STRESS MANAGEMENT BY THE FARMERS IN RANCHI DISTRICT OF JHARKHAND

काशी हिन्दू विश्वविद्यालय

BANARAS HINDU UNIVERSITY

THESIS SUBMITTED IN PARTIAL FULFILMENT OF REQUIREMENTS FOR DEGREE OF

Master of Science (Agriculture)
In
Extension Education

Supervisor

Prof. B. Jirli

Submitted By

Jasmine Kerketta

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CERTIFICATE

To,
The Registrar (Academic)
Banaras Hindu University,
Varanasi-221005 (India).

Through: The Head, Department of Extension Education,
Institute of Agricultural Sciences,
BHU, Varanasi, 221005.

Dear Sir,

I have great pleasure in forwarding the thesis entitled **"Stress Management by the Farmers in Ranchi District of Jharkhand"** submitted by **Ms. JASMINE KERKETTA**, **I.D. No. 18412EXE004, Enrollment No. 406637** in partial fulfillment of the requirements for the degree of **Master of Science (Agriculture)** in **Extension Education**, Institute of Agricultural Sciences, Banaras Hindu University, Varanasi (U.P.) and placing on record that she has completed the requisite residential requirements as contained in the statutes of the university.

I certify that the entire scheme of investigation presented herein was planned and carried out solely by the candidate under my guidance and supervision. The data presented in thesis, to the best of my knowledge and belief, are genuine and original.

Thanking you,

Yours faithfully,

FORWARDED

(B. Jirli)
Supervisor

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EXTERNAL EXAMINER :

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Great thanks to all.

Date: ***(Jasmine Kerketta)***

Place: Varanasi

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LIST OF SYMBOLS AND ABBREVIATIONS

%	Percentage
f	Frequency
et al	And others
etc	Et cetera
i.e	That is
S.D	Standard Deviation
KCC	Kisan credit card
NCRB	National Crime Records Bureau
Rs	Rupees
Ha	Hectare
NGOs	Non-governmental organizations

Chapter-I

INTRODUCTION

Farmers are under a lot of stress as they try to strike a balance between farm and off-farm labour, and they may find it difficult to make the farm self-sufficient. Many people believe farming is a stress-free, healthier, and more financially secure way of life. In recent years, however, farming has become one of the most stressful occupations. In many rural communities, stress-related ailments account for numerous doctor visits. An opportunity, demand, constraint, threat, or challenge can cause stress when the event's result is both significant and uncertain (Lazarus & Cohen, 1977). Due to hazardous settings and other physical, biological, chemical, psychological, and sociological aspects, farming is currently one of the most hazardous professions in terms of injuries and diseases. A farmer has little control over many of the elements that affect the viability of his or her farm. The things we can't control are often the things that give us the most worry.

According to the National Centre for Farm Health, Australia (2016) following are some of the things that might cause stress on the farm:

- Long working hours
- disagreements with other family members in the farm operation
- Uncertain crop yields and fodder production
- Machinery breakdowns
- Handling dangerous goods e.g. farm chemicals
- Government regulations and complicated paper work
- The weather
- Increased input costs
- Large debt loads
- Livestock health
- Erratic markets

Farmers' stress levels rise when rural towns undergo transformation. Some decline, with fewer services accessible, while others see their environment transformed by urban development and mining. These farmers seek to fill the gaps so that their communities may continue to operate. The high-stress farm environment has a direct impact on rural populations.

1.1 What is stress?

Stress is the psychological, physiological and behavioural response by an individual when they perceive a lack of equilibrium between the demands placed upon them and their ability to meet those demands, which, over a period of time, leads to ill-health Palmer (1989).

Stress is the human response to any perceived change that poses a challenge or hazard. Changes that generate anxiety, irritation, and turmoil and that appear to be beyond our control can lead to stress. People's stress levels are mostly determined by their attitudes, perceptions, and interpretations of occurrences.

1.2 Effects of stress

Too much stress alters our thought processes. We might get tunnel vision and struggle to explore choices. We become threat-centric. We may become more irritated, sceptical, and prone to perceive social encounters as criticism or ridicule. We have trouble controlling our rage.

The modern way of life has brought with it not only an unlimited number of methods to be comfortable, but also a great number of needs that strain the body and mind. Stress is becoming the great equaliser in today's culture, since it affects individuals of all socioeconomic levels equally and is a widely discussed issue. Its principal victims are not confined to only high-pressure CEOs, but also manual labourers, slum dwellers, working women, entrepreneurs, professionals, farmers, and even children. Due to the increasing complexities of modern life and the heightened level of rivalry between people's living standards, stress is an inevitable and unavoidable component of daily life. The dizzying and mind-boggling rate of change that is occurring in the modern world is certain to take one's lives. Even individuals who work in difficult occupations are not immune to the consequences of stress in

today's fast changing environment. Everyone experiences stressful situations, whether in their personal life, professional lives, academic lives, employment, or other social or economic endeavors. Everyone hopes they could live a life devoid of stress, since stress has become the major source of concern in their lives. Stress is difficult to ignore as a topic of conversation. Everyday existence is always burdened with stress. Everyone, without exception, is either consciously or unconsciously susceptible to stress's effects. I would venture to argue that stress, formerly considered alien to the Indian way of life, is now a major health risk.

It is difficult to exactly characterize stress. Selye Hans originally proposed the notion of stress to the life sciences in 1936. It was taken from the Latin word 'stringere'; signified physical suffering, hunger, agony, and anguish. Stress was described by Selye Hans in 1936 as "the non-specific response of the organism to any demand." In addition, stress was defined as "any external event or internal force that threatens to disrupt the organism's homeostasis" (Selye Hans, 1956). According to another definition provided by Stephen Robbins (1999), stress is "a dynamic scenario in which a person is presented with an opportunity, limitation, or threat."

The demand associated with what he or she wants and for which the outcome is regarded to be both unpredictable and significant. All sorts of courses are currently concerned about stress. However, there is little question that certain occupations have suffered worse than others. The transactional view of stress (Lazarus and Folkman, 1984) stresses the roles of "cognitive assessment" and "coping reactions." A stressful transaction begins with a primary cognitive assessment, which a circumstance demands as an effective reaction to prevent or decrease bodily or psychological threat or injury, followed by a secondary cognitive evaluation indicating that no entirely effective answer is available immediately. No event or circumstance is inherently stressful. It only becomes a source of stress when the targeted individual evaluates it as a threat that exceeds his or her ability to handle it. By virtue of his cognitive evaluations and stress management, the individual provides the optimal reaction and actively defines and moulds stressful interactions. This is the reason why different people react differently to the same scenario or experience.

Stress is a personal, subjective sensation that varies from person to person. Stress impacts not only our physical but also our mental health. Individuals can learn to relax and enjoy life in order to effectively handle everyday stress. The greatest method for managing stress is prevention. This may not always be achievable. Therefore, the next best thing is to eliminate stress and simplify life. Stress refers to any environmental, organisational, individual, or psychological challenges that compel a person to alter his or her typical behaviour. Stress is a consequence of events or circumstances that have the ability to bring about change. Stressors are stimuli or situations that can lead to the perception of stress. There are three primary causes of stress: the environment, the individual, and the organisation. Environmental stress is not just produced by job-related variables, but also by environmental or outside of the person's job.

Individuals experience stress as a result of their interactions with external stimuli or elements, such as social or technical developments, political and economic uncertainty, financial status, communal circumstances, etc. Individuals carry the stress they encounter in one context into another, so intensifying the stress and causing it to spread to others.

1.3 Not all stress are bad

When we are anticipating a significant event in our life, we experience anticipation. Anticipation aids in mental and physical preparation for a job. Stress is not only detrimental. Occasionally, it may also bring out the best in someone. It may motivate a person to find inventive and more efficient solutions. This beneficial aspect of stress is known as enstress. Eustress enables us to labour long hours to complete a task. Eustress sustains the farmers during planting, harvesting, shearing, and calving.

1.4 Distress

Stress typically has a negative connotation, and this negative part of stress is known as distress. Distress develops when we experience elevated levels of stress for an extended length of time. Stress may be detrimental to both our physical and emotional health. Our bodies become geared up with nowhere to go after experiencing persistent anguish for months or years. High amounts of adrenaline and other stress hormones, such as cortisol, which are produced as a short-term reaction to stress, are

hazardous when they persist without respite. The consequences might include high blood pressure, heart disease, a weaker immune system, and detrimental effects on our mental health.

It is fascinating to see that tension has two faces. It is an excellent servant, but a poor master. In other words, it might be one's greatest ally or worst foe. Success requires a certain level of tension, but excessive stress is distressing. Although we commonly associate stress with external occurrences, events themselves are not unpleasant. Rather, events are stressful because of how individuals understand and respond to them. Stress is experienced differently by various individuals. If two individuals feel the same level of stress or pressure, one may see it as good or healthy, while the other may interpret it as bad. Anger, anxiety, despair, anxiousness, irritability, tension, and load may accompany mental stress.

Stress may be short-term or long-term, minor or severe, depending mostly on its duration, intensity, and the individual's healing capabilities. However, serious stress difficulties persist over a long period of time, and as a result, many individuals succumb to severe depression and commit suicide.

1.5 Signs of stress

Different people react to stress differently. However, Signs of stress can manifest as physical, emotional, and behavioural changes, depending on the individual and environment.

Some of the symptoms may be :

- **Physical :** Headaches, stomach troubles (constipation or diarrhoea), chest pain, changes in heart rate and blood pressure, chewing/grinding teeth, fatigue, alteration in sexual interest, procrastination, impulsive buying/gambling
- **Emotional :** Increased aggressive outbursts, frustration , impatience, difficulty regulating one's emotions, low self-esteem, depression, thoughts of committing suicide, poor temperament, ignoring your existing health problems
- **Behavioural :** Overeating/Diet Neglect, increased smoking and alcohol consumption, change in sleeping patterns, difficulty calming down;

restlessness/lack of focus, isolated from others, difficulty adjusting to shifting conditions, forgetfulness, sarcastic arguments

It is important to study the stress level of farmers because farmers are typically reluctant to seek assistance for themselves, despite their willingness to aid others. The tendency is to not publicly discuss difficulties or request assistance until the situation is dire. Stress is incurable, but it can be managed. A farmer cannot control external influences that impact the farm and family, but he or she may manage stress.

1.6. Need and importance of the study

In recent decades, Jharkhand's agricultural systems have witnessed a significant transition. Many agricultural practises of the past, which arose in response to particular geographical and climatic conditions, are being supplanted by innovations created elsewhere. Farmers lose control over their seed and must acquire hybrid seeds and the necessary fertilisers and pesticides each year as a result of hybrid varieties. Family members go to work as labour to earn the cash revenue essential for input-intensive agriculture, but also due to the lack of development of off-farm job opportunities. Children are transported to cities and towns for education. Consequently, the village's agricultural labour decreases, and community support systems become more challenging to maintain. In the intellectual sphere, popular culture promotes an image of rural life and farming as "backward" compared to "modern" city life. Not only does this disregard the significance of the agricultural sector to the nation as a whole, but it also disregards and devalues the expertise and abilities of farmers, rendering this profession unattractive, especially to young people. Nationwide farmer demonstrations in 2017 have served to bring the plight of farmers to the forefront of public attention; nonetheless, the legacy of government negligence toward farmers is firmly established.

In 2017, the news reported a number of farmer suicides in Jharkhand, but they were less in number than in other states. In 2021 according to the NSSO statistics report, number of suicide increased by 25% in Jharkhand. Farmer Kaleshwar Mahto, 44, committed himself in June 2017 owing to the stress of being unable to repay a 2011-12 loan for 40,000 rupees acquired in his wife's name with a Kisan Credit Card (KCC); the loan's value had increased to 61,000 rupees at the time of his death. Baldeo Mahto, also from Pithoria block in Ranchi, who had a bank loan and a KCC loan of

25,000 rupees, committed himself three days later.

It is a truth that stress is one of the factors or causes that prompted farmers to commit suicide. However, if farmers have the capacity to adapt to difficult conditions or the expertise to handle them, they will be able to increase their yields. In order to determine the extent to which farmers in Ranchi handle their stress, the present study has been conducted. The results of this study will aid in resolving suicide issues and stress management measures. This research was conducted to evaluate the farmers' stress management in a region of Ranchi prone to economic distress.

1.7 Statement of Problem

On the 15th June, 2021 issue of *The Prime*, "Despite the importance of agriculture in India, there is no standardised measure of farmers' distress. Suicides are the most often sign of farmers' distress." According to the National Crime Records Bureau (NCRB), 10,269 farmers committed suicide in 2019, with heavy debt or the inability to repay loans being the most often cited causes (NCRB 2015 and 2019). The majority of this debt was incurred through bank and other financial institution loans.

Farming in India is among the most stressful professions in the nation due to high levels of resource deprivation, poor and unprofitable farming, ongoing battles with variable commodity prices, rising input costs, and intense and unpredictable effects of weather and climatic changes. This includes farmers in all category whether they are large or small, high income or less income, they are in distress. This implies the farmers are in huge stress which leads them to the extreme step of taking their own life. If government are supporting our farmers in order to increase their standard of living why their distress are only heard after they committed suicide? The purpose of this study is to detect what are the different personal, Social, psychological reasons which causes stress in farmers and whether the farmers are able to manage their stress level. If yes, how they physically and mentally they manage their stress.

1.8 Objectives of the study:

(i) To study the personal, socio-economic, situational and psychological characteristics of the farmers.

(ii) To assess stressful events among the farmers.

(iii) To assess stress management by the farmers.

(iv) To study the relationship between selected characteristics with stress management of the farmers

1.9 Scope and limitation of the study :

The study titled "Personal, socio-economic, communicational, situational, and psychological causes of stress of farmers in distress-prone area Ranchi District" seeks to identify the multiple stressors/causes that contribute to the accumulation of various risk factors in a single victim. It will aid in reaching some solid conclusions on the causes and determinants of stress and its management in the agricultural community of the Ranchi Distict's distress-prone area. It will provide information on the link between various personal, socioeconomic, communicative, situational, and psychological features of stressed farmers.

Due to the researcher's lack of time and resources, the present study is restricted to the Ranchi district of Jharkhand. The diagnostic is limited to only 120 farmers, hence the results of this study could not be generalized on a larger basis. Therefore, the generalisations formed from the data are relied only on the respondents' honesty and capacity to recall the material. The results of the study are focused on the verbal expressions and reactions of the farmers.

1.10 Hypothesis :

Taking into account the findings of several research studies, the assumed nature of the link between variables was determined, and research hypotheses were formulated on various areas of the study in accordance with its aims. The null hypothesis is stated in the form H_o.

H_o = There is no relationship between the selected profile of the characteristics of the respondents with physical and mental stress management.

H_1 = There is relationship between the selected profile of the characteristics of the respondents with physical and mental stress management.

Chapter-II

REVIEW OF LITERATURE

A process as well as its end result, a literature review can be thought of as both. The method entails searching for information relating to the topic in order to become acquainted with the pertinent research and to discover flaws and gaps in the research. A literature review is the process of summarising, synthesising, and/or evaluating the literature discovered through a literature search. It may provide as context or backdrop for a primary research effort.

Scholars, economic theorists, and policy-markets have extensively investigated and evaluated the occurrence of stress among farmers in the Indian economy. Economists have produced a substantial quantity of research evaluating the consequences of the green revolution on the income, consumption, indebtedness, and variables influencing the indebtedness of farmers. Many studies have analysed the various factors of farmer stress.

The review of literature has been presented is as follows :

2.1 The personal characteristics of the farmers

2.1.1 Age

2.1.2 Gender

2.1.3 Education

2.1.4 Family type and family size

2.2 Socio-economic characteristics of the farmers

2.2.1 Land holdings

2.2.2 Occupational status

2.2.3 Marital status

2.2.4 Annual income and expenditure pattern

2.2.5 Extension contact

2.1 The personal characteristics of the farmers

2.1.1 Age

Salunkhe *et al.* (2009), in his study to examine the personal characteristics, socio-economic features, psychological characteristics, and situational characteristics of Beneficiaries and Agro-Service Providers in the State of Gujarat the vast majority of agro-service providers as well as beneficiaries belonged to the middle age group.

Tandekar (2014) In her study titled "Assessment of stress management by the farmers in western Vidarbha region," reported that the largest number of respondents (46.66 percent) belong to the category of middle age, which is followed by the category of old age (36.00 percent), and only 17.34 percent of the respondents belonged to the category of young age.

Chandrasekar *et al.* (2017) In his research on the interaction between socio-economic and psychological variables of dairy farmers in Karnataka, the majority of respondents were of middle age, showing that more middle-aged farmers engage in dairy farming as a source of income.

Shivaji *et al.* (2019) conducted the study on personal, socio-economic and psychological characteristics of distress farmers' of Osamanabad district of Marathawada region, Maharashtra where a vast majority responders were of middle age, followed by those of advanced age. The research showed majority of young people were disinterested in farming and were seeking better opportunities in urban areas. Middle-aged individuals may also be more energetic and productive than those who are older or younger. Middle-aged individuals have greater physical vitality and familial responsibilities than their younger counterparts.

2.1.2 Gender

Singh (1973) performed a rural case study in the state of Bihar. He calculated the underutilization of agricultural labourers across various holding size categories. Assuming 313 working days in a year, the weighted mean number of work days completed by male workers was 206.9 days a year, while female workers did 135.5 days. 66 percent of men participated in the labour force, while 34 percent did not.

Estudillo *et al.* (2001) observed that in the Philippines, statistics from five rice-growing towns indicate that women and men work equally in both agricultural and non-agricultural occupations.

Yasari (2005) argued that in crop production, women labour long hours in sowing, transplanting, fertilising, weeding, thinning, pest control, harvesting, threshing, and winnowing, as well as in numerous post-harvest tasks such as bagging, storing, grading, cleaning, storage, and food processing.

In paddy agriculture, **Sabharwal (2006)** examined that male respondents were always active in field preparation, bund construction, puddling, and selling.

United Nations Women (2008) discovered that women make up fifty percent of the global workforce in the seafood business, including fisheries, aquaculture, seafood processing, and all connected services. All women have a significant part in inland fishing, an essential industry for food security.

2.1.3 Education

Dheeraj *et al.* (2015) In his research "socio-economic profile of vegetable farmers in eastern uttar pradesh" the majority of vegetable growers (35.61 percent) had completed high school, followed by middle school (17.08 percent), intermediate school (15.61 percent), illiteracy (11.71 percent), primary school (10.24 percent), and college (9.75 percent). Several studies have demonstrated that the education level of vegetable farmers is comparable.

Khan *et al.* (2020) In his research "Socio-Economic Profile of Vegetable Growers under Horticulture in Balaghat "showed the majority of respondents (53.33 percent) had a high school diploma or more, followed by middle school level (26.67 percent), illiterate (2.50 percent), and primary level (17.80 percent) of education.

Bidve *et al.* (2021) in their research, "Socio-economic, communicational and psychological characteristics of pomegranate growers from western Maharashtra" majority 41.11 percent of growers had finished primary school, followed by 19.17 percent who had finished secondary school, 16.94 percent who had finished higher secondary school, 10.56 percent who had finished education up to graduation, 8.05 percent who had finished education up to the preprimary level, and 4.17 percent who were illiterate.

2.1.4 Family type and family size

According to a preliminary report by **Sant Gadge Saba Amravati University (December 2006)** on farmers, 71% and 25% of farmers had joint and nuclear households, respectively.

Kamthe (2007), According to the 68.90 percent of the deceased farmers belonged to nuclear families, whereas 31.10 percent of the deceased farmers were from joint families.

Kale and Mankar (2012), According to their research, the majority of suicides in Vidarbha, Maharashtra occurred in families with medium (61%) and large (25%) sizes.

Kaur *et al.* (2016) their research showed that the majority of suicide victims belonged to nuclear families. This supports the notion that the dissolution of joint families in rural areas is a hidden cause of suicide. Compared to the nuclear family, there are fewer expenses in the joint family.

Kumar *et al.* (2018) in his research among farmers in the Bishunpur Block, nuclear family was found to be the highest family type (80.83%) whereas joint family was the lowest family type (19.17%). The majority of households were having family members five to seven (47.50%) or up to four (45.83%). Households having above eight family members were quite low (6.67%) in the block.

2.2 Socio economic characteristics of the farmers

2.2.1 Land holdings

Sajjad and Chauhan (2012) According to the statistics, the increasing costs of farming and the decreasing net returns were key factors in the occurrences of debt

among farmers. Indebtedness is prevalent in states that have high levels of agricultural growth and are characterised by high levels of overall population. However, in states with a high degree of commercialization, the frequency of indebtedness is observed to be highest among semi-medium and medium farmers. The majority of indebted farmers fall into the small and marginal groups.

Madhukar (2017) in her research regarding stress management in Vidharbha region, the selection criteria of the respondents, an identical amount of their land holdings (33.33 percent) was observed in the marginal, medium, and semi-medium categories of land holdings.

Bhattacharya (2020) it is hypothesised that high rates of poverty, debt, and alcoholism are the primary causes of agrarian stress. While education and the cultivation of relatively low-risk crops, such as food grains, as opposed to cash crops, might lower farmers' stress or improve their ability to handle stress, the cultivation of high-risk crops, such as cash crops, could increase farmers' stress levels. A lack of economically optimal land holding size for a higher standard of life may also result in agrarian distress; hence, the farm size variable has been considered.

Bhattacharya *et al.* (2020) although farm hardship is dependent on these socioeconomic parameters, farmer suicide is an individual phenomenon. Suicides among farmers are documented in particular regions of the nation and are most prevalent among a subset of farmers, namely small and marginal farmers.

Kirti (2020) in her research she states that agrarian distress is predominant reason for stress in small and marginal farmers which results in farmers suicide. The state with the most number of suicides in 2015 was Maharashtra, followed by Karnataka, Telangana, Madhya Pradesh, Chhattisgarh, Jharkhand and Andhra Pradesh. In addition, it is evident that the majority of suicides have been perpetrated by small and subsistence farmers.

According to the research of **Safa *et al.* 2005** the size of a farm has been shown to have a strong and positive relationship with the income of its owners.

2.2.2 Occupational status

In her study titled "A study on involvement and perception of drudgery in agriculture and some activities of farm women in Srikakulam district of Andhra Pradesh," **Bhagyalakshmi (1997)** looked at the experiences of farm women in that region. It was estimated that 56.06 percent of farm women had agriculture as their primary occupation, 35.28 percent of farm women had agriculture and dairy activities as their employment, and 8.66 percent of farm women had agricultural and goat rearing activities as their occupation.

According to **Sood (2005),** one of the elements that buffer the risk of adopting any innovation is one's wealth status, and one of the indications of a farmer's wealth status is their total family yearly income. It is anticipated that an increase in household income will lead to increased risk-bearing capacity on the part of smallholder farmers, as well as an increased willingness to wait for the returns from long-term investments such as planting trees (Sood, 2006).

According to **Swaminathan (2007),** 70 percent of our population still lives in rural areas, and the majority of them rely on farming for their primary source of income.

Shivaji *et al.* (2013) the majority of farmers are subject to stress. However, the majority of them (85.39 percent) had moderate level of stress, and 14 percent exhibited a severe level of stress. Personal stress, such as small land holdings and big families, were seen as the most important. Reasons for stress.

In her paper titled "Assessment of Stress Management by the Farmers in Western Vidarbha Region," **Tandekar (2014)** published the findings of her research. The majority of respondents (86.00 percent) were engaged exclusively in farming, which was followed by farming and other service occupations (6.00 percent), farming and other business occupations (5.34 percent), and farming and other labour occupations (5.34 percent) (2.66 percent). In addition, she arrived at the conclusion that Occupational status showed a negative link with the management of physical stress.

Kumar (2018) According to one research, 99.17 percent of the homes in the area were involved in some form of agricultural activity. It is important to emphasise

the fact that no household was working for the government at the time. After looking through the statistics, one might get the conclusion that farming was the primary employment of the families. According to additional research conducted on the topic of secondary occupation, it was found that 38.33 percent of families were engaged in agricultural labour, 26.67 percent of households were engaged in building works, and only 14.17 percent of households were engaged in private job. It would be possible to support farming operations with the substantial additional income that may be generated by participation in these activities.

Yazd *et* al. (2019) Farmers experience more severe mental health problems than the overall population. Out of 130 different farm workers and farm owners had the greatest death rate from stress-related diseases and mental disorders. Compared to non-farmers, livestock and dairy farmers were shown to have a higher prevalence of mental disorders and worse vitality. Others found a greater frequency of mental problems among farm workers than among employed non-farm workers and those in jobs such as teaching, office work, and building construction.

2.2.3 Marital status

Waker and Walker (1987) discovered that farm women regularly reported higher levels of stress than farm males.

Kelly *et al.* (1995) revealed that farmers' spouses had the highest suicide rate of any occupational category

Scarth *et al.* (1997) discovered that the farmers' ages were not substantially connected to their levels of depressive symptoms. In addition, having a lower level of education, being married, experiencing marital stress, and not living in a joint household were all related with a poorer mental health status among farmers.

In the South West of England**, Booth and Lloyd's (1999)** assessment of farmers' occupational stress revealed a reasonably high score on the General Health Questionnaire3, which was especially elevated among women farmers; that is, occupational stress was significantly greater among farming women than farming males.

Melberg (2003) unlike other families, farm families are marked by the interweaving of work and family. It is here stated that markers reflective of current farm life impact experienced well–being, but in different ways for women and men. Farm husbands' and farm wives' more exposed to stresses in job, family and social networks . Data analysis focuses on the influence of stress on his and her psychological well–being and the amount to which social support mitigates the effect of stress.

In her study titled "Assessment of stress management by the farmers in western vidarbha region," **Tandekar (2014)** found that the majority of respondents (77.33 percent) were married, followed by a little less than one fifth (19.33 percent) who were widows, and the remaining (3.34 percent) were single.

Additionally, she observed that marital status had a negative relationship with physical stress management

2.2.4 Annual income and expenditure pattern

Satre (1982) examined the employment, income, and expenditure pattern of agriculture's weaker part in Western Maharashtra. He came to the conclusion that an increase in farm size and wage rate leads to an increase in family workforce employment. In the undeveloped region, the total annual family income of farmers, farmer sum agricultural labourers, and landless agricultural labourer families was Rs 9,974, Rs 5,541, and Rs 3,182, respectively. Farmers, farmers cum agricultural labourers, and landless agricultural labourer households in the undeveloped region had per capita expenditures of Rs819, Rs 742, and Rs 585, respectively.

Parry *et* al. (2005) in their research they stated farmers in both developed and developing nations reported experiencing several sorts of financial stress, including market pricing for crops and animals, irregular/insufficient cash flow, higher input costs, taxes, health care expenditures, and excessive debt.

Mane (2011) if the gross cultivated area rises by one hectare, expenses will increase by RS 5,426.8. With a one rupee increase in total family income, marginal farmers in irrigated areas will only raise their expenditures by 0.91 rupees. If the size of the family rises by one, the yearly cost will climb by Rs 2,186. The value of fixed capital assets has a beneficial influence on the spending habits of marginal farmers in

irrigated areas. If the value of capital assets grows by one rupee, marginal farmers in irrigated areas will spend 0.16 rupees more.

Singh (2018) investigated the economic viability of agriculture in the Amritsar area of Punjab. The study found that around 80% of total household expenditures were spent on non-food items, a figure that is extremely high and must be reduced in order to improve the economic viability of farm families. Education was the largest expense component, accounting for 24.21 percent of non-food expenditures. The expenditures incurred for residential utility bills (electricity, telephone, and LPG gas) and social ceremonies amounted to 19.85 and 17.15, respectively, which were also deemed to be excessive. It was determined that the studied farm households overspent on alcoholic beverages (25.38 percent) and dairy goods (21.61 percent) as part of their food expenditures, which needed to be lowered. In the research region, the production of vegetables in conjunction with paddy-wheat-vegetable rotation yielded greater returns than typical paddy rotation. Crop farming was the primary source of revenue, accounting for 72.74 percent of total income. Regression analysis revealed that the economic viability of farm households could be significantly enhanced by an increase in farm size, non-farm income, and dairy income; however, it would be significantly diminished by an increase in rent paid for leased-in land, crop produced, dairy, education, and total household expenditure.

Demandante (2019) analysed the rural home economics and noticed rural families in the working age (15-64 years) with few elderly dependents of household heads and spouses. One-third of the children were dependent youngsters. The majority of family heads, wives, and children were college or vocational school graduates, demonstrating the significance of human capital investment for social mobility. In general, household size was tiny. Three-quarters of the households relied on two to five occupations as their primary source of income. The majority came from salaries and earnings, with agriculture ranking second and lottery ranking last. Less than half of the household's expenditures were allocated to food and survival necessities. The second largest expense was on farming, and the smallest was on mobile phone load and social commitments, both of which accounted for barely three percent. The investment of the households consisted of short-term savings. Although farming is a precarious profession, households placed agri-investments as their second priority, with their

children's education coming in third. This resulted in the conception of a model that highlighted the significance of income, expenditures, and investments on the spectrum of rural economic development. When income was limited, savings were little; thus, more money was spent on survival requirements, leaving a tiny amount for investment. If this persisted, the last step of the growth hypothesis could not be realised.

2.2.5 Extension contact

Results by **Jaiswal and Das (1981**) and a study undertaken by FAO as reported by Anonymous (1984) that in the majority of nations, including India, contact between public research and extension organisations is limited and occurs mostly via agricultural journals, magazines, and extension literature.

Faylon and Acoba (2002) analysed the relationships between research, extension, and farmers in two West African countries. The evidence from Guinea and Sierra Leone indicates that the influence and participation of farmers in the invention of innovative mangrove swamp rice technologies have been moderate. Minimal contacts between rice researchers, extension staff, and farmers, and the resulting emphasis by rice researchers on the top-down transfer of improved mangrove swamp rice technologies via extension workers, have resulted in few interactions between rice researchers, extension staff, and farmers.

According to **Sibjenga (2009),** Zimbabwean agribusiness was ignorant of the substantial output potential of smallholder farmers. Smallholder farmers lacked market information and were forced to sell their goods at farm gate for deflated prices or were unable to sell their produce at all. In addition, the NGO community overlooked market links in favour of focusing on farmer productivity through the distribution of free inputs and indirect agricultural extension help.

Singh (2019) from marginal to major farmers, consumption expenditures on non-durables, durables, services, weddings, and other socio-religious events tended to grow. Large farmers spent 33.53 percent of their total expenditures on non-durables, whereas marginal farmers spent 53.99 percent on non-durables.

2.2.6 Indebtness

Lavania and Shukla (1965) performed a research on capital investment that provided information on the assets and liabilities of farms of various sizes. Leaving the agriculture sector to the whims of the free market is bad for farmers who lack access to the newest technologies from overseas or a competitive environment.

According to **Deshpande (2002),** 24.9 percent of suicide cases were attributed to societal and intra family issues. It comprises intra family issues reported in 13.27% of cases, daughter/sister marriage reported in 5.31% of cases, married life stress reported in 2.2% of cases, and financial commitment to family reported in 5.30% of cases. He also said that these aren't the only reasons, and that altogether these reasons pushes the victims to make decisions that end their lives.

Jodhka (2006) the climate and weather patterns have not been beneficial to agricultural expansion, and weather-induced volatility has continued to raise the debt of farmers. The demise of rural communities is attributable to the enslavement of farmers to market and financial pressures in the absence of a safety net to protect them in the event of crop failure (Vasavi, 1998). Long utilised as agricultural credit insurance, crop insurance did not provide a sufficient safety net to reimburse the farmer's debt. (Deshpande, 2002). In addition to the negative effects of poverty, being in debt leads to social disgrace and loss of respect. (Vasavi, 1998).

Kale (2011) revealed that disputes were observed in 15.00 per cent victims with their family members due to domestic reasons

Kaur (2015) from his research it can be concluded is that the majority of suicide victims experienced stressful life situations. Farmers in Punjab confront the greatest difficulty with their small holding sizes. In addition, low income, a tiny surplus that is marketable, and limited access to financing exacerbate the farmers' plight. Farming in Punjab is highly automated, yet farmers with poor incomes have no choice but to take out loans with exorbitant interest rates, causing mental stress and the belief that they cannot provide for their families and themselves.

Deogharia (2016) in his research, "magnitude and determinants of rural indebtedness in Jharkhand farms" several economic and non-economic variables affect

the level of debt at a given period. Important as they are to the policy framework, the numerous economic elements are analysed. It is believed that indebtedness is influenced by farm size, family size, the ratio of borrowing from non-institutional to institutional sources, subsidiary income, spending for nonproductive objectives, and educational level.

Dande and Bhattacharya (2018) in their research conducting in Punjab debt and the inability to repay debts result in stress. We discovered a significant dependence on family members for credit in Yavatmal. If all other borrowing options, such as moneylenders, have been exhausted, the reliance on family credit will increase. The embarrassment involved with being unable to repay is enormous in village life, and it is exacerbated when money is borrowed from family members. Several families incur substantial debt as a result of large medical bills, big marriage or durable goods expenditures. Given that agricultural output prices have not kept pace with the rise in input costs and that land rent in Punjab, and Sangrur in particular, is the highest in the country, it is not unexpected that farm income is insufficient to support a family in this region. A consistent financial flow is essential to cover normal home consumption, basic health and education needs (all of which have increased manifold). This becomes a significant concern for farmers with tiny landholdings and no other sources of income.

2.2.7 Crop failure

According to **Narayanmurthy (2006),** the use of erroneous inputs (seeds, fertilisers, and pesticides) in cultivation by the fanmero was one of the primary causes of crop failure or low yield.

According to **Jog (2006),** indebtedness, crop failure, prolonged drought, low pricing, and lack of a support structure are viewed as the primary causes of suicide in six districts of Vidarbha, with immediate triggers being a mix of bad health and other socioeconomic factors.

According to **Anonymous (2007),** two more farmers perish in the Vidarbha region's Wani and Akola. A letter found in the pocket of the dead stated, "Frequently, wild animals would destroy my crops, causing me to experience recurring crop failure." I was preparing to terminate my life because I was unable to bear the mounting debt

burden (induced by crop failure). At Hiverkhed (Telhara) near Akola, other farmers took their own lives as a result of persistent agricultural failure and debt.

In over three-quarters of suicide instances (82.50 percent), chronic crop failure was cited by the household, according to research by Kale (2011).

2.3. Psychological characteristics of the farmers

2.3.1 Stressful events

According to **Venkataramaiah (2003**), the influence of psychological causes on the conduct of farmers includes a fear complex, loneliness, sadness, a sense of powerlessness, and a sense of pessimism for the future. Other psychological factors are also included.

According to **Raju (2004)**, a hungry farmer is an angry guy. This angry man's hunger might lead to frustration, which can then lead to suicidal thoughts.

In her study titled "Factors impacting stress and coping strategies among the degree collage instructors of Dharwad city, Karnataka," **Nayak (2008)** found that the majority of teachers (70 percent) fell into the low stress group, followed by the extremely low stress category which is followed by the extremely low stress category (23.5 percent).

2.3.2 Stress management

Upamanyu (1997) investigated the stress management approaches employed by educated female workers. Sleep & relaxation, exercise, time management, nutrition, and yoga are the most effective ways for educated working women to handle stress.

Harshpinder and Aujla (2001) conducted research to study the various strategies that women employ in order to manage their physical stress. In comparison to women who were not employed, working women were found to have a higher consumption of standard furnishings and a higher fibre diet. Working women also used writing diaries more frequently. The two groups' utilisation of the various other strategies did not significantly differ from one another.

Hasnain *et al.* (2001), in their study titled "role stress and coping mechanisms in diverse occupational groups," analysed the methods of coping used by three distinct

professions (20 engineers, 20managers and 20 teachers). There was found to be no statistically significant difference in the coping methods used by the three groups. Extra-persistence and inter-persistence were the two methods of coping with stress that were utilised by these three groups (approach coping). It is possible to say, in a nutshell, that the approach coping strategies were utilised more frequently than the avoidance coping strategies in all three of the groups.

Durkheim (2002) said that suicidal behaviour may be a result of social isolation or individualism (egoistic) or excess social integration (altruistic), breakdown of social control (anomic) or excess social regulation (fatalistic).

Aujla *et al.* (2004) analysed the stress management approaches utilised by 75 working women and 75 non-working women in the city of Ludhiana. Results indicated that the majority of respondents in both groups used different stress management approaches, including relaxation, music, prayer, family activity, and planning, among others. The most popular approaches across both groups were preparation and relaxation.

Sikthingnanavel (2006) investigated the impact that particular yogic practises had on the levels of stress experienced by 15 healthy, working women volunteers. Before and after completing the 10-day training session, the appropriate parameters were utilised. According to the findings, the decrease of stress is significantly better in the group that participated in the experiment as compared to the group that served as the control.

Yazd *et al.* (2019) According to the findings of the systematic review, there were a total of 28 papers, or 17% of the total, that compared the mental health of farmers to that of other occupational groups. Twenty of the research included in those publications (or 71% of the total) revealed that farmers experience more severe mental health problems than the general population.

Also, the National Institute for Occupational Safety and Health examined 130 different occupations and found that farm workers and farm owners had the highest rate of deaths due to stress-related conditions and mental disorders. This was the result of the study's finding that farm workers and farm owners had the highest rate of deaths.

Animal farmers and dairy farmers have been shown to have higher rates of mental disorders and lower vitality when compared to people who do not work in agriculture.

Wheeler *et al.* (2019) Researchers have identified a number of additional risk factors and symptoms that are predictive of psychological distress in farmers. These include government policies, isolation, heavy workload, role conflict, time pressure, poor housing conditions, foot and mouth disease among livestock, coal and gas development, beef crisis, lower levels of mindfulness, and farmers' work ability. Overall, these potential dangers were mentioned in roughly 42 percent of the research investigations that were conducted on the mental health of farmers. Inadequate agricultural extension services and/or interaction, inadequate road infrastructure, unfavourable market pricing, limited access to market information, and limited access to finance facilities are some of the additional agricultural stresses that are typical in developing nations.

Chapter-III

RESEARCH METHODOLOGY

This chapter discusses the methodologies and procedure utilised in the 'Assessment of Stress Management by Farmers in the Ranchi District of Jharkhand' study region, as well as the many strategies employed over the course of this research. The chapter is divided into the following subheadings:

3.1 Research design

3.2 Locale of the study

3.3 Variables and their measurements

3.4 Operationlization and categorisation of variables

3.4.1 Independent variable

3.4.1.1 Personal characteristics

3.4.1.2 Socio-economic characteristics

3.4.1.3 Situational characteristics

3.4.1.4 Psychological characteristics

3.4.2 Dependent variable : Stress management variables

3.4.2.1 Physical stress management

3.4.2.2 Mental stress management

3.5 Sample and sampling procedure

3.5.1 Selection of districts

3.5.2 Selection of tehsil/block

3.5.3 Selection of villages

3.5.4 Selection of respondents

3.6 Preparation of interview schedule

3.7 Pre-testing of interview schedule

3.8 Collection of data

3.9 Tabulation and analysis of data

3.1. Research design

The study was conducted using an ex-post facto and analytical research approach, as the variables chosen for the study had already occurred. According to Kerlinger (1964), ex-post facto research is a systematic empirical investigation in which the scientists have no direct influence over the variables because their manifestation has already occurred. Therefore, this design was deemed suitable for the investigation.

3.2 Locale of the study

The Ranchi district of the state of Jharkhand was picked on purpose as a district prone to distress for the current study. According to the NCRB report of 2021 there has been 25% increased cases of suicides in the state of Jharkhand from the year 2018 to 2020. The total number of suicide cases in Jharkhand were 173 out of which 35 alone were from Ranchi. Thus, to study why farmers were in distress Ranchi district was selected.

3.3 Variables and their measurements

Table 1. Variables and their Measurements

S. No	Variables	Measurements	Level of measurement
A)	**Independent variables**		
Personal characteristics			
1.	Age	Direct questioning	Ratio
2.	Education	Schedule was developed	Ordinal
3.	Family type	Direct questioning	Nominal
4.	Family size	Direct questioning	Ratio
5.	Land Holding	Direct questioning	Ratio
6.	Occupational status	Schedule was developed	Nominal
7	Extension contact	Schedule	Ordinal
8.	Marital status	Direct questioning	Nominal

Socio-economic characteristics			
9.	Expenditure pattern	Schedule was developed	Ratio
10.	Annual income	Schedule was developed	Ratio
Situational characteristics			
11.	Health of the respondent/Family health	Direct questioning	Nominal
12.	Indebtedness	Questions formulated in the interview schedule	Ratio
13.	Family disputes	Direct questioning	Nominal
14.	Crop failure	Direct questioning	Nominal
Psychological characteristics			
15.	Stress Events	Questions formulated in the interview schedule	Interval
B) Dependent variables			
1.	Physical Stress Management	Questions formulated in the interview schedule	Interval
2.	Mental Stress Management	Questions formulated in the interview schedule	Interval

3.4 Variable operationalization and categorisation

In the subsections that follow, the operational definitions, scoring method, and classification of both the independent and dependent variables are discussed.

3.4.1 Independent variable : variables for the study, their operational definitions, measurements and categorization

The operationalization and classification of independent variables are provided as follows:

3.4.1.1 Personal characteristics :

(a) Age

The operational definition of age is the chronological age of a chosen individual respondent in completed years at the time of the interview; this age was considered a score of individual respondents.

The respondents were divided into the following categories based on their ages according to UN population division classification :

S.No.	Category	Range (years)	Scores
1.	Young aged	0 to 15 years	1
2.	Middle aged	16 to 64 years	2
3.	Old aged	Above 65 years	3

(b) Education

It is operationally defined as formal education from elementary school through college. The following standard categories were identified for identifying respondents based on their education score.

S.No.	Education level	Standard passed	Scores
1	Illiterate	No formal schooling	1
2	Functionally literate	Can read and write	2
3	Primary education	1^{st} to 4^{th}	3
4	Middle education	5^{th} to 8^{th}	4
5	High school	8^{th} to 10^{th}	5
6	College	Inter /graduation	6
7	PG	Post graduation	7

(c) Family type

The families of the respondents are classified into two categories based on the relationship between family members.

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

Joint family : A family unit consisting of at least two married couples sharing a dwelling, with males related as father-son or brother-brother. This is how nuclear and joint families were scored.

S.No.	Category	Indicants
1	Nuclear	1
2	joint	2

(d) Family size

It is theoretically defined as the total number of individuals in each individual's family living under the same roof and sharing a shared diet. It is operationally defined as the total number of members of each respondent's family who reside under a shared root, have blood ties, and share meals. The total number of family members, including the respondent, was used as a score to classify respondents as belonging to small, medium, or big families by equal interval method.

S.No.	Category	Nos. of family member	Scores
1	Small family type	Upto 3 members	1
2	Medium family type	3 to 8 members	2
3	Large family type	More than 8 members	3

$\bar{X} = 6$ SD = 2.54

(e) Land holdings

It is operationally defined as the hectares of land held by an individual person. Land holding indicates the hectares of land controlled by a particular individual. As such, the total number of hectares of land owned by an individual constituted the score.

In agriculture Census, the operational holdings are categorised in five size classes as follows:-

Scores	Category	Land holdings	Scores
1	Marginal	Below 1.00 ha	1
2	Small	1.00 to 2.00 ha	2
3	Semi- Medium	2.00 to 4.00 ha	3
4	Medium	4.00 to 10.00 ha	4
5	Large	10.00 ha and above	5

(f) Occupational status

It refers to the primary occupation of a respondent, which serves as their primary source of income. Respondents whose sole source of income was from farming comes under farming category. Those respondents who source of income are from farming and other agricultural allied sectors like goatery, cattle rearing, duckery etc come under farming and allied categories. The respondents whose source of income comes from farming and labour work are categorized as farming and labour. The respondents were categorized as follows

Scores	Occupation category	Indicants
1	Farming	1
2	Farming and labour	2
3	Farming and allied	3

(g) Marital status

Individual respondents were asked whether or not they were married. Consequently, the marital status of respondents was examined during study. The respondents were grouped according to their marital status and given the following scores:

Scores	Category	Indicants
1	Unmarried	1
2	Married	2
3	Widowed/divorced	3

3.4.1.2 Socio-economic characteristics

(a) Annual income

It is operationally defined as the sum of the annual incomes of all family members of a single individual from all sources. It is operationally defined as the total annual gross income of an individual respondent's family from all sources. To calculate the annual family income score for each responder, the total real income in rupees generated from all sources was evaluated and were classified as low income level, medium income level and high income level by equal interval method.

S.No.	Income level of respondents	Range of income	Scores
1	Low income level	Upto Rs 60,000	1
2	Medium income level	Rs 60,000 to Rs 1,20,000	2
3	High income level	Rs 1,20,000 and above	3

(b) Expenditure pattern

It is operationally defined as an individual's annual expenditures on food, education, housing, clothes, health, electricity, and religious activities. Each respondent's expenditure pattern was determined in terms of rupees for each item. Subsequently, the expenditure pattern in terms of rupees was summed up, and respondents were classified as having a low expenditure pattern, a medium expenditure pattern, or a high expenditure pattern by equal interval method.

S.No.	Expenditure pattern	Rupees	Scores
1	Low expenditure pattern	UPTO Rs 40,000	1
2	Medium expenditure pattern	Rs 40,000 to Rs 80,000	2
3	High expenditure pattern	Rs 80,000 and above	3

(c) Extension contact

It refers to an individual respondent's engagement with official and informal extension agencies in order to obtain information and assistance regarding stress management. Extension contact was measured on a three-point continuum, including usually, sometimes, and never, with scores of 1, 2, and 3 correspondingly. On the basis of the mean and standard deviation, respondents were classified into several groups.

FREQUENCY OF CONTACT

S.No.		ALWAYS	SOMETIMES	NEVER
A.	**FORMAL**			
1.	Gramsevak			
2.	Extension Officer			
3.	Agri. Assistant			
4.	Agri. Development office			
5.	Block Development Officer			
6.	Agriculture field officer			
7.	Others			
B.	**INFORMAL**			
1.	Friends/relatives			
2.	NGO personnals			

The total score for extension contact was compiled for all extension employees that he/she contacted. The highest score indicates that the respondent had the most interactions with extension employees. Then the overall extension contact was calculated of 120 respondents in accordance with the mean and standard deviation.

Extension contact	Respondents (n=120)	Scores
Low	Less than 18.62	1
Medium	18.62 to 24.38	2
High	Above 24.38	3

Mean = 21 SD= 3.38

3.4.1.3 Situational Characteristics

(a) Health of respondent/family members

In this section, it is recorded whether a respondent's inability to operate properly may be attributed to the existence of a chronic condition that is readily apparent. The replies about health were gathered from family members. For the existence of each ailment, one point was awarded. Thus, the total number of illnesses a respondent has reflects the overall health score of that person. Individual respondent's total score was used for additional relationship analysis. The distribution of individual respondents was determined by the existence or absence of a health issue.

(b) Indebtness

It refers to the total amount of pending and outstanding debts in rupees at the time of the interview. In order to categorise respondents according to their level of debt, three groups were established: low, medium, and high.

Loan source	Frequency of respondents	% of respondents	Range of loan amount	Major purpose of loan	% of respondents repaid their loans
Family /friends/relatives					
Money lenders					
Commercial banks/rural banks					
SHGs					
Private banks					

(c) Family disputes

The operational definition of family disputes is the presence of any disagreements between an individual responder and their family members that result in the breakdown of family connections. To quantify this variable, each farmer was questioned about family arguments on two-point continuum: yes/no, with scores of 1 and 2, respectively. The responses were categorised according to frequency and

proportion.

S.No.	Family disputes	Yes/no
1	Family disputes found	2/1
2	Family disputes not found	2/1

(d) Crop failure

It indicates the number of crop failures on an individual respondent's farm in the last 3 years from the time of the interview. One point was awarded for each significant crop failure.

S.No.	Major crop field	No. of times crop failed						Total (n=120)	
		3 or more		2		1		Freq	%
		Freq	%	Freq	%	Freq	%		
1	Paddy								
2	Wheat								
3	Maize								
4	Potato								
5	Others								

3.4.1.4 Psychological Characteristics

(a) Stressful events

For the purpose of assessing the stressful events experienced by farmers, each respondent was questioned about the occurrences and sources of stress in their everyday lives. Interview schedule was taken from the stress scale developed by Bhagwatwar (2000) in order to determine the stress levels of each individual responder. There are 67 statements in the scale with addition of one statement that were measured on a 7-point continuum, including no stress at all (NS), little stress (LS), some stress (SS), moderately tolerable stress (MTS), substantial stress (SES), high stress (HS), and tremendously high stress (THS) with score 1,2,3,4,5,6 and 7

respectively. The suitable statements were prepared by assuming daily life experiences of the farmer. The obtained score was converted in to index and respondents were we categorized as low stress, medium stress and high stress based on mean ±SD.

S.No.	Stress level
1	No stress (NS)
2	Little stress (LS)
3	Some Stress (SS)
4	Moderately tolerable stress (MTS)
5	Substantial stress (SES)
6	High stress (HS)
7	Tremendously High stress (THS)

3.4.2 Dependent variables

Stress management

It is operationally defined as a farmer's use of coping methods to escape from stress under poor situations. The effects of mental and physical stress on stress management behaviours were examined.

To measure this characteristic the test developed by Tandekar (2014) was used. It is a two point continuum with scores of 1 and 0 for Yes and No, respectively.

Following formula was used to convert the raw score into an index.

$$\text{SM} = \frac{\textit{Actual score obtained}}{\textit{Maximum obtainable score}} \; x\,100$$

Based on the obtained index score respondents were categorized by using mean ± SD equal interval method as poor stress management, medium stress management and very good stress management.

3.4.2.1 Physical stress management

Indicators such as relaxation, nutrition, physical activity, medical therapy, and natural care were evaluated for the management of physical stress, with additional sub-statements/indicators produced.

S.No.	Attitudes	Index range	Scores
1	Poor stress management	< 28.00	1
2	Good stress management	28.00 to 34.46	2
3	Very good stress management	>34.46	3

Mean = 31.23 SD = 3.23

3.4.2.2 Mental stress management

Religious/meditation activities, counselling, social support, shifting surroundings, lowering obligations, and more can help alleviate mental stress. These indications were taken into consideration, and sub-statements for each of them were developed. They included counselling and conducting most-liked activities.

For the management of physical stress, with additional sub-statements/indicators produced.

S.No.	Attitudes	Index range	Scores
1	Poor stress management	<67.66	1
2	Medium stress management	67.66 to 82.54	2
3	Very good stress management	>82.54	3

Mean = 75.10 SD = 7.44

Overall stress management

S.No.	Attitudes	Index range	Scores
1	Poor stress management	<62.49	1
2	good stress management	62.49 to 83.09	2
3	Very good stress management	>83.09	3

Mean =77.29 SD = 5.80

3.5 Sample and sampling procedure

The sampling strategy employed for this research project is described in the following paragraphs.

3.5.1 Selection of districts

According to the NCRB the state of Jharkhand had seen 25% more suicides (173) in the year 2020 than 2018. Major suicides were done by farmers and especially farm labourers. Major districts were farmers suicides have taken place belonged to the districts of Ranchi, Gumla, Simdega and Khunti . Out of 173 farmers's suicides, 35 were from Ranchi. Thus, Ranchi district was selected from this research study.

3.5.2 Selection of Blocks/Tehsils

In the year 2020, 35 farmers from six villages (Ormanjhi, Bundu, Tomar, Nagri, Chanho, and Angara) in Ranchi district ended their lives due to financial stress . Thus four villages from two blocks (i.e., two villages from each block) Chanho and Nagri blocks were selected.

3.5.3 Selection of villages

Two villages were selected from each block i.e. Patratu and Sokrahutu villages from Chanho block and Chipra and Piska villages from Nagri Block.

3.5.4 Selection of respondents

From each selected village, population sample was selected for selection of respondents as suicidal farmers/households and remaining farmers as other respondents were selected randomly. So, 30 farmers were chosen from each of the four chosen villages to make up the sample size of 120 people from the four villages.

Table 2. Village wise respondents of Chanho and Nagri Blocks

S.No.	Name of the block	Name of the village	No. of respondent (n=120)
1	**Chanho**	Sukurhuttu	30
		Patratu	30
2	**Nagri**	Piska	30
		Chipra	30
	Total villages	**4**	**120**

3.6 Preparation of interview schedule

A structured interview schedule was made based on what the study's goals were. It had questions about personal, communicational, social, economic, situational, and psychological factors. In another section of the schedule, there are questions about the dependent variables, which are how farmers deal with physical and mental stress.

3.7 Pre-testing of interview schedule

The interview schedule needs to be tried out first by the researcher. It helps to figure out if questions are appropriate and the way they speak. It shows the mistake and falls short. It helps make sure that the schedule is clear, reliable, and accurate. Ten farmers in Baheya village were used to test out the interview schedule before it was used. These farmers were not in the group of people who answered the survey. The information gathered from these non-sampled respondents was carefully looked over to find any unfamiliar words or questions that were too hard.

3.8 Collection of data

The information was gathered by talking to the chosen respondents in person at their homes or places of work, field.

3.9 Tabulation and analysis of data

STATISTICAL METHOD

3.9.1 Arithmatic mean

3.9.2 Standard deviation

3.9.3 Coefficient of correlation

Following statistical techniques will be used in the present study for analysis of data.

3.9.1 Arithmatic mean (X)

It will be calculated by summing all the score and dividing it by number of respondents.

$$\bar{X} = \frac{\sum X}{n}$$

Where,

$\bar{X}$ = Arithmetic mean

$\sum X$ = Sum of respondent score

n = Number of respondents

3.9.2 Standard deviation

It is measure of variability calculated around mean.

The usual symbol of the S.D.

$$\mathbf{SD} = \sqrt{\frac{\sum(X-\bar{X})^2}{n-1}}$$

Where,

SD = Standard deviation

$\sum$ = summation

X= score of each respondents

$\bar{X}$ = mean of the score of respondents

n = No. of respondents

3.9.3 Coefficient of correlation

The relationship between independent and dependent will be calculated with the help with the help of following given formula

$$\mathbf{r} = \frac{N\sum XY - (\sum X)(\sum Y)}{\sqrt{[N\sum X^2 - (\sum X)^2][N\sum y^2 - (\sum Y)^2]}}$$

Where,

r = pearson correlation coefficient

n = number of pairs of scores

∑xy = sum of the products of x and y variables

∑x = sum of x scores

∑y = sum of y scores

$\sum x^2$= sum of squared x scores

$\sum y^2$= sum of squared y scores

Chapter-IV

SOCIO-ECONOMIC FEATURES OF RANCHI DISTRICT

Ranchi is the capital of the state of Jharkhand. It is split into the Ranchi and Bundu subdivisions, and each subdivision has blocks, panchayats, and villages. There are 18 blocks and 305 panchayats in it. There are 14 blocks in the Ranchi Sub-Division, and there are 4 blocks in the Bundu Sub-Division.

Ranchi is the capital city of the Indian state of Jharkhand. Its name has changed over time. The city has a mild climate and was the summer capital of Bihar until Jharkhand was split off in the year 2000. People often call it "City of Water Falls."

At the moment, Ranchi district is split into 14 administrative blocks and 2 sub-divisions. On September 12, 2007, Khunti district was made by separating Khunti subdivision and its 6 blocks from Ranchi district. Ranchi sub-division is further divided into 11 blocks: Angara, Burmu, Bero, Chanho, Kanke, Lapung, Mandar, Namkum, Ormanjhi, Ratu and Silli. The three blocks in the Bundu sub-division are called Bundu, Sonahatu, and Tamar. Tamar (ST), Silli, Khijri (ST), Ranchi, Hatia, Kanke (SC), and Mandar are the seven Assembly constituencies in the district (ST). Ranchi Lok Sabha constituency is made up of the towns of Silli, Khijri, Ranchi, Hatia, and Kanke.

Here, some of the most important agro-economic characteristics of Amravati district are discussed. When conducting an inquiry, this helps to offer a solid foundation from which to examine a specific holding.

Physical features of Ranchi District

Ranchi is located in the Tropic of Cancer at 23°22′N 85°20′E. At an average elevation of 651 m above sea level, the city occupies an area of 175 km2 (68 sq mi).[1] Ranchi is located on the southern part of the Chota Nagpur plateau, which is part of the Deccan plateau in the eastern part of the state of West Bengal.

Ranchi's temperature is more temperate than that of the rest of the state because of the city's steep terrain and the region's thick tropical forest. In spite of this, the

average temperature in the city has risen as a result of unchecked deforestation and growth.

Boundary

Bordering districts include: Khunti District to the south; Lohardaga District to the west; Ramgarh District to the north; Purulia District to the east; and Lohardaga District to the south. A border with West Bengal is to the east. About 7574 square kilometres is Ranchi District's total area.

Climate

In spite of Ranchi's humid subtropical climate (Köppen Environment Classification: Cwa), its position and proximity to the surrounding forest contribute to its particularly pleasant climate. Summer temperatures vary from 20 to 42 degrees Fahrenheit, while winter temperatures fall from 0 and 25 degrees Fahrenheit. The coldest months of the year are December and January, when temperatures can fall below freezing in some parts of the country (Kanke). An average of 1430 millimetres of rain fall occurs each year (56.34 inches). There is an average rainfall of 1,100 mm between June and September.

Topography and soil of Ranchi

The district's northern and southernmost reaches are dominated by hills and woods. In general, the area's elevation ranges from 500 to 700 feet above sea level. Throughout the area, there are several hills with an altitude of 700 metres above sea level. A large portion of the Chotanagpur plateau is located inside the district.

There are a lot of soils in the district that are of the residual kind. Due to extremes in temperature and precipitation, much of the district now has lateritic soil. It has been determined that the majority of the soils in the Ratu, Bero, and sections of the Mandar Blocks are lateritic (found only in these areas) and alluvial (found across the district).

Land use, irrigation and cropping pattern

Among the 5,09,700 hectares of land in the state, the forest covers 20.97 percent, land dedicated to non-agricultural use accounts for 5.6 percent of the total, land that is now fallow accounts for 16.35 percent, and land that is not currently fallow is

8.7 percent of the total. 91% of Kharif crops are grown without irrigation, whereas 4% of Kharif crops are watered with irrigation. There are just 3% of Rabi crops that are irrigated and 2% of Rabi crops that are unirrigated. Irrigation is used for about two percent of summer crops.

Table 3. Land use pattern of the Ranchi district

Geographical area	**Cultivable area**	**Forest area**	**area Land under non-agricultural use**	**Permanent pastures**	**Cultivable**	**waste land**	**Land under Misc. groves**	**Barren and uncultivable land**	**Current fallows**	**Other fallows**
Area (in ha)	758.2	255	159.1	74.5	2.0	26.3	10.7	39.5	124.0	66.2

Irrigation

The expansion of agriculture and the growth of the economy both need irrigation systems. Major irrigations is by canals, tanks, open wells, dams etc. Major irrigation is by open well method and constitute 16 % of total irrigation method.

Table 4. Different sources of irrigation along with the area

Sources of Irrigation	Area (ha ‘000)
Canals	9.9
Tanks	2.4
Open wells	16.0
Other sources (Check Dam)	3.8

Figure 1. Map of Jharkhand showing all districts

Figure 2. Map of Ranchi district showing all the blocks.

Chapter-V

RESULTS AND DISCUSSION

This chapter focuses on the findings of the current research, as well as the subsequent discussion of those findings. According to the study's goals, the obtained data were sorted, scored, categorised, and tabulated in line with the study's methodology. The following subheadings have been used to organise the study's findings.

5.1 The personal, socio-economic, situational and psychological characteristics of farmers

5.2 The stressful events among the farmers.

5.3 The stress management of the farmers.

5.4 The relationship between selected characteristics with stress management of the farmers.

It is the study's initial goal to learn more about the respondents' socioeconomic and psychological traits (the independent variable). Here, we provide the distribution of farmers based on their selected characteristics, such as the age of the respondent/family health of the respondent/family, indebtedness/family dispute/crop failure, personal attitude and stressful events or stressors.

(i) Personal characteristics

(a) Age

The table 5 shows that the majority of respondents (60.80 percent) fell into the middle-aged group, followed by the elderly (23.30 percent), with only slightly more than a fifth of respondents (15.80 percent) falling into the young-adult demographic. As a result of these findings, the majority of survey takers (60.80 percent) were classified as middle-aged.

Table 5. Distribution of the respondents according to the age

		Respondents (n = 120)		
		Frequency	**Percent**	**Cumulative Percent**
	Young aged	28	23.3	23.3
	middle aged	73	60.8	84.2
	Old aged	19	15.8	100.0
	Total	**120**	**100.0**	

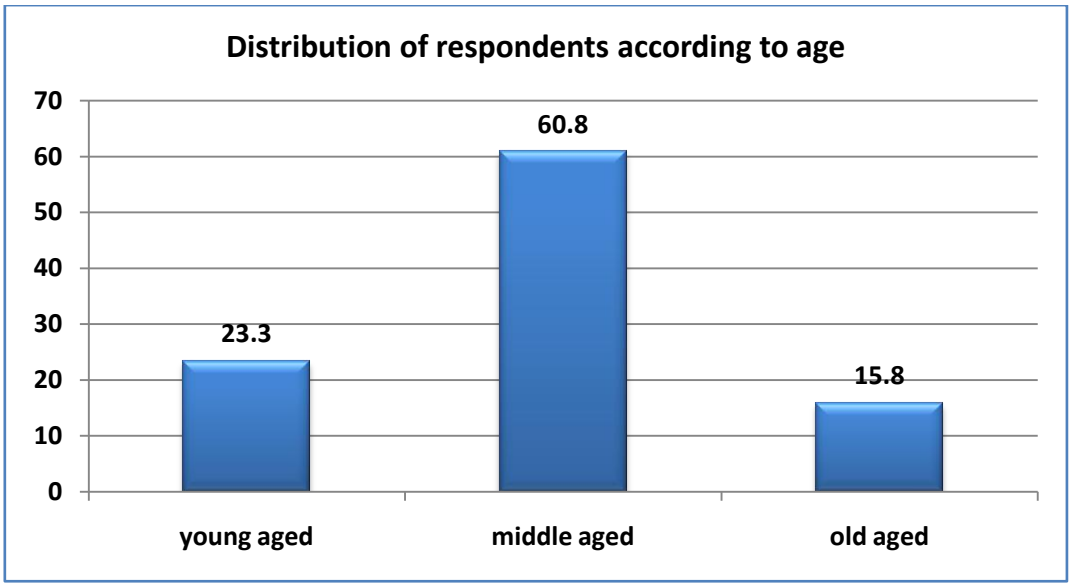

Figure 3. Distribution of the respondents according to age

There is similarity between the findings of this survey and prior research performed by Deshmukh (2007), which found that the majority of respondents were middle-aged. Previous research investigations done by Kale (2014) have also found similar findings in which the majority of respondents were in their middle years.

(b) Education

In general, education enables human beings to not only comprehend the situation but also to recognise the difficulties and ways to get out of it. According to Table 6, the educational backgrounds of the respondents were analysed. There were more respondents who had education level upto middle school (41.7 percent) than high school (32.50 percent), according to the statistics in Table. Of those respondents, 15.00 percent were illiterate, 5 percent had primary education, 4.2 percent were graduate and 1.7 percent had post graduation. From these findings, it can be deduced that the vast majority of respondents had only had a basic middle school or secondary education.

Table 6. Distribution of the respondents according to the education level

		Respondents (n=120)		
		Frequency	**Percent**	**Cumulative Percent**
	Illiterate	18	15.0	15.0
	Primary	6	5.0	20.0
	Middle school	50	41.7	61.7
	High school	39	32.5	94.2
	Graduate	5	4.2	98.3
	Pg	2	1.7	100.0
	Total	**120**	**100.0**	

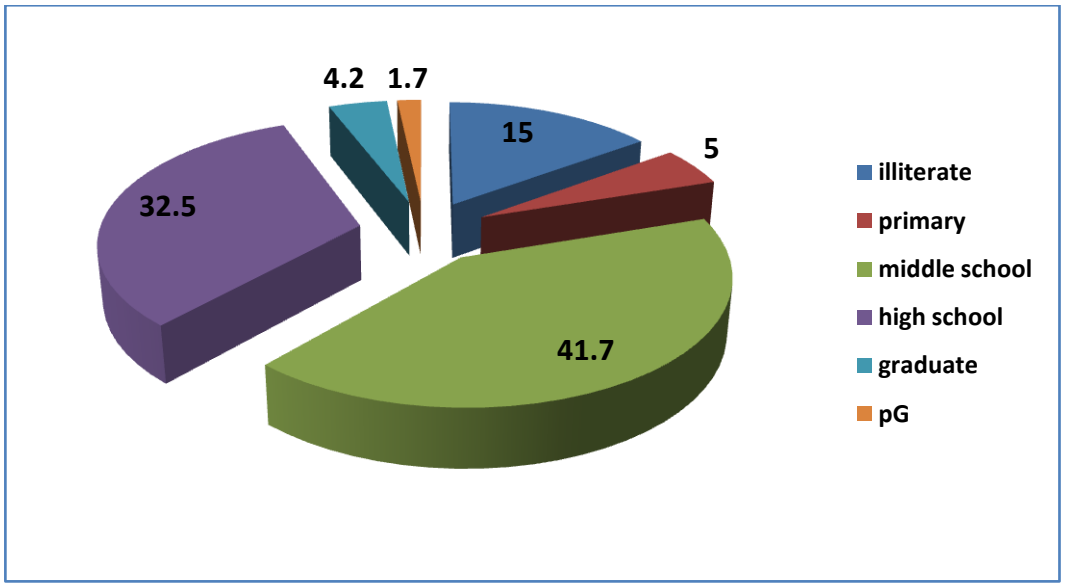

Figure 4. Distribution of the respondents according to the level of education

A similar research was made by Ghonge (2015) in a prior research study, which found that the majority of respondents were high school graduates.

(c) Type of family

The data in the table 7 shows that 61.7 % of respondents are members of nuclear families, while the remaining 38.3 % are members of joint families. As a result, it can be said that the vast majority of those who took the survey were members of a nuclear family.

Table 7. Distribution of the respondents according to the family type

				N = 120
		Frequency	**Percent**	**Cumulative Percent**
	Nuclear	74	61.7	61.7
	Joint	46	38.3	100.0
	Total	**120**	**100.0**	

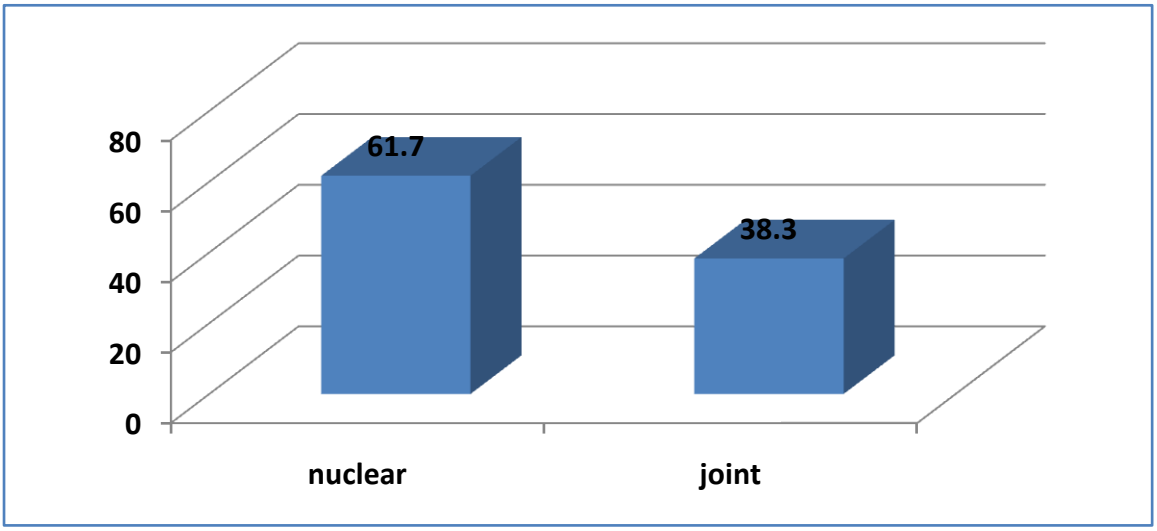

Figure 5. Distribution of the respondents according to the family type

The results of this study are in line with those of Kale (2014), who made a similar discovery and found that the vast majority of respondents belonged to a nuclear family.

(d) Family size

In Table 8, the majority of respondents had medium families (76.67 percent), followed by large (13.33%) and small (10.00%) households, according to the results of the survey (Table). It may be deduced that the vast majority of those polled had medium size families.

Table 8. Distribution of the respondents according to the family size

	Respondents (n = 120)		
	Frequency	**Percentage**	**Cumulative percent**
Small size (Upto 3)	12	10	86.67
Medium size (3 to 9 members)	92	76.67	100
Large size (More than 9)	16	13.33	

$\bar{X}$ = 6 SD = 2.54

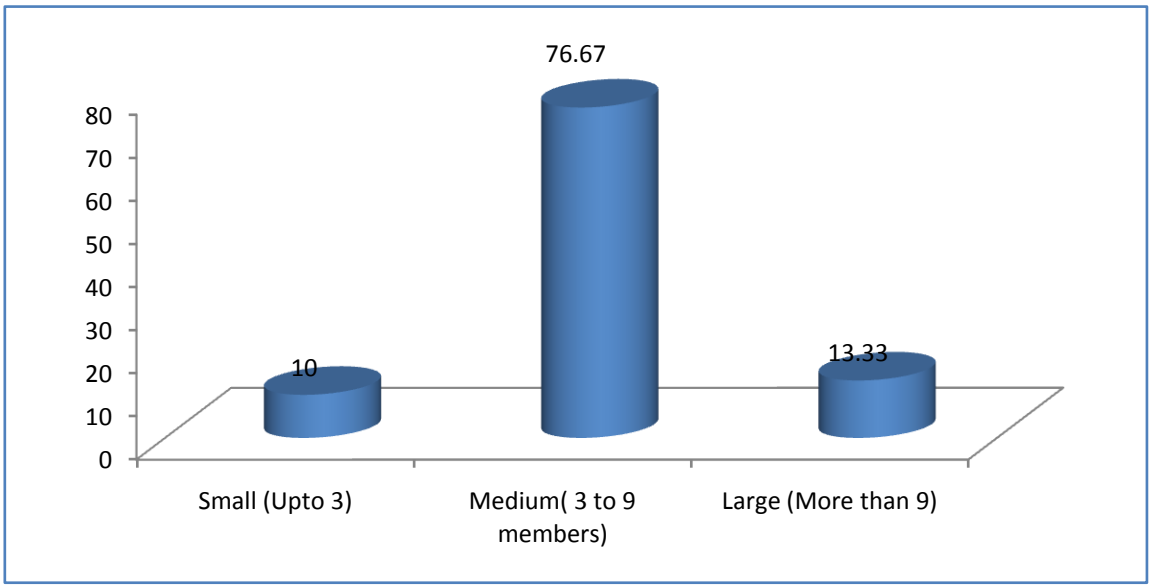

Figure 6. Distribution of the respondents according to the family size

Deshmukh (2007) observed comparable findings in his earlier research, in which majority of the respondents belonged to families of five individuals; the present study confirms those findings.

(e) Land holdings

According to the agriculture Census, the operational holdings are categorised in five size classes and were recognized as marginal, small, semi-medium, medium and large farmers categories as in the table 9 .

According to the classification 14.2 percent of the respondents were marginal farmers, 21.7 percent of them were small farmers category, semi-medium farmers constitute 20.8 percent of the total respondents while 13.3 percent were of large farmers.

Table 9. Distribution of the respondents according to the land holdings

		Frequency	Percent	Cumulative Percent
	Marginal	30	25.0	25
	Small	26	21.7	46.7
	Semi medium	25	20.8	67.5
	Medium	17	14.2	81.7
	Large	16	13.3	100
	Total	114	95.0	
Total		**120**	**100.0**	

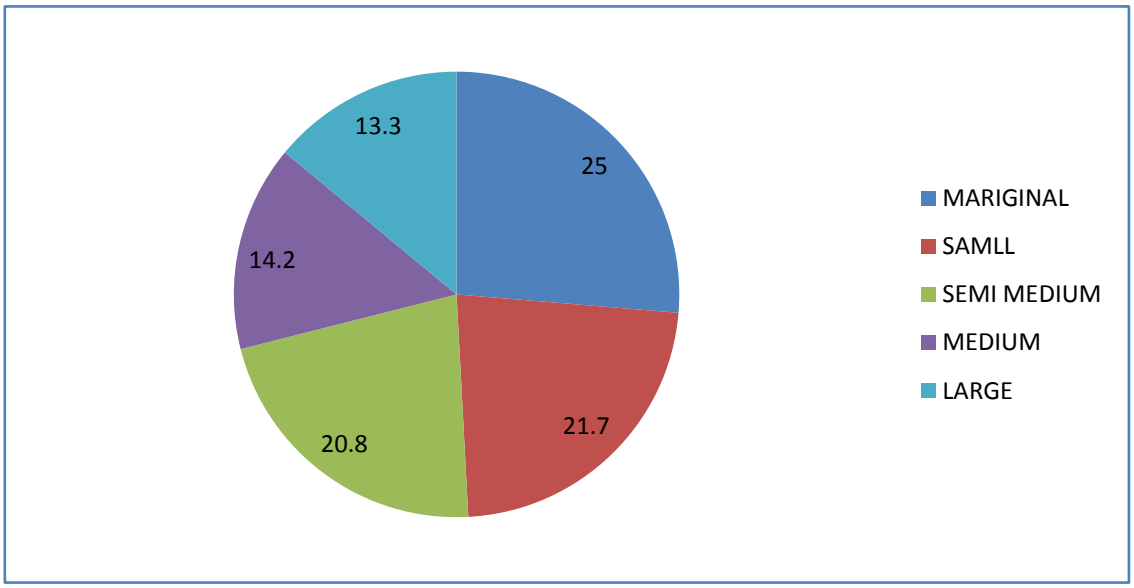

Figure 7. Classification of respondents according to the land holdings

(f) Occupational status

Table 10 shows the occupational status data, which show that the majority of respondents (58.00 percent) were in the agricultural occupation, followed by a fifth of the respondents (20.00 percent), agriculture and service (12.67 percent), and agriculture and labour (12.67 percent) (9.33 percent). Thus we can conclude most of the respondents are marginal type.

Table 10. Classifications of respondents according to the occupational status

		Frequency	Percent	Cumulative Percent
	farming	10	8.3	8.3
	farming & allied	50	41.7	50.0
	farming & Labour	60	50.0	100.0
	Total	**120**	**100.0**	

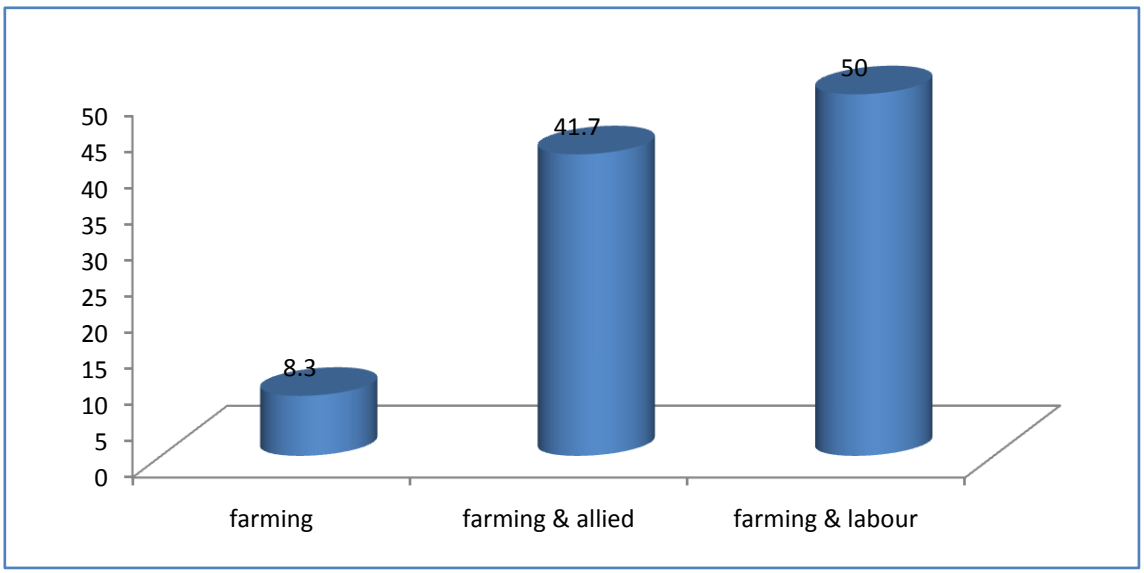

Figure 8. Distribution of the respondents according to occupational status

(g) Marital status

More than 80 percent of respondents were married, followed by roughly 9.2 percent who were single, and just 10.80 percent who were widow/widower/divorce, according to Table 11 . Based on the data in the table, it appears that the vast majority of survey participants (80.00 percent) were married.

Previous research performed by Seema Tandekar (2014) found that the majority of respondents were married, which is consistent with the findings of this research.

Table 11. Distribution of the respondents according to the marital status

		Frequency	Percent	Cumulative Percent
	Unmarried	11	9.2	9.2
	Married	96	80.0	89.2
	Widowed/divorced	13	10.8	100.0
	Total	**120**	**100.0**	

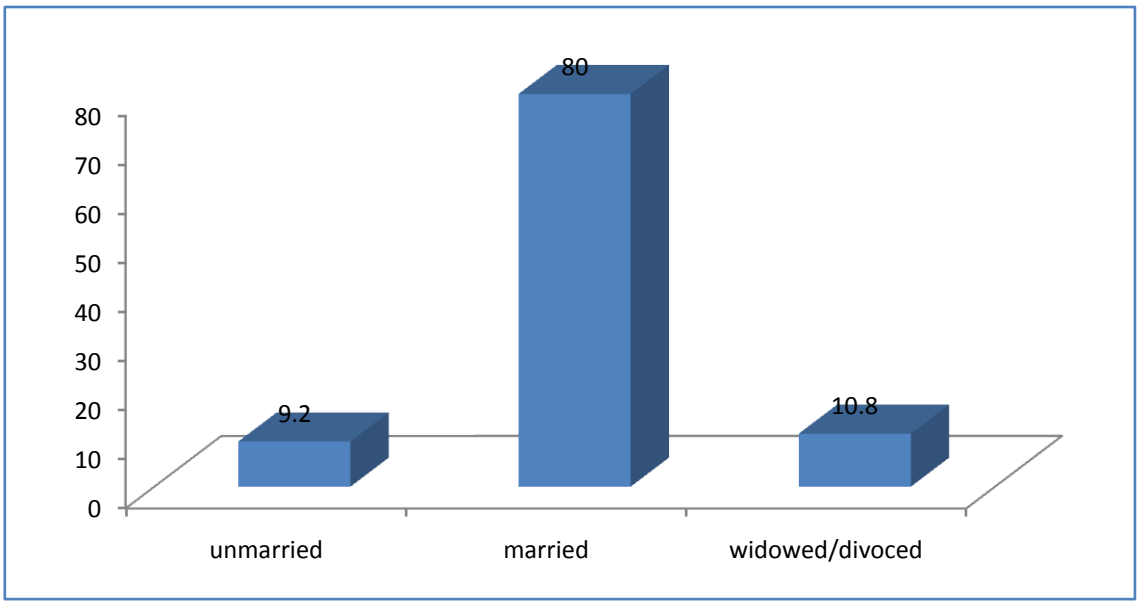

Figure 9. Distribution of the respondents according to marital status

Previous research studies done by Mokde (2000) had shown similar findings, namely that the majority of respondents were married, which supports the current findings of the study.

(ii) Socio-economic characteristics

(a) Expenditure pattern

More than 80.0 percent of the respondents has moderate expenditure pattern (Rs 40,000 to Rs 80,000) while high expenditure constitutes 18.3 percent of the total respondents (above Rs 80,000) and 1.7 percent of the respondents has low expenditure pattern (less than Rs 40,000). Based on the table 12 most of the respondents had medium expenditure pattern.

Table 12. Distribution of the respondents according to the expenditure pattern

	Frequencies	Percentage
Low expenditure	2	1.7
Moderate expenditure	96	80.0
High expenditure	22	18.3

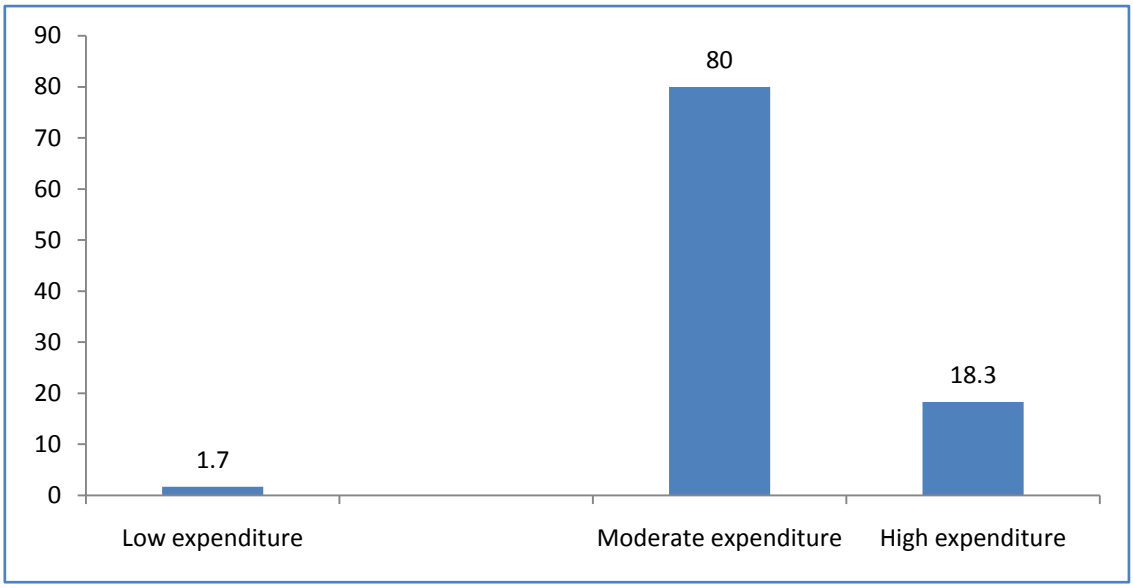

Figure 10. Distribution of the respondents according to expenditure pattern

According to the study of the 'Situation Assessment of Agricultural Households and Land and Holdings of Households in Rural India 2019' released by the National Statistical Office in September 2021 showed that monthly expenses of farmers in Jharkhand ranged from Rs 2000 to Rs 7000; annually expenses being Rs 24,000 to Rs 84,000 . Previous research studies done by Tandekar (2014) had shown similar

findings, namely that the majority of respondents had moderate expenditure pattern, which supports the current findings of the study.

(b) Annual income

According to the table 13, medium income level farmers comprised of 60.83 percent who had annual income Rs 60,000 and Rs 1,20,000, 38.33 percent came under low income level farmers who had annual income less than Rs 60,000 and high level income farmers who had annual income more than Rs 1,20,000 comprised of 0.83 percent.

Therefore majority of the farmers came under medium income level category.

Table 13 . Distribution of the respondents according to the income

		Frequency	Percent	Cumulative Percent
	Low income level	46	38.33	0.83
	Medium income level	73	60.83	61.66
	High income level	1	0.83	100.0
	Total	**120**	**100.0**	

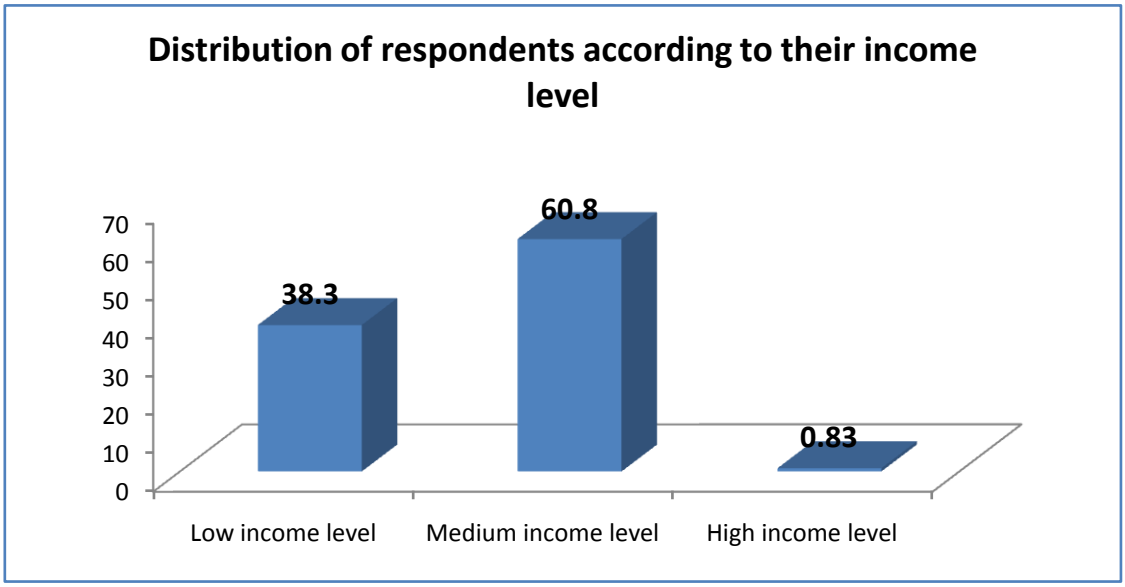

Figure 11. Distribution of the respondents according to income

The results are similar to the study of the 'Situation Assessment of Agricultural Households and Land and Holdings of Households in Rural India 2019' released by the National Statistical Office in September 2021 where the income of most farmers in Jharkhand were annually Rs 58,740 (monthly wages being Rs 4895).

(c) Extension Contact

Farmers are persuaded to try something new to alleviate stress as a result of their exposure to numerous sources of information. From this perspective, the extended contact has been evaluated for the current investigation. A larger number of respondents had never contacted the Block Development officer(64.2%), Agriculture Development Officer (60.8 %) and Agriculture Field Officer and Agri assistant were at (59.2 %) are the most common positions (table 14). In the case of informal sources, more than 17.2% of respondents never contacted NGO workers, whereas more than 48.3% of respondents occasionally contacted friends/relatives.

Table 14. Distribution of the respondents according to the extension contact

S.No.		Always	Sometimes	Never
A.	**FORMAL**			
1.	Gramsevak	14.2 %	40.8%	45.0%
2.	Extension Officer	4.2 %	44.2 %	51.7%
3.	Agri. Assistant	2.5%	38.3%	59.2%
4.	Agri. Development office	0.8%	38.3%	60.8%
5.	Block Development Officer	0.8%	35.0%	64.2%
6.	Agriculture field officer	0.8%	40.0%	59.2%
7.	Others	2.5%	51.7%	45.8%
B.	**INFORMAL**			
1.	Friends/relatives	45.0%	48.3%	6.7%
2.	NGO personnals	28.3%	54.2%	17.5%

Table 15. Distribution of the respondents according to the overall extension contact

		Respondents(n= 120)		
		Frequency	**Percent**	**Cumulative Percent**
Low extension contact		25	20.8	20.8
Medium extension contact		71	59.2	80.0
High extension contact		24	20.0	100.0
	Total	**120**	**100.0**	

Mean = 21 SD = 3.38

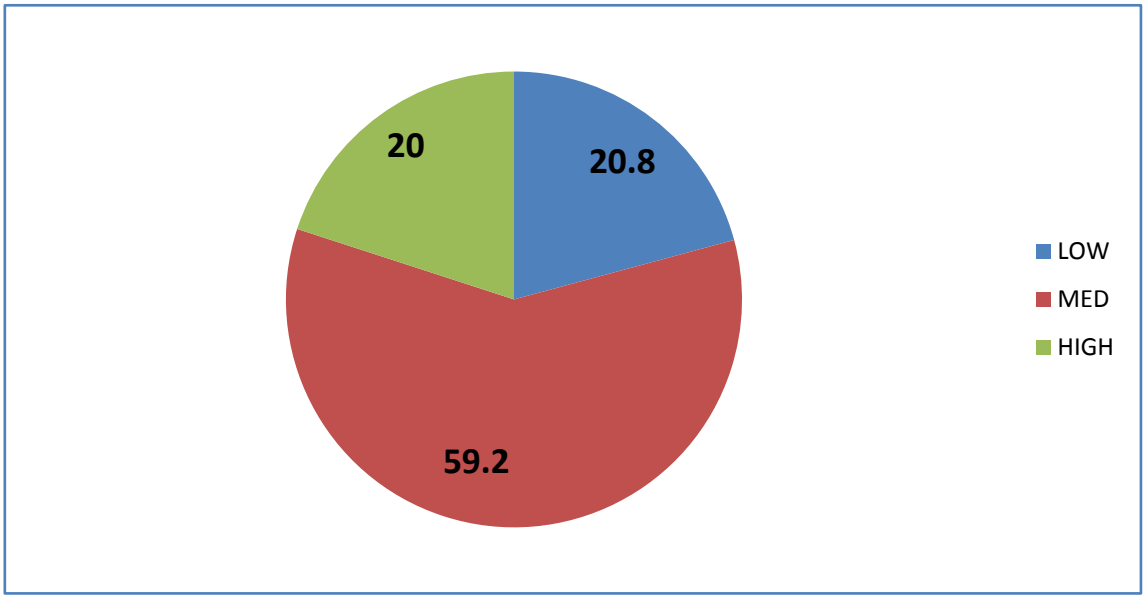

Figure 12. Distribution of the respondents according to extension contact

Table 15. Reveals that slightly more than half (59.20%) of respondents had medium extension contact, followed by almost a quarter (20.80%) of respondents with low extension contact and (20.00%) of respondents with high extension contact. From the afore mentioned statistics, it can be concluded that the majority of respondents had medium extension contact.

Patil (2013) revealed a similar observation in which the majority of respondents were in medium-extend contact, which is consistent with the findings of the current study.

(iii) Situational characters

(a) Health of the respondents/family members

The majority of respondents (82.5 percent) were free of health issues, as indicated by Table 16 findings. And 17.5 percent of respondents have health issues. From the aforementioned statistics, it can be concluded that the vast majority of respondents were healthy.

Table 16. Distribution of the respondents according to the health of the respondents/family members

		Respondents(n = 120)	
Frequency		**Percent**	**Cumulative Percent**
Health problem found	21	17.5	17.5
Health problem not found	99	82.5	100.0
	120	**100.0**	

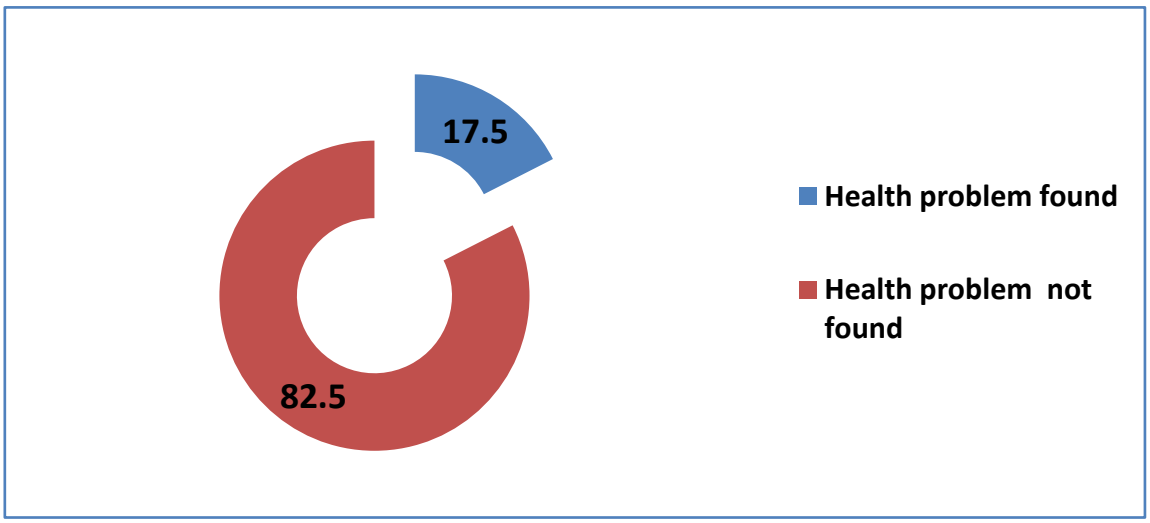

Figure 13. Distribution of the respondents according to the health of the respondents/family members

The present findings are confirmed by the findings of prior research investigations done by Kaple (2015), who discovered similar findings, namely that the majority of respondents did not have a health concern.

(b) Family dispute

According to the table 17, the majority of respondents (73.33 percent) did not have any family disputes. Whereas (22.00%) of respondents occasionally had problems with their family members and (4.67%) of respondents always had disputes with their family members for domestic reasons only. From the foregoing statistics, it can be stated that the majority of respondents had never had a disagreement with a family member.

Table 17. Distribution of the respondents according to the family dispute

Family disputes	**Respondents (n =120)**		
	Frequency	**Percent**	**Cumulative frequency**
Family disputes found	57	47.5	47.5
Family disputes not found	63	52.5	100
Total	**120**		

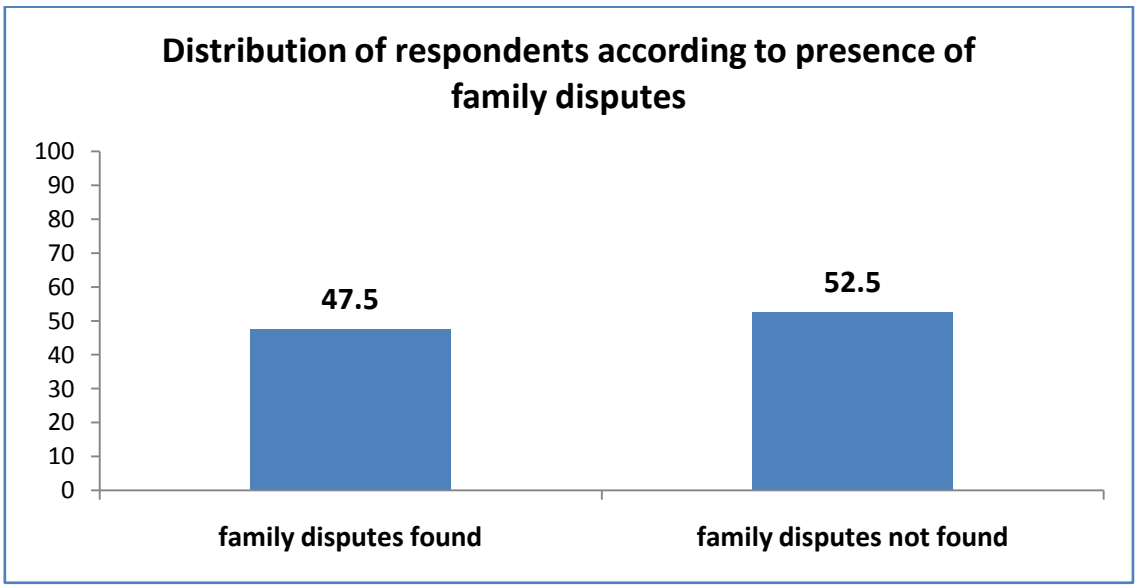

Figure 14. Distribution of the respondents according to family disputes

(c) Indebtedness

It refers to the total amount of pending and outstanding debts in rupees at the time of the interview. In order to categorise respondents according to their level of debt, three groups were established: low, medium, and high. The classification of respondents was based on percentage basis.

From the table 18 maximum loan (38.33%) was taken from family, friends, relatives for marriage purpose, home repair, education . 21.67 % of the respondents took loan from commercial banks, rural banks majorily for crop loans, mudra loans for their business.

Table 18. Classifications of respondents according to the sources of loan

Loan source	Respondents (n =120) percentage
Family /friends/relatives	38.33%
Money lenders	19.17%
Commercial banks/rural banks	21.67%
SHGs	9.17%
Private banks	11.67%

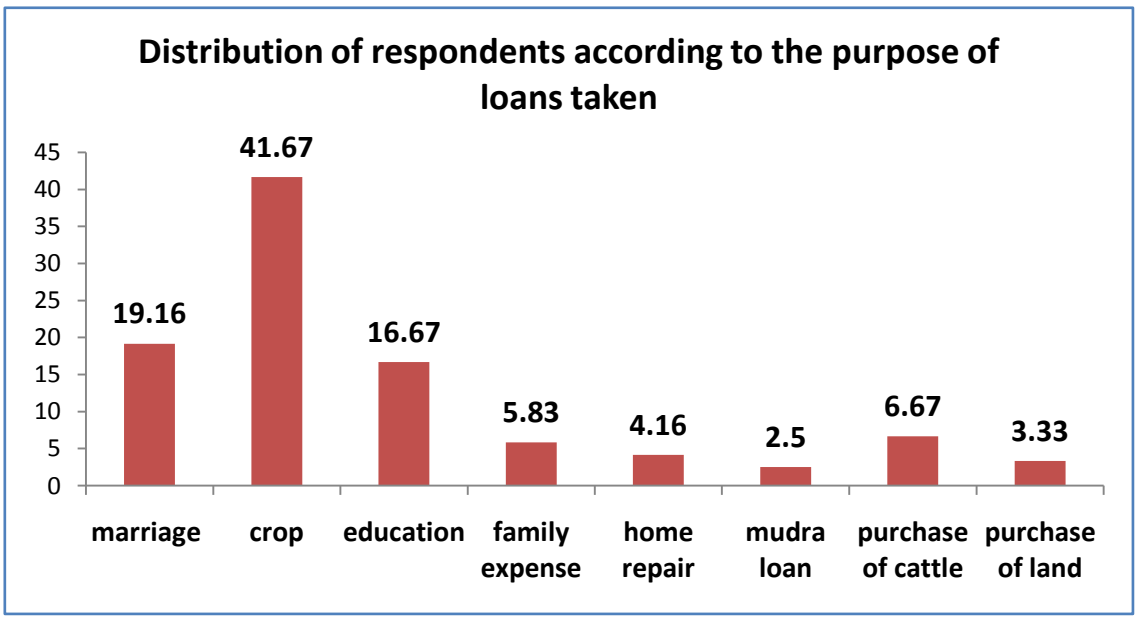

Figure 15. Distribution of respondents according to their purpose of loan taken

According to the figure 17, most of the respondents took loan for the purpose crop basically KCC loans 41.67 %, 19.16% for the purpose of marriage and 16.67 % took loans for education purpose. Other reasons for loans were family expense, home repair, mudra loans for their business, purchase of cattle, lands etc.

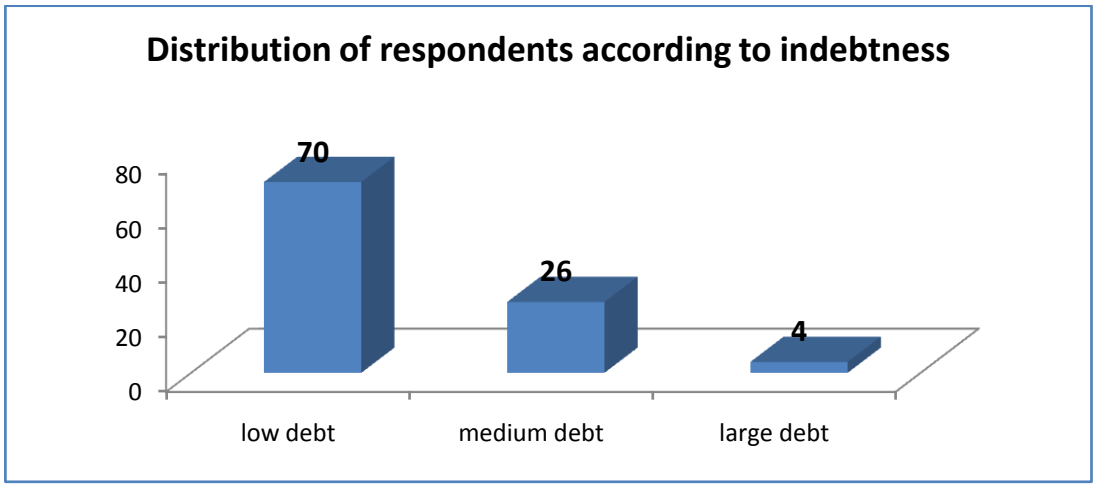

Figure 16. Distribution of respondents according to their indebtness

From above table 18, all the respondents were in debt and it revealed that maximum number of the respondents (71.34%) had low debt up to Rs. 50,000/- followed by little more than one fourth (26.00%) of the respondents had medium debt in range between Rs. 50001/-to Rs.1,00,000/- and only (4.00%) of the respondents had high debt above Rs.1,00,000/-. It could be concluded from the Table 18 that majority of the respondents (71.34%) had the low debt up to Rs. 50,000/-

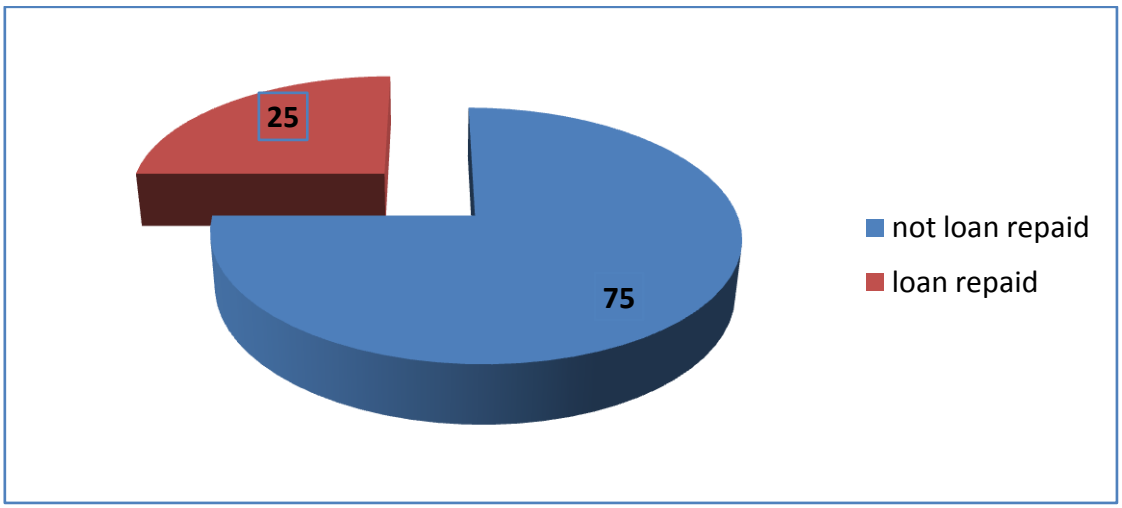

Figure 17. Distribution of respondents according to loan repaid.

According to the figure 18 , out of 120 respondents, 75 % of them still have not repaid their loans while 25 % have repaid.

(d) Crop failure

The data from Table 19 indicate that a relatively high proportion of respondents (76 percent) experienced crop failure once in rice crop, followed by (34.17 percent)of respondents experiencing crop failure two times in rice crop, and (2.50 percent)of farmers experiencing crop failure only once in rice crop; (67.50 percent)of farmers experiencing crop failure once in wheat crop; (24.17 percent)of farmers experiencing crop failure up to two times in wheat crop; and (8.33 percent)of farmers experiencing crop 3 times or more, another 69.17 percent of maize producers experienced crop failure once, 25 percent of farmers have suffered crop failure two times and 5.83 percent crop failure 3 or more in wheat production. (85.83%)of farmers suffered crop failure once in potato, (11.67%)of farmers experienced crop failure up to twice in potato, (2.50%)of farmers experienced three or more times failure in potato, and (85.83%)of farmers experienced crop failure once in greengram/black gram. 10.83 percent of respondents reported crop failure twice, whereas 3.33 percent experienced crop failure three or more with green gram and black gram.

Table 19. Distribution of the respondents according to the crop failure

S.No.	Major crop field	No. of times crop failed						Total	
		3 or more		2		1		N=120	
		Freq	%	Freq	%	Freq	%	Freq	%
1	Paddy	15	12.5	18	15.00	10	8.33	43	35.83
2	Wheat	10	8.33	12	10.0	10	8.33	32	26.67
3	Maize	6	5.00	7	5.83	4	3.33	17	14.17
4	Potato	5	4.17	8	6.67	4	3.33	17	14.17
5	Others	2	1.67	4	3.33	5	4.17	11	9.17

The principal crops farmed in the Ranchi Districts are Paddy, wheat and maize. In past 3 years most frequent crop failure was in paddy (35.83 %) due to fluctuations in weather conditions.

5.2 Stressful events

The scale created by Bhagwatwar (2000) was used to measure the stressful events/stressors among farmers. According to Table 20, a significantly high number of respondents reported no stress in response to the stressor measured by Bhagwatwar's (2000) scale. It may be related to respondents' exposure to entertainment activities or a shift in lifestyle. The consequences of the stressors or stress events are outlined below.

Table 20. Distribution of respondents according to the stressful events or stressors made by Bhagatwar (2000)

Particulars	NS	LS	SS	MS	STS	THS	HS
Sudden and significant increase in debt load	28.1%	5.0%	0.8%	8.3%	10.7%	27.3%	19.8%
Significant production loss due to disease or pests	0.0%	26.4%	0.8.%	28.1%	5.8%	38.8%	0.0%
Significant loss due to pandemic COVID – 19 menace	0.0%	0.0%	0.0%	17.4%	1.7%	18.2%	62.8%
Insufficient regular cash flow to meet financial obligations or for daily necessities	0.8%	5.0%	5.0%	16.5%	2.5%	23.1%	47.1%
Delay in planting or harvesting due to weather	0.0%	0.0%	1.7%	36.4%	3.3%	40.5%	18.2%
Low commodity prices	0.0%	0.0%	0.8%	34.7%	5.0%	59.5%	0.0%
Purchase of major machinery, facility or livestock	0.0%	45.5%	3.3%	26.4%	3.3%	19.8%	1.7%
Prolonged bad weather	0.0%	0.0%	0.0%	4.1%	2.5%	71.1%	22.3%
Problems with weeds or insects	0.0%	0.8%	14.0%	71.1%	14.0%	0.0%	0.0%
Machinery breakdown at a critical time	0.0%	14.9%	11.6%	51.2%	2.5%	2.5%	17.4%
Deciding when to sell	0.0%	62.0%	15.7%	2.5%	16.5%	3.3%	0.0%

Rising expenses	0.0%	0.0%	0.0%	0.8%	9.1%	68.6%	21.5%
Government policies and regulations	5.8%	74.4%	14.9%	1.7%	3.3%	0.0%	0.0%
Farm related accident	0.8%	69.4%	1.7%	5.0%	11.6%	0.8%	10.7%
Government trade policies	4.1%	71.9%	2.5%	20.7%	0.8%	0.0%	0.0%
Government "cheap food" policies	6.6%	86.8%	0.8%	4.1%	1.7%	0.0%	0.0%
Breeding or reproductive difficulties with livestock	64.5%	20.7%	4.1%	9.9%	0.8%	0.0%	0.0%
Increased workload at peak times	0.0%	0.0%	0.8%	0.0%	71.1%	0.0%	18.2%
Unplanned interruptions	0.0%	0.0%	0.0%	59.5%	21.5%	17.4%	1.7%
Dealing with salespeople	0.0%	0.0%	0.8%	48.8%	24.8%	24.0%	1.7%
Pressure of having too much to do in too little time	0.0%	0.0%	0.0%	31.4%	47.1%	21.5%	0.0%
Feeling isolated on the farm	0.0%	0.0%	0.8%	52.1%	6.6%	40.5%	0.0%
Having to travel long distances for services, repairs, shopping and health care	0.0%	40.5%	0.0%	30.6%	2.5%	24.8%	1.7%
Keeping up with new technology and products	0.0%	22.3%	0.8%	38.8%	3.3%	34.7%	0.0%
Worrying about market conditions	0.0%	17.4%	1.7%	47.1%	9.1%	22.3%	2.5%
Being expected to work on the farm as well as manage the hours	0.0%	19.8%	1.7%	17.4%	14.0%	44.6%	2.5%
Worrying about owing money	19.8%	5.0%	0.8%	9.9%	16.5%	28.1%	19.8%
Worrying about keeping the farm in the family	0.0%	28.9%	4.1%	35.5%	3.3%	28.1%	0.0%
Death of a parent or member of the immediate family	1.7%	72.7%	0.8%	4.1%	4.1%	16.5%	0.0%
Long working hours	0.0%	2.5%	1.7%	51.2%	19.8%	24.8%	0.0%
Problems balancing work and family responsibilities	1.7%	8.3%	5.8%	56.2%	1.7%	26.4%	0.0%
Problems with a partnership	24.0%	61.2%	0.0%	0.8	0.0%	9.1%	5.0%
Trouble with parents or in-laws	25.6%	57.9%	0.0%	2.5%	0.0%	8.3%	5.8%
Major decisions being made	14.0%	49.6%	15.7%	12.4%	4.1%	0.8%	3.3%

without my knowledge or input							
Surface rights negotiations	28.9%	55.4%	0.8%	6.6%	5.0%	3.3%	0.0%
Problems with relatives in farm operating agreement	5.0%	67.8%	4.1%	22.3%	0.8%	0.0%	0.0%
Problems with neighbour about farm	11.6%	63.6%	0.0%	9.9%	14.0%	0.8%	0.0%
Retirement and farm transfer to next generation	25.6%	59.5%	2.5%	2.5%	2.5%	7.4%	0.0%
Personal life events							
Death of spouse	78.5%	7.4%	0.0%	10.7%	0.8%	2.5%	0.0%
Divorce	82.6%	2.5%	0.0%	10.7%	0.0%	4.1%	0.0%
Detention in jail or other institution	94.2%	2.5%	0.0%	0.0%	0.0%	3.3%	0.0%
Death of close family member	75.2%	6.6%	1.7%	3.3%	5.0%	5.0%	3.3%
Major personal injury or illness	33.9%	44.6%	1.7%	7.4%	5.0%	7.4%	0.0%
Being fired at work	0.0%	45.5%	0.0%	46.3%	7.4%	0.8%	0.0%
Major change in health or behaviour of family member	3.3%	48.8%	0.0%	20.7%	4.1%	23.1%	0.0%
Major change in financial state	1.7%	47.9%	17.4%	30.6%	1.7%	0.8%	0.0%
Changing to a different line of work	1.7%	56.2%	2.5%	27.3%	2.5%	9.9%	0.0%
Major changes with number of argument (About child care or personal habits)	0.8%	10.7%	3.3%	48.8%	3.3%	28.1%	5.0%
Taking on mortgage (Home, business)	90.9%	3.3%	2.5%	1.7%	1.7%	0.0%	0.0%
Foreclosure on mortgage or loan	90.9%	5.0%	0.8%	1.7%	1.7%	0.0%	0.0%
Major changes in responsibility of work	0.8%	44.6%	2.5%	23.1%	3.3%	25.6%	0.0%
Major changes in living conditions like deterioration of neighbourhood or home	1.7%	62.8%	3.3%	23.3%	3.3%	6.6%	0.0%
Major changes in social activities	0.8%	29.8%	2.5%	64.5%	2.5%	0.0%	0.0%
Death of parent	2.5%	57.0%	2.5%	20.7%	3.3%	6.6%	7.4%
Separation of parent	3.3%	15.7%	1.7%	68.6%	1.7%	5.0%	4.1%

According to my expenditure the financial condition is far from satisfactory	1.7%	4.1%	2.5%	16.5%	19.0%	51.2%	5.0%
I am not finding a suitable match for my daughter	13.2%	35.5%	3.3%	25.6%	9.9%	10.7%	1.7%
My children has developed bad habits	0.0%	25.6%	2.5%	37.2%	3.3%	29.8%	1.7%
I have to work with-out dated technology	0.8%	2.5%	1.7%	66.9%	5.8%	22.3%	0.0%
No enough time to spend with spouse	2.5%	43.0%	3.3%	44.6%	0.0%	6.6%	0.0%
Spouse don't time for child rearing	1.7%	46.3%	4.1%	47.9%	0.0%	0.0%	0.0%
Conflict with spouse over spending priorities	0.0%	9.1%	0.0%	76.0%	3.3%	11.6%	0.0%
Death of close friend	82.6%	2.5%	0.0%	10.7%	0.0%	4.1%	0.0%
Daughter or son leaving home	5.0%	67.8%	4.1%	22.3%	0.8%	0.0%	0.0%
Marital separation	82.6%	2.5%	0.0%	10.7%	0.0%	4.1%	0.0%
Not enough time and money for entertainment	1.7%	4.1%	2.5%	16.5%	19.0%	51.2%	5.0%
Problem with partners	82.6%	2.5%	0.0%	10.7%	0.0%	4.1%	0.0%
Trouble with parents or in laws	3.3%	15.7%	1.7%	68.6%	1.7%	5.0%	4.1%

The data reported in Table 20 on events 27.3 percent of respondents s showed tremendous stress over the sudden and big rise in debt, followed by (19.8 percent) respondents with high stress, (28.1 percent) respondents with no stress, (10.70 percent) respondents with substantial stress, (5.0 percent) respondents with moderate stress.

The majority of respondents (38.8%) reported moderate stress about the significant production loss due to disease or pest, followed by respondents (28.1%) with moderate stress, (26.4%) with little stress, (5.8%) with substantial stress

Regarding significant loss due to pandemic covid 19 menace significant loss due to pandemic covid 19 menace, respondents were highly stressed (62.8 percent), followed by respondents (18.2 percent) with tremendous stress,(17.4 percent) with some stress.

Regarding inadequate regular cash flow to meet financial obligations or for daily necessities, respondents were highly stressed (47.1 percent), followed by respondents (23.1 percent) with tremendous stress, (16.5 percent) with moderate stress

Due to delay in planting or harvesting due to weather 40.5 percent respondents had tremendous stress, followed by 36.4 percent moderate stress and 18.2 percent with high stress.

As per data 59.5 percent respondents experienced tremendous stress due to increase in commodity price followed by 34.7 percent moderate stress by farmers.

As a result of the purchase of major machinery, 45.5 percent of respondents were under little stress, 26.4 percent had moderate stress, 19.8 percent had tremendous stress, 1.7 percent had high stress.

As a result of prolonged bad weather, 71.1 percent of respondents experienced tremendous stress, followed by 22.3 percent with high stress, and 4.1 percent with moderate stress.

Concerning weeds or insects, 71.1% of respondents were moderately stressed, while farmers had substantial to some stress (14.0%).

As for incidents like a key machinery malfunction, 51.2% of respondents felt moderate stress and 17.4 percent suffered high stress, (14.9%) felt little stress, and (11.6%) experienced little stress.

Choosing when to sell was moderately stressful for 62%, substantially stressful for 16.50%, tremendously stressful for 3.3 % ,30% had some stress, 23.3% had moderate stress, 20.6% had less stress, 10% had severe stress, 8.6% experienced stress, and 7.3% had no stress.

Rising costs caused tremdous stress for 68.6% of respondents, high stress for 21.5 % while substantial stress for 9.1%

Governmental regulations and policies (74.4%) have little stress, (14.9%) have some stress, whereas (5.8%) reported no stress.

Regarding government trade policies (71.9 percent) of respondents with little stress, followed by (20.7 percent) respondents with moderate stress while 4.1 percent of the respondents had no stress at all.

Approximately more than half of the respondents (69.4.00 percent) reported having little stress, followed by 11.6 percent who reported having substantial stress, (10.7 percent) who reported having high stress, 5.0 percent who reported having moderate stress regarding an accident that occurred on a farm.

Concerning the policies of the government regarding "cheap food," a total of 86.8 percent of respondents experienced only little level of stress, followed by 6.6 percent of respondents who experienced no stress, and 4.1 percent of respondents who experienced moderate stress.

When it came to breeding or reproductive problems with livestock, 64.5 percent of respondents had no stress, followed by 20.7 percent of respondents who had little stress, 19.9 percent of respondents who had moderate stress and 4.1 percent of respondents who had some stress.

A little more than one fourth of the respondents (71.7 percent) had substantial stress as a result of increased workload during peak times. This was followed by (18.20 percent) with highly stressed,, and(0.8 percent)had little stress.

Respondents who experienced unplanned interruptions reported having moderate stress at a rate of 59.5 percent, followed by respondents who experienced substantial stress at a rate of 21.5 percent, tremendous stress at a rate of 17.4 percent and highly stressed at a rate of 1.7 percent.

Relating to interactions with salespeople, respondents had moderate stress 48.8 percent of the time, followed by substantial stress 24.80 percent of the time, tremendous stress 24.0 percent of the time and high stress 1.7 percent of the time.

The respondents (47.1 percent) had substantial stress as a result of the pressure of having too much to do in too little time, followed by respondents (31.4 percent) who had moderate stress and 21.5 percent who had tremendous stress.

In terms of stress caused by feeling isolated on the farm, respondents reported that 52.1 percent of them had moderate stress, followed by 4.05 percent who reported tremendous stress and 16.6 percent who reported stress.

Respondents who were required to travel long distances for services, repairs, shopping, and medical care were more likely to report having little stress (40.5 percent), moderate stress (30.6 percent), tremendous stress (24.8 percent and substantial stress (2.5 percent).

Respondents who kept up with new technologies and goods reported experiencing moderate stress (38.8 percent), followed by (34.7 percent) with tremendous stress and (22.30 percent) with little stress.

Concerning oneself with the current state of the market (47.1 percent) respondents reported feeling moderate levels of stress, followed by 22.3 percent reporting tremendous stress, 17.4 percent reporting little stress, 9.7 percent reporting substantial stress and 2.5 percent reporting high levels of stress.

Due to the fact that respondents were expected to work on the farm as well as manage the hours, 44.6 percent of respondents reported having tremendous stress, followed by 19.8 percent who reported having little stress, 17.4 percent who reported having moderate stress, 14.0 percent who reported having substantial stress and 2.5 percent who reported having high stress.

Concerned about owing money, 14.8 % of the respondents were highly stressed ,28.1 % of respondents had tremendous stress while 14.8 % had no stress at all and 16.5 % had substantial stress.

Respondents who worried about maintaining the farm in the family expressed moderate stress (35.5%), little stress (28.9%), tremendous stress (28.1%), and some stress (4.1%).

The death of a parent or other direct family member was reported by respondents as causing them to experience little stress (72.7 percent), tremendous stress (16.5 percent), and both moderate and substantial stress levels were amounted upto 4.1 %.

The respondents who reported having long working hours were more likely to have experienced moderate level of stress (51.2 percent), followed by (24.8 percent) with tremendous stress, (19.8 percent) with substantial stress, and (2.5%) with little stress.

Problems with a partnership respondents had little stress (61.2 percent), followed by respondents who reported no stress (24.0 percent), respondents reported trememdous stress (9.1 percent), and respondents reported high stress 5.0 percent.

Trouble with parents or in-laws respondents had little stress (57.9 percent), followed by respondents who had no stress (25.6 percent), respondents who had tremendous stress (8.3 percent), respondents who had high stress (5.8 percent)

Because major decisions were made without respondents knowledge or input, respondents had little stress (49.6 percent), 15.7% had some stress,14.0% had, no stress at all and moderate stress (12.4 percent).

Surface rights negotiations respondents (55.4%) had little stress followed by (28.9%) had no stress at all, (6.6%) with moderate stress and (5.00%) with substantial stress.

Problems with family in farm operating agreement respondents reported little stress (67.8 percent), followed by moderate stress at 22.3 percent and with no stress at 5 percent.

Problems with family in farm operating agreement respondents reported moderate stress at a rate of 40 percent, followed by some stress at 31.33 percent, very little stress at 14 percent, significant stress at 98 percent, awful stress at 12.66 percent, and extreme stress at 0.33 percent.

Problems with family in farm operating agreement respondents reported little stress at 63.6 percent, followed by substantial stress at 14 percent, with no stress at 11.6 percent, moderate stress at 9.9 percent and tremendous stress at 0.8 percent.

Retirement and farm transfer to next generation respondents (59.5 percent) reported having little stress, followed by (25.6 percent) with no stress, (7.4 percent) with high stress and (2.55 percent) with moderate stress.

The death of a spouse (78.5 percent) The respondent had not experienced such a situation, so there was no evidence of stress. This was followed by 10.7 percent of respondents who reported experiencing moderate stress, 7.4 percent who reported experiencing a little amount of stress and 2.5 percent who reported experiencing tremendous levels of stress.

The majority of respondents who were divorced (82.6 percent) did not experience the type of problem that causes absence of stress, also known as no stress. This was followed by 10.7 percent of respondents who experienced moderate stress, 7.4 percent who experienced little stress, 2.5 percent who experienced tremendous stress.

Imprisonment or detention in another institution (94.2 percent) Respondents had not encountered such a situation, hence they reported experiencing no stress. This was followed by (3.0 percent) reporting tremendous stress and (2.5 percent) reporting little stress.

The passing of a member of the immediate family (75.2 percent) The respondents had not been in a similar circumstance, thus they reported having no stress. Next came those who reported having little stress (6.6 percent), substantial stress (5.00 percent) and tremendous stress (5.00 percent).

Major personal injury or illness accounted for 44.6 % of respondents who reported little stress, followed by 33.9 % of respondents who reported no stress, both tremendous stress and moderate stress made upto 7.46% .

As a result of being fired from their job, 46.3 percent of respondents experienced moderate stress, followed by 45.5 percent of respondents who experienced little stress and 7.4 percent of respondents who experienced substantial stress.

Major change in the health or behaviour of a family member had little stress (48.8 percent), followed by (23.3 percent) with tremendous stress, and (20.0 percent) with moderate stress.

Significant shift in the existing financial situation almost half of the respondents (47.9 percent) reported little levels of stress, followed by (30.6 percent) reporting

moderate stress, (17.4 percent) reporting some stress and (0.8 percent) reporting tremendous levels of stress.

Changing to a different line of work was associated with little stress for 56.2 percent of respondents, followed by 27.3 percent of respondents who reported moderate stress and 9.9 percent of respondents who reported tremendous stress.

Major alterations with regard to the amount of arguments (concerning childcare or personal routines) (48.8 percent) a moderate amount of stress, followed by (28.3 percent) people who have tremendous stress, (10.7 percent) people who have a little amount of stress and (5.0 percent) people who have high stress.

Getting a mortgage (for their home or their business) had no stress(90.9), followed by 3.3 percent of respondents who experienced little stress, and 2.5 percent of respondents who experienced some stress.

A foreclosure on a mortgage or loan caused no stress for 90.9 percent of respondents, followed by 5.0 percent of respondents who reported little stress, 1.7 percent of respondents who reported moderate tress and 1.7 percent of respondents who reported substantial stress.

There have been significant shifts in the responsibilities of the work (62.8 percent) respondents reported experiencing some level of stress, followed by (23.3%) moderate stress and (6.6 %)high level of stress.

Changes in living conditions, such as the deterioration of the neighbourhood or the home, accounted for 62.8 percent of the reported a little stress, followed by 23.3 percent of those who reported moderate stress, 6.6 percent of those who reported tremendous stress and 3.3 percent of those who reported substantial stress.

Major changes in social activities led to moderate level of stress for 64.5 percent of respondents, followed by 29.8 percent of respondents who reported little stress, 2.5 percent of respondents who reported substantial stress and 2.5 percent of respondents who reported some level of stress.

The passing of a parent (57.0 percent) of the respondents reported having little levels of stress, followed by 20.7 percent who reported having moderate level of stress

, 7.4 percent who reported having high level of stress, 6.6 percent who reported having little stress and 3.3 percent who reported having substantial of stress.

Separation of parents was a moderately stressful event for 68 .6 percent of respondents, followed by 15.7 percent of respondents who reported little stress, 5.0 percent of respondents who reported tremendous stress, 4.1 percent of respondents who reported high level of stress while 3.3 percent of the respondents experienced no stress at all.

Respondents spending habits suggest that the respondents' current financial situation is not even close to being adequate. (51.2%) reported having tremendously stress, followed by (19.0%) people who reported having substatial stress, (16.5%) people who reported having moderate stress, while (5.0%) people who reported having high level of stress, (4.1%) people who reported having little stress, and (1.7%) people who reported having no stress.

They have not been successful in finding a partner who is suitable for their daughter. (35.5 percent) of respondents experienced little level of stress, followed by (25.6 percent) respondents who experienced moderate stress, (13.2 percent) respondents who experienced no stress and (1.7 percent) respondents who experienced tremendous stress.

Their children have picked up some undesirable behaviours (37.2 percent .) responses moderate level of stress, followed by (29.8%) respondents with tremendous stress, (25.6%) respondents with little stress, (3.3%) respondents with substantial stress and (1.7%) respondents with high stress.

Have to work with outdated technology caused moderate stress level for 66.9 percent of respondents, followed by tremendous stress level for 22.3 percent, substantial stress for 5.8 percent and a little stress level for 2.50 percent of respondents.

Because they did not have enough time to spend with their spouse, 44.6% of respondents had moderate stress, followed by 4.3 % of respondents who had a little stress, 6.6 % of respondents who had tremendous stress, 3.3 % of respondents who had some stress and 2.5% of respondents who had no stress.

The majority of respondents (47.9 percent) experienced moderate level of stress, followed by (4.3 percent)with little stress,(4.1 percent)with little stress and (1.7 percent)with little stress for spouses who don't have time for child rearing.

For disputes with a spouse about the allocation of household funds 76.0 percent of respondents reported moderate stress, followed by (11.6 percent) with tremendous stress, (9.1 percent) with little stress and (3.33%) with tremendous stress.

Among those who were polled after a close friend died, 82.6 % said they were not stressed, followed by 10.7% with moderate stress, 4.1 % with tremendous stress and 2.5 percent with little stress.

(67.8 percent) of those respondent said they were little stressed about their daughter or son moving out of the house. (51.2 percent) said they were tremendously stressed. (19.0 percent) said they were substantially stressed. (16.5 percent) said they were moderately stressed out.

In the event of divorce /marital separation (82.6 percent) Because they had never encountered such a circumstance, respondents reported no stress; only 10.7 percent experienced moderate stress; 4.1 percent had tremendous stress; and 2.5 % had little stress.

There's not enough time or money to go out and have fun (51.2%) have tremendous stress, (19.0%) have substantial stress, (16.5 percent) have some moderate strain, (5.0 percent) have high stress , and (4.1 percent) have little strain.

There is a problem with the relationship between the two parties. A majority of survey participants (82.6 percent) reported no stress, followed by 10.7 percent who reported moderate stress, 4..1 percent who reported tremendous stress and a meager 2.5 percent who reported little stress.

Trouble with your parents or your spouse (68.6 percent .) Those with moderate stress were followed by those with little stress (15.7%), tremendous stress (5.0%), high stress (4.1%) and 1.7% with substantial stress.

Table 21. Distribution of the respondents according to the level of stress due to external factors

		Respondents(n=120)		
Physical Stress level		**Frequency**	**Percent**	**Cumulative Percent**
	Low (below 27.99)	17	14.0	14.0
	Medium (27.99 to 34.33)	85	70.2	84.3
	High (above 34.47)	18	15.7	100.0
	Total	**120**	**100.0**	

Mean = 31.23 SD = 3.23

The results in Table 21 reveal that due to external factors the majority of respondents (70.2 percent) are classified as having a medium level of stress, followed by those with a high level of stress (15.7 percent) and those with a low level of stress (14.0 percent).

Table 22. Distribution of the respondents for stressful events due to personal reasons

		Respondents (n=120)		
Stress level		**Frequency**	**Percent**	**Cumulative Percent**
	Low (below 67.66)	20	16.5	16.5
	Medium (67.66 to 82.54)	80	66.9	83.5
	High(above 82.54)	20	16.5	100.0
	Total	**120**	**100.0**	

Mean = 75.10 SD = 7.44

The results in Table 22 reveal that due to personal factors the majority of respondents (66.9 percent) are classified as having a medium level of stress while high and low level of stress both have (16.5 percent).

Table 23. Distribution of respondents according to overall stressful events

		Respondents(n=120)		
Overall stress level		**Frequency**	**Percent**	**Cumulative Percent**
	Low(below 71.49)	12	10	10
	Medium (71.49 to 83.09)	88	73.33	83.33
	High (above 83.09)	20	16.65	100.0
	Total	**120**	**100.0**	

Mean =77.29 SD = 5.80

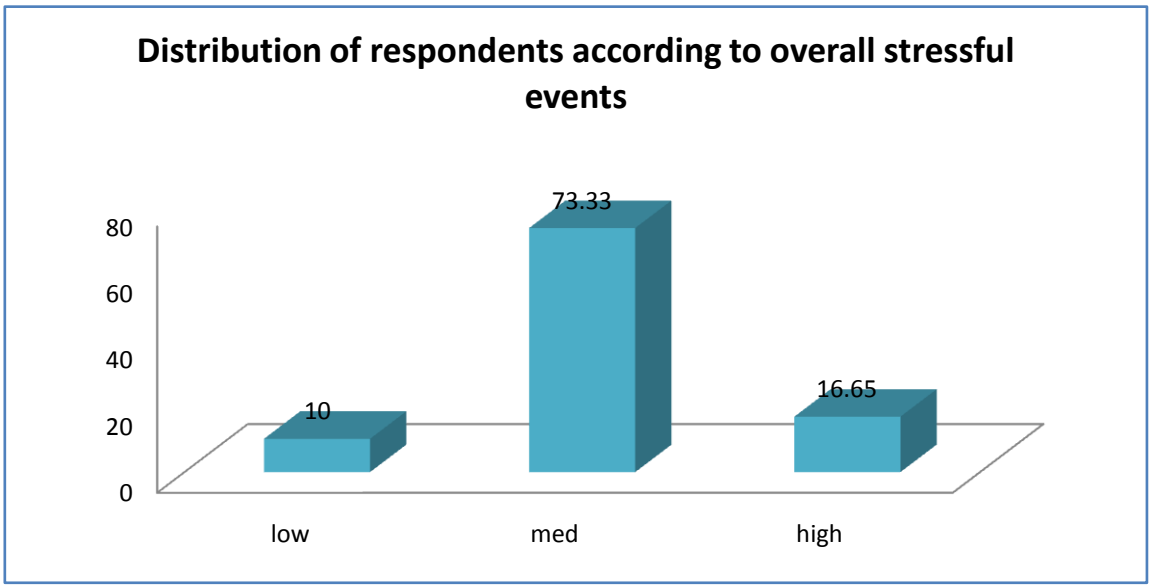

Figure 18 . Distribution of respondents according to overall stressful events.

Altogether stressful events showed that the majority of respondents (73.33 percent) are classified as having a medium level of stress, followed by those with a high level of stress (16.65 percent) and those with a low level of stress (10.0 percent) as shown in the Table 23.

The majority of farmers (73.33 percent) experience a moderate degree of stress, as shown by the afore mentioned in the figure 18.

In contrast to the findings of Nayak (2008), who reported that a greater proportion of teachers (70.5 percent) fell into the category of low stress, followed by the category of very low stress, the findings presented here indicate that a greater proportion of teachers fall into the category of extremely low stress (23.5 percent)

5.3 Stress management

Physical stress management

Sl. No.	Particulars		
		Freq	**%**
1.	**Physical stress management**		
a.	**Relaxation**		
	Take rest	111	92.5
	Take out time for leisure	116	96.7
	Deep breathing	98	81.7
	Drinking water	101	84.2
b.	**Diet**		
	Take balance diet	103	85.8
	Consume more food many times in small quantities	15	12.5
	Eat less	46	38.3
	Eat high fibre diet	15	12.5
c.	**Physical exercise**		
	Going field by walking	100	83.3
	Yoga	14	11.7
	Farm operation in the field	111	92.5
	swimming	11	9.2
d.	**Medicine therapy**		
	Smoking	19	15.8
	Alcohol consumption	65	54.2
	Mood altering drugs	0	
e.	**Natural care**		
	Water therapy	1	0.8
	Hot water therapy	1	0.8
	Herbal therapy	1	0.8
	Colour therapy	0	0
	Aroma therapy	15	12.5

(i) Physical stress Management

(a) Relaxation

The data from Table demonstrates that the vast majority of respondents (96.7 percent) take out time for leisure, which is followed by taking rest (92.5 percent) and drinking water (84.2 percent). Furthermore, the majority of respondents (81.2 percent) drank water for physical stress management.

(b) Diet

85.8 percent of three-fourths of respondents consume a balanced diet, followed by 38.3 percent of respondents who started eating less, 12.5 percent of the respondents consume more food frequently and ate less fibre rich foods in small quantities for physical stress management.

(c) Physical exercise

The data from Table demonstrates that the vast majority of respondents (92.5 percent) do farm operations in the field, followed by (83.3 percent) respondents go out for a walk for physical stress management.

(d) Medical treatment

The data presented in Table demonstrates that (54.2%) of respondents used alcohol, followed by (15.8) respondents who used smoking to alleviate their physical stress.

(e) Natural care

A little less than half of respondents (12.5%) choose aroma treatment, followed by herbal therapy , hot water and water (0.8%), for physical stress management.

Table 24. Distribution of respondents according to their level of stress physical stress management.

S.N.	Physical stress management	Respondents (n=120)	
		Frequency	**Percentage**
1.	Poor stress management (less than 77.18)	39	32.5
2.	Good stress management (77.18 to 83.50)	67	55.83
3.	Very good stress management (above 83.50)	14	11.67

Mean = 77.18 SD = 3.16

According to the table 24, 32.5 % of the respondents have poor stress management, 55.83 % had good stress management while only 14% were very good at physical stress management.

Mental stress management

2.	Mental stress management	Freq	%
a.	**Religious/ meditation**		
	Offer prayer	106	88.3
	Meditation	10	8.3
	Yoga	14	11.7
	Religious activity	103	85.8
	Chanting prayers/mantras	112	93.3
b.	**Psycho-therapy**		
	Positive thinking	108	90.0
	Recreation with family	92	76.7
	Change the routine	95	79.2
	Crying	0	0
	Laughing/ cracking jokes	22	18.3
c.	**Social support**		
	Work in group	107	89.2

	Talk to some other farmer	108	90.0
	Attending social gathering	111	92.5
	Attending function	109	90.8
d.	**Altering situation**		
	Avoiding painful reminders	102	85.0
	Change of place	7	5.8
	Maintaining good home	113	94.2
e.	**Reducing responsibilities**		
	Postponing certain tasks	17	14.2
	Delaying the tasks	20	16.7
	Avoid disliking tasks	106	88.3
	Change in preference	17	14.2
f.	**Most liked activities**		
	Watching TV	109	90.8
	Listening radio	92	76.7
	Listening to music	109	90.8
	Spending time in farm for watching good crop condition	119	99.2
	Going for shopping	16	13.3
	Singing	28	23.3
	Playing games	9	7.5
	Chatting with others	119	99.2
g.	**counselling**	88	73.3

(ii) Mental stress management

(a) Religious/ meditation

Table data reveals that the vast majority of respondents (93.3 percent) chanting mantras, followed by offering prayer (88.3 percent), religious activities (85.8 percent), yoga (11.7 percent), and meditation for mental stress management by more than one-third of respondents.

(b) Psycho-therapy

For mental stress treatment, the majority of responders (90%) employ the positive thinking, followed by changing the routine (79.2), recreation with family (76.7), laughing therapy, and weeping therapy.

(c) Social support

The data from Table demonstrates that (92.5%) of respondents relieved stress from attending functions of other farmers, followed by (90.8%) of respondents attending functions, (90.0) respondents used talking to other farmers and (89.2%) of respondents working in groups.

(d) Altering situation

The table data clearly demonstrates that (94.2%) respondents followed maintaining good home, followed by (85%) respondents who avoided painful reminders, and (5.8%) respondents who follow the technique of changing location for mental stress management.

(e) Reducing responsibilities

88.3 percent of respondents adjust their preferences, followed by 16.7 percent of respondents who delaying the task, 14.2 percent of respondents who postponed certain tasks and changed their preference of work, place to manage mental stress.

(f) Most liked activities

The data from Table reveals that (99.2%) of respondents chatted with other farmers, followed by (99.2%) of the respondents preferred to spend time in farm for watching good crop condition, (90.8%) of respondents who listen to music and watched TV .

(g) Counselling

The data reported in Table 25 demonstrates unmistakably that 73.3 percent of respondents seek mental stress management advice from others in times of difficulty.

Table 25. Distribution of respondents according to their level of mental stress management.

S.No.	Mental stress management	Respondents (n=120)	
		Frequency	Percentage
1.	Poor stress management (less than 66.93)	21	17.5
2.	Good stress management (66.93 to 72.85)	81	67.5
3.	Very good stress management (above 72.85)	18	15.00

Mean= 69.89 SD = 2.96

The Table 25 reveals that the majority of respondents (67.5 percent) belonged to the category of good mental stress management, less than one-fifth (17.5 percent) of respondents belonged to the category of high level of mental stress management, and few (15 percent) respondents belonged to the category of low level of mental stress management.

Consequently, the majority of farmers (67.5 percent) were classified as having a medium level or good mental stress management.

Table 26. Distribution of respondents according to their level of overall stress management.

S. N.	Overall stress management	Respondents (n=120)	
		Frequency	Percentage
1.	Poor stress management (less than 71.66)	15	12.5
2.	Good stress management (71.66 to 76.44)	88	73.33
3.	Very good stress management (above 76.44)	17	14.16

Mean = 74.05 SD = 2.39

Physical and mental stress management comprise the entire stress management. The statistics shown in Table 26 suggest that the majority of respondents (73.33 percent) followed good overall stress management, whereas 14.16 percent followed very good overall stress management, and 12.5 percent followed overall poor stress management.

Thus, it can be concluded from the foregoing findings that the majority of farmers (73.33 percent) followed a good overall stress management.

Similar findings were seen by Tandekar (2014) where majority of the farmers (74.54 %) of the farmers followed medium level of stress management.

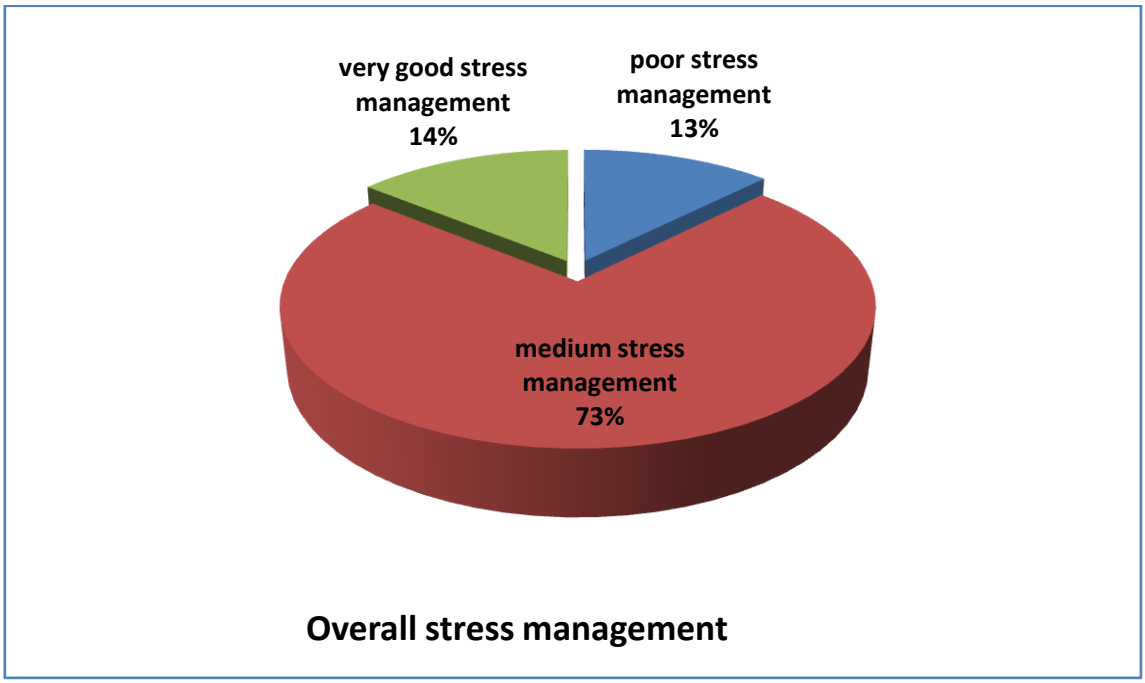

Figure 19. Distribution of the respondents according to the overall stress management.

5.4 Relationship between personal, socio-economic, situational and psychological characteristics with physical and mental stress management

Based on the observations in the table 27, out of 15 variables, education showed a positive and significant correlation with physical stress management at the 0.05 level of probability, whereas indebtness, crop failure and stressful events/stressors showed a negative and significant correlation with physical stress management at the 0.05 level of probability. This indicates that there is relationship between physical stress management and education, indebtness, crop failure and stressors i.e as education increases physical stress management is good while indebtedness, crop failure and stressors increases physical stress management decreases. Other characteristics, such as age, family type, family size, land holdings, occupation status, marital status, expenditure pattern, health of respondents and family disputes are negatively and non significantly correlated and with physical stress management.

Table 27. Correlation coefficients of physical stress management with independent variables

S.No.	Independent Variables	'r' value
1	Age	-0.102
2	Education	0.201*
3	Family type	-0.085
4	Family size	-0.040
5	Land holding	-0.024
6	Occupational Status	-0.016
7	Marital Status	-0.024
8	Expenditure pattern	-0.014
9	Annual income	0.024
10	Extension Contact	0.032
11	Health of the respondents/family members	-0.005
12	Indebtedness	-0.159*
13	Family dispute	-0.063
14	Crop failure	-0.162*
15	Stressful events/stressors	-0.132*

According to the observations in Table 28, out of 15 variables, education and extension contact demonstrated a positive and significant correlation with mental stress stress management at the 0.05 level of probability, whereas indebtness, disputes, crop failures and stressors demonstrated a negative and significant correlation with mental stress management at the 0.05 level of probability. This indicates as education and extension contact increases mental stress management is good while indebtedness, disputes, crop failures and stressful events increases mental stress management decreases. Other factors such as age, land holding, income and health of the respondents showed negative and non significant relationships with mental stress management and family type, family size, occupation, marital status, expenditure showed positive and non significant relationship.

Table 28. Correlation Coefficients of mental stress management with independent variables

S.No.	Independent Variables	'r' value
1	Age	-0.028
2	Education	0.135*
3	Family type	0.03
4	Family size	0.086
5	Land holding	-0.043
6	Occupational Status	0.026
7	Marital Status	0.125
8	Expenditure pattern	0.015
9	Annual income	-0.025
10	Extension Contact	0.121*
11	Health of the respondents/family members	-0.026
12	Indebtedness	-0.187*
13	Family dispute	-0.145*
14	Crop failure	-0.511*
15	Stressful events/stressors	-0.172*

Chapter-VI

SUMMARY AND CONCLUSION

Farmer stress management in the Ranchi district of Jharkhand was studied at four villages in Chanho and Nagri block. From each selected village, population sample was selected for selection of respondents as suicidal farmers/households and remaining farmers as other respondents were selected randomly. So, 30 farmers were chosen from each of the four chosen villages to make up the sample size of 120 people from the four villages.

Personal interviews with respondents were used to gather data using a predetermined interview plan.

The present study was therefore undertaken with following specific objectives :-

1. To study the personal, socio-economic, situational and psychological characteristics of the farmers.
2. To assess stressful events among the farmers.
3. To assess stress management by the farmers.
4. To study the relationship between selected characteristics with stress management of the farmers.

1. Personal, socio-economic, situational and psychological characteristics of respondents

The following are the most important findings:

(i) According to the distribution of respondents' ages, the largest proportion of respondents (60.8 percent) belonged to the group of middle aged group.

(ii) The largest proportion of responders (41.7 percent) had completed middle school.

(iii) The distribution indicates that the majority of respondents (74.0%) belong to nuclear families.

(iv) The family size distribution clearly demonstrates that the majority of respondents (61.7 percent) had medium family members (3 to 9 members).

(v) The distribution of land holding suggests that one-forth (25.0%) of respondents belonged to the marginal category of land holding.

(vi) The majority of respondents (50.0%) were engaged in farming during farming months while in non farming months they did labour work.

(vii) The vast majority (80 percent) of responders were married.

(viii) The majority of respondents (80.0 percent) reported yearly expenditures of moderate type i.e between Rs 40,000 and Rs 80,000.

(ix) The distribution of yearly income reveals that the medium income level farmers comprised of 60.83 percent who had annual income between Rs 60,000 and Rs Rs 1,20,000.

(x) The vast majority of responders (59.2 percent) had interaction with medium extension.

(xi) The majority of responders (82.5 percent) were devoid of any health issues.

(xii) The majority of respondents (52.5 percent) were devoid of any family conflict.

(xiii) For their children's weddings and crops, farmers borrow loan from commercial and rural banks. Only 24.26 percent of those who received loans were able to repay them, while the remainder were unable to do so.

(xiv) The principal crops produced in the Ranchi Districts are Paddy, wheat and maize. The frequent failure of the Paddy harvest may be attributable to weather fluctuations.

(xv) Less than three quarters of respondents (70.2 percent) were in the medium stress group.

2. Assessment of stress management among the farmers

(i) Most respondents (70.2%) reported using medium stress management techniques to reduce physical stress.

(ii) The majority of the respondents (66.9%) reported using a moderate approach to stress management in order to lessen their level of mental tension.

(iii) 77.3 percent of respondents reported using medium-level stress management to reduce overall stress, according to the survey data.

3. Relationship between personal, socio-economic, situational and psychological characteristics with physical stress management

Education showed a positive and significant relationship with physical stress management at the 0.05 level of probability, whereas indebtedness, crop failure, and stressful events/stressors exhibited a negative and significant correlation with physical stress management such that as education increases, physical stress management improves, whereas as indebtedness, crop failure, and stressors increase, physical stress management worsens. Other factors, including age, family type, family size, land holdings, occupational position, marital status, expenditure pattern, responder health, and family conflicts, are adversely and no significantly connected with physical stress management.

4. Relationship between personal, socio-economic, situational and psychological characteristics with mental stress management

Education and extension contact exhibited a positive and significant relationship with mental stress management at the 0.05 level of probability, while indebtedness, disputes, crop failures, and stressors demonstrated a negative and significant correlation with mental stress management. This suggests that as education and extension contact improve, mental stress management improves, and when debt, disputes, crop failures, and stressful events increases, mental stress management declines. Other variables, such as respondents' age, land ownership, income, and health, exhibited negative and insignificant associations with mental stress management, whereas family type, family size, occupation, and expenditure exhibited positive and insignificant relationships.

Implications

The following suggestions are made in the form of implications based on the findings of the present investigation. Implications for action and implications for future research are offered separately.

The study's findings would be valuable to policymakers, administrators, researchers, extension workers, university scientists, NGO's people, and other professionals involved in farmer and agricultural development.

Implications for Action :

The majority of respondents (77.3 percent) were seen to have overall medium stress management, according to the study's findings.

In addition, more than half of the respondents (70.20%) were found to have a medium level of physical stress management, and 66.90 % had a medium level of mental stress management. Therefore, it is implied that it is vital to educate farmers on stress management by giving appropriate guidance and counselling, as well as by providing training programmes on stress management, a conducive environment, and individual support.

In addition, it was found that the bulk of respondents (60.83 percent) had incomes between Rs 60,000 and Rs 120,000. The respondents' combined income from all sources was insufficient to cover their critical expenses. Thus, respondents were observed to be stressed. Numerous actions involving prices and markets are required to boost farm income. The government must first shift from a production-centric to a market-centric perspective. Even in highly irrigated regions, experience demonstrates that an increase in agricultural output does not necessarily result in a rise in farmer income.

The majority of Ranchi district is rainfed. Consequently, agriculture is most susceptible to the vagaries of nature. Therefore, farmers only plant kharif crops. In order to irrigate their crops, farmers must rely on monsoon rainfall due to the insufficient irrigation coverage. In 21 years since 2000, there have been 5 drought years and 9 years with insufficient precipitation. It can be inferred that a farmer in India experienced drought every four to five years and insufficient precipitation every third

year. If the harvest fails, they are unable to repay the debt if it fails in two or more consecutive seasons Therefore; it is advised that all farmers have access to crop insurance with low premiums that are accessible.

This study also demonstrates that 100% of respondents were in debt. Major sources of loans were from either friends/ relatives or from commercial/rural banks. In an effort to ease farmer misery by eliminating their debt burden, political parties declare farm debt waiver. By removing a farmer's outstanding debts and granting him/her access to new credit, governments attempt to alleviate the suffering of farmers. The issue, though, is the cyclical nature of debt. A farmer in India is burdened with many flaws that render his or her farming operation unstable and expensive. The production cycles make it impossible for farmers to avoid debt, and the unpredictability of their incomes makes it difficult for them to break the debt cycle.

Depending on the nature and severity of the hardship, the assistance may take the form of a combination of unconditional grants, loan restructuring, and/or debt waiver. This form of data-supported real-time intervention will not only benefit farmers, but it will also offer governments with much-needed policy bandwidth to effectively and efficiently time targeted policy support for the distressed farmer.

Implications for future research

The implications derived from the findings of the present study recommend the following measures for further research:

(i) The present study is limited to a small sample size of respondents in Ranchi. To be more realistic and true to its nature, research should have a broader scope and larger sample sizes. Another study with a larger sample size may be planned in different places.

(ii) To improve the contribution of independent variables to the explanation of differences in farmers' stress management, additional independent variables should be uncovered and included in future research on stress management.

(iii) As stress management is a complex socio-psychological phenomenon that encompasses so many factors, it is probable that some crucial aspects have been omitted and may be considered by future researchers.

(iv) It is possible to do research comparing suicide farmers to other farmers in terms of stress management.

(v) Despite the importance of agriculture in India and the broad acknowledgement of farmers' distress, there is no standard assessment. Most often, farmer suicides are mentioned. An index that monitors high-frequency data integrating weather conditions, existing and upcoming climatic conditions, debt burden on farmers, data on agricultural commodity prices, etc., can act as a measure for the level of farmer distress. The index should ideally be conceptualised at the level of a farmer where distress severity of each farmer is tracked in real-time.

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APPENDICES

INTERVIEW SCHEDULE

Thesis title : Stress Management by the Farmers in Ranchi District of Jharkhand.

Objectives of the study :

1. To study the personal, socio-economic, situational and psychological characteristics of the farmers.
2. To assess stressful events among the farmers.
3. To assess stress management by the farmers.
4. To study the relationship between selected characteristics with stress management of the farmers

Variables :

Independent variables :

1. Age
2. Education
3. Family type
4. Family size
5. Land holding
6. Occupational status
7. Marital status
8. Expenditure pattern
9. Annual income
10. Extension contact
11. Health of the respondents/family members
12. Indebtedness
13. Family disputes
14. Crop failure
15. Stressful events

Dependent variables:

1. Physical stress management
2. Mental stress management

Name of Farmer : _____

Village : _____ district : _____

1. Age _____ (years)
2. Family type : _____ (nuclear/ joint)
3. Family size : _____
4. Education : illiterate/primary/middle school/high school/graduate/post graduate
5. Land holding :
   a) Irrigated _____(ha)
   b) Rainfed _____(ha) total : _____(ha)
6. Occupational status :
   a) Main _____
   b) Subsidiary _____
7. Marital status _____(unmarried/married/widowed/divorced)
8. **Expenditure :**

Sl. No.	Expenditure monthly	Expenditure year in (Rs.)
1.	Food	
2.	Education	
3.	Housing	
4.	Clothing	
5.	Health	
6.	Electricity	
7.	religious	
8.	crops	
	TOTAL	

9. **Annual income (in Rs.)**

   a) Main : _____

   b) Subsidiary : _____

   Total : _____

10. **Extension contact :**

Sl. No.		Always	Sometimes	Never
A.	**FORMAL**			
1.	Gramsevak			
2.	Extension Officer			
3.	Agri. Assistant			
4.	Agri. Development office			
5.	Block Development Officer			
6.	Agriculture field officer			

7.	Others			
B	**INFORMAL**			
1.	Friends/relatives			
2.	NGO personnals			

11. Health of Respondent:

a. Did you suffer from any health problem? _____(yes/no)

b. If yes, mention in the following.

Sl. No.	**Name of the disease**	**Yearly expenditure**
1.		
2.		
3.		
4.		
5.		

12. Indebtedness :

a)Whether you have a outstanding debt of any credit sources? (YES/NO)

b) if yes, fill the following details :

Sl. No.	**Sources of Loan**	**Year**	**Loan TakenRs.**	**Purpose of lona**	**Loan Repaid Rs.**
1	Friends/ Relatives				
2	Money lender				
3	Commercial bank/RRBs				
4	SHGs				
5	Private banks				

13) Family Disputes :

a. Have you observed any dispute/ quarrel with the family member (s),due to which family relations was broken Yes / No

B. If yes mentioned the following :

Sl. No.	Name of family member having dispute/ quarrel	Give the reason	Mentioned the period (since from)
1.			
2.			
3.			

14) Crop failure :

Sl. No.	CROP GROWN	TIME OF CROP FAILURE
1.	PADDY	
2.	WHEAT	
3.	GRAM	
4.	VEGETABLES	
	OTHERS	

15) Measurement of stressful events :

a. No stress at all (NS)
b. Little stress (LS)
c. Some stress (SS)
d. Moderately stress (MS)
e. Substantial Stress (STS)
f. Tremendously stress (THS)
g. High stress (HS)

SL. No.	Particulars	NS	LS	SS	MS	STS	THS	HS
1.	Sudden and significant increase in debt load							
2.	Significant production loss due to disease or pests							
3.	Significant loss due to pandemic COVID – 19 menace							
4.	Insufficient regular cash flow to meet financial obligations or for daily necessities							

5.	Delay in planting or harvesting due to weather							
6.	Low commodity prices							
7.	Purchase of major machinery, facility or livestock							
8.	Prolonged bad weather							
9.	Problems with weeds or insects							
10	Machinery breakdown at a critical time							
11	Deciding when to sell							
12	Rising expenses							
13	Government policies and regulations							
14	Farm related accident							
15	Government trade policies							
16	Government "cheap food" policies							
17	Breeding or reproductive difficulties with livestock							
18	Increased workload at peak times							
19	Unplanned interruptions							
20	Dealing with salespeople							
21	Pressure of having too much to do in too little time							
22	Feeling isolated on the farm							
23	Having to travel long distances for services, repairs, shopping and health care							
24	Keeping up with new technology and products							
25	Worrying about market conditions							
26	Being expected to work on the farm as well as manage the hours							
27	Worrying about owing money							
28	Worrying about keeping the farm in the family							
29	Death of a parent or member of the immediate family							

30	Long working hours							
31	Problems balancing work and family responsibilities							
32	Problems with a partnership							
33	Trouble with parents or in-laws							
34	Major decisions being made without my knowledge or input							
35	Surface rights negotiations							
36	Problems with relatives in farm operating agreement							
37	Problems with neighbor about farm							
38	Retirement and farm transfer to next generation							
	Personal life events							
1.	Death of spouse							
2.	Divorce							
3.	Detention in jail or other institution							
4.	Death of close family member							
5.	Major personal injury or illness							
6.	Being fired at work							
7.	Major change in health or behavior of family member							
8.	Major change in financial state							
9.	Changing to a different line of work							
10	Major changes with number of argument (About child care or personal habits)							
11	Taking on mortgage (Home, business)							
12	Foreclosure on mortgage or loan							
13	Major changes in responsibility of work							
14	Major changes in living conditions like deterioration of neighborhood or home							
15	Major changes in social activities							

16	Death of parent							
17	Separation of parent							
18	According to my expenditure the financial condition is far from satisfactory							
19	I am not finding a suitable match for my daughter							
20	My children has developed bad habits							
21	I have to work with-out dated technology							
22	No enough time to spend with spouse							
23	Spouse don't time for child rearing							
24	Conflict with spouse over spending priorities							
25	Death of close friend							
26	Daughter or son leaving home							
27	Marital separation							
28	Not enough time and money for entertainment							
29	Problem with partners							
30	Trouble with parents or in laws							

STRESS MANAGEMENT BY THE FARMERS :

Sl. No.	**Particulars**	**RESPONSE**	
		YES	**NO**
1.	**Physical stress management**		
a.	**Relaxation**		
	Take rest		
	Take out time for leisure		
	Deep breathing		
	Drinking water		
b.	**Diet**		
	Take balance diet		
	Consume more food many times in small quantities		
	Eat less		
	Eat high fibre diet		

c.	**Physical exercise**		
	Going field by walking		
	Yoga		
	Farm operation in the field		
	swimming		
d.	**Medicine therapy**		
	Smoking		
	Alcohol consumption		
	Mood altering drugs		
e.	**Natural care**		
	Water therapy		
	Hot water therapy		
	Herbal therapy		
	Colour therapy		
	Aroma therapy		
2.	**Mental stress management**		
a.	**Religious/ meditation**		
	Offer prayer		
	Meditation		
	Yoga		
	Religious activity		
	Chanting prayers/mantras		
b.	**Psycho-therapy**		
	Positive thinking		
	Recreation with family		
	Change the routine		
	Crying		
	Laughing/ cracking jokes		
c.	**Social support**		
	Work in group		
	Talk to some other farmer		
	Attending social gathering		
	Attending function		
d.	**Altering situation**		
	Avoiding painful reminders		
	Change of place		
	Maintaining good home		
e.	**Reducing responsibilities**		
	Postponing certain tasks		

	Delaying the tasks		
	Avoid disliking tasks		
	Change in preference		
f.	**Most liked activities**		
	Watching TV		
	Listening radio		
	Listening to music		
	Spending time in farm for watching good crop condition		
	Going for shopping		
	Singing		
	Playing games		
	Chatting with others		
g.	**counselling**		

If any other methods, mention below:

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