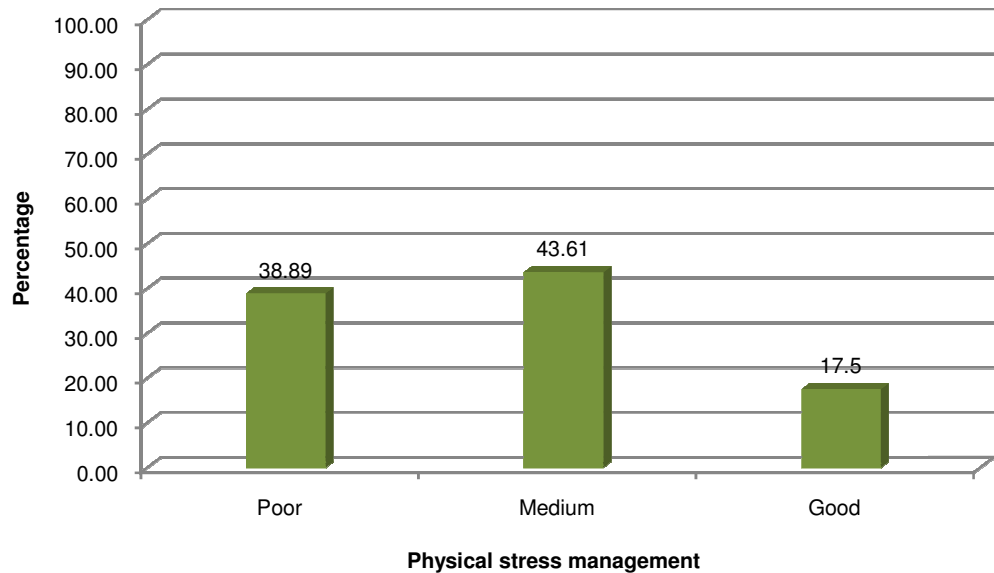


Fig. 38. Distribution of the respondents according to their physical stress management levels

B. Dependent variable

5.4 Stress Management

According to Mary Parker, management is art of getting things done through people.

Conceptually Stress management refers to the wide spectrum of techniques and psychotherapies aimed at controlling a person's levels of stress, especially chronic stress, usually for the purpose of improving everyday functioning.

Coping strategies aim to treat the stress problem by managing internal/external demands from environment, which individuals appraised as endangering their resources.

In McNamara's conception (2000), coping strategies are defined as the defense mechanisms aimed at resolving internal conflict. According to Lazarus and Monat and Lazarus (1991) described stress management as a general treatment approach to a wide variety of adaptations and health problems.

Thus, stress management in the present study was operationally defined as use of different techniques and psychotherapies to prevent, acceptance of universal truth and coping strategies to control stress of farmers.

Stress management was studied in terms of mental stress and physical stress.

5.4.1 Physical stress management

Table 59. Distribution of the respondents according to Physical stress management

Sl. No.		Respondents (n=360)				
		Strongly agree	Agree	Undecided	Disagree	Strongly Disagree
A)	Reducing Agril. Stress					
1.	I repair the implements well in advance before to start farm related operation	106 (29.44)	74 (20.56)	57 (15.83)	65 (18.06)	58 (16.11)
2.	I arrange the finance for agricultural expenditure well in advance	55 (15.28)	56 (15.28)	00 (00.00)	143 (39.72)	106 (29.44)
3.	I update and utilize the information about Agricultural inputs like seeds, varieties/ hybrids, seed treatment and fertilizers for more production	73 (20.28)	38 (10.56)	00 (00.00)	133 (36.94)	116 (32.22)
4.	I know and adopt the early maturing varieties of crop grown	47 (13.06)	41 (11.39)	00 (00.00)	147 (40.83)	125 (34.72)
5.	I control the pests of the crop grown	90 (25.00)	107 (29.72)	00 (00.00)	86 (23.89)	77 (21.39)
6.	I take the benefit of crop insurance	149 (41.39)	42 (11.67)	00 (00.00)	95 (26.38)	74 (20.56)
7.	I remain update about the information of weather condition.	89 (24.72)	39 (10.83)	00 (00.00)	100 (27.78)	132 (36.67)
8.	I am availing the benefit of Government subsidies, schemes and policies related to agriculture	95 (26.39)	57 (15.84)	00 (00.00)	142 (39.44)	66 (18.33)
9.	I fenced my farm to protect from wild animals	25 (6.94)	27 (7.50)	00 (00.00)	167 (46.39)	141 (39.17)

10.	I use the labour saving devices	43 (11.94)	67 (18.61)	00 (00.00)	107 (29.72)	143 (39.73)
11.	I remain update about the information of rates of commodity from various market	117 (32.50)	86 (23.88)	00 (00.00)	83 (23.06)	74 (20.56)
12.	I adopt the soil and water conservation practices	58 (16.11)	63 (17.50)	00 (00.00)	141 (39.17)	98 (27.22)
B.	Time Management					
13.	I prepare to-do-list	02 (0.56)	07 (1.94)	00 (00.00)	181 (50.28)	170 (47.22)
14.	I set the priorities of work	95 (26.39)	195 (54.17)	00 (00.00)	30 (8.33)	40 (11.11)
15.	I set the deadlines of the work	80 (22.22)	64 (17.78)	95 (26.39)	61 (16.94)	60 (16.67)
16.	I effectively use others in accomplishing work assignments	51 (14.17)	83 (23.06)	59 (16.38)	131 (36.39)	36 (10.00)
17.	I make sure that the other person understands completely, the results I expect when I delegate tasks	79 (21.94)	109 (30.28)	00 (00.00)	133 (36.95)	39 (10.83)
18.	I always follow up and maintain accountability for delegated tasks	73 (20.28)	99 (27.49)	00 (00.00)	121 (33.61)	67 (18.62)
C.	Relaxation to reduce stress					
19.	I take rest whenever in stress	104 (28.89)	117 (32.50)	00 (0.00)	89 (24.72)	50 (13.89)
20.	I take out time for leisure	37 (10.28)	26 (7.22)	103 (28.61)	98 (27.22)	96 (26.67)
21.	I practice temporary relaxation technique such as deep breathing.	96 (26.67)	121 (33.61)	00 (00.00)	83 (23.06)	60 (16.66)
22.	I know and practice temporary relaxation technique such as muscle relaxation	01 (0.28)	03 (0.83)	219 (60.83)	64 (17.78)	73 (20.28)

D.	Diet					
23.	I take balance diet	09 (2.50)	13 (3.61)	107 (29.72)	121 (33.61)	110 (30.56)
24.	I consume more food many times in small quantities	07 (1.94)	10 (2.78)	00 (00.00)	193 (53.61)	150 (41.67)
25.	I eat high fiber diet	02 (0.56)	05 (1.39)	228 (63.33)	87 (24.17)	38 (10.56)
26.	I reduce caffeine and sugar in my diet	48 (13.33)	31 (8.62)	00 (00.00)	129 (35.83)	152 (42.22)
E.	Physical exercise to reduce stress					
27.	I go to field by walking	203 (56.39)	110 (30.56)	00 (00.00)	20 (5.55)	27 (7.50)
28.	I maintain a program of regular exercise for fitness such as yoga, cycling etc	07 (1.94)	10 (2.78)	00 (00.00)	166 (46.11)	177 (49.17)
29.	I do the farm operations in the field	185 (51.39)	168 (46.67)	0 (0.00)	4 (1.11)	3 (0.83)
F.	Medicinal therapy					
30.	I go to hospital whenever in stress	97 (26.94)	89 (24.72)	104 (28.89)	39 (10.83)	31 (8.61)
31.	I take mood altering drugs	205 (56.94)	67 (18.61)	00 (00.00)	55 (15.28)	33 (9.17)
G.	Natural care					
32.	I drink hot water whenever in stress	09 (2.50)	17 (4.72)	119 (33.06)	118 (32.78)	97 (26.94)
33.	I use herbal therapy	02 (0.56)	04 (1.11)	157 (43.61)	96 (26.67)	101 (28.05)
34.	I use aroma therapy	03 (0.83)	07 (1.94)	119 (33.06)	95 (26.39)	136 (37.78)
35.	I take enough sleep (6 to 8 hours)	39 (10.83)	87 (24.17)	77 (21.37)	103 (28.61)	54 (15.00)

(Figures in paranthesis indicate percentage)

Data regarding physical stress management of the respondents farmers depicted in Table 59 revealed that under the indicator reducing agricultural stress relatively higher proportion of the respondents (29.44%) were strongly agree about repairing of implements well in advance before start of farm related operation followed by slightly

more than one fifth of them (20.56%) were in agree opinion whereas 18.06 per cent, 16.11 per cent and 15.83 per cent of the respondents disagree, strongly disagree and undecided opinion respectively about the same which may be because of less land holdings or may be because of hiring the implements from others.

With regards to statement as 'arrangement of finance for agricultural expenditure well in advance' maximum number of the respondents (39.72%) and 29.44 per cent of them were in opinion that they were not arranged the finance well in advance for agricultural expenditure which might be because of deficient of finance and observed in disagree and strongly disagree opinion followed by 15.56 and 15.28 per cent of the respondents were agree and strongly agree opinion i.e they were arranged the finance well in advance for agricultural purpose.

Maximum number of the respondents (36.94%) and (32.22%) were not updating and utilizing the information of agricultural inputs like seeds, varieties/hybrids, seed treatment and fertilizers for more production which clears that they were using the traditional or routine agricultural inputs. This was followed by slightly more than one fifth (20.28%) and little more than one tenth of the respondents (10.56%) were in opinion that they were updating and utilizing the information of agricultural inputs like seeds, varieties/hybrids, seed treatment and fertilizers for more production.

With regards to knowledge and adoption of early maturing varieties of crop grown by the respondents, 40.83 per cent and 34.72 per cent of them were not known and not used early maturing varieties of crop grown respectively which was followed by more than one tenth of the respondents (13.06%) and (11.39%) who were having knowledge and adoption of early maturing varieties of crop grown respectively and reduce their agricultural related stress who were observed in strongly agree and agree opinion respectively.

With the opinion of the respondents farmers about knowing the pests and diseases of the crop grown and controlling, relatively higher proportion of them (29.72%) and one fourth per cent were having knowledge of pests and diseases and its control respectively followed by less than one fourth (23.89%) and little more than one fifth (21.39%) of the respondents were not having knowledge about the pests and diseases of the crop grown and its control respectively which may creates the stress amongst farmers.

Relatively higher proportion of the respondents' farmers (41.39%) and little more than one tenth of them (11.67%) were in opinion that they were taking the benefit of crop insurance and observed in strongly agree and agree opinion respectively. Further they expressed that crop insurance benefit not getting in time but hopeful of getting the benefit. More than one fourth (26.39%) and slightly more than one fifth of the respondents (20.56%) were in opinion that they were not taken the benefit of crop insurance may be because of lack of knowledge or more paper work and observed in disagree and strongly disagree perception respectively.

With regards to updating of weather information, maximum numbers of the respondents (36.67%) and (27.78%) were not aware about the daily weather information and observed in strongly disagree and disagree opinion respectively while little less than one fourth (24.72%) and slightly more than one tenth (10.83%) were in opinion that they remain update about the weather information which may helps to take the correct sowing decision and ultimately will helpful in reducing agricultural stress.

Maximum number of the respondents (39.44%) and less than one fifth per cent (18.33%) were in disagree and strongly disagree opinion about the availing of benefit of Government schemes, subsidies and policies related to agriculture which means that they were not availed benefit of the same whereas more than one fourth (26.39%) and 15.84 per cent of the respondents were availed the benefit of Government

schemes, subsidies and policies related to agriculture respectively and reduced the agricultural related stress.

In relation to fencing of farm to protect from wild animals, less than half (46.39%) and 39.17 per cent of the respondents expressed disagree and strongly opinion respectively which means that they were not fenced their farm to protect crop from wild animals while few of them (7.50%) and 6.94 per cent were fenced their farm to protect crop from wild animals and observed in agree and strongly agree perception respectively which may helps to reduce or manage the stress regarding crop damage from wild animals.

With regards to use of labour saving devices, 39.73 per cent and 29.72 per cent of the respondents were not using the labour saving devices for agricultural purpose while less than one fifth (18.81%) and more than one tenth (11.94%) of them were using the labour saving devices and save the expenditure on labour used for agricultural operations which ultimately will helps to manage the agricultural related stress.

Getting update information about the commodity from various market, with this statement higher proportion of the respondents (32.50%) and less than one fourth (23.88%) of the respondents were in opinion that they were getting regular information about the commodity from various market, followed by more than one fifth (23.06%) and (20.56%) of the respondents were not getting the information about the commodity from various market respectively and sell their produce which may be because of urgent need of money for their livelihood.

With regards to adoption of soil and water conservation practices, relatively higher proportion of the respondents (39.17%) and more than one fourth per cent (27.22%) were not adopting the soil and water conservation practices which might be due to lack of knowledge or not concentrating on land because of less land holdings. This was followed by 17.50 per cent and 16.11 per cent of the respondents who

were in adoption of soil and water conservation practices which may help to reduce the soil erosion and increase the conservation of water and will help to reduce the stress of the farmers in that concerned.

In case of time management indicator, regarding preparation of to do list, it is surprisingly to note that little more than half (50.28%) and less than half of the respondents (47.22%) i.e in total, large majority of the respondents (97.50%) in opinion that they were not prepared to do list and said that it is in our mind followed by very few of them 1.94 per cent and 0.56 per cent were said that they were preparing to do list which affects on effective stress management.

In setting priorities of work, more than half (54.17%) and more than one fourth (26.39%) were in opinion that they were setting priorities of work and found in agree and strongly agree opinion whereas more than one tenth (11.11%) and less than one tenth(8.33%) in total (19.44%) of them were not in opinion about setting priorities of work.

More than one fourth of the respondents (26.39%) were in undecided opinion about setting dead line of work which may be in thinking that, that depends on situation followed by more than one fifth (22.22%) and 17.78 per cent of them were in opinion of setting dead line of work while near about same proportion of the respondents (16.94%) and (16.67%) were in disagree and strongly disagree opinion which means that they were not in setting of dead line of work.

With regards to the statement 'effective use of others in accomplishing work assignment' maximum number of the respondents (36.39%) and one tenth per cent (10.00%) were in disagree and strongly disagree opinion respectively which means that they were not used others in accomplishing work assignment followed by less than one fourth (23.06%) and 14.17 per cent of them were using others in accomplishing work assignment and were in agree and strongly agree opinion whereas 16.38 per cent of the respondents were in undecided opinion about the

same might be because of thinking that it depends on situation or they might have not raised such situation.

Relatively higher proportion of the respondents (36.95%) and little more than one tenth (10.83%) in total (47.78%) were in opinion about not in mind that other person understands completely the results they expect when delegate task whereas 30.28 per cent and more than one fifth (21.94%) of them were i.e in total more than half (52.22%) of them were in opinion that other person understands completely the results they expect which ultimately reduce the stress.

With regards to the statement about 'follow up and maintain accountability for delegated task' maximum number of the respondents (33.61%) and less than one fifth (18.62%) in total (52.23%) of the respondents were in disagree and strongly disagree opinion which mean that they were not taking follow up and maintain accountability for delegated task respectively while 27.49 per cent and 20.28 per cent of them were in agree and strongly agree opinion which indicates that they were taking follow up and maintain accountability for delegated task respectively which may helps to manage the stress.

In physical stress management of the respondents' farmers some relaxation techniques were considered and observed that relatively higher proportion of the respondents (32.50%) and more than one fourth of them (28.89%) in agree and strongly agree opinion respectively which means that in total (61.39%) of the respondents were taking rest whenever in stress followed by little less than one fourth (24.72%) and little more than one tenth of them (13.89%) in total 38.61 per cent of the respondents were not taking rest in stressful situation which may be because of thinking on stress and were in disagree and strongly disagree opinion. Higher proportion of the respondents were not expressed about taking out time for leisure might be in thinking that it depends on situation and observed in undecided opinion followed by more than one fourth of them (27.22%) and (26.67%) were in disagree and strongly disagree opinion about the same. Little more than one tenth (10.28%) and less

than one tenth (7.22%) were accepted that they were taking out time for leisure respectively and observed in strongly agree and agree opinion.

About practice of deep breathing in stressful situation, maximum number of the respondents (33.61%) and (26.67%) were observed in agree and strongly agree opinion respectively followed by little less than (23.06%) and 16.66 per cent of them were disagree and strongly disagree opinion respectively. In case of muscle relaxation technique of stress management, higher proportion of the respondents (60.83%) were in undecided opinion might be because of not occurring stressful situation followed by little more than one fifth (20.28%) and 17.78 per cent of them were not doing such technique of stress management may be because of lack of knowledge about the same. Negligible per cent of the respondents (0.83%) and (0.28%) were said that they were muscle relaxation while feeling in stress and observed in agree and strongly agree opinion respectively.

As per previous research findings, it is observed that nutritious diet increase the immunity and helps in stress management. Thus, in view of the importance of diet for human body, it was considered for the present study. It was observed that, relatively higher proportion of the respondents (33.61%) and (30.56%) in total 64.17 per cent were expressed that they were not taking balance diet whereas 29.72 per cent of them were in undecided opinion may be due to lack of knowledge about balance diet. Very few of the respondents (3.61%) and (2.50%) were in agree and strongly agree opinion, which indicates that they were taking balance diet. In consuming more food many times in small quantities, more than half of the respondents (53.61%) and 41.67 per cent disagree and strongly disagree opinion about consuming more food many times in small quantities whereas, very few of them (2.78%) and 1.94 per cent of them expressed that consuming more food many times in small quantities, respectively. About eating of high fiber diet, higher proportion of the respondents (63.33%) were in undecided opinion about the same may be because of non availability of fiber food followed by little less than

one fourth (24.17%) and slightly more than one tenth (10.56%) were expressed that they were not eating high fiber diet whereas, negligible per cent of them (1.39%) and (0.56%) were having positive opinion about the same and observed in agree and strongly category respectively.

Relatively higher proportion of the respondents (42.22%) and (35.83%) were in strongly disagree and disagree opinion about reducing caffeine and sugar in their diet whereas 13.33 per cent and 8.62 per cent of them were accepted that they reduced caffeine and sugar in their diet.

It is well known fact that stress can be reduced through physical exercise therefore this indicator was considered for stress management of farmers. In case going field by walking more than half (56.39%) and 30.56 per cent of the respondents were observed strongly agree and agree opinion whereas very few of them (7.50%) and (5.55%) were said that they were not going field by walking may be because of old age or using bicycle or motor cycle. Little less than half (49.17%) and 46.11 per cent of the respondents were not maintaining programme of regular exercise like yoga or cycling and found in strongly disagree and disagree opinion respectively whereas, negligible per cent of them (2.78%) and (1.94%) were in opinion that they were maintaining programme of regular exercise like yoga or cycling.

Regarding doing farm operation in the field, more than half (51.39%) and less than half (46.67%) were in strongly agree and agree opinion respectively and in total large majority of them (98.06%) were doing farm operation in the field which may be good for health while negligible per cent of the respondents (1.11%) and (0.83%) were expressed that they were not doing farm operations self but by others respectively and found in disagree and strongly disagree perception about the same which might be because of old age or ego or not supporting health.

With respect to medicinal therapy, more than one fourth (28.89%) were observed in undecided opinion about to go hospital in stressful situation might be because of not occurring such events followed by more than one fourth followed by more than one fourth (26.94%) and 24.72 per cent of them were going hospital in stressful situation while slightly more than one tenth (10.83%) and 8.61 per cent of the respondents expressed that they were not going hospital in stressful situation might be due to more thinking over stress respectively. With regards to taking mood altering drugs, relatively higher proportion of the respondents (56.94%) and less than one fifth of them (18.61%) were in opinion that they were using mood altering drugs to manage the stress respectively. Further they expressed that they were consuming ghutakas and tobacco which are unhealthy techniques of stress management also they expressed that they consume alcohol. This was followed by more than one tenth (15.28%) and 9.17 per cent of the respondents were not using mood altering drugs and observed in disagree and strongly disagree opinion respectively.

It is accepted truth that natural care plays an important role to manage the stress. Therefore, this indicator was selected in physical stress management.

Drinking hot water in stressful condition is one of the natural cares. slightly more than one third of the respondents (33.06%) followed by little less than one third of them (32.78%) and more than one fourth of the respondents were not drinking hot water in stressful situation and observed in undecided, disagree and strongly disagree opinion respectively which may be due to lack of knowledge whereas very few per cent of the respondents (4.72%) and (2.50%) were in observation of drinking hot water in stressful condition and found in agree and strongly agree opinion respectively. With regards to using herbal therapy, relatively higher proportion of the respondents (43.61%) were observed in undecided opinion followed by more than one fourth per cent of them (28.05%) and (26.67%) were not using herbal therapy in stressful

situation and found in strongly disagree and disagree opinion respectively. Negligible per cent of the respondents (1.11%) and (0.56%) were expressed that they were using herbal therapy in stressful situation to manage the stress.

Aroma therapy is also one the natural care. With regards to use of aroma therapy in stressful condition, maximum number of the respondents (37.78%) were observed in strongly disagree opinion followed by slightly more than one third of them (33.06%) and more than one fourth of the respondents (26.39%) were found in undecided and disagree opinion respectively which means that they were not using aroma therapy in stressful situation to relax stress which may be due to lack of knowledge. Very few of the respondents (1.94%) and (0.83%) were found in using aroma therapy to manage the stress and observed in agree and strongly agree opinion respectively.

Enough sleep is very important for health point of view and keeping our brain calm. In connection to taking enough sleep, higher proportion of the respondents (42.50%) and less than one fourth of them (22.50%) were in opinion of not taking enough sleep which clearly indicates that they were in stress and observed in disagree and strongly disagree opinion respectively whereas little less than one fourth and slightly more than one tenth of them (10.83%) were in opinion of taking enough sleep who were found in agree and strongly opinion about the same respectively.

Table 60. Distribution of the respondents according to their physical stress management level

Sl. No.	Physical stress management level	Respondents (n=360)	
		Frequency	Percentage
1	Poor (Up to 57.32)	140	38.89
2	Medium (57.33 to 64.24)	157	43.61
3	Good (Above 64.64)	63	17.50
	Total	360	100.00

Data presented in Table 60 indicated that relatively higher proportion of the respondents (43.61%) were medium physical stress management level followed by 38.89 per cent of them were poorly manage their stress. Only 17.50 per cent of the respondents were manage their physical stress in good condition.

It can be seen from the above findings that, most of the respondents were in medium physical stress management level followed by poor physical stress management level. The reason for medium to poor stress management of the respondents may be due to unawareness about the stress management techniques.

5.4.2 Mental Stress management

Table 61. Distribution of the respondents according to mental stress management

		Respondents (n=360)				
Sl. No.	Indicators/Items	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
I.	Religious/Meditation					
1	I offer prayer daily	168 (46.67)	102 (28.33)	00 (00.00)	49 (13.61)	41 (11.39)
2	I perform meditation daily	35 (9.72)	93 (25.83)	00 (00.00)	167 (46.39)	65 (18.06)
3	I participate in Bhajan activities	83 (23.06)	72 (20.00)	00 (00.00)	108 (30.00)	97 (26.94)
4	I attend the Vippsanna course whenever in stress	31 (8.61)	13 (3.61)	00 (00.00)	173 (48.61)	141 (39.17)
5	I go to temple/church/mosque whenever in stress	163 (45.28)	98 (27.22)	00 (00.00)	52 (14.44)	47 (13.06)
II	Psychotherapy					
6	I remain positive about the happenings in my life	32 (8.89)	46 (12.78)	89 (24.72)	151 (41.94)	42 (11.67)
7	I involve in my family for recreation	86 (23.89)	102 (28.33)	92 (25.56)	49 (13.61)	31 (8.61)
8	I forgive others	49 (13.61)	33 (9.17)	97 (26.95)	93 (25.83)	88 (24.44)

9	I laugh to relive stress	0 (0.00)	0 (0.00)	0 (00.00)	190 (52.78)	170 (47.22)
10	I compromise the issues that stress me	55 (15.28)	48 (13.33)	103 (28.61)	95 (26.39)	59 (16.39)
11	I express my feelings to others instead of bottling them up	67 (18.61)	86 (23.89)	85 (23.61)	56 (15.56)	66 (18.33)
12	I generally avoid painful reminders	03 (0.83)	04 (1.11)	93 (25.83)	140 (38.89)	120 (33.34)
III.	Social support					
13	I like to work in group	41 (11.39)	63 (17.50)	00 (00.00)	132 (36.67)	124 (34.44)
14	I like to attend social gathering	63 (17.50)	86 (23.89)	123 (34.17)	49 (13.61)	39 (10.83)
15	I take counseling from others whenever in stress	69 (19.17)	41 (11.39)	00 (00.00)	135 (37.50)	115 (31.94)
16	I take emotional and instrumental support from other in stressful situations.	127 (35.28)	135 (37.50)	00 (00.00)	42 (11.66)	56 (15.56)
IV	Altering situation					
17	I maintain home well organized	11 (3.06)	09 (2.50)	00 (00.00)	181 (50.28)	159 (44.16)
18	I used to go outside with family whenever in stress	18 (5.00)	24 (6.67)	85 (23.61)	117 (32.50)	116 (32.22)
19	I go to movie/shopping	03 (0.83)	07 (1.94)	00 (00.00)	178 (49.45)	172 (47.78)
V	Reducing Responsibility					
20	I postpone certain tasks	55 (15.28)	61 (16.94)	105 (29.17)	81 (22.50)	58 (16.11)
21	I legitimately avoid disliked tasks	137 (38.06)	142 (39.44)	00 (00.00)	38 (10.56)	43 (11.94)
22	I do the work according to my preference	151 (41.94)	130 (36.11)	00 (00.00)	37 (10.28)	42 (11.67)

VI	Most liked activities					
23	I maintain balance in my life by pursuing a variety of interests outside of work	69 (19.17)	63 (17.51)	00 (00.00)	114 (31.66)	114 (31.66)
24	I watch T.V. whenever in stress	49 (13.61)	46 (12.78)	00 (00.00)	121 (33.61)	144 (40.00)
25	I listen and sings songs whenever in stress	33 (9.17)	57 (15.83)	125 (34.72)	77 (21.39)	68 (18.89)
26	I spend more time in the field with nature	162 (45.00)	98 (27.23)	00 (00.00)	52 (14.44)	48 (13.33)
27	I read books whenever in stress	03 (0.83)	02 (0.56)	0 (0.00)	157 (43.61)	198 (55.00)
28	I keep a pet to reduce stress	22 (6.11)	27 (7.50)	0 (0.00)	135 (37.50)	176 (48.89)
VII	Communicability					
29	I maintain good communication with spouse and other family members in stressful situation	102 (28.33)	91 (25..28)	00 (00.00)	82 (22.78)	85 (23.61)
30	I maintain harmony with spouse and other family members in stressful situation	98 (27.22)	85 (23.62)	00 (00.00)	84 (23.33)	93 (25.83)
31	I maintain good communication with neighbours and friends in stressful situation	87 (24.16)	78 (21.67)	00 (00.00)	101 (28.06)	94 (26.11)
32	I maintain good communication with local leaders and social workers in stressful situation	32 (8.89)	37 (10.28)	00 (00.00)	163 (45.28)	128 (35.55)
IX	Relationship Management					
33	I maintain trustworthy relationship with spouse to share my frustrations	98 (27.22)	103 (28.61)	00 (00.00)	117 (32.50)	42 (11.67)

34	I maintain an open, trustworthy relationship with other family members to share my frustrations	95 (26.39)	90 (25.00)	47 (13.05)	65 (18.06)	63 (17.50)
35	I maintain good relationship with neighbors	85 (23.61)	81 (22.50)	62 (17.22)	60 (16.67)	72 (20.00)
36	I maintain good relationship with Agril. Scientists to get the update knowledge about Agricultural technologies	11 (3.06)	16 (4.44)	152 (42.22)	88 (24.44)	93 (25.83)
37	I maintain good relationship with relatives	72 (20.00)	83 (23.06)	00 (00.00)	90 (25.00)	115 (31.94)
38	I maintain good relationship with friends	91 (25.28)	72 (20.00)	00 (00.00)	102 (28.33)	95 (26.39)
X	Accept the things that can not change					
39	I do not try to control the uncontrollable things	105 (29.16)	73 (20.28)	00 (00.00)	88 (24.44)	94 (26.12)
40	I know everything in this universe is impermanence therefore I am not serious about the adverse conditions in life	02 (0.56)	05 (1.39)	141 (39.17)	107 (29.72)	105 (29.17)

(Figures in paranthesis indicate percentage)

Data regarding mental stress management depicted in Table 61. The bird eye view of the Table 61 shows that, in case of religious activities indicator, relatively higher proportion of the respondents (46.67%) and more than one fourth of them (28.33%), were observed in strongly agree and agree opinion respectively about offering prayer daily. In total 75.00 per cent of the respondents were in opinion that they offered prayer daily followed 13.61 per cent and 11.39 per cent of the

respondents were disagree and strongly agree opinion about offering of prayer daily means may be in gap interval or as per the occasion.

With regards to performing meditation daily, maximum number of the respondents (46.39%) and less than one fifth of them (18.06%) were observed in disagree and strongly disagree opinion respectively about performing meditation daily. In total 64.45 per cent of the respondents were not performing mediation daily. Little more than one fourth of the respondents (25.83%) and slightly less than one tenth of them (9.72%) were in opinion of that they were performing mediation daily respectively. In total, 35.55 per cent of the respondents were performing daily.

In case of participation in bhajan activities, 30.00 per cent of the respondents and more than one fourth of them (26.94%) of the respondents were in opinion that they were not in participation of bhajan activities and expressed disagree and strongly disagree opinion respectively followed by less than one fourth (23.06%) and one fifth per cent of the respondents (20.00%) were in opinion that they were participating in bhajan activities respectively to reduce the stress.

Less than half of the respondents (48.61%) and 39.17 per cent of them were not attended vippsanna course which is useful in stress management and expressed disagree and strongly disagree opinion respectively whereas 8.61 per cent and 3.61 per cent of the respondents were said that they were attends the vippsanna course in stressful situation and found in agree and strongly agree opinion respectively and found satisfied.

As their religion farmers respondents were used to go temple/church/mosques in stressful situation. Relatively higher proportion of the respondents 45.28 per cent and more than one fourth of them (27.22%) were used to go temple /church/mosques as per their religion to reduce or manage the stress. In totality majority of the respondents were observed in going temple/church/mosque to get relax from stress while

14.44 per cent and 13.06 per cent of the respondents were not going temple/church/mosque in stressful situation or might be using different ways of relaxation techniques and expressed disagree and strongly disagree opinion respectively.

Psychotherapy is one of the important indicators to manage the stress effectively wherein eight sub items were considered.

About the positive attitude happening in life, 41.94 per cent and 11.67 per cent of the respondents expressed that they were having negative attitude about the bad happenings in life and found in disagree and strongly disagree respectively while little less than one fourth of them (24.72%) were in undecided opinion which means that they were not in confident. More than one tenth (12.78%) and 8.89 per cent of the respondents were expressed their opinion that they were remains positive about the happening in their life respectively which means that they were accepting the bad happening which occurred naturally or by their mistake.

With regards to involvement in family for recreation in stressful condition, more than one fourth of the respondents (28.33%) and 23.89 per cent of them were in agree and strongly agree opinion which means that they involved in family for recreation whereas, little less than one fourth (24.72%) and 23.06 per cent of the respondents were in disagree and strongly disagree opinion. In total 47.78 per cent of the respondents were not involving in family members for recreation which indicates that they might have not been in good relationship or due to thinking over stress at their level.

Relatively higher proportion of the respondents (26.95%) were in undecided opinion about forgiveness to others which might be because of thinking that it varies depending on the nature of problems which causes stress or might have not been occurrence of the problems in their life about to forgive others whereas, little more than one fourth (25.83%) and slightly less than one fourth of the respondents (24.44%) were expressed that they not forgave others may be because of bad

relationship or intensity of problems may be high and found in disagree and strongly disagree opinion respectively. Only 13.61 and 9.17 per cent of the respondents were in favour of forgiveness to others and expressed strongly agree and agree opinion respectively. In total 22.78 per cent of the respondents farmers were forgiven others for their mistakes and got relaxed from stress. This may be because of their good relationship or thinking about the humanity or in opinion of willing to settle the problems.

Regarding laughing therapy in stressful situation, more than half of the respondents (52.78%) and 47.22 per cent of them were disagree and strongly disagree opinion about laughing therapy i.e they were not laughing during the stressful situation. It is very surprisingly to note that, none of the respondents were in opinion of using laughing therapy.

In case of compromising the stressful issues with others, more than one fourth of the respondents (28.61%) were in undecided situation might be due to the stressful issues related to compromise might have not occurred in their life followed by 26.39 per cent and 16.39 per cent of them were observed in disagree and strongly opinion respectively i.e in total 39.78 per cent of the respondents were not compromised about the stressful issued happened in their life whereas 15.28 per cent and 13.33 per cent of them were expressed that they compromised the stressful issues happened in their life and found in strongly agree and agree opinion respectively.

Little less than one fourth (23.89%) and less than one fifth of the respondents (18.61%) were in opinion that they expressed their feelings to others instead of bottling them up and observed in agree and strongly agree opinion respectively whereas 23.61 per cent of the respondents were found in undecided opinion might be because of non happenings of severe stressful events happened in their life. In strongly agree and disagree opinion about the expression of their feelings to others, less than one fifth (18.33%) and 15.56 per cent of the respondents were observed which may be because of feelings shame.

Regarding avoidance of painful reminders, relatively higher proportion of the respondents (38.89%) and one third of them (33.34%) were found in disagree and strongly disagree opinion respectively i.e in total 72.22 per cent of the respondents reminds the painful events happened in their life which indicates that they experienced high stress about the events followed by slightly more than one fourth (25.83%) of them were found in undecided opinion might be due to non happenings of the high stress events. It is surprisingly to note that negligible per cent of the respondents (1.11%) and (0.83%) were said that they generally avoid painful reminders respectively.

Social support plays an important role in stress management of the farmers when one gets instrumental as well as emotional support him or her stress reduced down because of fulfilling their timely need. In the social support four sub-items were considered. In case of sub-item such as 'I like to work in group', more than one third per cent of the respondents (36.67%) and (34.44%) were in opinion that they does like to work in group and found in disagree and strongly disagree opinion followed by less than one fifth (17.50%) and more than one tenth (11.39%) of them liked to work in group which may helps to manage the stress by sharing their feelings.

In case of attending social gathering, relatively higher proportion of the respondents (34.17%) were in undecided opinion saying that if they would have important work then avoid to attend the social gathering followed by less than one fourth per cent (23.89%) and less than one fifth of them (17.50%) were liked to attend social gathering and observed in agree and strongly agree opinion respectively. The farmers who like to attend social gathering generally they like to share their feelings with others and reduce their stress means to manage their stress. 13.61 per cent and slightly more than one tenth (10.83%) of the respondents were not liked to attend social gathering respectively.

Regarding taking counseling from others in stressful situation, higher proportion of the respondents (37.50%) and less than one third (31.94%) of the respondents were in opinion that they were not taking counseling in stressful situation respectively which might be because of feelings shame themselves or having ego themselves followed by little less than one fifth (19.17%) and more than one tenth (11.39%) of them were in favour of taking counseling in stressful situation and observed in strongly agree and agree opinion respectively. In total 30.56 per cent of the respondents were observed in taking counseling from others which helps to manage the stress or reduce the stress at tolerable level.

In case of taking emotional and instrumental support from others in stressful situation, more than one third of the respondents (37.50%) and (35.28%) were observed in positive opinion in taking emotional and instrumental support from others in stressful situation whereas, 15.56 per cent and 11.66 per cent of them were having negative opinion about the same and observed in strongly disagree and disagree opinion respectively might be because of joint family or having their own strength to cope up with stress or might be having required money to manage the stress.

Altering situation is one of the important indicators to manage the mental stress wherein three sub-items were considered, of which regarding maintaining home well organized, slightly more than half (50.28%) and 44.16 per cent of the respondents were disagree and strongly disagree to this statement whereas, very few of them (3.06%) and (2.50%) were in positive opinion about to maintain home well organized which helps to relax the mind due to freshness means helps to manage the stress.

Regarding going outside with family in stressful situation, nearly equal proportion of the respondents (32.50%) and (32.22%) were in disagree and strongly disagree opinion respectively which clearly indicates that, in total 64.72 per cent of the respondents were not

arranging any outside tour in stressful situation might be because of lack of knowledge about the said stress management technique or due to insufficient money followed by little less than one fourth of them (23.61%) were in undecided opinion. Very few respondents (6.67%) and (5.00%) were going outside with their family in stressful situation to change their mood means to manage their stress.

About to go movie or shopping, slightly less than half of the respondents (49.45%) and 47.78 per cent of the respondents were expressed that they were not going movie or shopping in stressful situation and observed in disagree and strongly disagree opinion respectively followed by very few of them (1.94%) and (0.83%) were expressed positive opinion about to go movie or shopping in stressful situation to change their mood respectively.

By reducing responsibility one can reduce or manage the stress effectively. Hence the said indicator was considered in mental stress management wherein three sub-items were considered. In case of postponing certain task maximum number of the respondents (29.17%) was observed in undecided opinion. It is assumed that they might have not raised the situation to postpone the task. This was followed by more than one fifth of the respondents (22.50%) and 16.11 per cent of them were in disagree and strongly disagree opinion respectively. It means that they were not postponing the task which is difficult to manage the stress whereas, 16.94 per cent and 15.28 per cent of the respondents expressed that they postpone their certain tasks to manage the stress or to reduce the stress and found in agree and strongly agree opinion respectively.

Regarding legitimately avoidance of disliked tasks, relatively higher proportion of the respondents (39.44%) and 38.06 per cent of them were expressed that, they were legitimately avoiding the disliked tasks and observed in agree and strongly agree opinion respectively. In total 77.50 per cent of the respondents were legitimately avoiding the disliked tasks. It is assumed that general psychology of the individual is that they avoid the disliked task which may helps to reduce the stress. This was

followed by more than one tenth (11.94%) and (10.56%) of the respondents farmers were in opinion that they were not legitimately avoiding the disliked tasks which may creates stress and difficult to manage the stress.

In case of doing the work according to the preference, higher percentage of the respondents (41.94%) and more than one third of them (36.11%) were expressed positive opinion about to do the work according to their preference and observed in strongly agree and agree opinion respectively. In total 78.05 per cent of the respondents were doing the work according to their preference. It is assumed that generally every individual has tendency to do the work according his/her preference which helps to reduce the stress effectively whereas more than one tenth (11.67%) and (10.28%) were having negative opinion about to do the work as per their preference and observed in strongly disagree and disagree opinion respectively. It indicates that respondents' farmers were doing the work not as per their preference but as per the importance of work.

Most liked activities are one of the most important indicators to manage the mental stress. In case of maintaining balance in life by pursuing a variety of interest outside of work, equal proportion of the respondents (31.66%) were disagree and strongly disagree about this statement i.e in total 63.32 per cent of the respondents were not maintaining balance in life by pursuing a variety of interest outside of work followed by slightly less than one fifth (19.17%) and 17.51 per cent of the respondents expressed positive opinion about the same and found in strongly agree and agree opinion respectively. It is assumed that the farmers who are maintaining balance in life by pursuing a variety of interest outside of work; they have less stress or manage the stress effectively.

About to watching Television in stressful situation, relatively higher proportion of the respondents (40.00%) and (33.61%) of them were not watching TV in stressful situation and observed in strongly disagree

and disagree opinion respectively. It is assumed that, for such type of respondents farmers might be in difficulty to manage the stress whereas 13.61 per cent and 12.78 per cent of the respondents were expressed that they watch TV in stressful situation respectively and gets relaxed from the stress.

In case of listening and singing songs in stressful condition, maximum numbers of the respondents (34.72%) were observed in undecided situation. Psychologically it depends on nature of stress therefore respondents farmers might have in undecided situation which was followed by more than one fifth (21.39%) and 18.89 per cent of them were expressed disagree and strongly disagree opinion about the same whereas, 15.83 per cent and less than one tenth (9.17%) of the respondents were in opinion of listening TV in stressful situation. It is assumed that the respondents' farmers who were in liking of listening songs could manage stress effectively.

About to spend more time in the field with nature, higher proportion of the respondents (45.00%) and 27.23 per cent of the respondents were in positive opinion and observed in strongly agree and agree categories respectively. In total 72.22 per cent of the respondents were spending their more time in the field with nature which indicates that respondents farmers were found busy in their work day time and helps themselves to manage their stress whereas, 14.44 per cent and 13.33 per cent of the respondents were in negative opinion about spending more time in the field with nature and observed in disagree and strongly disagree opinion respectively.

Regarding of reading books more than half of the respondents (55.00%) and 43.61 per cent of them were not having liking of reading books and observed in strongly disagree and disagree opinion respectively whereas, negligible per cent of the respondents (0.83%) and (0.56%) were in liking of reading books which may helps to reduce the stress of such type of respondents farmers.

In case of liking to keep pet, relatively higher proportion of the respondents (48.89%) and (37.50%) of them were not in liking to keep pet and observed in strongly disagree and disagree opinion respectively followed by very of the respondents (7.50%) and (6.11%) were having pet and actually they enjoy with pet who were observed in agree and strongly agree opinion respectively. It is very clear that the respondents' farmers who were in keeping pet they get relaxed from stress.

The importance of communication cannot deny. Effective communication helps to maintain good relationship and success in work. Thus, it helps to manage the stress effectively. In case maintaining good communication with spouse and other family members to manage stress, relatively higher proportion of the respondents (28.33%) and slightly more than one fourth of them (25.28%) expressed that, they were maintaining good communication with their spouse and other family members and observed in strongly agree and agree opinion respectively. In total 53.61 per cent of the respondents were maintaining good communication with their spouse and other family members to reduce the stress. This was followed by 23.61 and 22.78 per cent of the respondents who were in negative opinion about the same and observed in strongly disagree and disagree opinion respectively. Therefore, it is assumed that, bad relationship with spouse and other family members might be due to some conflicts which affects on stress management.

In case of maintaining harmony with spouse and other family members, more than one fourth of the respondents (27.22%) and more than one fifth of them (23.62%) were expressed positive opinion and found in strongly agree and agree opinion respectively. In total, little more than half of the respondents (50.84%) were in opinion of maintaining harmony with spouse and other family members which helps to manage the stress in stressful situation. Slightly more than one fourth of the respondents (25.83%) and more than one fifth of them (23.33%) were expressed strongly disagree and disagree opinion respectively. In total slightly less than half of the respondents (49.16%) were not maintaining

harmony with spouse and other family members which may affect stress management in stressful situations.

Regarding the maintenance of good communication with neighbours and friends, a relatively higher proportion of the respondents (28.06%) and more than one fourth of them (26.11%) were observed not maintaining good communication with neighbours and friends in stressful situations and expressed disagree and strongly disagree opinions respectively. This is in assumption that respondents farmers might be feeling shame or ego which affects stress management. Whereas, slightly less than one fourth of the respondents (24.16%) and more than one fifth of them (21.67%) were in opinion of maintaining good communication with neighbours and friends in stressful situations respectively. In total, 45.83 per cent of the respondents were maintaining good communication with neighbours and friends in stressful situations which helps to manage the stress.

In case of the statement about maintaining of good communication with local leaders and social workers, a higher proportion of the respondents (45.28%) and more than one third of them (35.55%) expressed disagree and strongly disagree opinions about the same whereas, slightly more than one tenth (10.28%) and 8.89 per cent of the respondents farmers were observed in maintaining of good communication with local leaders and social workers in stressful situations which may support to solve the stress of the respondents which ultimately means to help in management of stress.

Relationship management is another indicator which has great importance in mental stress management. Having a relationship is a very important thing to have in life. Having a good relationship with your family, relatives, friends, neighbours etc is very important. Because one can gain trust and one knows that they are always there to solve the problems. They will always tell the truth and will not say things they do not mean just for acceptance. Thus, by keeping the importance of relationship

in mind, relationship management indicator was selected in mental stress management.

In case maintaining trustworthy relationship with spouse to share frustrations, slightly less than one third of the respondents (32.50%) and more than one tenth of them (11.67%) were in opinion of not maintaining trustworthy relationship with their spouse to share frustrations. It assumed that it might be due to frequent quarreling with spouse or on any other issues of their life which disturbs them. In total 44.17 per cent of the respondents were not having trustworthy relationship with their spouse to share frustrations which means that they were in stress and ultimately affects on stress management. This was followed by more than one fourth of the respondents (28.61%) and (27.22%) of them who were having positive opinion about to maintain trustworthy relationship with spouse to share frustrations and expressed agree and strongly agree opinion respectively. It means that they share their frustrations with their spouse to get relax and thus manage the stress effectively.

Relatively higher proportion of the respondents (26.39%) and one fourth of them (25.00%) were maintaining the open, trustworthy relationship with other family members to share their frustrations and observed in strongly agree and agree opinion respectively. In totality, more than half of the respondents (51.39%) were sharing their frustrations with family members which help to solve the problems and manage the stress. Less than one fifth of the respondents (18.06%) and 17.50 per cent respondents were not maintaining the open, trustworthy relationship with other family members to share their frustrations who were in opinion of disagree and strongly disagree respectively which indicates that they might have taken own decision to solve the problems or might have in thinking that they does not want to disturb other family members whereas, more than one tenth of them (13.05%) were observed in undecided opinion might be due to not frustrated by any problems occurred in their life.

Regarding relationship with relatives, little less one third of the respondents (31.94%) and one fourth of them (25.00%) were not having good relationship with their relatives and expressed strongly disagree and disagree opinion respectively which may affects on stress management of the respondents followed by less than one fourth (23.06%) and one fifth of them(20.00%) were having good relationship with their relatives and observed in agree and strongly agree opinion respectively. It is assumed from the results that good relationship with relatives help to seek emotional as well as instrumental support which ultimately support to manage stress.

In case maintaining good relationship with neighbours, less than one fourth of the respondents (23.61%) and more than one fifth of them (22.50%) expressed that they were having good relationship with their neighbours and observed in strongly agree and agree opinion respectively. In totality, 46.11 per cent of the respondents were maintaining good relationship with their neighbours. It is assumed that maintaining the good relationship with neighbours may help to manage the stress. One fifth of the respondents (20.00%) and 16.67 per cent of them were not maintaining the good relationship with their neighbours might be due to some conflicts and expressed strongly disagree and disagree opinion respectively whereas, 17.22 per cent of the respondents were in undecided situation about the same might be due to some disputes sometimes and sometimes might have good relationship with their neighbours.

Regarding relationship with friends, higher proportion of the respondents (28.33%) and more than one fourth of them (26.39%) were not having good relationship with their friends and observed in disagree and strongly disagree opinion respectively which might be due to some conflicts sometimes and such type of situation in the farmers life may create stress followed by little more than one fourth (25.28%) and one fifth (20.00%) of the respondents were having good relationship with their friends who further expressed strongly agree and agree opinion

respectively. It seems that good relationship with friends help to seek emotional as well as instrumental support in stressful situations to manage the stress.

Relatively higher proportions of the respondents (42.22%) were expressed undecided opinion about to maintain good relationship Agril. Scientists to get the update information about agricultural technologies. Further, they expressed that whenever go University Programmes get the information from their speech but not directly contacting to Agril. Scientists followed by and little more than one fourth of the respondents (25.83%) were and little less than one fourth (24.44%) were observed in strongly disagree and disagree opinion about the same. Very few per cent of the respondents (4.44%) and (3.06%) were in opinion of maintaining good relationship Agril. Scientists to get the update information about agricultural technologies and found in agree and strongly agree opinion respectively.

Accept the thing that cannot control is one of the important indicator of mental stress management. If individual learns about the things that are not in their hand or based on nature then it will be better to accept that things to reduce stress. In this indicator of mental stress management two sub-items were considered and described as beow.

Regarding not to control the uncontrollable things, less than one third of the respondents (29.16%) and slightly more than one fifth of them (20.28%) were in positive opinion about not controlling the uncontrollable things and expressed strongly agree and agree opinion about the same respectively. In totality, slightly half of the respondents (49.44%) were trying to control the uncontrollable things which help to reduce the stress and ultimately they were managing the stress whereas, more than one fourth of the respondents' farmers (26.12%) and slightly less than one fourth of them (24.44%) were in strongly disagree and disagree opinion about not to control uncontrolled things respectively. In total slightly more than half (50.56%) of the respondents were trying to

control the uncontrollable things and creates the stress in their life. It is assumed that, it might be because of their ego problems.

About the statement 'I know everything in this universe is impermanence, therefore not serious about adverse condition in life, relatively higher proportion of the respondents (39.17%) expressed undecided opinion might be because lack of knowledge or not happened any events in their life about the of the same. This was followed by less than one third (29.72%) and (29.17%) of the respondents who were in disagree and strongly disagree opinion respectively might be due to lack of knowledge about the nature rule. Negligible per cent of the respondents (1.39%) and (0.56%) were accepting the universe rule of impermanence and expressed agree and strongly agree opinion respectively. It is assumed that the respondents who were in thinking of universe rule of impermanence, they might have not stress about the adverse happening in their life.

Table 62. Distribution of the respondents according to their mental stress management level

Sl. No.	Mental stress management level	Respondents (n=360)	
		Frequency	Percentage
1	Poor (Up to 55.07)	126	35.00
2	Medium (55.08 to 61.05)	140	38.89
3	Good (Above 61.05)	94	26.11
	Total	360	100.00

Table 62 indicated that most of the respondents (38.89%) were manage their mental stress at medium level followed by more than one third (38.89%) of them were poorly manage their mental stress. Whereas little more than one fourth (26.11%) of the respondents were manage their mental stress in good level of category.

It is concluded from the above findings that, higher proportion of the respondents were in medium mental stress management level followed by poor mental stress management level.

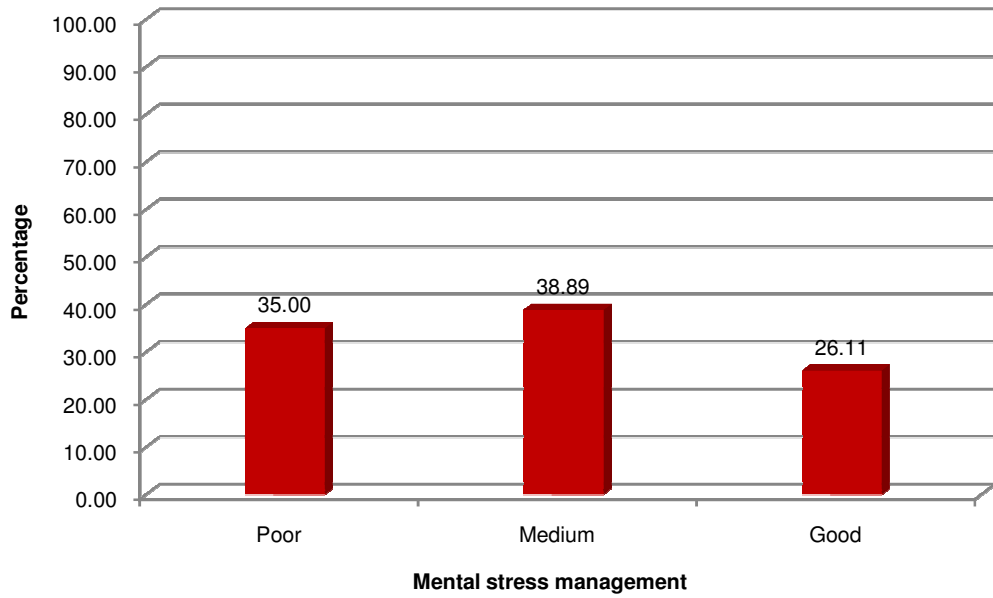


Fig. 39. Distribution of the respondents according to their mental stress management levels

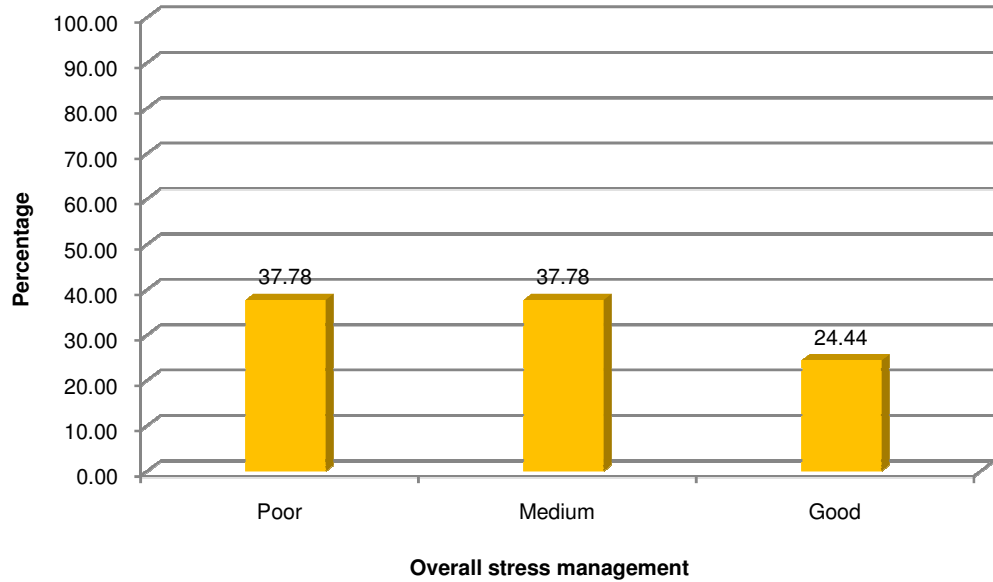


Fig. 40. Distribution of the respondents according to their overall stress management levels

Table 63. Distribution of the respondents according to their overall stress management level

Sl. No.	Overall stress management level	Respondents (n=360)	
		Frequency	Percentage
1	Poor (Up to 56.20)	136	37.78
2	Medium (56.21 to 62.65)	136	37.78
3	Good (Above 62.65)	88	24.44
	Total	360	100.00

The bird eye of the Table 63 clearly indicated that equal proportion of the respondents (37.78%) were manage their physical and mental stress at poor to medium level of category followed by nearly one fourth (24.44%) them were poorly manage their physical as well I as mental stress.

It could be noted from the above findings that, most of the respondents were in poor to medium level of physical as well as mental stress management.

As the respondents were not manage their stress effectively there is need to provide the trainings for the marginal to semi-medium farmers who are committing suicides. Thus, by providing trainings on personal life stressful events, family related stressful events and occupational related stressful events may help to reduce the suicides of the farmers.

Importance of communication cannot be denied. Using effective communication is crucial to relationship and success at work which ultimately helps to reduce or manage the stress. Regarding statement as 'maintaining good communication with spouse helps to reduce stress and other family members help to reduce stress',

5.5 Impact of stress of on behavior of farmers

Table 64. Distribution of respondents according to Impact of stress on their behaviour

Sl. No.	Indicators/Items	Response Base Year 2011-12				Per cent change	Z value
		Before stress		After stress			
1	Smoking	105	29.17	195	54.17	86.71	7.10
2	Alcohol consumption	97	26.94	172	47.78	77.31	5.90
3	Ghutka consumption	88	24.44	212	58.89	140.90	9.98
4	Rapid speaking	5	1.39	9	2.50	80.00	1.07
5	Over eating/Under eating	72	20.00	115.	31.94	59.72	3.52
6	An ill temper	78	21.67	195	54.17	150.00	9.62
7	Often annoyed	47	13.05	121	33.61	157.44	6.71
8	Carelessness	54	15.00	105	29.17	94.44	4.74
9	Introvertness	36	10.00	119	33.05	230.33	7.82
10	Difficulty in thinking logically	15	4.17	47	13.05	213.33	4.29
11	Decreased commitment to work	13	03.61	52	14.44	300.00	5.15
12	Loose interest in meeting with friends and attending marriages	61	16.94	103	28.61	68.85	3.76
13	Feeling helpless	27	7.50	110	30.56	307.00	8.23
14	Feeling hopeless	27	7.50	85	23.61	214.81	6.02
15	Making habit of eating tobacco	90	25.00	221	61.38	144.44	10.58
16	Suicidal thoughts	03.	0.83	21	5.89	600.00	3.75

The impact of stress on farmer's behavior is depicted in Table 64 and it is revealed that there is definite effect of stress on each and every selected behavioural indicators. The selection of base year for stress was 2011-12. The stresses occurred during the five years span in the life of selected farmers were considered. Table 31 presents that the behavioral indicators such as making habit of eating tobacco, ghutka consumption, an ill temper, feelings helpless and intro-vertness, the observed per cent change was 144.44 per cent, 140.90 per cent, 150.00 per cent, 307.00 per cent and 230.56 per cent with Z values 10.58, 9.98, 9.62, 8.23 and 7.82 respectively whereas in case of the indicators such as smoking 86.71 per cent, often annoyed, alcohol consumption, and decreased commitment to work the percent change was observed as 157.44, 77.31, and 300.00 percent with Z values, 7.10, 6.71, 5.90 and 5.15 respectively. The per cent change values for the selected indicators of behavior are as 213.33, 68.85, 600.00, 59.72 and 80.00 per cent with Z values 4.29, 3.76, 3.76, 3.52 and 1.07 respectively for the indicators such as difficulty in thinking logically, lose interest in meeting with friends and attending marriages, suicidal thought, over or under eating and rapid speaking respectively.

From the above findings it can be concluded that there is definite impact of stress on farmer's behavior. Therefore, it is implicated that Government has to take curative measures by organizing regular training and counselling about stress management through extension agencies and also fix the responsibilities on local leaders or personnel of Tanta Mukti to control the situation.

Table 65. Coefficient of correlation of selected characteristics of the farmers' with stress management (Physical and mental) of the farmers

Characteristics Physical stress management (r values)
Mental stress management (r values)

A. Personal characteristics			
1	Age	0.027 NS	0.036 NS.
2	Education	0.276**	0.289**
3	Marital status	0.086NS	0.097NS
4	Family type	0.141*	0.149*
5	Family size	0.278**	0.312**
6	Land holding	0.256**	0.298**
7	Farming experience	0.438**	0.548**
8	Occupational status	0.321**	0.471**
B. Socio-economic characteristics			
9	Expenditure pattern	-0.329**	-0.413**
10	Annual income	0.335**	0.356**
11	Social participation	0.029 NS	0.121*
12	Access to credit	0.372**	0.428**
C. Situational characteristics			
13	Agril., infrastructural facilities	0.311**	0.412**
14	Health	0.281**	0.341**
15	Indebtedness	-0.146*	-0.489**
16	Technology utilization	0.448**	0.523**
17	Labour availability	0.612**	0.715**
18	Access to market	0.290**	0.314**
19	Area, production and productivity	0.424**	0.487**
D. Communication Characteristics			
20	Mass media exposure	0.198*	0.297**
21	Extension contact	-0.107*	0.125*
22	Access to weather information	0.274**	0.345**

E. Psychological characteristics			
23	Optimism	0.609**	0.736 **
24	Quality of life	0.219**	0.336 **
25	Powerlessness	-0.209**	-0.436 **
26	Social isolation	-0.209**	-0.436 **
27	Spirituality	0.667**	0.777**
28	Self esteem	0.613**	0.722**
29	Self efficacy	0.671**	0.798**
F. Intervening variable (Causes of stress)			
30	Personal stressors	0.235**	0.249**
31	Family stressors	0.321**	0.378**
32	Occupational stressor	0.337**	0.412**

* : Correlation is significant at the 0.05 level (2-tailed)

** : Correlation is significant at the 0.01 level (2-tailed)

From the observation in Table 65, out of 29 variables, education, family size, land holding, farming experience, occupational status, annual income, access to credit, health, technology utilization, labour availability, access to market, productivity, access to weather information, optimism, quality of life spirituality, self esteem self efficacy were found to be positively significant to physical stress management at 0.01 level of probability whereas the variables namely, expenditure pattern, powerlessness, social isolation, personal stressors, family stressor and occupational were negatively significant to the physical stress management at 0.01 level of probability. The variables family type, mass media exposure found to be significant positively at 0.05 level of probability to the physical stress management and the variables indebtedness, and extension contact found to be negatively significant at 0.05 level of probability. Only three variables namely, age marital status and social participation shows non significant relationship with the physical stress management.

In case of mental stress management, the variables namely, education, family size, land holding farming experience, occupational status, annual income, access to credit, agricultural infrastructural facilities, health, technology utilization, labour availability, access to market, productivity, mass media exposure, access to weather information, optimism, quality of life spirituality, self esteem and self efficacy were found to be positively and highly significant relationship with mental stress management at 0.01 level of probability whereas, the variables viz., expenditure pattern, indebtedness, powerlessness, social isolation, personal stressors, family stressors and occupational stressors shows highly and negative relationship to the mental stress management at 0.01 level of probability. The variables namely family type, social participation and extension contact shows positive and significant relationship with mental stress management at 0.05 level of probability and the variables age and marital status not showed any relationship with the mental stress.

Table 66. Coefficient of correlation of selected characteristics of the farmers' with overall stress management

Sl. No	Characteristics	Overall Stress Management (r values)
1	Age	0.029 NS
2	Education	0.290**
3	Marital status	0.091NS
4	Family type	0.145*
5	Family size	0.283**
6	Land holding	0.581**
7	Farming experience	0.511**
8	Occupational status	0.413**
9	Expenditure pattern	-0.473
10	Annual income	0.376**
11	Social participation	0.120*
12	Access to credit	0.381**
13	Agril., infrastructural facilities	0339**
14	Health	0.422**
15	Indebtedness	-0.320**

16	Technology utilization	0.520**
17	Labour availability	0.705**
18	Access to market	0.297**
19	Area, production and productivity	0.439**
20	Mass media exposure	0.290**
21	Extension contact	0.121*
22	Access to weather information	0.335**
23	Optimism	0.717**
24	Quality of life	0.310**
25	Powerlessness	-0.336**
26	Social isolation	-0.416**
27	Spirituality	0.681**
28	Self esteem	0.692**
29	Self efficacy	0.777**
30	Personal stressors	-0.253**
31	Family stressors	-0.381**
32	Occupational stressor	-0.403**

Data presented in Table 66 regarding relational analysis, it is found that, the variables viz., education, family size, land holding, farming experience, occupational status, annual income, access to credit, health, technology utilization, labour availability, access to market, productivity, access to weather information, optimism, quality of life, spirituality, self esteem, self efficacy were found to be positively significant with overall stress management at 0.01 level of probability whereas the variables namely, expenditure pattern, indebtedness, powerlessness, social isolation, personal stressors, family stressor and occupational were negatively significant with the overall stress management at 0.01 level of probability. The variables family type, extension contact were found to be significant positively at 0.05 level of probability with the overall stress management and the variables. Only two variables namely, age and marital status shows no significant relationship with the overall stress management.

5.6 Regression analysis

Table 67. Regression analysis of variables influencing overall stress management of the farmers

Sl. No.	Independent variables	Partial 'b'	T value for partial 'b'	Standard partial b values
1	Education	0.00196	2.698**	0.246
2	Family type	0.00128	-0.170	-0.137
3	Family size	0.0116	2.069 **	0.231
4	Land holding	0.114	2.094 **	0.187
5	Farming experience	0.0025	2.369**	0.133
6	Occupational status	0.0029	2.294**	0.177
7	Expenditure pattern	-0.0171	-2.537**	-0.143
8	Annual income	0.00027	2.584**	0.131
9	Access to credit	0.0217	1.553 *	0.153
10	Agricultural infrastructural facilities	0.00029	0.518	-0.070
11	Health	0.00251	2.310**	0.140
12	Indebtedness	0.00122	-2.704**	-0.172
13	Technology utilization	0.00315	1.466*	0.115
14	Labour availability	0.00129	0.475	0.031
15	Access to market	0.00230	-2.645**	-0.143
16	Mass media exposure	0.0093	2.501 **	0.139
17	Extension contact	0.01148	0.769	0.037
18	Access to weather information	0.01048	0.691	0.073
19	Optimism	0.00010	3.685**	0.172
20	Quality of life	0.00181	2.241**	0.301
21	Powerlessness	-0.0049	-3.118**	-0.173
22	Social isolation	-0.0089	-2.198**	-0.161
23	Spirituality	0.00009	2.585 **	0.146
24	Self esteem	0.00158	2.791**	0.170
25	Self efficacy	0.00189	3.835 **	0.208

$R^2=0.680$

$F=20.106^{**}$

** Significant at 0.01 level of probability

* Significant at 0.05 level of probability

With a view to find, the significant contributions of independent variables in influencing the stress management of the farmers in Vidarbha, all the selected independent variables were fitted into the simple linear regression model. The result pertaining to the significant contributory factors with their regression coefficient (b), standard error, t value and contribution of each significant variable is presented in Table 67.

Above mentioned variables were fitted in multiple regression equation the Coefficient of Multiple Determination (R^2) comes to 0.680 and the obtained R^2 value was tested for its significance by computing “F” value and comparing it with “t” table value at $n-k-1$ degrees of freedom and was found significant. This shows that all these variables contributed 68.00 per cent variation in overall stress management of the selected respondents.

Perusal at Table 67 indicated that R^2 was significant as F was significant. The 25 independent variables selected for this research jointly explained 68.00 per cent variation in the dependent variable, stress management. Multiple regression analysis showed that out of 30 independent variables selected, 18 variables namely education, family size, land holding, farming experience, occupational status, expenditure pattern, indebtedness, access to market, annual income, health, mass media exposure, optimism, quality of life, powerlessness, social isolation, spirituality, self esteem and self efficacy contributed significantly to the prediction of the dependent variable stress management.

Hence, this research study clears that in study area there is a need to need to improve the significantly contributed 18 variables in the study area to face various levels of stressors in distress prone districts of Vidarbha by conducting regular trainings or counseling of the .farmers in the study area of distress prone districts of Vidarbha.

5.7 Constraints encountered by the farmers in stress management

Table 68. Distribution of the respondents according to the constraints faced by them in stress management

Sl. No.	Particulars	Respondents	
		Frequency	Percentage
A	Farm related constraints		
1	No irrigation facilities	360	100.00
2	Lack of knowledge about improved farm techniques	253	70.27
3	Labour deficiency for performing farm operations in peak time	102	28.33
4	Uncertainty in farm income due to weather hazards	229	63.61
5	Low price returns from farm produce every year	318	80.33
6	Inadequate and untimely availability of crop loans frequently	83	23.05
7	Insufficient capital availability for purchase of agricultural inputs	281	78.05
8	Non availability of seeds in time every year	97	26.94
9	Non availability of fertilizers and pesticides in time	103	28.61
10	Less transport facilities	132	36.67
11	Lack of storage facilities	287	79.72
12	Less land holdings	341	94.72
13	Pressure from Sawnkar/private money lender for paying money	142	39.44
14	Lack of knowledge about resource conservation techniques	147	40.83
B	Personal constraints		
15	Frequent remembering of stressful/painful events	213	59.17
16	Frequent disputes with spouse	129	35.83
17	Frequent disputes with neighbors	29	08.05
18	Frequent gossiped by the others	52	14.44
19	Prolonged diseases	183	50.83
20	Lack of knowledge about stress management techniques	233	64.72
21	Addicted to bad habits	263	73.05
22	Frequent feelings about not to feed nutritious food to family	89	24.72

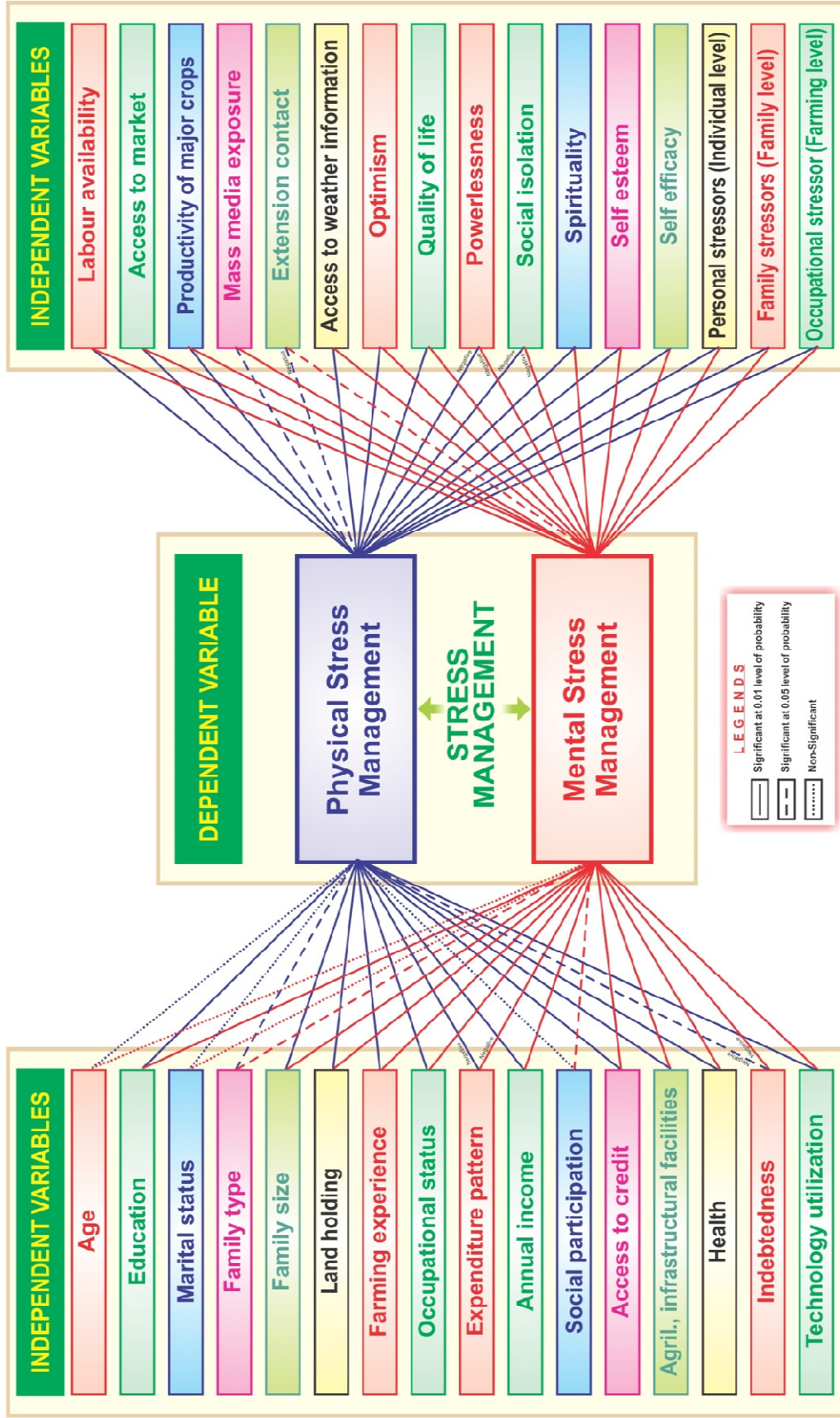


Fig. 40. Empirical model of the study showing relationship between independent and dependent variables

Further it is also need to increase the income level of the farmers for increasing their paying capacity/ability, increase the irrigation potential for profitable crop grown and better employment opportunities, new improved technology utilization, good morale strength.

Data presented in Table 68 indicated that, cent percent of the respondents were facing constraints as no irrigation under the farm related constraints. This constraints in stress management may be because availability of irrigation facilities facilitate the farmers to grow more number of crops in three seasons which may helps to increase the productivity of crops and ultimately helps to increase income from the crop produce again which may help to manage the stress related to financial issues. This was followed by less land holdings reported by 94.72 per cent of the respondents. The constraints encountered by the most of the farmers were low price returns from farm produce every year (80.33%) insufficient capital availability for purchase of agricultural inputs (78.05%), lack of knowledge about improved farm techniques (70.27%) and uncertainty in farm income due to weather hazards (63.61%) are the major constraints encountered by most of the respondents farmers. Other constraints related to farm reported by the farmers were in negligible per cent.

In case of personal constraints, with regards to addiction to bad habits, 73.05 per cent of the respondents were reported this constraint followed by lack of knowledge about stress management techniques reported by 64.72 per cent of the respondents. Remaining constraints reported by the respondents were in negligible.

CHAPTER VI

SUMMARY AND CONCLUSIONS

The modern world which is said to be a world of achievements is also a world of stress. Stress is everywhere, whether it is in the family, agriculture, business organization, enterprise, institute or any other social or economic activity. Right from birth till death, an individual is invariably exposed to various stressful situations. Despite tremendous advancements in science and technology, and remarkable growth of economy and sources of luxury, people all over the world seem to experience stress in various spheres of their lives. Consistently psychosomatic and psychological disorders are increasing; the feelings of frustration and dissatisfaction with life in general reflect the stress being experienced by people.

In Maharashtra there are twenty thousand such villages from twenty districts which are under the stress of water for agriculture and other usage and more than two third of them are from Vidarbha and Marathwada regions, from where, the largest number of suicides by farmers' have been reported . The initial stage of committing suicides by any one is stress. More than 50 per cent (53.44%) of the crop failure has to be accrued to an inadequate or untimely rainfall (TERI 2009) and nearly 58 per cent of reported suicide deaths were during monsoon months July-September (Poonam Pande and Akermann, 2010). This indicates the farmers' helplessness.

Why does this happen? What happens in their family life? Are their personal problems? After getting help from government ,is their livelihood is sustainable? Is their socio-economic status weakening? Are there any social and psychological problems? Whether there are farm related problems? For finding the answers of these questions, the current exercise was felt needful, so that in future we can use more strategic planning about the stress management of the farmers by applying various

planning and developmental measures related to agriculture, related to their personal problems and with the family life of farmers.

This research intended to capture the causes of stress at personal level, occupational level and family level and awareness of farmers' about different stress management strategies or techniques and problems affecting the stress management.

The information emerged out from this study will be definitely useful to the central and state government planners, thinkers, social workers and researchers to formulate long and short term stress management strategies so as to avoid the adverse impact of stress and ultimately to overcome tragic phenomenon of suicides in the region. The objectives framed for the study were as follows.

6.1 Objectives of Study

1. To study the personal, socio-economic, communication, situational and psychological characteristics of the farmers.
2. To assess the perception about the concept of stress and mindset of the farmers.
3. To develop and standardize the scale of stress and stress management of the farmers
4. To analyze the impact of stress on farmers behaviour
5. To study the relationship between selected characteristics with stress management of the farmers.
6. To study the constraints encountered by the farmers in stress management.

6.2 Methodology

The study was conducted in six distress districts of Vidarbha namely, Buldhana, Washim, Akola, Amravati, Wardha. The data were collected from 360 farmers' spread over 24 villages across the 6 *tahsils* of suicide concentrated six districts The primary data were collected through

personal interview method and applied exploratory and analytical social research design. Apart from in-depth interviews with the randomly sampled 360 farmers', and 05 group discussions were also carried out in the study area. The data regarding causes of stress and its management on parameter/indicators identified from relevancy ratings from experts, finalized during the construction and standardization of scale to measure causes of stress and stress management of farmers. The standardized scale was administered to the respondents to measure the causes of stress and stress management during the course of data collection. The data collected from the respondents were then suitably organized, scored, classified, tabulated and analyzed in line with the objectives of the study. The data were also subjected to statistical treatments and analysis with the help of appropriate statistical techniques and tests.

6.3 Results and Discussion

6.3.1 Distributional Analysis

6.3.1.1 Age

The age wise distribution revealed that 42.50 per cent of the respondents were under middle age category in between 36-50 years. It was followed by (33.89%) were in old age category i.e. above 50 years and remaining 23.61 per cent were found in young age category i.e. upto 35 years. The age profile analysis of the selected farmers indicated that more or less in all age group respondents were covered under the study.

6.3.1.2 Education

Distribution analysis showed that relatively higher percentage of the respondents (36.11%), were educated up to high school level followed by little less than one fifth (18.90%) were educated up to higher secondary school. The respondents 15.27 per cent were educated up to middle school level of education which was followed by 13.33 per cent who were educated up to primary level and 13.61 per cent of them were illiterate. Only 2.78 per cent of the respondents were

educated up to college level of education. It is, therefore, suggested that government need to ensure that schools are able to play a leading role in education for sustainable development through the way education systems are managed, schools are organized and pupils taught.

6.3.1.3 Marital status

Result analysis showed that large majority of the respondents (98.06%) were married followed by very few (1.94%) were unmarried.

6.3.1.4 Family type

Distribution of respondents according to their family type explained that maximum number of respondents (64.44%) had nuclear type of family followed by (35.56%) respondents had joint family type.

6.3.1.5 Family size

The data revealed that maximum number of the respondents (60.56%) had medium family size followed by little less than one fourth (24.44%) were observed in small family size and large (15.00%) size of families.

6.3.1.6 Land holding

Result analysis showed that little more than half of respondents (51.39%) belonged to small category of land holding 1.00 to 2.00 ha followed by the semi-medium farmers little more than one fourth (26.11 %) having land ranging from 2.01 to 4.00 ha of land and little more than one fifth (22.50%) were observed in category of marginal land holding category having land up to 1.00 ha. It can be inferred that majority of the farmers' were small and marginal. Therefore, these groups are more vulnerable to risks and uncertainty. Land holding size also influences to take decisions related to personal, farming and family levels.

6.3.1.7 Farming Experience

It was established that that less than half (42.78%) of the respondents were possessed farming experience ranging from 15 to 28

years followed by 30.83 per cent of the respondents were having farming experience up to 14 years and little more than one fourth of the them (26.40%) were having farming experience ranging from 29-42 years.

6.3.1.8 Annual Income

The data regarding annual income of the selected respondents revealed that less than half of (47.78%) of the respondents were having annual income ranging from 50001 to 100000/-, followed by little more than one fifth (20.55%) respondents were having their annual income up to Rs. 50,000/- and 18.89 per cent of them were having annual income of Rs. 1,00000/- to 1,50000/-. Very few per cent of the respondents (7.78%) and (5.00%) were having their annual income of Rs. 150000 to 200000 and above 200000/- respectively. It was inferred that annual income is sensitive to causes of stress and its management. Therefore, there is, need of development of policy measures to assist low-income households to cope with the impacts of stress at different levels.

6.3.1.9 Occupational status

Higher proportion of the respondents (60.83%) were possessed farming + labour occupation followed by slightly less than one fifth of them (19.17%) were having farming as a main occupation, whereas 16.11 per cent of the respondents were possessed farming +subsidiary occupation. Negligible per cent of the respondents (2.22%) and (1.67) were having their occupation as farming + business and farming +service occupation respectively. It may be further inferred that the respondents selected were having dry land farming and having land ranging from marginal to semi-medium category of land holding. Therefore, it is unable to fulfill the needs of them and they searched for other work i.e. labour work.

6.3.1.10 Indebtedness

It was observed that out of 360 farmers relatively higher proportion of the respondents (44.44%) were in debt up to Rs. 50,000/- followed by 39.45 per cent of the respondents were in indebtedness of

Rs. Ranging from Rs. 50,001 to 1,00,000/- whereas, slightly more than one tenth (10.28%) were in debt of Rs. 1000001 to 1,50,000/-. And only 5.83 per cent of the respondents were indebtedness of above Rs. 1,50,000/-.

It could be inferred that indebtedness may restrict individuals to take higher risks, particularly if the debts are already mounted. Moreover stress at different levels and its management in study area always put the farmers' highly vulnerable to stable income to repay the loans.

6.3.1.11. Access to Credit

It was revealed that more than half per cent of farmers' (56.38%) had access to credit availability while, 43.62 per cent of them had no access to credit. It is therefore contingent that farmers' should be given access to credit and at proper time.

a) Sources of Credit

It was found that most of the respondents (38.01 %) have borrowed credit from Cooperative Societies/Banks followed by 35.58 per cent of them credits came from relatives/ friends. The respondents 15.73 per cent and 10.58 per cent of the respondents borrowed credits from money lenders and input dealers/salesman respectively. It is, therefore, inferred that farmers' should be given access to credit through micro-credit or state empowerment scheme. This will also help them access other adaptation options and irrigation facilities.

6.3.1.12 Agriculture Infrastructure Facilities

revealed that little more than half of the farmers' (53.05 %) were found to have medium input infrastructure, followed by high input infrastructure (26.95%) and one fifth (20.00%) of them had low input infrastructure. While considering availability of credit sources it is found that farmers' (46.38%) had low availability of credit sources infrastructure, followed by 28.05 and 25.55 per cent had high and low credit sources

infrastructure respectively. Regarding availability of information infrastructure it is noted that (63.05%) had medium availability of information infrastructure, followed by 23.90 and 13.05 per cent having high and low information infrastructure respectively. The availability of transport facilities as infrastructure when studied it was observed that over half (53.33%) of the farmers' had medium availability of transport facilities, followed by 27.50 per cent had high availability of transport facilities while nearly one fifth (19.17%) had low availability of transport infrastructure. With regards to availability of post harvest infrastructure, it was noted that 46.16 per cent of the farmers' falls in category of low, medium (42.22%) and high (13.62%) post harvest infrastructure availability.

6.3.1.13 Technology utilization

Distribution of respondents indicated that majority of the farmers (78.06%) were found in medium level of technology utilization followed by near about one tenth (11.94%) of them were observed in low level category and only 10.00 per cent of the respondents were found in high level of technology utilization category.

6.3.1.14 Health of the respondents

Distribution of respondents indicated that 40.83 per cent of farmers were free from health problems. Personal health problems were noticed in remaining 59.17 per cent household farmers' ranging from 1 to 3. The major diseases that suffered the farmers' of study area since 2011-12.

a) Health of family members of respondents

Distribution of the respondents according to their family members health reported that, proportion of the respondents family member who suffered from joint pain were 08.61 per cent followed by the malaria reported as 08.50 per cent. The kidney stone disease was caused to 07.50 per cent of the respondents family members, whereas family members of the respondents suffered from the disease hypertension were

found to be 06.11 per cent followed by equal proportion(05.28%) of the respondents family members were suffering from diabetes and enlargement of prostate gland respectively. The asthma disease was caused to 5.00 per cent of the family members of the respondents. Nearly one fifth (4.72%) and (4.44 %) of the family members of the respondents were suffered from piles and chronic acidity problems. Further it is observed that the family members of the respondents who suffered from the skin, heart disease, physically handicapped by injury/accidents disease, Chicken guinea, liver disorder, fits, and cancer were found to the extent of 4.17, 3.89, 03.50, 1.94, 1.67 and 1.39 per cent respectively.

6.3.1.15 Social Participation

It was observed that higher proportion of the respondents (44.72%) were having no social participation followed by near about one third (33.89%) were having their social participation in low category and only in one organization. Nearly one fifth (19.72%) of the respondents were having medium social participation having involvement in 2 to 3 organization and very meager percentage of them (1.67%) were having high social participation.. It is, therefore, inferred that very low or no social participation of the farmers' in the study area may not aid farmers' to release the stress caused due to multiple factors including indebtedness, crop failures, family responsibility. Non sharing of problems with others build up distress in them. It is, therefore, suggested that platforms like religious discourses, lectures of eminent motivators on stress management shall be provided in villages at regular intervals.

6.3.1.16 Labour Availability

Analysis revealed that most of farmers' under the study area face the paucity of labour and relatively higher proportion of the respondents (63.61%) were found in low category of labour availability up to 6 labour followed by 28.61 per cent of the respondents who were found in medium category of labour availability i.e. in the range of 8 to 10 labour and only 7.78 per cent of the respondents were having labour availability

above 10. There emerges the need of technologies that requires less labour and are feasible to cope with negative impacts agriculture.

6.3.1.17 Productivity of Major Crops

An examination of data showed that, kharif cotton and soybean crops dominated the cropping pattern of selected farmers'. The proportion of area under kharif cotton and soybean was 38.91 per cent and 36.72 per cent, respectively during the year 2011-12. While the share of area under kharif cotton was increased in 2015-16 by 5.90 per cent, whereas, the area under soybean was also enlarged by 2.17 per cent during 2015-16. At the same time, the area under jowar was decreased by 0.79 per cent during 2015-16 compared to 2011-12. Similarly, the area under mung and Udid is also decreased remarkably compared to 2011-12 in the study area. The area under gram crop was highly increased by 21.00 per cent as compared to 2011-12 and replacing wheat crop and that the area under wheat crop is also decreased in 2015-16 compared to 2011-12.

Analysis of the food grains production/productivity data for the last decade reveals an increase in yield in few crops, whereas in other crops it appears that the negative impact of vagaries of monsoon has been large throughout the period. In this context, a number of questions need to be addressed as to determine the nature of variability of important weather events; particularly the rainfall received in a season/year as well its distribution within the season. These observations need to be coupled to management practices, which are tailored to the stress variability of the region, such as optimal time of sowing, level of pesticides and fertilizer application etc.

6.3.1.18 Market Access (km.)

Analysis of the market access indicated that most of farmers' had access to market within 10 km (46.39%). The proportion of farmers' having market access in between 11 to 18 kms were 32.50 percent, whereas, 21.11 per cent had access to market above 18 kms.

The overall mean distance to market access was 13.98 km. It is inferred that most of important agricultural inputs required by the farmers' for their farms were not available in their villages. Distance definitely increases the cost of production. Normally under study area farmers' has to pay Rs.60/- per quintal as transportation charges for selling his produce in the market for average distance of 15 km. Distance more than 15 km increases the transportation cost, thus increases the cost of production.

6.3.1.19 Access to Weather Information

Access to reliable weather information may help farmers' to take crucial decisions related to sowing, irrigation, spraying, fertilizer application etc. It was heartening to note that major group of farmers'did not have access of weather information (71.64%). Only 28.33 per cent had access to weather related information. There is greater need to get availability of accurate and correct weather information to the farmers'. Unless the predicted information goes accurate & correct, farmers' will not adopt the same.

a) Perceived accuracy about weather information

The results indicates that little more than one fourth (26.47%) of the respondents perceived the weather information as accurate whereas 73.33 per cent found it as not accurate. It is therefore inferred that, shorter-term seasonal weather forecasting is one of the agricultural options to adjust seasonal calendar suitable for change of temperature and precipitation annually to avoid the agricultural related stress.

6.3.1.20 Mass Media Exposure

less than half of the farmers' (48.61%) were using the mass media at low level followed by little more than one fifth (21.67 of them having the mass media exposure at medium level. Relatively low proportion of the farmers' under study area (25.56 %) used no mass media. Very meagre (4.16 %) proportion of the farmers' falls under group having high level of mass media exposure. Thus, the status of mass

media exposure was relatively poor. It is therefore needed to improve the mass media exposure of farmers' in the villages by providing free publications to farmers', also the media should be more involved in promoting stress management strategies on various levels of life stresses in ways that will motivate farmers' to adopt stress management techniques.

6.3.1.21 Extension Contact

The distribution of farmers' according to their extension contact indicated that over half of the farmers' (60.83%) had low contact with various extension agencies for seeking information on stress management on agricultural , personal or family issues followed by nearly one third farmers' (34.17%) who had moderate extension contact. Meagre per cent of farmers' (5.00%) had high extension contact with various extension agencies. It could be inferred that effective policies must address flaws such as access to information and linking farmers' with extension services and farmers' group in order to reach small-holder subsistence farmers'. The social network through farmer-to-farmer extension should be promoted and strengthened to reduce the stress.

6.3.1.22 Expenditure pattern

Results of the analysis shows that large majority of the respondents (86.11%) were found in low level of expenditure pattern up to Rs. 1,99,300/- followed by very few of them 7.78 per cent and 6.11 per cent respondents were observed in high and medium level of expenditure pattern which may be due to inadequate money.

6.3.1.23 Income-Expenditure gap

Distribution of the respondents' according to their income expenditure gape shows that amongst 13.61per cent respondents, there is no gap between annual livelihood income and expenditure that means their livelihood income is fulfill the essential expenditure. While among 86.39 per cent respondents' income expenditure gap is observed that

means their annual income were short for fulfilling the livelihood expenditure of the family.

The gap was noted up to Rs. 15000/- among 35.83 per cent families, whereas Rs. 15001 to 30000/-* among 32.50 per cent respondents and RS. 30001/- to Rs. 60000/- among 0.28 per cent of them. Only 7.78 per cent respondents were having income gap above of Rs. 60,000/-. These findings are in consistent with the findings of Snehalata Borhade (2017) who reported that relatively higher proportion of the farmers were having income-expenditure gap up to Rs. 10,000/-

6.3.1.24 Optimism

The detailed analysis regarding the optimism of the respondents indicated that, maximum number of the respondents (66.39%) were found in medium category of optimism level followed by little less than one fifth of them (19.72%) were falls in low and only 13.89 percent of the respondents were having high optimism level. It indicated that they expressed their optimism on the basis of present situation available with them.

6.3.1.25 Powerlessness

It is indicated from the results that, more than half (56.11%) of the respondents were found in medium level of powerlessness followed by 29.72 per cent of them were in high category of powerlessness and 14.17 per cent of the respondents were in low category of powerlessness.

6.3.1.26 Social Isolation

From the research study it was revealed that more than half (56.38%) of the respondents were found in medium level of social isolation followed by more than one fifth (23.06%) were in category of low social isolation. The respondents slightly more than one fifth (20.56%) were having high level of social isolation. It is indicated that, because of

their busy schedule or low income level they were not interested in social participation.

6.3.1.27 Spirituality

It is indicated from the study that, higher proportion of the respondents (57.50%) were found in medium level of spirituality followed by little more than one fourth of them (20.83%) were in high level of spirituality whereas only 11.67 per cent of the respondents were in low spirituality level.

6.3.1.28 Quality of life

Distribution of the respondents on the basis of quality of life, revealed that little more than half of the respondents (52.78%) found in poor quality of life followed by 38.89 per cent of the respondents who were in the category of medium level of quality of life. Only 8.33 per cent of the respondents were observed in the category of high quality level.

6.3.1.29 Self efficacy

It is evident from the study that, most of the respondents (64.72%) were found in medium category of self efficacy followed by little more than one fourth of them (25.28%) were in low self efficacy level and only one tenth (10.00%) of the respondents were observed in high category of self efficacy.

6.3.1.30 Self esteem

From the findings of the study regarding self esteem of the respondents, revealed that majority of the respondents (71.67%) were in medium level of self esteem followed by 15.55 per cent of them were in high self esteem level whereas only 12.78 per cent of the respondents were found in low category of self esteem.

6.3.2 Farm (occupational) related stressful events

Distribution of the respondents according to farm related stressful events (Occupational stress events) indicated that that more than one third of the respondents (37.50%) were found in medium level of

occupational stress followed by less than one third (30.56%) of them were found in low level of occupational stress whereas slightly less than one fifth (18.33%) of the respondents were in high stress of occupational level stressors. The 10.00 per cent and 03.61 per cent of the respondents were found in no occupational stress level and tremendously high stress category of occupational stress level respectively.

6.3.2.1 Individual level stressful events

From the research study, it is revealed that relatively higher proportion of the respondents were (35.53%) in low stress followed by little more than one fourth (27.22%) of them were found in medium level of stress whereas more than one fifth (22.78%) of the respondents were in no stress. The 11.11 per cent and 3.06 per cent of the respondents were found to having high and tremendously high stress category of personal stress level respectively.

6.3.2.2 Family level stressful events

It is revealed from the research study that less than half of the respondents (44.17%) were in medium level of family stress followed by one fourth (25.00%) of them were found in low level of family stress whereas slightly less than one fifth (19.72%) of the respondents were in no stress of family level stressors. The 6.67 per cent and 04.44 per cent of the respondents were found to be having high and tremendously high stress category of family stress level respectively.

6.3.2.3 Overall stress levels

The findings of the study revealed that in case of overall stress level, more than one third of the respondents (31.94%) were found in medium level of overall stress followed by slightly less than one fourth (24.17%) of them were found in low level of overall stress whereas less than one fifth (18.61%) of the respondents were having high level of overall stress. The 17.50 per cent and 7.78 per cent of the respondents were found in no stress level and tremendously high stress level category respectively.

6.4.1 Concept of stress

It is inferred from the results that large majority of the respondents (89.72%) were don't know about the concept of stress. They were in perception that only negative stress is the stress but when they were aware about the concept of stress, they were understood. Only little more than one tenth (10.28%) were aware about the concept of stress.

6.4.2 Stress Mindset

Distribution of the respondents according to stress mindset levels revealed that majority of the respondents were found in medium stress mindset (72.50%) followed by 16.94 per cent of them were in high stress mindset and nearly one tenth i.e 10.56 per cent of the respondents were observed in low stress mindset level.

6.5 Impact of stress on farmers' behavior

It is revealed that there is definite effect of stress on each and every selected behavioural indicators. The selection of base year for stress was 2011-12. The stresses occurred during the five years span in the life of selected farmers were considered. Table 31 presents that the behavioral indicators such as making habit of eating tobacco, ghutka consumption, an ill temper, feelings helpless and intro-vertness, it was observed per cent change was 144.46 per cent, 140.90 per cent 150.00 per cent, 307.00 per cent and 230.56 per cent with Z values 10.58, 9.98, 9.62, 8.23 and 7.82 respectively whereas In case of the indicators such as such as smoking 85.71 per cent, often annoyed, alcohol consumption, and decreased commitment to work the percent change was observed as 85.71, 157.44, 77.31, and 300.00 percent with Z values, 7.10, 6.71, 5.90 and 5.15 respectively. The per cent change values for the selected indicators of behavior are as 213.33, 68.85, 600.00, 59.72 and 80.00 per cent with Z values 4.29, 3.76, 3.76, 3.52 and 1.07 respectively for the indicators such as difficulty in thinking logically, lose interest in meeting with friends and attending marriages, suicidal thought, over or under eating and rapid speaking respectively.

Dependent variable

6.6 Stress management (Physical and Mental Stress management)

6.6.1. Physical stress management

The findings of the study indicated that relatively higher proportion of the respondents (43.61%) were medium physical stress management level followed by 38.89 per cent of them were poorly manage their stress. Only 17.50 per cent of the respondents were managing their physical stress in good condition. The reason for medium to poor stress management of the respondents might be due to unawareness about the stress management techniques.

6.6.2 Mental stress management

It was revealed from the study that most of the respondents (38.89%) were manage their mental stress at medium level followed by more than one third (35.00%) per of them were poorly manage their mental stress. Whereas little more than one fourth (26.11%) of the respondents were manage their mental stress in good level of category.

6.6.3 Overall stress management

The results indicated that equal proportion of the respondents (37.78%) were manage their physical and mental stress at poor to medium level of category followed by nearly one fourth (24.44%) them were manage their physical as well I as mental stress in good stresss management level. As the respondents were not manage their stress effectively there is need to provide the trainings on stress management for the marginal to semi-medium farmers who are committing suicides. Thus, by providing trainings, regular counseling, establishment of public health centre at each and every village level to solve the problems on personal life stressful events, family related stressful events and occupational related stressful events may help to reduce the suicides of the farmers.

6.6.4 Coefficient of Correlations (Physical and mental management)

out of 29 variables, education, family size, land holding, farming experience, occupational status, annual income, access to credit, health, technology utilization, labour availability, access to market, productivity, access to weather information, optimism, quality of life spirituality, self esteem self efficacy were found to be positively significant to physical stress management at 0.01 level of probability whereas the variables namely, expenditure pattern, powerlessness, social isolation, personal stressors, family stressor and occupational were negatively significant to the physical stress management at 0.01 level of probability. The variables family type, mass media exposure found to be significant positively at 0.05 level of probability to the physical stress management and the variables indebtedness, and extension contact found to be negatively significant at 0.05 level of probability. Only three variables namely, age marital status and social participation shows non significant relationship with the physical stress management.

In case of mental stress management, the variables namely, education, family size, land holding farming experience, occupational status, annual income, access to credit, agricultural infrastructural facilities, health, technology utilization, labour availability, access to market, productivity, mass media exposure, access to weather information, optimism, quality of life spirituality, self esteem and self efficacy were found to be positively and highly significant relationship with mental stress management at 0.01 level of probability whereas, the variables viz., expenditure pattern, indebtedness, powerlessness, social isolation, personal stressors, family stressors and occupational stressors shows highly and negative relationship to the mental stress management at 0.01 level of probability. The variables namely family type, social participation and extension contact shows positive and significant relationship with mental stress management at 0.05 level of probability and the variables age and marital status not showed any relationship with the mental stress.

6.6.5 Coefficient of correlation of selected characteristics of the farmers' with overall stress management

Regarding relational analysis, it is found that, the variables viz., education, family size, land holding, farming experience, occupational status, annual income, access to credit, health, technology utilization, labour availability, access to market, productivity, access to weather information, optimism, quality of life, spirituality, self esteem, self efficacy were found to be positively significant with overall stress management at 0.01 level of probability whereas the variables namely, expenditure pattern, indebtedness, powerlessness, social isolation, personal stressors, family stressor and occupational were negatively significant with the overall stress management at 0.01 level of probability. The variables family type, extension contact were found to be significant positively at 0.05 level of probability with the overall stress management and the variables. Only two variables namely, age and marital status shows no significant relationship with the overall stress management.

6.7 Multiple Regression analysis

6.7.1 Regression analysis of variables influencing overall stress management of the farmers

With a view to find, the significant contributions of independent variables in influencing the stress management of the farmers in Vidarbha, all the selected independent variables were fitted into the simple linear regression model. The result pertaining to the significant contributory factors with their regression coefficient (b), standard error, t value and contribution of each significant variable.

Above mentioned variables were fitted in multiple regression equation the Coefficient of Multiple Determination (R^2) comes to 0.680 and the obtained R^2 value was tested for its significance by computing "F" value and comparing it with "t" table value at n-k-1 degrees of freedom and was found significant. This shows that all these variables contributed 68.00 per cent variation in overall stress management of the selected respondents. It is indicated that R^2 was significant as F was

significant. The 25 independent variables selected for this research jointly explained 68.00 per cent variation in the dependent variable, stress management. Multiple regression analysis showed that out of 30 independent variables selected, 18 variables namely education, family size, land holding, farming experience, occupational status, expenditure pattern, indebtedness, access to market, annual income, health, mass media exposure, optimism, quality of life, powerlessness, social isolation, spirituality, self esteem and self efficacy contributed significantly to the prediction of the dependent variable stress management.

Hence, this research study clears that in study area there is a need to improve the significantly contributed 18 variables in the study area to face various levels of stressors in distress prone districts of Vidarbha by conducting regular trainings and regular counseling of the farmers in the study area of distress prone districts of Vidarbha. Further it is also need to increase the income level of the farmers for increasing their paying capacity/ability, increase the irrigation potential for profitable crop grown and better employment opportunities, new improved technology utilization, good morale strength.

6.8 Constraints faced by the farmers in stress management

The results indicated that, cent percent of the respondents were facing constraints as no irrigation under the farm related constraints. This constraints in stress management might be because if there would availability of irrigation facilities to facilitate the farmers to grow more number of crops in three seasons which may helps to increase the productivity of crops and ultimately helps to increase income from the crop produce again which may help to manage the stress related to financial issues. This was followed by less land holdings reported by 94.72 per cent of the respondents. The constraints encountered by the most of the farmers were Low price returns from farm produce every year (80.33%) insufficient capital availability for purchase of agricultural inputs (78.05%), lack of knowledge about improved farm techniques (70.27%) and uncertainty in farm income due to weather hazards (63.61%) are the

major constraints encountered by most of the respondents farmers. Other constraints related to farm reported by the farmers were in negligible per cent.

In case of personal constraints, with regards to addiction to bad habits, 73.05 per cent of the respondents were reported this constraint followed by lack of knowledge about stress management techniques reported by 64.72 per cent of the respondents whereas, frequent remembrance of painful events were reported by 59.17 per cent of the respondents. Remaining constraints reported by the respondents were in negligible.

6.9 Recommendations of Group Discussions

Recommendations arise from 05 groups discussions under study area suggested that government should draw the weather insurances of every farmer instead of taking premium from them. The farmers' should be made aware about the different aspects of stress management and make them capable to perceive that change for their sustainable livelihood which may further help to improve their quality of life. The possible adaptation measures should be cost effective and feasible. The weather forecasting system should be developed village wise so as to take accurate decisions. Disputes with family are the major reason of stress which was due to weak financial conditions and misbehaviour of the family members hence, Government should start mass program to aware the farmers about brotherhood or importance of family relationship. Secondly, farmers were also reported that to manage or to reduce stress most of the farmers consume alcohol and Ghutkas. Hence, farmers suggested to ban the alcohol and Ghutkas shops specially at village level. Government should fence their field to protect from wild animals In combating stress management, they opined that they should get adequate and timely credits, accurate weather information. They emphasized on developing suitable varieties that can withstand to adverse stress and non shuttering varieties of soybean and mung.

CHAPTER VII

IMPLICATIONS

Implications for action

The study has brought out dreadful picture of the stressful situations. From the study it is revealed that 80.00 per cent of the farmers are in stressful situation which may include farming stress, individual stress or family related stress and stress management of the farmers' under distress districts are in equal proportion (37.78%) of poor and medium stress management levels i.e. more than three fourth of the farmers' are not managing stress properly which leads to depression and suicides of the farmers. It is therefore implicated that extension functionaries should provide oxytocin tablets as per the guidance of psychiatric doctors to the stressful farmers in distress prone area of Vidarbha which will helps to get relax from stress.

In the study area almost all the farmers completely depend on agriculture for their livelihoods in terms of working on their own field or working on others field for their livelihood.

The economic activity is closely linked to the natural resource base and is therefore highly sensitive to stress especially in the absence of irrigation facilities.

The cropping patterns are mainly dominated by cotton and soybean crops and increase in erratic and unreliable rainfall in recent years has substantial impact on crop yields.

Seasonal shifts are confusing farmers' in the important decision on planting time. Wrong decision on this crucial issue has considerable impacts on yields and can even lead to complete crop failure which leads to anxiety and ultimately disturbs the equilibrium at the individual or family life.

Yields were very low in the last couple of years and farmers' reported to look for alternative crops, which support the variable weather better. According to farmers', impacts of pests and pathogens are felt heavily in recent years, which also negatively affected crop yields.

Mainly all the farmers were found indebted not to heavy in general but in the related contest definitely beyond their capability to repay due to non-remunerative farming as their occupation. The production system is too weak and uncertain. For an every new venture and cropping season, the farmers' has to borrow and pileup the burden of debt. Hence, it is necessary to have divergent and sincere extension efforts to help farmers' to come out of this catastrophic situation.

The effectiveness of the recommendations elaborated in the following paragraphs depends upon a strong support from the Government. The livelihoods of farmers' need to have a broad base and should not be restricted solely to the income out of farming activities but wellbeing at their personal as well as family level. There is an urgent need for sensitization of the rural communities about the various schemes of the government for which the extension services need to have more interaction with rural masses in all spheres of life for their happiness.

1. From the findings of the study it is revealed in case of overall stress management level, higher proportion of the farmers (37.78 %) were observed in poor to average stress management levels therefore it is implicated that extension agency should organize the regular stress management training programme in this distress prone area with the guidance of psychiatriic doctors for their happy life. Further Government has to provide the financial support to the extension agencies for organization of stress management training
2. It could be noted that all the respondents in study area were grouped in marginal small and semi-medium category of land holding ranging from up to 1.00 ha to 4.00 ha.,of land, it is also to take a note here that all holdings were rainfed, hence non remunerative. Therefore it

implied that importance of group farming, contract farming, improved technology utilization need to spread among farming community by extension agencies and NGOs, which may helps for increasing income of the farmers .

3. It very cleared from the study that none of the farmers have any sources of irrigation facilities. Hence it tend to imply that Government should make available the irrigation facilities either by providing farm ponds or wells or canal irrigation and State Department of Agriculture should provide the trainings on micro-irrigation technology to the farmers.

Study findings indicated that major group of farmers' have no access to weather information (73.53%). Adequate distribution of information to remote villages through awareness raising campaigns is essential.

Most of the villagers mentioned that they have no access to weather information at village level. Timely and dependable advice on weather conditions would be very helpful to farmer communities to plan their sowing- and other operations.

Weather information exists for the majority of the area. The problem is to bring the information on time in to the isolated villages. Therefore, an effective information dissemination system is needed.

Farmers' need accurate weather forecasts and agro-advisory services, to take vital decisions regarding farming practices. However, until date the Indian Meteorological Department extends its agro-advisory services only up to the district level.

The information often does not reach the end users. Establishing an efficient service delivery system down to the village level is an overwhelming task. However, external agencies can play an important role in supporting these services by including them in their area of their operations. Establishment of mini-agro-met observatories at a

village level would serve the dual purpose of assisting the farmers' and insurance companies.

The present study findings indicates that greater part of the farmers' were in their active and prime age (35 to 50 revealed that during the period of drought as well in excess rains, most of the crop fails, and due to monsoon vagaries farmers' gets extremely low yields of cotton and soybean. the net income of marginal and small and semi-medium land holding farmers' were very less. Literally no money is left for family expenditure and next cropping season; instead the farmers' have to borrow money to repay their pending loans, personal expenditure This study suggests that this situation can be improved, if following interventions are made.

Economic empowerment could be ensured by creating supplementary occupations. This implies that dedicated efforts are needed by respective line departments to involve marginal, small' and semi-medium farmers in sericulture, goat farming, dairy, small dairy unit with one or two milch animals and small poultry units to spread the risks that may be caused due to adversities of situation in their farming as well as in general life situation. Government policies should ensure that farmers' have access to affordable credit to increase their ability and flexibility to change production strategies in response to the forecasted climate conditions. Furthermore, government should improve off-farm income- earning opportunities. There is urgent need to undertake the steps towards awareness increasing programs regarding future unavoidable impacts of stress and strategies to cope with it. Crop failures leads to farmer indebtedness. Coupling debt relief with micro-credit to start new businesses, or insurance to cover initial business risks, can encourage a change of occupation.

The present study pointed out that the farmers' access to overall agriculture infrastructure like inputs, credit, information, transport and post harvest infrastructure availability is at medium level Most of the farmers' depend on external input, that needs initial financial provision

with farmers', but the farmers' in study are dry land cannot save the money from his land expenditure. Hence for every venture they have to borrow money. There is definite scope to improve the situation from medium to high. This study implies the possible interventions to get the better state for farmers' in coping stress.

1. Reduce the dependency of farmers' on external inputs, this can be possible through extensive efforts of extension functionaries, by providing information on input reduction strategies as the use of traditional seeds, important low cost-no cost technologies of farm cultivation to farmers' like use of own seeds, seed treatment, green manuring, vermi-composting, use of bio-fertilizers.
2. Basic infrastructure needs to be improved in all the sectors for making agriculture sustainable. Better road connectivity for greater market access as well as increasing the storage capacity of both food and fodder at local level is urgently needed. One focus has to be in creating seed, food/grain, and fodder and water Banks at community level.-

It is also revealed that the respondents in the study area were observed in having medium level of optimism (66.39%), self efficacy (64.32%), powerlessness (56.11%), social isolation (56.38%), spirituality (56.38%) respectively followed by low quality of life reported by more than half (52.78%). All these are the psychological factors which reflects that the farmers in the study area are psychologically weak . It is therefore implicated that Government has to take efforts to improve the psychological factors of the farmers in the study area by implementing various developmental schemes . Further the line department should organize the frequent training programme to improve the mental status of the farmers of the study area.

Due to erratic rainfall most of the crops fail. Hence it implies that when crops fail continuous for one or two seasons then in this condition Government should give free inputs and complete waiving of interest on old crop loan to farmers in study area.

Cotton was the major crop grown in this region with erratic rains during last decade. So, It is necessary to educate the farmers about cultivation practices of cotton particularly in selection of soil types and application of protective irrigation.

As it is reported from the study that the respondents have family disputes due to which respondents may be in the depression hence it implies that there is a need to motivate farmers to share the problems with other family members or some trusty persons to get the solutions.

There is impact of stress on farmers behavior hence it implicated to that Government has to fix the responsibility to Tanta Mukti personnel with assistance of the local leaders to interfere in the disputes of respondents personal problems by providing counseling to solve the problems of them. Further it is also implicated to ban on alcohol completely.

Implications for future

The implications emanated from the observations of the present study suggest some measures for future research as follows:

Similar studies may be undertaken in other districts of the Maharashtra. It may help to bring out common specific causes and generalization thereupon for wide applications.

As stress and stress management is a complex phenomenon and includes so many things as stated earlier, it may be possible that some important components might have skipped out which may be considered by other research workers in future.

In selected districts of Vidarbha more multidisciplinary research should be encouraged.

The more specific studies on the sectorial basis considering gender, ethnicity and economic conditions of peoples is urgent to validate and document the actual coping strategies to respond to unavoidable impacts of stress.

A feasibility study can be extensively done on the impact of agri-processing industries and value addition for the better livelihoods.

Stress management study can be taken on the suicidal victims family

Multi-location studies may be conducted on causes of stress and its management so that generalization of findings on a wide range would be possible.

There is also a wide scope to study some intrinsic and extrinsic factors that contributes the stress management per cent during 2015-16 compared to 2011-12. Similarly, the area under mung and Udid is also decreased remarkably compared to 2011-12 in the study area.

The area under gram crop was highly increased by 21.00 per cent as compared to 2011-12 and replacing wheat crop and that the area under wheat crop is also decreased in 2015-16 compared to 2011-12.

Productivity analysis of major crops revealed that there is increase in output in most of the major crops include , cotton, jowar, mung,, tur and gram whereas productivity was reduced in crops like , soybean udid, wheat . IPCC, 2007b also projected that yields from rain-fed agriculture could be reduced by up to 50% by 2020. Studies also indicated that the local varieties performed superior under more extreme conditions. Thus, there is a greater need to promote local varieties that can stand better under changing climate scenario.

It is inferred that there was a major shift from crops like wheat to gram in rabi. Plausible reasons as perceived by farmers' were the reduction in the amount of dew, bitterness of cold in recent years and

paucity of water for irrigating the wheat crop. There was shift from kharif crops like mung, urid and jowar to other major crops of kharif that is cotton and soybean. As per farmers' opinion, in current years, the onset of monsoon is not uniform and if these crops are sown late, it give up less yields, similarly most of the times, these crops are trapped in the unpredictable rains at the time of harvest. In case of jowar, continuous rains at maturity stage make the grains black and therefore fetch fewer prices in the market. The crops like cotton, soybean can at least gives sustainable yield and income. According to CIA reports, there is 3% reduction in cotton yields in 2012 due to adverse climate and delayed onset of monsoon. Predicted production of cotton lint is forecasted at 335 lakh bales which is 3% less than the expected.

Analysis of the food grains production/productivity data for the last decade reveals an increase in yield in few crops, whereas in other crops it appears that the negative impact of vagaries of monsoon has been large throughout the period. In this context, a number of questions need to be addressed as to determine the nature of variability of important weather events; particularly the rainfall received in a season/year as well its distribution within the season. These observations need to be coupled to management practices, which are tailored to the climate variability of the region, such as optimal time of sowing, level of pesticides and fertilizer application.

CHAPTER VII

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VITA

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5 Academic qualifications

Sr. No	Degree	Year	Division	University	Subjects
i.	B.Sc. (Agri.)	1995	Second	Dr. PDKV, Akola	Agriculture
ii	M.Sc. (Agril. Extn.)	1997	First	Dr. PDKV, Akola	Extn. Educ.

- 6 Research papers Published : 43
- 7 Field of Interest : Research ,Teaching and Extension Activities

Place : Akola
Date : 05 / 07/ 2018

(Y. B. Shambharkar)
Signature of Student

Yashwanta Baburaoji Shambharkar was born on May, 12, 1971 at Nagpur district. He obtained his B.Sc. (Agri.) degree in the year 1995 from College of Agriculture, Nagpur. In the same year he sought admission in the discipline of Extension Education at Post Graduate institute, Dr. Panjabrao Deshmukh Krishi Vidyapeeth, Akola and obtained M.Sc. (Agri) degree in first division during 1997.

In September, 05, 1997 he was selected as Assistant Field Officer in Maharashtra State Seeds Corporation Ltd Akola popularly known as MAHABEEJ with initial posting at Processing Plant Shivani, Akola. He worked there for 15 days then he posted at Regional office Wardha. He worked there for 6 months. Afterwards, he posted at Nadyal, Dist Kurnool district (Andhra Pradesh) and done the seed production, seed processing and seed marketing activities for 9 years and 6 months. He worked hard their about 10 .years. In meanwhile, he was selected as Assistant Professor in Dr. Panjabrao Deshmukh Krishi Vidyapeeth, Akola and joined University service on 26th September 2007 under Head, Department of Extension Education where he undertook the undergraduate and post-graduate classes. He was awarded three national awards in national seminar and national level essay Competition. He was actively involved in almost every extra-curricular activity of the college including, PG students gathering, National seminar, Shivar Pheri and Grand Agrotech. Under the guidance of Head he brought many innovations in teaching, including Digital Lecture Cds, Digital Display Boards, and Interactive Class Room etc. In 2013-14, he sought his admission for undergoing in-service training leading to Ph.D. (Agril.) degree in the discipline of Extension Education at Post Graduate Institute, Dr. PDKV, Akola. During his nearly 11 years of service in Dr. PDKV, till date, He had received Three 'outstanding' and eight 'very good' remarks in his annual confidential reports. He has published 45 research papers in various research journals of national and international repute, written and published 02 books namely, Entrepreneurship Development and Management and Scaling and Measurement Techniques in Behavioural Science. He was acted as a guest speaker in various state and national level training programmes. Till date has delivered 06 lectures on various topics related to training. Delivered successful duties in more than 33 committees in the capacity of member and secretary and also served as Secretary of Board of Studies for 7 years in the discipline of Extension education and languages. He was prepared teaching schedules and lesson plan for all UG courses as a Secretary, Board of Studies and also acted as member of 23 students in their Advisory Committee of different discipline Agriculture. Till date he guided 20 Post-graduate students.

Yashwanta Baburaoji Shambharkar

APPENDIX - I

Title of Thesis : **STRESS MANAGEMENT OF FARMERS IN DISTRESS PRONE AREA OF VIDARBHA**

Name of Researcher : Shri. Y. B. Shambharkar

INTERVIEW SCHEDULE

Respondent No:

PART-I

Independent variables

A. General information

1. Name of the farmer :
2. Village :
3. Taluka :
4. District :

B. Personal, psychological and socio-economic characteristics

1. **Age** :
2. **Education** :
a) Illiterate b) Functionally illiterate (Can read and Write) c) Primary school (1 – 4th std) d) Middle school (5 – 7th std) e) High school (8 – 10th std) f) College (11th – and above)
3. **Marital status** : Married/unmarried
4. **Family type** : Nuclear/joint
5. **Family size** : No.
6. **Land holding** : -----ha
7. **Farming experience** : ----- Years

8. Occupational status:

Sr. No.	Category
1	Farming +farm labour
2	Farming only
3.	Farming +subsidiary occupation
3	Farming +business
4	Farming +service

9. Expenditure pattern:

Sr. No.	Items	Annual expenditure (Rs.)
1	Food	
2	Education	
3	Housing	
4	Agriculture(Crop cultivation)	
5	Clothing	
6	Health	
7	Travelling	
8	Taxes (House, water)	
9	Electricity charges	
10	Expenditure on religious function (Marriages, Dindi, Bhajni Mandal)	
11	Purchase of recreational items (TV, Radio, Outings)	
12	Purchase of other luxurious items (Motor cycle, Car, purchase of furniture etc)	

10. Annual income :

- a) From agriculture : Rs. _____
- b) From business : Rs. _____
- c) From agro-based subsidiary enterprises : Rs. _____
(like dairy, poultry etc.)
- d) From others (specify) : Rs. _____
- Total : Rs. _____

11. Social participation:

Sr. No.	Formal organization			Informal organization		
	Position	Office bearer	Member	Position	Office bearer	member
1	Grampanchayat/Panchayat Samiti, Zilla Parishad etc.			Bhajni mandal		
2	Service Cooperative			SHGs		
3	ATMA group			Other group		
4	Registered Farmers organizations					

12. **Access to credit** : Access/ No access

13. **Agri. infrastructural facilities** : Input/credit sources / information sources/transport facilities/ post harvest infrastructural facilities etc.

14. Health of respondent /family member

Please tell the name of the diseases suffered from last five years in below categories

Sr. No.	Respondent Suffered from diseases		family member of the respondent suffered from diseases	
		Name of diseases		Name of diseases
1				
	Prolonged diseases		Prolonged diseases	
2	Regular illness		Regular illness	
3	Casual health problem		Casual health problem	

15. **Are you getting crop loan every year** : Yes/No

If yes, then

- a) Sources of crop loan,
 - a.1) Central bank
 - a.2) Cooperative bank
 - a.3) Land development bank
 - a.4) Other bank/society/co-operative

16. Indebtedness

Sources of loan	Extent of borrowing	utilization	Reasons of indebtedness	Repayment of loan

17. **Labour availability** : Available/ not available

18. Technology utilization:

Sl. No.	Items	
1	Type of crop	Cash crop/other crop
2	Type of seed	Certified/truthful/local/own
3	Farm implements type	Tractor drawn/ other
4	Possession of drought animals	Yes/No
5	Manures and fertilizers	Organic/chemical/ both
6	Plant protection	Pesticides/fungicides/both
7	Plant protection equipments	Sprayers/Dusters/Power sprayer
8	Harvesting method	Machine/manually
9	Other please specify	

19. Productivity of major crops

Area under production-----ha, Productivity-----qtls/ha, production-----
-total produce-----qtls

Sl. No	Season	Area	Production	Productivity
1	Kharif			
2	Rabbi			
3	Summer			

20. Market access:

- a) Accessible/Not accessible
- b) Market is approachable----Y/N
- c) Getting good market price-----Y/N

21. Mass media exposure:

Sl. No.	Mass media use	Frequency of use		
		Regular	Occasional	Never
1	News paper reading			
2	Radio listening (Agril. programme)			
3	Watching TV Agril. programme)			
4	Reading farm magazines			
5	Other (specify)			

22. Extension contact:

Sl. No	Contacts	Extent of participation					
		Twice or more in week	Once in a week	Once in fortnight	Once in a month	Whenever problem occurs	Never
1	Personnel of Zilla Parishad						
2	Personnel of Agril., Department						
3	Personnel of Agril., University						
4	Personal of ATMA						
5	Other Ngo's / Private organization						
6	If others, please specify						

22. Access to weather information: Getting regular information/ Sometimes/ Never. Specify the correct and in-correct weather information

23. Optimism (Scale developed by Scheier and Carver 1992)

Sr. No	Statements	Agree	Cannot say	Disagree
1	In uncertain times, I usually expect the best			
2	It's easy for me to relax			
3	If something can go wrong for me, it will. (R)			
4	I'm always optimistic about my future			
5	I enjoy my friends a lot			
6	I hardly ever expect things to go my way. (R)			
7	I don't get upset too easily.			
8	I rarely count on good things happening to me. (R)			
9	Overall, I expect more good things to happen to me than bad			
10	It's important for me to keep busy			

24. Quality of life (Scale developed by Cummins (1997))

Sr. No.	Statements	Agree	Cannot say	Disagree
A	Material			
1	My income is sufficient to fulfill my needs			
2	I have required implements to my field operation			
3	I am satisfied with my house			
B	Health			
4	I am satisfied with my health			
5	I am visiting doctor frequently			
C	Productivity			
6	I have good potential to work in the farm for earning money			
7	I spend my time to achieve more yield/money			
8	I am satisfied with the education of my children			
D	Intimacy			
9	I talk to my friends whenever I am in stress			
10	I joined the functions/parties happened in the village			
11	Whenever I am in stress my family members care me			
E	Safety			
12	I easily fall asleep			
13	I am anxious person to get the things			
14	I am worried person			
15	I feel safe at my home			
F	Place in Community			
16	I am satisfied with the position in my community			
17	Peoples valued me			
18	Peoples ask my advise			

25. Powerlessness: (procedure used by Sao Paulo (2009 with suitable modification)

Sr. No.	Statements	Agree	Cannot say	Disagree
1	I feel I am not capable of making any decision			
2	Nothing I do can change the situation I am in			
3	My mental condition avoid me for making decision			
4	I feel that my opinion have no value			
5	I don't know how to deal with difficulties			
6	I feel sad when I think, I need someone to help me			
7	I feel, there is nothing I can to make the place I am in more pleasant			

26. Social Isolation: (Procedure developed by Biordi and Nicholson 2013 was used)

Sr. No	Statements	Agree	Cannot say	Disagree
	External social isolation			
1	I have regular contact with my neighbours / friends/ relatives			
2	I seek social support from neighbours/ friends/ relatives			
3	I discuss the things with neighbours/ friends/ relatives when I am in stress			
4	I have reciprocity with neighbours/ friends/ relatives			
	Internal social Isolation			
5	I am satisfied with social relationship			
6	I am in feeling of loneliness			
7	I trusted on peoples who are important to me			

27. Spirituality: (Scale developed by Underwood (2011) was used with suitable modifications)

Sl. No.	Statements	Yes	No
1	I feel God's presence		
2	I experience a connection to all of life		
3	During worship, or at other times when connecting with God, I feel joy which lifts me out of my daily concerns		
4	I find strength in my religion or spirituality		
5	I find comfort in my religion or spirituality		
6	I feel deep inner peace or harmony		
7	I ask for God's help in the midst of daily activities		
8	I feel guided by God in the midst of daily activities.		
9	I feel God's love for me directly		
10	I feel God's love for me through others		
11	I am spiritually touched by the beauty of creation.		
12	I feel thankful for my blessings		
13	I feel a selfless caring for others		
14	I accept others even when they do things I think are wrong		
15	I desire to be closer to God or in union with the divine		

28. Self esteem (Scale developed by Rosenberg (1965) with suitable modification)

Sr. No	Statements	Agree	Cannot say	Disagree
1	I feel that I am a person of worth, at least on an equal plane with others			
2	I feel that I have a number of good quality			
3	All in all I am inclined to feel that I am a failure			
4	I am able to do things as well as most of the other people			
5	I feel I do not have much to be proud of			
6	I take a positive attitude towards myself			
7	On the whole I am satisfied with myself			
8	I wish I could have more respect for myself			
9	I certainly feels useless at times			
10	At times I think I am no good at all			

29. Self efficacy: (Scale developed by Roy (2009) was used with suitable modification)

Sr. No.	Statements	Agree	Cannot say	Disagree
1	Everyone knows that I am a successful farmer			
2	People say that I can cultivate well			
3	I can not use all my capacities to be a successful farmer (R)			
4	I have no difficulty to use new agricultural procedures			
5	I am success in dealing with any agricultural problems			
6	I can not grow good amount of crops if I would be away from traditional agricultural practices (R)			
7	Comparing with others, I grow more amount of crops			
8	I am failure in agricultural competition (R)			
9	No one can defeat me in crop production			
10	I can understand any sort of agricultural discussion			
11	I can grow crops whether there would be any drought or heavy shower			
12	To grow good crops, I can do more work			
13	I am proud of being a successful farmer			
14	I imitate good farmers			
15	I brood as how to get good crops			
16	I do not like to think much about less production. (R)			
17	Always I try to remove all troubles in agriculture			
18	If luck favours, there are good amount of crops (R)			
19	I want to find reasons when I get good crops			
20	It is useless to devote much time to think about agriculture (R).			

30. Concept of stress:

Sl.No.	Concept of stress	Correct	In-correct
1	Stress is any external events or internal drive which threatens to upset the organism equilibrium		
2	Stress is negative as well as positive		
3	Stress is always negative		
4	Stress can be sometimes positive.		

31. Stress Mindset measures

Sl.No.	Statements	Agree	Cannot say	Disagree
1	The effects of stress are negative and should be avoided.			
2	Experiencing stress facilitates my learning and growth			
3	Experiencing stress depletes my health and vitality			
4	Experiencing stress enhances my performance and productivity			
5	Experiencing stress inhibits my learning and growth. .			
6	Experiencing stress debilitates my performance and productivity.			
7	The effects of stress are positive and should be utilized			
8	Experiencing stress improves my health and vitality			

PART-II
CAUSES OF STRESS AND STRESS MANAGEMENT
INTERVENING VARIABLE

32. Causes of stress:

32(A). Individual level related stressful events

Sr. No.	Statements	NS	LS	MTS	HS	THS
1	Major decisions being made without my knowledge					
2	I am suffering from regular illness					
3	Being fired at work					
4	I experience major change in financial state					
5	I have to go on changing to a different line of work					
6	According to my expectations the financial condition is far from satisfactory					
7	My ambitions could not be fulfilled					
8	I am ashamed of my profession as my friends are in good profession					
9	I am involved in a major legal dispute					
10	At present I have lost interest in my farming					
11	My family members suffering from a major illness					
12	There is a considerable gap between my values and of the society in which I stay					
13	I am generally isolated from my relatives					
14	My close friends generally avoid me					
15	Socio-economic status of my immediate neighbors is much higher than that of mine					
16	My work is too monotonous					
17	Disputes with neighbor about farm area					
18	Disputes with neighbor about place of house					
19	I have aspirations and qualifications, but the system does not have better positions for me					

(NS-No Stress, LS-Little stress, MTS-Moderately tolerable stress, HS-High stress and THS- Tremendously high stress)

32. (B) Family related stressful events

Sr. No.	Statements	NS	LS	MTS	HS	THS
1	I am unhappy about death of my parent					
2	My son leaved from home					
3	My daughter leaved from home					
4	I have problems in balancing work and family responsibilities					
5	I am in regular disputes with spouse					
6	I am in troubled from my parents					
7	I am in troubled from my father- in-laws					
8	I faced problems with relatives in farm operating agreement					
9	At present, I am pessimistic due to death of spouse					
10	I am divorced person					
11	Death of close family member					
12	Major change in behavior of family member					
13	Taking on mortgage (Home, business)					
14	Separation of parent					
15	My child / Children's academic progress is very far from satisfactory					
16	My relatives are of quarrelling nature					
17	A family member in my house is suffering from an incurable disease (Permanently ill)					
18	I am not finding a suitable match for my daughter/son					
19	I am not finding a suitable match for my son					
20	My child has developed bad habits					
21	My neighbors are in the habit of picking quarrels					
22	Neighbors spread rumors about me					
23	I want to implement several new changes but my family members do not co-operate me					

(NS-No Stress, LS-Little stress, MTS-Moderately tolerable stress, HS-High stress and THS- Tremendously high stress)

32(C). Farm (Occupational) related stressful events

Sr. No.	Statements	NS	LS	MTS	HS	THS
1	Sudden and significant increase in debt load					
2	I faced significant production loss due to pests					
3	I faced significant production loss due to diseases					
4	I have insufficient regular cash flow to meet financial obligations for daily necessities					
5	I compel to make delay in planting/sowing due to bad weather					
6	I have significant production loss due to bad weather					
7	I get low commodity prices					
8	I receive incorrect weather information					
9	machinery breakdown at a critical time					
10	I am worrying about rising expenses					
11	I am not satisfied about Government policies and regulations					
12	My loan request is turned down					
13	Worrying about uncertainty of rains					
14	Increased workload at peak times					
15	I am in trouble of wild animals					
16	Sales peoples are not paying money in time					
17	I experience about frequent crop failure					
18	I am expected to work on the farm as well as manage the house					
19	I am worried about owing money					
20	I am worried about keeping the farm in the family					
21	skilled labour deficiency during peak season					
22	I feel isolated on the farm					

NS-No Stress, LS-Little stress, MTS-Moderately tolerable stress, HS-High stress and THS- Tremendously high stress

PART - III
INTERVENING AND DEPENDENTS VARIABLES

33. Stress Management

33.1 Physical Stress Management

Sr. No.		SA	A	UD	D	SD
A)	Reducing Agril. Stress					
1.	I repair the implements well in advance before to start farm related operation					
2.	I arrange the finance for agricultural expenditure well in advance					
3.	I update and utilize the information about Agricultural inputs like seeds, varieties/hybrids, seed treatment and fertilizers for more production					
4.	I know and adopt the early maturing varieties of crop grown					
5.	I control the pests of the crop grown					
6.	I take the benefit of crop insurance					
7.	I remain update about the information of weather condition.					
8.	I am availing the benefit of Government subsidies, schemes and policies related to agriculture					
9.	I fenced my farm to protect from wild animals					
10.	I use the labour saving devices					
11.	I remain update about the information of rates of commodity from various market					
12.	I adopt the soil and water conservation practices					
B.	Time Management					
13.	I prepare to-do-list					
14.	I set the priorities of work					
15.	I set the deadlines of the work					
16.	I effectively use others in accomplishing work assignments					

17.	I make sure that the other person understands completely, the results I expect when I delegate tasks					
18.	I follow up and maintain accountability for delegated tasks					
C. Relaxation to reduce stress						
19.	I take rest whenever in stress					
20.	I take out time for leisure					
21.	I practice temporary relaxation technique such as deep breathing.					
22.	I know and practice temporary relaxation technique such as muscle relaxation					
D. Diet						
23.	I take balance diet					
24.	I consume more food many times in small quantities					
25.	I eat high fiber diet					
26.	I reduce caffeine and sugar in my diet					
E. Physical exercise to reduce stress						
27.	I go to field by walking					
28.	I maintain a program of regular exercise for fitness such as yoga, cycling etc					
29.	I do the farm operations in the field					
F. Medicinal therapy						
30.	I go to hospital whenever in stress					
31.	I take mood altering drugs					
G. Natural care						
32.	I drink hot water whenever in stress					
33.	I use herbal therapy					
34.	I use aroma therapy					
35.	I take enough sleep (6 to 8 hours)					

(SA-Strongly Agree, A-Agree, UD-Undecided, D-Disagree, SD-Strongly Disagree)

33.2. Mental Stress Management

Sl. No.	Indicators/Items	SA	A	UD	D	SD
I.	Religious/Meditation					
1	I offer prayer daily					
2	I perform meditation daily					
3	I participate in Bhajan activities					
4	I attend the Vippsanna course whenever in stress					
5	I go to temple/church/mosque whenever in stress					
II	Psychotherapy					
6	I remain positive about the happenings in my life					
7	I involve in my family for recreation					
8	I forgive others					
9	I laugh to relive stress					
10	I compromise the issues that stress me					
11	I express my feelings to others instead of bottling them up					
12	I generally avoid painful reminders					
III.	Social support					
13	I like to work in group					
14	I like to attend social gathering					
15	I take counseling from others whenever in stress					
16	I take emotional and instrumental support from other in stressful situations.					
IV	Altering situation					
17	I maintain home well organized					
18	I used to go outside with family whenever in stress					
19	I go to movie/shopping					
V	Reducing Responsibility					
20	I postpone certain tasks					
21	I legitimately avoid disliked tasks					
22	I do the work according to my preference					

VI	Most liked activities					
23	I maintain balance in my life by pursuing a variety of interests outside of work					
24	I watch T.V. whenever in stress					
25	I listen and sings songs whenever in stress					
26	I spend more time in the field with nature					
27	I read books whenever in stress					
28	I keep a pet to reduce stress					
VII	Communicability					
29	I maintain good communication with spouse and other family members in stressful situation					
30	I maintain harmony with spouse and other family members in stressful situation					
31	I maintain good communication with neighbours and friends in stressful situation					
32	I maintain good communication with local leaders and social workers in stressful situation					
IX	Relationship Management					
33	I maintain trustworthy relationship with spouse to share my frustrations					
34	I maintain an open, trustworthy relationship with other family members to share my frustrations					
35	I maintain good relationship with neighbors					
36	I maintain good relationship with Agril. Scientists to get the update knowledge about Agricultural technologies					
37	I maintain good relationship with relatives					
38	I maintain good relationship with friends					
X	Accept the things that can not change					
39	I do not try to control the uncontrollable things					
40	I know everything in this universe is impermanence therefore I am not serious about the adverse conditions in life					

(SA-Strongly Agree, A-Agree, UD-Undecided, D-Disagree, SD-Strongly Disagree)

34. Impact of Stress on farmers' behavior

Sr. No.	Indicators/Items	Response Base Year 2011-12	
		Before stress	After stress
1	Smoking		
2	Alcohol consumption		
3	Ghutka consumption		
4	Rapid speaking		
5	Over eating/Under eating		
6	An ill temper		
7	Often annoyed		
8	Carelessness		
9	Intro-vertness		
10	Difficulty in thinking logically		
11	Decreased commitment to work		
12	Loose interest in meeting with friends and attending marriages		
13	Feeling helpless		
14	Feeling hopeless		
15	Making habit of eating tobacco		
16	Suicidal thoughts		

35. Constraints in stress management (please tell the constraints raised during stress management)

Sl. No.	Constraints
Farm Related Stress	
1	
2	
3	
4	
5	
6	
7	

8	
9	
10	
Personal level constraints	
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	

APPENDIX-II

RELEVANCY PERCENTAGE OF INDIVIDUAL LEVEL RELATED STRESS

Sr. No.	Statements	Relevancy percentage
1	Major decisions being made without my knowledge	77
2	I am suffering from regular illness	81
3	Being fired at work	82
4	I experience major change in financial state	83
5	I have to go on changing to a different line of work	75
6	According to my expectations the financial condition is far from satisfactory	79
7	My ambitions could not be fulfilled	80
8	I am ashamed of my profession as my friends are in good profession	81
9	I am involved in a major legal dispute	82
10	At present I have lost interest in my farming	81
11	My family members suffering from a major illness	83
12	There is a considerable gap between my values and of the society in which I stay	76
13	I am generally isolated from my relatives	77
14	My close friends generally avoid me	77
15	Socio-economic status of my immediate neighbors is much higher than that of mine	78
16	My work is too monotonous	78
17	Disputes with neighbor about farm area	78
18	Disputes with neighbor about place of house	77
19	I have aspirations and qualifications, but the system does not have better positions for me	78
20	Fearing of snake bite	73
21	Having to wear too many hats, eg. farmer, spouse, father, son	72
22	Surface rights negotiation	70
23	I am basically a lazy person so I am happy with few responsibilities	68
24	I end up seeking suggestions from my colleagues due to my in-experience	73
25	My work does not suit my ability	72

APPENDIX-III

'T' VALUE OF INDIVIDUAL LEVEL (PERSONAL) RELATED STRESS

Sr. No.	Statements	't' value
1	Major decisions being made without my knowledge	1.80
2	I am suffering from regular illness	5.81
3	Being fired at work	6.32
4	I experience major change in financial state	7.22
5	I have to go on changing to a different line of work	4.21
6	According to my expectations the financial condition is far from satisfactory	4.19
7	My ambitions could not be fulfilled	3.23
8	I am ashamed of my profession as my friends are in good profession	5.20
9	I am involved in a major legal dispute	6.22
10	At present I have lost interest in my farming	6.18
11	My family members suffering from a major illness	7.19
12	There is a considerable gap between my values and of the society in which I stay	3.27
13	I am generally isolated from my relatives	3.21
14	My close friends generally avoid me	3.21
15	Socio-economic status of my immediate neighbors is much higher than that of mine	3.89
16	My work is too monotonous	3.82
17	Disputes with neighbor about farm area	3.82
18	Disputes with neighbor about place of house	3.23
19	I have aspirations and qualifications, but the system does not have better positions for me	3.82

APPENDIX-IV

RELEVANCY PERCENTAGE OF FAMILY RELATED STRESS

Sr. No.	Statements	Relevancy Percentage
1	I am unhappy about death of my parent	79
2	My son leaved from home	81
3	My daughter leaved from home	83
4	I have problems in balancing work and family responsibilities	80
5	I am in regular disputes with spouse	84
6	I am in troubled from my parents	76
7	I am in troubled from my father- in-laws	77
8	I faced problems with relatives in farm operating agreement	78
9	At present, I am pessimistic due to death of spouse	85
10	I am divorced person	85
11	Death of close family member	81
12	Major change in behavior of family members	83
13	Taking on mortgage (Home, business)	75
14	Separation of parent	77
15	My child / Children's academic progress is very far from satisfactory	76
16	My relatives are of quarrelling nature	78
17	A family member in my house is suffering from an incurable disease (Permanently ill)	81
18	I am not finding a suitable match for my daughter	82
19	My child has developed bad habits	83
20	My neighbors are in the habit of picking quarrels	78
21	Neighbors spread rumors about me	77
22	I want to implement several new changes but my family members do not co-operate me	79
23	Relatives have no respect towards my profession	74
24	My work does not suit my ability	73
25	My spouse is dissatisfied about my profession	74
26	Major changes with number of arguments	74

APPENDIX-V

‘T’ VALUE OF FAMILY RELATED STRESS

Sr. No.	Statements	‘t’ value
1	I am unhappy about death of my parent	1.83
2	My son leaved from home	5.29
3	My daughter leaved from home	7.01
4	I have problems in balancing work and family responsibilities	6.31
5	I am in regular disputes with spouse	7..22
6	I am in troubled from my parents	3.21
7	I am in troubled from my father- in-laws	3.22
8	I faced problems with relatives in farm operating agreement	3.22
9	At present, I am pessimistic due to death of spouse	7.22
10	I am divorced person	7.22
11	Death of close family member	6.18
12	Major change in behavior of family member	7.10
13	Taking on mortgage (Home, business)	2.89
14	Separation of parent	1.93
15	My child / Children’s academic progress is very far from satisfactory	1.80
16	My relatives are of quarrelling nature	3.24
17	A family member in my house is suffering from an incurable disease (Permanently ill)	3.18
18	I am not finding a suitable match for my daughter	5.89
19	My child has developed bad habits	6.20
20	My neighbors are in the habit of picking quarrels	2..86
21	Neighbors spread rumors about me	2.97
22	I want to implement several new changes but my family members do not co-operate me	7.11

APPENDIX-VI

RELEVANCY PERCENTAGE OF FARM (OCCUPATIONAL) RELATED STRESS

Sr. No.	Statements	Relevancy percentage
1	Sudden and significant increase in debt load	85
2	I faced significant production loss due to pests	81
3	I faced significant production loss due to diseases	80
4	I have insufficient regular cash flow to meet financial obligations for daily necessities	85
5	I compel to make delay in planting/sowing due to bad weather	80
6	I have significant production loss due to bad weather	82
7	I get low commodity prices	83
8	I receive incorrect weather information	81
9	machinery breakdown at a critical time	79
10	I am worrying about rising expenses	84
11	I am not satisfied about Government policies and regulations	83
12	My loan request is turned down	85
13	Worrying about uncertainty of rains	83
14	Increased workload at peak times	84
15	I am in trouble of wild animals	85
16	Sales peoples are not paying money in time	79
17	I experience about frequent crop failure	80
18	I am expected to work on the farm as well as manage the house	75
19	I am worried about owing money	78
20	I am worried about keeping the farm in the family	77
21	skilled labour deficiency during peak season	76
22	Keeping up with new Agril., technology	71
23	Having to travel long distance for services like repairs, shopping and health care	70
24	Feeling isolated on the farm	70
25	Unplanned interruptions	74
26	Worrying about health of livestock	73
27	Government cheap food policy	74
28	Reproductive difficulties with livestock	74
29	Government trade policies	74

APPENDIX-VII

‘T’ VALUE OF FARM (OCCUPATIONAL) RELATED STRESS

Sr. No.	Statements	‘t’ value
1	Sudden and significant increase in debt load	7.22
2	I faced significant production loss due to pests	7.10
3	I faced significant production loss due to diseases	6.12
4	I have insufficient regular cash flow to meet financial obligations for daily necessities	7.22
5	I compel to make delay in planting/sowing due to bad weather	6.01
6	I have significant production loss due to bad weather	6.30
7	I get low commodity prices	5.99
8	I receive incorrect weather information	4.81
9	machinery breakdown at a critical time	3.21
10	I am worrying about rising expenses	6.29
11	I am not satisfied about Government policies and regulations	6.22
12	My loan request is turned down	7.22
13	Worrying about uncertainty of rains	6.13
14	Increased workload at peak times	6.29
15	I am in trouble of wild animals	7.22
16	Sales peoples are not paying money in time	3.25
17	I experience about frequent crop failure	3.16
18	I am expected to work on the farm as well as manage the house	1.80
19	I am worried about owing money	2.97
20	I am worried about keeping the farm in the family	2.83
21	skilled labour deficiency during peak season	2.84

APPENDIX –VIII

STRESS MANAGEMENT

1. Physical stress management

Relevancy percentage of Physical stress management

Sr. No.	Items/indicators	Relevancy percentage
A	Reducing Agricultural stress	
1.	I repair the implements well in advance before to start farm related operation	79
2.	I arrange the finance for agricultural expenditure well in advance	83
3.	I update and utilize the information about Agricultural inputs like seeds, varieties/hybrids, seed treatment and fertilizers for more production	82
4.	I know and adopt the early maturing varieties of crop grown	81
5.	I control the pests of the crop grown	83
6.	I take the benefit of crop insurance	84
7.	I remain update about the information of weather condition.	82
8.	I am availing the benefit of Government subsidies, schemes and policies related to agriculture	80
9.	I fenced my farm to protect from wild animals	84
10.	I use the labour saving devices	79
11.	I remain update about the information of rates of commodity from various market	84
12.	I adopt the soil and water conservation practices	81
B	Time Management	
13.	I prepare to-do-list	82
14.	I set the priorities of work	83
15.	I set the deadlines of the work	79
16.	I effectively use others in accomplishing work assignments	81
17.	I make sure that the other person understands completely, the results I expect when I delegate tasks	80

18.	I follow up and maintain accountability for delegated tasks	78
C	Relaxation to reduce stress	
19.	I take rest whenever in stress	83
20.	I take out time for leisure	78
21.	I practice temporary relaxation technique such as deep breathing.	75
22.	I know and practice temporary relaxation technique such as muscle relaxation	78
D	Diet	
23.	I take balance diet	83
24.	Eating less	74
25.	I consume more food many times in small quantities	81
26.	I eat high fiber diet	82
27.	I reduce caffeine and sugar in my diet	84
E	Physical exercise to reduce stress	
28.	I go to field by walking	85
29.	I maintain a program of regular exercise for fitness such as yoga, cycling etc	84
30.	I do the farm operations in the field	85
31.	Swimming	74
E	Medicinal therapy	
32.	I go to hospital whenever in stress	81
33.	Smoking	74
34.	Consumption of alcohol	72
35.	I take mood altering drugs	84
36.	Shock therapy	74
F	Natural care	
37.	I drink hot water whenever in stress	77
38.	I use herbal therapy	78
39.	I use aroma therapy	76
40.	I use colour therapy	73
41.	I take enough sleep (6 to 8 hours)	84

APPENDIX-IX

‘T’ VALUE OF PHYSICAL STRESS MANAGEMENT

Sr. No.	Items/indicators	‘t’ value
A	Reducing Agricultural stress	
1.	I repair the implements well in advance before to start farm related operation	3.22
2.	I arrange the finance for agricultural expenditure well in advance	7.62
3.	I update and utilize the information about Agricultural inputs like seeds, varieties/hybrids, seed treatment and fertilizers for more production	6.91
4.	I know and adopt the early maturing varieties of crop grown	5.99
5.	I control the pests of the crop grown	6.82
6.	I take the benefit of crop insurance	7.21
7.	I remain update about the information of weather condition.	6.18
8.	I am availing the benefit of Government subsidies, schemes and policies related to agriculture	5.55
9.	I fenced my farm to protect from wild animals	7.01
10.	I use the labour saving devices	3.33
11.	I remain update about the information of rates of commodity from various market	6.93
12.	I adopt the soil and water conservation practices	5.23
B	Time Management	
13.	I prepare to-do-list	4.89
14.	I set the priorities of work	5.96
15.	I set the deadlines of the work	3.21
16.	I effectively use others in accomplishing work assignments	4.15
17.	I make sure that the other person understands completely, the results I expect when I delegate tasks	4.82
18.	I follow up and maintain accountability for delegated tasks	2.80
C	Relaxation to reduce stress	

19.	I take rest whenever in stress	7.97
20.	I take out time for leisure	3.12
21.	I practice temporary relaxation technique such as deep breathing.	1.81
22.	I know and practice temporary relaxation technique such as muscle relaxation	2.84
D	Diet	
23.	I take balance diet	6.23
24.	I consume more food many times in small quantities	4.22
25.	I eat high fiber diet	4.89
26.	I reduce caffeine and sugar in my diet	7.86
E	Physical exercise to reduce stress	
27.	I go to field by walking	7.97
28.	I maintain a program of regular exercise for fitness such as yoga, cycling etc	6.12
29.	I do the farm operations in the field	7.18
E	Medicinal therapy	
30.	I go to hospital whenever in stress	4.17
31.	I take mood altering drugs	6.25
F	Natural care	
32.	I drink hot water whenever in stress	1.80
33.	I use herbal therapy	2.83
34.	I use aroma therapy	2.82
35.	I use colour therapy	2.19
36.	I take enough sleep (6 to 8 hours)	6.91

APPENDIX-X

RELEVANCY PERCENTAGE OF MENTAL STRESS MANAGEMENT

Sl. No.	Indicators/Items	Relevancy percentage
I.	Religious/Meditation	
1	I offer prayer daily	82
2	I perform meditation daily	81
3	I participate in Bhajan activities	84
4	I attend the Vippsanna course whenever in stress	75
5	I go to temple/church/mosque whenever in stress	81
6	Chanting mantras	74
II	Psychotherapy	
7	I remain positive about the happenings in my life	80
8	I involve in my family for recreation	81
9	I forgive others	75
10	I laugh to relive stress	76
11	I compromise the issues that stress me	79
12	I express my feelings to others instead of bottling them up	81
13	I generally avoid painful reminders	78
14	Cry to relieve stress	74
III.	Social support	
15	I like to work in group	76
16	I like to attend social gathering	77
17	I take counseling from others whenever in stress	84
18	I take emotional and instrumental support from other in stressful situations.	85
IV	Altering situation	
19	I maintain home well organized	75
20	I used to go outside with family whenever in stress	82
21	I go to movie/shopping	75
V	Reducing Responsibility	
22	I postpone certain tasks	84

23	I legitimately avoid disliked tasks	82
24	I do the work according to my preference	81
VI	Most liked activities	
25	I maintain balance in my life by pursuing a variety of interests outside of work	77
26	I watch T.V. whenever in stress	76
27	I listen and sings songs whenever in stress	76
28	I spend more time in the field with nature	79
29	I read books whenever in stress	80
30	I keep a pet to reduce stress	78
VII	Communicability	
31	I maintain good communication with spouse and other family members in stressful situation	84
32	I maintain harmony with spouse and other family members in stressful situation	83
33	I maintain good communication with neighbours and friends in stressful situation	81
34	I maintain good communication with local leaders and social workers in stressful situation	77
IX	Relationship Management	
35	I maintain trustworthy relationship with spouse to share my frustrations	85
36	I maintain an open, trustworthy relationship with other family members to share my frustrations	83
37	I maintain good relationship with neighbors	78
38	I maintain good relationship with Agril. Scientists to get the update knowledge about Agricultural technologies	
39	I maintain good relationship with relatives	77
40	I maintain good relationship with friends	81
X	Accept the things that can not change	
41	I do not try to control the uncontrollable things	80
42	I know everything in this universe is impermanence therefore I am not serious about the adverse conditions in life	83

APPENDIX-XI

‘T’ VALUE OF MENTAL STRESS MANAGEMENT

Sl. No.	Indicators/Items	‘t’ value
I.	Religious/Meditation	
1	I offer prayer daily	7.01
2	I perform meditation daily	6.23
3	I participate in Bhajan activities	7.97
4	I attend the Vippsanna course whenever in stress	2.80
5	I go to temple/church/mosque whenever in stress	3.99
II	Psychotherapy	
6	I remain positive about the happenings in my life	2.82
7	I involve in my family for recreation	3.65
8	I forgive others	2.80
9	I laugh to relive stress	1.80
10	I compromise the issues that stress me	3.36
11	I express my feelings to others instead of bottling them up	4.31
12	I generally avoid painful reminders	2.86
III.	Social support	
13	I like to work in group	1.80
14	I like to attend social gathering	2.87
15	I take counseling from others whenever in stress	7.51
16	I take emotional and instrumental support from other in stressful situations.	7.97
IV	Altering situation	
17	I maintain home well organized	2.80
18	I used to go outside with family whenever in stress	3.69
19	I go to movie/shopping	2.83
V	Reducing Responsibility	
20	I postpone certain tasks	6.49
21	I legitimately avoid disliked tasks	5.62

22	I do the work according to my preference	4.22
VI	Most liked activities	
23	I maintain balance in my life by pursuing a variety of interests outside of work	2.96
24	I watch T.V. whenever in stress	2.81
25	I listen and sings songs whenever in stress	2.84
26	I spend more time in the field with nature	3.76
27	I read books whenever in stress	4.19
28	I keep a pet to reduce stress	2.89
VII	Communicability	
29	I maintain good communication with spouse and other family members in stressful situation	7.16
30	I maintain harmony with spouse and other family members in stressful situation	6.25
31	I maintain good communication with neighbours and friends in stressful situation	5.61
32	I maintain good communication with local leaders and social workers in stressful situation	4.88
IX	Relationship Management	
33	I maintain trustworthy relationship with spouse to share my frustrations	6.92
34	I maintain an open, trustworthy relationship with other family members to share my frustrations	6.51
35	I maintain good relationship with neighbors	2.84
36	I maintain good relationship with Agril. Scientists to get the update knowledge about Agricultural technologies	
37	I maintain good relationship with relatives	2.87
38	I maintain good relationship with friends	3.59
X	Accept the things that can not change	
39	I do not try to control the uncontrollable things	2.93
40	I know everything in this universe is impermanence therefore I am not serious about the adverse conditions in life	6.12