A STUDY ON THE KNOWLEDGE INTERVENTION OF COMPLEMENTARY FEEDING PRACTICES OF RURAL WOMEN IN TELANGANA STATE

BY

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B.Sc. (Home Science)

THESIS SUBMITTED TO THE PROFESSOR JAYASHANKAR TELANGANA STATE AGRICULTURAL UNIVERSITY IN PARTIAL FULFILMENT OF THE REQUIRMENTS FOR THE AWARD OF THE DEGREE OF

MASTER OF SCIENCE IN HOME SCIENCE

(DEPARTMENT OF HOME SCIENCE EXTENSION & COMMUNICATION MANAGEMENT)

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2020

DECLARATION

I**, LOPAMUDRA MOHAPATRA, hereby** declare that the thesis entitled **"A STUDY ON THE KNOWLEDGE INTERVENTION OF COMPLEMENTARY FEEDING PRACTICES OF RURAL WOMEN IN TELANGANA STATE"** submitted to the **Professor Jayashankar Telangana State Agricultural University** for the degree of **Master of Science in Home Science** is the result of the original research work done by me. I also declare that no material contained in the thesis has published earlier in any manner.

Place: Hyderabad **(LOPAMUDRA MOHAPATRA)**

Date: **I.D.No. HHM/2018-017**

CERTIFICATE

Ms **LOPAMUDRA MOHAPATRA** has satisfactorily prosecuted the course of research and that thesis entitled **"A STUDY ON THE KNOWLEDGE INTERVENTION OF COMPLEMENTARY FEEDING PRACTICES OF RURAL WOMEN IN TELANGANA STATE"** submitted is the result of original research work and is of sufficiently high standard to warrant its presentation to the examination. I also certify that neither the thesis nor its part thereof has been previously submitted by her for a degree of any university.

Dr. (Mrs.) R. NEELA RANI

Date: **Chair person**

CERTIFICATE

This is to certify that the thesis entitled **"A STUDY ON THE KNOWLEDGE INTERVENTION OF COMPLEMENTARY FEEDING PRACTICES OF RURAL WOMEN IN TELANGANA STATE"** submitted in partial fulfillment of the requirements for the degree of 'Master of Science in Home Science' of the Professor Jayashanakar Telanagana State Agricultural University, Hyderabad is a record of the bonafide original research work carried out by Ms. LOPAMUDRA MOHAPATRA under our guidance and supervision.

No part of the thesis has been submitted by the student for any other degree or diploma. The published part and all assistance and help received during the course of the investigations have been duly acknowledged by the author of the thesis.

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ACKNOWLEDGEMENTS

Nothing great has ever been accomplished by any diligent individual without a pair of helping hands. There are moments in life when it becomes hard to express the deepest feelings in the heart, at that time words become insufficient and it is almost impossible to convey the deepest gratitude and indebtedness to all those people who have stood beside me during my master's research programme.

It gives me great pleasure to humbly place on record my profound sense of gratitude and heartfelt thanks to the chairman of my advisory committee. **Dr. (Mrs.). R. Neela Rani**, Principal Scientist (Extn) & Unit Coordinator, AICRP- WIA., PG&RC, PJTSAU for her guidance, patience and valuable suggestions received during my course work and thesis research all the time. Without her support thesis completion was not possible. It was a wonderful opportunity to work under her and gathered a lot from the vast experiences she has nurtured over years.

Mere words are not sufficient to express my sincere appreciation and profound indebt to **Dr. (Mrs.). R. Geetha Reddy**, Professor and Head, Department of Extension Education and Communication Management, College of Community Science. Her support, timely help and cooperation, meticulous evaluation, valuable suggestions, technical advice and noble guidance during my research work helped me immensely in the completion of my research work.

I feel a great pleasure in expressing my whole hearted sense of gratitude to **Dr. (Mrs.) T. kamalaja**, Senior Scientist (FN), AICRP- WIA., PG&RC PJTSAU for her valuable guidance, affectionate dealings, supports and encouragement during my research work.

I sincerely express my respect and warmest thanks to **Dr. M. Prasuna**, Professor, Department of Department of Extension Education and Communication Management, College of Community Science and **Mrs. S.L. Kameswari,** Assistant professor, Department of Extension Education and Communication Management, College of Community Science for kind support and suggestions during my research work.

I convey my heartfelt thanks to **Mrs. Kavitha Kiran,** Scientist (HDFS), AICRP- WIA., PG &RC, PJTSAU for kind support and suggestions during my research work.

I extend my special thanks to **Dr. D. Srinivasa Chary**, Associate professor, Department of Mathematics and Statistics, College of Agriculture,PJTSAU Rajendra Nagar for his suggestions regarding statistical analysis and interpretation of the data.

I deepest gratitude to **Dr. Prakash Chandra Behera**, Professor and Head, Department of Veterinary Biochemistry, College of Veterinary Science and Animal Husbandry, OUAT for his concern and guidance for doing and completing my masters.

It is by the love and blessings of the Almighty, that I have been able to complete my thesis work successfully and present this piece of work.

I take this opportunity to express my love, respect and affectionate gratitude to my parents **Sri. Niranjan Mohapatra**, **Smt. Arati Biswal**, for their moral support, inspiration, advice, blessings and agreeing me to do what I want to do every time and accepting my choices that kept me enthusiastic throughout my life and to my beloved sister **Lorasuman Mohapatra** for her constant encouragement in every aspect which was the source of motivation for my life.

It is time to surface out my overwhelming sense of affection to my classmates Prathibha, Ragini, Divyashree, Susma and Radhika, for their support and for this memorable days. I extend my heartful thanks to my seniors PrettyRani, B. Spandana, Prasanthi, Lalitha, Spandana Deepika and Deepa for developing the project and willingly helped me out with their abilities. I also thank my juniors Sahithya, Sai ravali, Sneha, Kalpana and Bangari for their help and assistance. My special thanks to my friend Smruti rekha Panigrahi for her constant help and support during the research work.

I express my heartfelt thanks and gratitude to all my well-wishers and other friends who have helped me in the successful completion of my research work and making it rich learning experience for me.

LOPAMUDRA MOHAPATRA

LIST OF CONTENTS

Chapter No.	Title	Page No.
I.	INTRODUCTION	1- 8
II.	REVIEW OF LITERATURE	9 – 26
III.	MATERIALS AND METHODS	27 – 53
IV.	RESULTS AND DISCUSSION	54 – 91
V.	SUMMARY AND CONCLUSIONS	92 - 98
	LITERATURE CITED	99 – 107
	APPENDICES	108 - 122

LIST OF TABLES

S.No	Title	Page No.
3.1	Variables and their Empirical measurement	31
4.1	Distribution of respondents according to their Demographic profile characters	55
4.2	Distribution of respondents according to the general information about their child	60
4.3	Distribution of respondents according to the media exposure level	64
4.4	Distribution of respondents according to the extension contact	65
4.5	Distribution of respondents according to the pre and post knowledge on Breast feeding, complementary feeding and meal frequency	66
4.6	Distribution of the respondents based on the pre and post knowledge about the frequency of complementary feeding	68
4.7	Distribution of the respondents based on the pre and post test knowledge about the consistency of complementary food	71
4.8	Distribution of the respondents based on the pre and post test knowledge about the quantity of complementary food	73
4.9	Distribution of the respondents based on the existing complementary feeding practices	76
4.10	Distribution of the respondents based on the Home made complementary foods given	77
4.11	Distribution of the respondents based on the Readymade complementary foods given	79
4.12	Distribution of the respondents based on the selection of recipes	81
4.13	Change in Knowledge on complementary feeding practice after the intervention	84
4.14	Correlation analysis of demographic profile with knowledge on complementary feeding	85
4.15	Correlation analysis of Demographic profile with Complementary feeding practices	86

LIST OF ILLUSTRATIONS

Fig. No	Title	Page No.
1.1	Socio – Economic outlook report	2
1.2	Niti Ayog district fact sheets	3
3.1	Geographical Location of the study	29
3.2	Sampling Procedure followed in the study	30
3.3	Home made complementary foods	38
3.4	Readymade complementary foods	38
3.5	Flowchart for development of intervention	46
3.6	Conceptual framework of the study	52
3.7	Personal interview with rural women for collecting data	53
3.8	Providing intervention on recipes of complementary feeding	52
4.1	Distribution of respondents according to their age	56
4.2	Distribution of respondents according to their education	57
4.3	Distribution of respondents according to their occupation	58
4.4	Distribution of respondents according to their family type	58
4.5	Distribution of respondents according to their annual income of family	59
4.6	Distribution of respondents according to their number of children	60
4.7	Distribution of respondents according to the age of child	61
4.8	Distribution of respondents according to the gender of child	62
4.9	Distribution of respondents according to the birth order of child	62
4.10	Distribution of respondents according to the birth weight of child	63
4.11	Distribution of respondents according to the media exposure level	64
4.12	Distribution of respondents according to the extension contact	65
4.13	Distribution of respondents according to the pre and post knowledge on Breast feeding, complementary feeding and meal frequency	68
4.14	Distribution of the respondents based on the pre and post test knowledge about the frequency of complementary feeding	70
4.15	Distribution of the respondents based on the knowledge about the consistency of complementary food	72

4.16	Distribution of the respondents based on the knowledge about quantity of complementary food after an intervention	75
4.17	Distribution of the respondents based on the existing complementary feeding practices feeding practice	77
4.18	Distribution of the respondents based on the Home made complementary foods	78
4.19	Distribution of the respondents based on the Readymade complementary foods	79
4.20	Distribution of the respondents based on the selection of recipes	82
4.21	Selected standardized locally available recipes	83
4.22	Emperical model of the study	91

LIST OF PLATES

Plate. No	Title	Page No.
1.	Khicheri	83
2.	Green gram Rice Porridge	83
3.	Jowar Mix	83
4.	Ragi Green gram Mix	83
5.	Wheat Mix	83
6.	Rice food Mix	83

LIST OF ABBREVATIONS

%	:	Per cent
<	:	less than
>	:	greater than
AICRP	:	All India Coordinated Research Project
ANM	:	Auxiliary Nurse Midwife
BW	:	Birth Weight
CF	:	Complementary Food
CFP	:	Complementary Feeding Practice
CBNC	:	Community Based Nutrition Counselling
DP	:	Difference of Proportion
et al.		And other people
F	:	Frequency
FAO	:	Food and Agriculture Organization
ICDS	:	Integrated Child Development Services
ICT	:	Information and Communication Technology
IYCF	:	Infant and Young Child Feeding Practices
MDG	:	Millennium Development Goal
NGO	:	Non-Governmental organization
NSS	:	National Sample Survey
PAHO	:	Pan American Health Organization
PHC	:	Primary Health centre
RT	:	Recipe Trial
SDG	:	Sustainable Development Goals
UN	:	United Nations
UNICEF	:	United Nations Children's Fund
UP	:	Uttar Pradesh
UFMR	:	Under Five Mortality Rate
WIA	:	Women In Agriculture
WHO	:	World Health Organization

NAME OF THE AUTHOR	**:**	**LOPAMUDRA MOHAPATRA**
I.D.NO.	**:**	**HHM/2018-17**
TITLE OF THE THESIS	**:**	**A STUDY ON THE KNOWLEDGE INTERVENTION OF COMPLEMENTARY FEEDING PRACTICES OF RURAL WOMEN IN TELANGANA STATE**
DEGREE TO WHICH IT IS SUBMITTED	**:**	**MASTER OF SCIENCE IN HOME SCIENCE**
MAJOR FIELD	**:**	**HOME SCIENCE EXTENSION AND COMMUNICATION MANAGEMENT**
FACULTY	**:**	**COMMUNITY SCIENCE**
MAJOR ADVISOR	**:**	**: DR. (MRS.) R. NEELA RANI PRINCIPAL SCIENTIST (EXTN) &UNIT COORDINATOR AICRP-WIA PG&RC, PJTSAU**
UNIVERSITY	**:**	**PROFESSOR JAYASHANKAR TELANGANA STATE AGRICULTURAL UNIVERSITY**
YEAR OF SUBMISSION	**:**	**2020**

ABSTRACT

The initial two years of life, provides an opportunity for ensuring children's appropriate growth and development through optimal feeding (World bank, 2006). Adequate nutrition during infancy and early childhood is essential to guarantee the growth, health and development of children to their full potential. Children under two years of age have high nutrient needs to support growth and development. Complementary feeding is one of the most important aspects of infant and young child feeding practices as the chances of growth faltering among infant increases due to inappropriate complementary feeding practices.

Action research design was adopted for the present study. Medak district was selected purposively according to the highest incidence of malnutrition. A total of 120 samples were selected with the criteria of mothers having children between the age group of 6 month to 24 month. The data was collected using personal interview method with the aid of structured interview schedule. After 15 days intervention on complementary feeding and locally available standardized recipes were provided. Then responses were collected regarding change in knowledge and practices of complementary feeding. Statistical procedures like frequency, percentage, range, correlation, paired t–test were employed to analyze and interpret the data.

Results revealed that majority of the respondents were belonged to the age category of less than 25 years, had education up to primary level and were doing agriculture. Majority of them were belonged to nuclear family with medium annual income, had 1-2 children, had low media exposure and low extension contact. Majority of the respondents had children between the age group of 12 to 24 months, had male child, birth weight between 2600g to 3000g and were the first child.

Results expressed that majority (60%) of the respondents had poor knowledge regarding breastfeeding similarly complementary feeding (87.50%) and about meal frequency and preparation of complementary foods (64.17%). It was seen that there was lack of knowledge about age wise ideal frequency, consistency and quantity of complementary foods. In rural area, about (45.83%) of the respondents were following poor complementary feeding practice and about (47.50%) of them were not giving any homemade complementary foods to their children.

Intervention video was prepared on six selected standardized recipes of complementary foods. A significant difference of change in knowledge and practice were found out among the respondents after providing intervention on complementary feeding. Majority (66.67%) of the respondents got good knowledge regarding breastfeeding likewise complementary feeding (75.83%) and about meal frequency and preparation of complementary foods (77.50%).

From the present study, it was clear that majority of the rural women were not having proper knowledge regarding complementary feeding for which they were following low recommended practices. To tackle the situation, Government institutions and Non- Governmental organizations need to create awareness among the rural people regarding the importance of complementary feeding by arranging awareness programmes.

Chapter I

INTRODUCTION

Children are the world's most valuable resource and its best hope for the future

- John F Kennedy

Child mortality is universally accepted as one of the important indicators to measure the well being and health of the community. The target of reduction of child mortality to two third was not attained despite, it was set by the Millennium Development Goal 4. Though there was a significant decline in the rate of child mortality by almost half in last 2 decades, in 1990 it was 90 deaths per 1000 live births and in 2015 it dropped down to 46, survival of children is still one of the important concerns among the international community and fraternity despite the significant progress which has taken place.(Progress report on the health-related MDGs, 2018) Large number of children expired in 2015, which led to the setting of a new revised target in the Sustainable Development Goal (SDG - 3.2), by 2030, end preventable deaths of new-borns and children under 5 years of age, with all countries aiming to reduce neonatal mortality to at least as low as 12 per 1000 live births and under-5 mortality to at least as low as 25 per 1000 live births. (SDG- 3, 2015)

In 2019, 21.3 per cent or more than one in five children under age group of 5 years had stunted growth worldwide. Between 2000 and 2019, prevalence of stunting globally declined from 32.4 per cent to 21.3 per cent and the number of children affected fell from 199.5 million to 144.0 million. In 2019, nearly two out of five stunted children lived in South Asia while another two out of five lived in sub-Saharan Africa. (UNICEF, WHO, World Bank Group Joint Child Malnutrition Estimate, 2020)

Malnutrition

The world's most serious yet the least-addressed development challenge is Malnutrition. Its economic and human costs are tremendous, toppling over hard on women, children, and the poor. In 2019, 144 million children were stunted (low height-for-age), which reveals not only the failure to attain one's own genetic potential for height but also a predictor of the many other developmental restraints; including future economic opportunities, cognitive deficits and also impeding a country's potential to cumulate/increase human capital. (UNICEF, WHO, World Bank Group Joint Child Malnutrition Estimate, 2020)

India's execution/accomplishment of critical malnutrition indicators are poor. The impacts of Malnutrition reduce the chances of survival of children, their capacity to learn, makes them less productive in later life and increases their vulnerability to illness. According to the National Family Health Survey Report, the percentage of stunted children below 5 years of age has been reduced from 48 per cent in 2005-06 to 38.4 per cent in 2015-16 and the percentage of underweight children has also been decreased from 42.5 per cent to 35.7 per cent in the very same year. However, the wasted children elevated from 19.8 per cent to 21 per cent in the same year. Underweight children are found in more percentage (38.3%) in rural India than in urban (29.1%). (NFHS, 2015-16)

A substantial cases of underweight, stunting, Vitamin A deficiency and anaemia were found among children and adolescents of the State of Telangana. In Telangana, close to 29 per cent of the children below five years have stunted growth whereas the national average is 34 per cent. The percentage of children under five years of age with stunted growth was 31.5 per cent in Andhra Pradesh. Whereas in India, 33.4 per cent of children under the age of five are underweight, while it is 30 per cent in Telangana. The nationwide percentage of children with wasting was 17 per cent whereas it was 18 per cent in Telangana State. (CNNS report, 2019).

Malnutrition is the well-known cause of disabilities and deaths in the state of Telangana. The five key risk components which contribute to most of the deaths and disabilities are high fasting plasma glucose (5.9%), air pollution (8.6%), high blood pressure (8.7%), dietary risk (9.9%), and malnutrition (11.4%).(Socio-Economic Outlook report, 2018 and Niti Ayog District Nutritional Fact sheets)

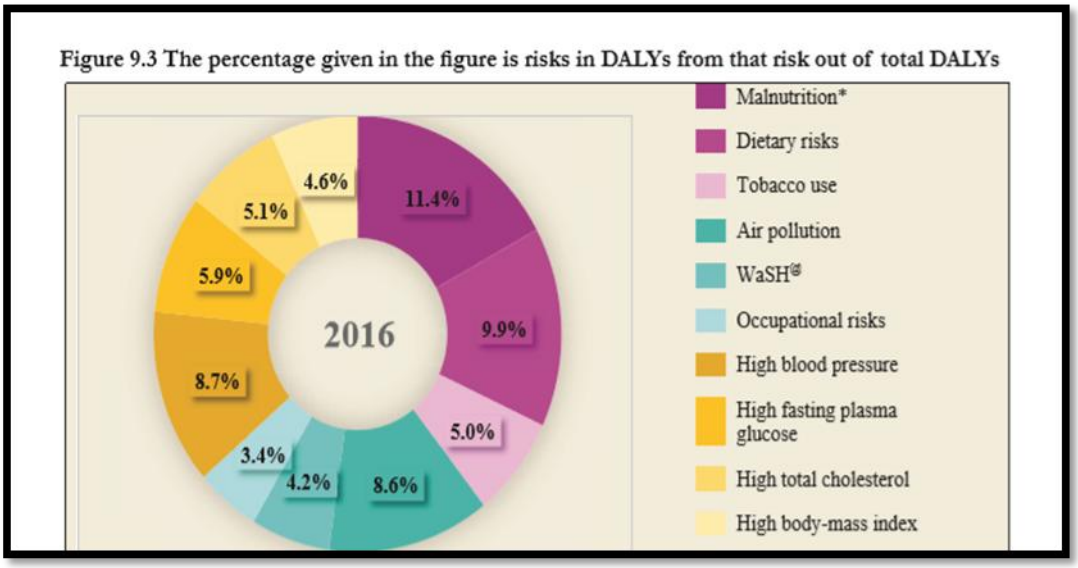
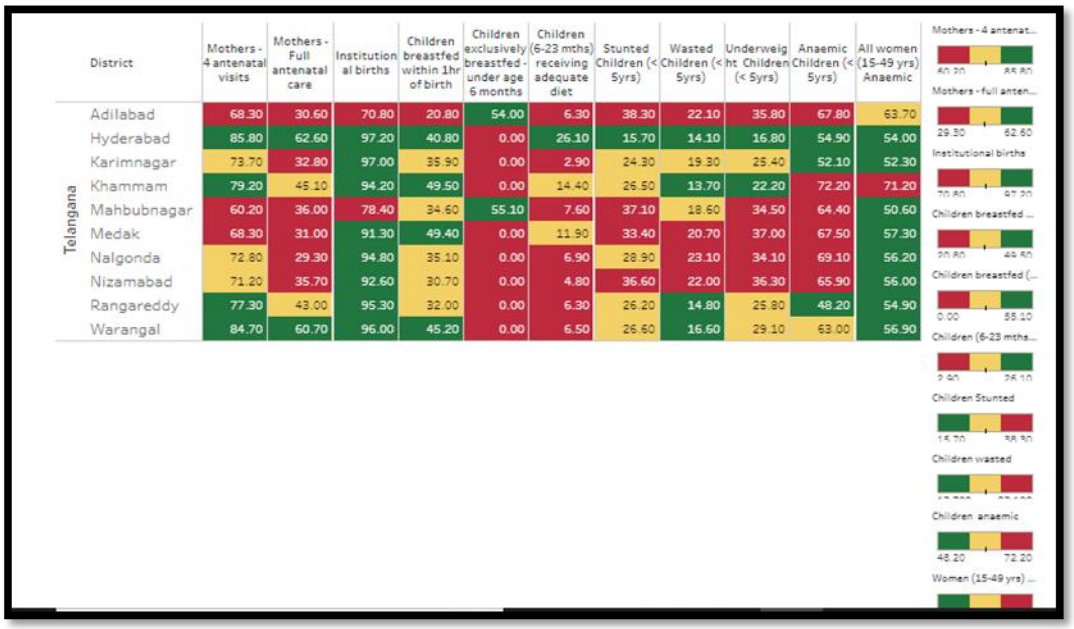


Figure 1.1 Socio-Economic Outlook report



	District	Mothers - 4 antenatal visits	Mothers - Full antenatal care	Institutional births	Children breastfed within 1hr of birth	Children exclusively breastfed - under age 6 months	Children (6-23 mths) receiving adequate diet	Stunted Children (< 5yrs)	Wasted Children (< 5yrs)	Underweight Children (< 5yrs)	Anaemic Children (< 5yrs)	All women (15-49 yrs) Anaemic
Telangana	Adilabad	68.30	30.60	70.80	20.80	54.00	6.30	38.30	22.10	35.80	67.80	63.70
	Hyderabad	85.80	62.60	97.20	40.80	0.00	26.10	15.70	14.10	16.80	54.90	54.00
	Karimnagar	73.70	32.80	97.00	35.90	0.00	2.90	24.30	19.30	25.40	52.10	52.30
	Khammam	79.20	45.10	94.20	49.50	0.00	14.40	26.50	13.70	22.20	72.20	71.20
	Mahbubnagar	60.20	36.00	78.40	34.60	55.10	7.60	37.10	18.60	34.50	64.40	50.60
	Medak	68.30	31.00	91.30	49.40	0.00	11.90	33.40	20.70	37.00	67.50	57.30
	Nalgonda	72.80	29.30	94.80	35.10	0.00	6.90	28.90	23.10	34.10	69.10	56.20
	Nizamabad	71.20	35.70	92.60	30.70	0.00	4.80	36.60	22.00	36.30	65.90	56.00
	Rangareddy	77.30	43.00	95.30	32.00	0.00	6.30	26.20	14.80	25.80	48.20	54.90
	Warangal	84.70	60.70	96.00	45.20	0.00	6.50	26.60	16.60	29.10	63.00	56.90

Figure 1.2 Nitiayog district fact sheets

The initial two years of life provide an opportunity for ensuring children's appropriate growth and development through optimal feeding (World bank, 2006). Adequate nutrition during infancy and early childhood are essential to guarantee the growth, health and development of children to their full potential.

The growth of an infant in the first two years is very rapid and breastfeeding alone will not be able to meet the child's nutritional requirements. The ability of breast milk to meet the requirements for macronutrients and micronutrients become limited with the increasing age of infants. Thus the timely introduction of complementary foods during infancy is necessary for both nutritional and developmental reasons. However, the capacity of a complementary diet to meet the protein-energy requirements of infants depends on their nutritional quality. That is why protein-energy malnutrition is a major infant problem in developing countries. Therefore, inadequate complementary food is a major cause for the high incidence of child malnutrition, morbidity and mortality in many developing countries. (Ramkrishnan, 2019)

Complementary Feeding

According to WHO, Complementary feeding is defined as the process starting when breast milk alone is no longer sufficient to meet the nutritional requirements of infants, and therefore other foods and liquids are needed, along with breast milk. The adaptation of family foods from exclusive breastfeeding is referred to as complementary feeding which generally covers the phase from 6-24 months of age. Along with that breast feeding can be continued up to two years of age and beyond. Among the children below five years of age, Nutrient deficiencies and illnesses attribute to high rates of malnutrition globally. (WHO, 2019)

The term 'complementary' is important as these are the first foods which complement breast milk, not replace it. Continued breastfeeding for up to two years of age or beyond provides an essential source of nutrients in a child's diet. Along with that from six months of age, a baby needs breast milk and complementary foods to promote health, support, growth and enhance development. Complement means they go well together, each has a role to play. At six months of age, the baby’s digestive system is developed enough to digest a range of various foods. For continued development and growth, Complementary feeding is significant enough in providing essential nutrients and energy needed. The nutrients in the complementary foods supplement those which are advised in breast milk.

If complementary foods are not introduced around the age of 6 months or if they are given inappropriately, an infant's growth may get affected. It is the time when malnutrition starts in many infants, contributing to the high prevalence of malnutrition in children under two years of age.

Malnutrition in young children can be prevented by feeding them enough nutritious and safe complementary foods. The adequacy of complementary feeding is judged by its timing of initiation, safety and appropriateness. An important fact is that the incidence of malnutrition arises during 6-8 months of age which indicates the importance of appropriate complementary feeding.

WHO recommends that infants should begin to take complementary foods at 6 months of age in addition to mother's milk. Initially it should be 2-3 times a day between 6-8 months, after that it must increase about 3-4 times a day between 9-11 months and additional nutritious snacks must be provided 1-2 times per day during 12-24 months . The food consistency and variety should increase gradually as the infant

gets older adapting to the infant's requirements and abilities. Infants can eat pureed, mashed and semi-solid foods beginning at 6 months. By 8 months most infants can also eat "finger foods" (snacks that can be eaten by children alone). By 12 months, most of the children can eat the same types of foods as consumed by the rest of the family. Keeping in mind the need for nutrient-dense foods, animal-sourced foods like meat, poultry, fish, eggs and dairy products can be included. The food that may cause choking such as whole grapes or raw carrot should be avoided. The drinks with low nutrient value such as tea, coffee, and sugary soft drinks should be avoided (WHO, 2014).

Complementary foods bridge the energy gap, vitamin A gap and iron gap which arises in breastfed infants at 6 months. The main constraint to the timeous introduction of solid foods (from six months of age) is the mother's lack of knowledge. Mother's perceive the inadequate production of breast milk and the belief that breast milk alone is not enough to satisfy the infant are the primary reasons for the early introduction of semi-solid foods. A too-long delay in introducing appropriate complementary foods may however lead to nutritional deficiencies of iron, zinc, calcium and sometimes vitamin A and riboflavin.

Religious practices and cultural taboos may also be a constraint to the intake of complementary foods, especially animal sources. Cultural factors and taboos have a powerful influence on feeding practices and eating patterns mainly because of inadequate nutrition knowledge.

Inappropriate complementary feeding practices are one of the major causes of linear child growth retardation in the first two years of life. Therefore, all these consequences arise from poor infant feeding practices which become a major problem globally and especially in India. It is also considered as a severe obstacle for economic and social development.

If complementary feeding not given properly can be followed by diarrhoea and months of growth retardation leading to kwashiorkor, marasmus and immunodeficiency which is marked by recurrent and peristent infections (WHO, 2001). Inadequate food/nutrient intake is the major factor for malnutrition. Poor nutrition leads to underweight infants and stunting (Kapur, 2005). Proper breast feeding and complementary feeding practices can prevent under five mortality by 19% (Jones, 2003). Appropriate complementary feeding depends on accurate information and skilled support from the family, community and healthcare system. Inadequate knowledge

about appropriate food and feeding practices is often a greater determinant of malnutrition than the lack of food. Knowledge of mothers about these factors will be of help in planning interventions to improve feeding practices. It has been shown in many studies that mothers in India are unable to start complementary feeding at the right time (Sethi, 2003). As there is a scantiness of literature on the complementary feeding practices in this region.

Predominantly India is a rural country. The soul of India lives within the village. The progress of the country and the village is interdependent. It was realized that instead of the increase in income of the rural people, the enhancement in the quality of life of people was not achieved. The goal of developing the awareness of people can be possible by the rural development efforts. In the view of the high risk of disease and malnutrition, women's traditional knowledge expanded regarding nutrition and health care. Focused attention should be paid on meeting the nutritional requirements of women in all the critical stages of life cycle such as infancy, childhood phase, adolescent and reproductive phase. Ignorance often leads to a high percentage of maternal deaths, extravagant customs, unplanned pregnancies, heavy infant mortality, dirty homes and neglecting education, especially of girls.

The rural women are the active agents of social and economic changes in different ways and to various degrees. However, they have been constrained in their roles as caregivers, consumers, producers, farmers and investors. Though they play a crucial role in enhancing the well-being of their families by ensuring nutrition and food security and in eliminating rural poverty but due to result of discrimination and gender-based stereotypes, women continue to face profound challenges that deny them biased access to services, opportunities, assets, and resources. The nutritional status of the child had seen a positive impact through the mother’s empowerment. In the context of child health outcomes, women generally are the primary caretakers of children. Child health outcomes can be improved by redirecting the role of decision-making in favour of women. Even though a decline was seen in the rates of stunted and moderately underweight children, India continuously has one of the worst levels of underweight and low birth weight children compared to other nations,. Child malnutrition had a negative relationship with the employment status and education of the mother which are known as the indicators of women’s empowerment. (Shafiq, 2019)

An intervention is a combination of program elements or strategies designed to produce a change in behaviour or awareness and health status among the community. Intervention influences an individual's knowledge, attitude, beliefs, and skills increasing social support towards a suitable society. Through educational intervention programs, women can develop awareness and be trained in every sphere of life. They can recognize and also tackle their problems in a more perceptible manner through the intervention programs.

Keeping all these important facts into consideration, the present study was aimed to study the knowledge and practices of complementary feeding of under five-year children by the rural women in the Medak district of Telangana state. The purpose of the study was also to give knowledge intervention on complementary feeding practice and find out the change in knowledge of rural women after the intervention.

Objectives of the investigation

1. To study the profile characteristics of rural women in selected districts of Telangana state.
2. To identify the existing knowledge and practices on complementary feeding followed by rural women.
3. To provide intervention on the selected standardized recipes of complementary feeding foods from locally available foods.
4. To find out the change in knowledge of rural women regarding complementary feeding practices after the intervention.

Scope of the study

The present study helps in,

1. The developed standardized recipes of complementary feeding foods from locally available food can be made available in social media so that a large section of the population will be benefited from it.
2. Similar studies can be carried out in different parts of rural India, to identify their locally available foods which they are being used as complementary food.
3. The identified locally available complementary foods can be popularized in tribal and urban areas of India.

Limitations of the study

1. The precision of this study was affected by the limited time constraint.
2. True ideas may not be reflected in the fullest extent by the respondents. Hence, the objectivity is limited to the extent of honesty and memory of respondents despite, the accurate interpretation by the researcher.
3. The present study was limited only to rural areas of Telangana.

Presentation of the study

The study is presented in five chapters. In the first chapter, the introduction deals with the need, specific objectives, the scope and limitations of the study. The second chapter, review of literature deals with the review of available and related studies in the field of knowledge and practices of rural women regarding complementary feeding. Materials and methods used in the process of investigation are in the third chapter. It includes the location of the study area, sampling procedure followed, variables selected for the study, the procedure involved in the construction of data collection tools, devices and methods used for data collection, statistical tools employed, etc. The fourth chapter covers the results of the investigation and the discussion of the results. The fifth chapter is a summary of the implications of the study. In the end, literature cited and appendices are presented.

Chapter II

REVIEW OF LITERATURE

A thorough review of literature is necessary to acquaint with the research area and evaluating it. This also helps to find out the available information related to the objectives of the proposed research and provides a basis for interpretation of findings. It helps to identify the gaps in research findings, the documentation and the events relating to a particular aspect of investigation. Moreover, it facilitates in fetching the available techniques for measuring the factors under study, helps in finding out the gaps in the selection of a topic for research studies, to avoid the repetition of similar mistakes of past research, helps to compare the present and previous results with one another for understanding the weakness of the research previously done. Accordingly, a brief review of the available literature has been incorporated in the light of the objectives of study under the following heads:

2.1 Profile characteristics of rural women.

2.2 Knowledge of rural women regarding complementary feeding

2.3 Complementary feeding practices followed by rural women

2.4 Intervention on selected standardized locally available recipes

2.5 Change in knowledge after giving interventions on the selected standardized locally available recipe.

2.1 Profile characteristics of rural women

2.1.1 Age of Mother

Gupta (2019) revealed that the age of every one of the 352 lactating mother's ranged between 20-35 years or more in which 43.75 per cent had been in the age group of 20-25 years, 39.2 per cent were in the age group of 25-30 years followed by 10.79 per cent mothers were in the age group of 30-35 years and 6.25 per cent of them were over 35 years of age.

Gustav *et al.* (2014) in their study found that about (32.3%) of the respondent's age ranged between 20 – 24 years followed by 29.5 per cent of the respondents between the age group of 25 – 29 years, 16.3 per cent of the respondents ranged in the age group of 30 – 34 years, 14.5 per cent of the respondents were over 35 years. Only (7.3%) of respondents in the study were from below 20 years.

Khan and Radha (2013) stated in their study that majority (60.38%) of the respondents ranged between the age group of 21 to 25 years followed by 20.76 per cent of the respondents being in the age group of 26 to 30 year old, 17.75 per cent of the respondents were below 20 years and 1.09 per cent of the respondents were above 30 years.

Jain *et al.* (2013) found out in their study that 53.26 per cent of mothers belonged to the age group of 17- 34 years, 22.52 per cent mothers belonged to above 34 years and 24.21per cent belonged to less than 17 years of age group.

Karim *et al.* (2012) conducted the study in the selected villages of Dhamrai, at Dhaka studied that 48.1 per cent of mothers were between the age group of 21-25 years followed by 33.4 per cent of mothers ranged between 26-30 years, 10.3 per cent of mothers from ≤ 20 years and only 8.1 per cent of mothers were ranged over 30 years of age.

2.1.2 Education

Manjunatha and Gangadhar (2018) reported that 42.5 per cent of the respondents were illiterates followed by the lower primary level (26.7%), higher primary (14.2%), 6.7 per cent of high school level, pre-university was 5 per cent, 2.5 per cent were undergraduate and above and only (2.5%) of women studied professional courses.

Gustav *et al.* (2014) mentioned in their study that majority (62.9%) of the women respondents were educated till Secondary school followed by 54.5 per cent of the respondents were educated up to Primary school and 45.5 per cent of the respondents were educated below primary school level. The respondents who could read the bible/letter/ newspaper were 59.0 per cent and the respondents who cannot read the bible /letter/ newspaper were around 43.8 per cent.

Bihari *et al.* (2012) reported that more than half (62.00%) of the respondents were illiterates followed by the respondents who studied up to primary school amounting to 26.00 per cent and 12.00 per cent studied up to middle school and above.

2.1.3 Occupation

Manjunatha and Gangadhar (2018) indicated in their study that few (38.3%) of the respondents were working as agricultural labourers, 20.0 per cent of them were engaged in the agriculture sector, 6.7 per cent in government service, 26.7 per cent in minor forest products and 8.3 per cent of respondent engaged in other occupations like selling livestock product, business, grazing cattle, tailoring, handicraft, etc.

Shanmuga and Vasimalairaja (2017) based on National Sample Survey (NSS) data for the year 2011–2012 indicated that the rural workforce engaging in agriculture and allied activities were 64 per cent and the other 44 per cent were engaged in manufacturing activities in the rural areas.

Bihari *et al.* (2012) revealed that Farming was the occupation that majority (83.33%) of the respondents was depended on followed by 10.00 per cent on agricultural labourers and 6.67 per cent of the respondents belonged to landless agricultural labourers.

2.1.4 Family type

Deepika (2019) stated that in the rural population, the majority of the respondents belonged to nuclear families amounting to (83.33%) followed by 15.00 per cent from joint families and 1.67 per cent from extended families. The reason might be because of the social and modern economic development in the society, the tradition of the joint family system evolved from extended to nuclear families. For the fulfilment of their needs, women preferred in living separately hence, the joint family system tradition was decreasing year after year.

Manjunatha and Gangadhar (2018) found that among the respondents, nuclear families amounted to majority of (81.7%) and joint families ranged at (16.7%) and extended family amounted to the remaining (1.7%). Thus, in the present study according to the data indicated, we can infer that there were more nuclear families than extended and joint families.

Jadi (2016) studied that nuclear families (80.5%) amounted to majority among the respondents. About 14 per cent of them belonged to extended families. Only 6 per cent belonged to joint families. It was inferred that because of the modern social & economic development in the society there had been a change in the joint family tradition from nuclear to extended families.

2.1.5 Income

Manjunatha and Gangadhar (2018) revealed that the respondents having an annual income of Rs.10,000 were few ranging at (23.3%), respondents earning annually from Rs.10,001-20,000 were 40.8 per cent, respondents whose annual earning was Rs.20,001-30,000 were 19.2 per cent, respondents earning 30,001 to 40,000 were 7.5 per cent and respondents earning an annual income of above Rs. 40,000 were 9.2 per cent. The patriarchal system, lack of awareness, lack of education and culture constraints were the main cause of poverty and backwardness. The key factor in restraining the improvement of women's economic and social status was Poverty.

Chingtham and Guite (2017) found that the majority of the respondents were adherent to the lowest two income groups, i.e. 31 per cent earned between Rs. (10000-20000) and 32 per cent were earning between Rs. (5000-10000). Out of the remaining students, the parents i.e., earning between Rs. (20000-30000) were 14 per cent and 15 per cent earned between Rs. (30000-40000). Rs. (40000 and above) was earned by only 8 per cent of the parents.

Jadi (2016) concluded that the significant measure to determine the economic and social status of the respondents was income. The higher the socioeconomic status the greater was the income. The author highlighted that the respondents who fell in the Rs.0-300 income group per month amounted to a majority of 43 per cent. Respondents who fell in between Rs. 301-500 were a little more than 37 per cent and few of the respondents fell in between Rs. 501-1000.

Islam and Mustaquim (2014) indicated that the total population who were literates, who had less than Rs.500 per capita income amounted to 59.56 per cent which was followed by 66.47 per cent of them having Rs. 501-1000 per capita income, 82.05 per cent of literates had Rs. 1001-1500 per capita income, 85.71 per cent of the literates had Rs. 1501 – 2000 per capita income and Rs. 2000 and above per capita income amounted to 100 per cent literates. In the non-agriculture sector, the scope of the work participation would be reduced because of the low level of literacy and people cannot quit from primary activities, where in returns were very low.

Sonia and Priyanka (2008) revealed the monthly income distribution of the respondent's and discovered that 20.66 per cent of them were earning in between Rs. 1001 to Rs. 5000, respondent's earning Rs. 5001 – 10000 were 5.17 per cent, 5.17 per cent of them earned below Rs.1000/-. On average, all the families earned a monthly income below Rs. 5000.

2.1.6 Number of children

Glagn and Kejela (2019) in their research "Knowledge, Attitude and Practice towards Initiation of Complementary Feeding Among Mothers of Children under two years in Birbir town, Southern Ethiopia" found that the respondents who had 1-2 children were more than half (53.7%) followed by 34.6 per cent who had 3-4 children and respondents having more than 5 children amounted to (11.7%).

Bidwe (2018) observed that 27.5 per cent of rural and 54 per cent of urban mothers had one child whereas 45 per cent rural and 41 per cent urban mothers had two children. 18.5 per cent and 5 per cent of mothers had three children from rural and urban areas respectively. It was reported that mothers of the rural areas having four children were 8.5 per cent and mother's having six children were only 0.5 per cent.

2.1.7 Age of child

Gupta (2019) noticed that infants had been categorized into three groups. The infants belonging to 6 months to 12 months of age were a majority amounting (44.61%). 33.52 per cent of infants belonged to the age group of 12 months to 18 months of age and infants belonging to the age group of 18 months to 24 months of age amounted to 21.87 per cent.

Srivasatava *et al.* (2018) in their research on "Complementary feeding practices of children (6 months-23 months) in and around Lucknow, India" studied that out of the total 256 children, 93 children were in the age group between 6-11 months whereas 81 children were from 12-17 months and 82 children belonged to the age range between 18-23 months.

Saxena and Kumar (2014) surveyed the block Doiwala of Dehradun district on infants under 2 years of age. They studied a total of 336 infants, out of which up to six months of age were maximum of 48.6 per cent followed by 36.3 per cent ranging between 6-12 months of age group and 15.2 per cent ranged between 1-2 years of age.

Karim *et al.* (2012) conducted a study in the selected villages of Dhamrai and discovered that out of 320 respondents, infants belonging to the age group 9-12 months were 42.8 per cent followed by 38.8 per cent of infants who belonged to the age group between 6-9 months and 18.4 per cent of infants belonged to less than 6 months of age group.

Khan and Radha (2013) stated that infants under the age of one year amounted to 65.02 per cent, infants in the age group of 12-18 months were 24.59 per cent and infants in the age group of 19-24 months amounted to 10.38 per cent in the rural area of Nagamangala taluk, Mandya district.

2.1.8 Gender of the child

Srivasatava *et al.* (2018) concluded based on their research on "Complementary feeding practices of children of age group (6 months-23 months) in and around Lucknow, India " that out of the total 256 children taken 45.70 per cent were girls and 54.30 per cent were boys.

Sailaja K *et al.* (2016) highlighted on "Nutritional status of children in rural Telangana in relation to and regarding complementary feeding practices" and inferred that out of the total 130 children, 41.5 per cent were females and 58.5 per cent were males.

Khan and Radha (2010) reported from their study that among the total children, 44.80 per cent were male whereas 55.19 per cent were female.

2.1.9 Birth order of child

Sailaja *et al.* (2016) studied the "Nutritional status of children in rural Telangana in relation to complementary feeding practices" and reported that out of the total 130 children, 50.0 per cent was the first child followed by 45.4 per cent were second child and 4.6 per cent were the third child.

Khan and Radha (2013) mentioned that the firstborn children amounted to 59.56 per cent followed by children who were second-born at 34.15 per cent and children who were third born and above amounted to 6.28 per cent.

Gupta *et al.* (2012) in their survey in the urban slum of Lucknow concluded that children who were in the first position amounted to 28.62 per cent followed by 50.76 per cent of children who were on second and third position and 20.61 per cent children were on fourth and above positions.

2.1.10 Birth weight of the child

Verma and Shrivastava (2016) examined the "Effect of maternal nutritional status on birth weight of baby". They noticed that a majority of the mother's delivered babies with a weight range between 2100- 2500 grams amounting to 53.44 per cent followed by the birth weight range of babies in between 2600- 3000 grams to be (36.79%), babies more than 3000 grams were of 7.29 per cent and babies less than or equal to 2000 grams amounted to 2.48 per cent.

Krishnan *et al.* (2014) indicated in their research that the birth weight of babies ranged between 1.92 kg to 4.45 kg. Male babies had mean BW of (3.09 ± 0.41) and female babies had mean BW (3.03 ± 0.4 kg). The birth weight was categorized into six groups among which maximum male children (42.8%) and females amounting to 40.9 per cent had a birth weight range between (3-3.5 kg).

2.1.11 Media exposure

Deepika (2019) concluded that in the rural population, majority of the respondents who had low mass media exposure were 90 per cent which was followed by the population having mass media exposure at the medium level is 8.33 per cent and high mass media exposure ranged at 1.67 per cent. Low was because the respondents were engaged in agricultural activities and labour that had curtailed them in getting any exposure to mass media. They could not be exposed to the internet and print media because a majority of them were illiterates.

Kumar (2015) observed that the inner strength of women could be enriched by information and news. Mass media can boost collective strength, self-usage and confidence in women. Mass Media aims in shifting locally-determined attitudes as well as promoting youth and gender equality and changing the behaviour towards girls, women and children that often lead to inequalities.

Gustav *et al.* (2014) inferred that mass media exposure was high for majority (81.8%) of the respondents followed by 18.2 per cent who had low mass media exposure. The majority of the respondents had access to television and radio as they were literates. According to the author, the respondents were highly media-exposed i.e., television and radio. The respondents read the newspaper at least once a week and almost every day listened to the radio.

Dhanasree (2013) in her study mentioned that the respondents who had low mass media exposure were a majority consisting of 67.22 per cent which was followed by 22.23 per cent of medium level of exposure and 10.55 per cent high level of exposure. The majority of the families had acquired traditional knowledge from the elder members of their families as they had very little access to communication media. The author opined that by conducting Kisan Melas, training programs, and also through the related information materials, there should be an increase in the levels of mass media exposure of the tribal women.

Bihari *et al.* (2012) studied the Role Performance and Knowledge Level of Tribal Women Farmers in Meghalaya. They reported that 72.67 per cent of women had low media exposure followed by 22.67 per cent of women who had media exposure of medium level and 4.66 per cent of women had media exposure of high level.

Manasa (2012) in her research on "Study on perception of rural women on Mee Aarogyam Mee chetullo: A television program on health and nutrition", found out that majority (69.16%) of the respondents had low mass media exposure followed by 22.50 per cent of them medium mass media exposure and 8.33 per cent high mass media exposure. The author described that rather than other mass media sources, TV was more accessible to all the respondents.

Ganju *et al.* (2010) revealed in his study on "Reach of media and interpersonal communication in rural Uttar Pradesh" that media had a limited reach over the rural population of UP which covered only about 20 per cent. It was inferred that in the western rural areas of UP, the reach of the print media was only 20 per cent. Further, it was observed that irrespective of gender, among the non-literate groups the reach of mass media was low.

2.1.12 Extension contact

Deepika (2019) stated that in the rural population, respondents who had low extension contact were 53.33 per cent followed by 45 per cent who had medium contact and high extension contact of 1.67 per cent. The reason for the low extension contact was shyness, ignorance, and illiteracy.

Dhanasree (2013) highlighted that the respondents who had medium extension contact were a majority 49.44 per cent followed low-level extension contact 32.78 per cent and high level of extension contact 17.78 per cent. The author observed that majority of the respondents had medium extension contact and the reason for this was lack of social mobility, the inability of women in devoting their time, illiteracy and lack of awareness about the activities conducted by various social institutions.

Manasa (2012) studied the "perception of rural women on Mee Aarogyam Mee chetullo: A television program on health and nutrition", and drew inference that majority (59.16%) of the women had medium level of extension contact followed by the low-level extension contact (23.33%) and high-level extension contact (17.50%).

2.2 Knowledge of rural women regarding complementary feeding

Bharani *et al.* (2017) stated that in the rural part of central India, a cross-sectional study was conducted among 100 postnatal mother's who had attended the outpatient pediatric department where they discovered that only 70 per cent of mothers knew about the exclusive breastfeeding that should be given for initial six months and 58 per cent of mothers believed that it ought to be continued until 2 years of age. Only 18 per cent of mothers had knowledge about the accurate technique of breastfeeding.

Olatona *et al.* (2017) mentioned in their study on "Complementary Feeding Knowledge, Practices and Dietary Diversity among Mothers of Under-Five Children in an Urban Community in Lagos State, Nigeria" that 25.4 per cent of the respondents had correct knowledge on when the breastfeeding should stop and after starting on other feeds, the child should be breastfed on demand was known by 72.1 per cent.

Verma and Dixit (2016) in rural Uttar Pradesh had conducted a cross-sectional study among 256 mothers. The majority (80%) of the mothers were aware that breast milk was very important while others felt, it was not important. Only (37.5%) of mothers knew that exclusive breastfeeding for infants was important and 76.1 per cent of the mothers had considered the pre-lacteal feeds to be important considering its nutrient content and the cultural component for the baby.

Geetha (2015) examined in selected urban and rural areas of Puducherry, the practices and knowledge on the exclusive breastfeeding and colostrums among 50 mothers who had children < 6 months of age. It was revealed that about 30 per cent of mothers had adequate knowledge on the subject, 58 per cent of them had moderately adequate knowledge and 12 per cent of them had inadequate knowledge on exclusive breastfeeding and colostrums feeding in rural areas.

Glagn and Kejela (2019) discussed about the knowledge of complementary feeding among the mothers who had children of under two years old. Complementary feeding was known by majority (81%) of mothers. Among those who knew about complementary feeding obtained the information from friends-neighbours, health extension workers, mass media and health institutions was 11.2 per cent, 25.3 per cent, 26.2 per cent and 37.3 per cent respectively. Out of all the respondents, 71.7 per cent of mothers had knowledge about the initiation of complementary feeding at the exact time. Among the respondents who were aware of complementary feeding, 61 per cent of them were aware that for an infant cow milk was a complementary food. Water, being a complementary food was not known by more than (68.3%) of mothers. About the initiation of complementary feeding, 68.3 per cent of the respondents had "good knowledge" while 31.7 per cent had "poor knowledge".

Olatona *et al.* (2017) in the Lagos state of Nigeria surveyed about the Knowledge, Practices and Dietary diversity of complementary feeding among mothers of under- five children. He noticed that 72.4 per cent of the respondents were aware about the accurate definition of complementary feeding and accounted for a majority, whereas 61.1 per cent had known that it ought to be introduced at 6 months. For a healthy infant, the appropriate diet was fortified local foods was known by a majority of 61.7 per cent but malnutrition being an associated risk of late complementary feeding was known by less than half 47% of the respondents. Appropriate utensils for feeding was known by 82.5 per cent of the respondents. Overall, the respondents who had awareness of complementary feeding were only 14.9 per cent.

Olatona *et al.* (2017) observed that the respondents had low awareness regarding the minimum frequency of complementary foods. Among them, the respondents who knew that a child between the age range of 6 – 8.9 months ought to be fed minimum twice a day had amounted to only 29.6 per cent whereas among the respondents 63.6 per cent of them knew a child >12months and 45.9 per cent of them were aware that a child in the age range of 9 – 12months ought to be fed at least thrice a day respectively.

Venugopal and Chandrasekhar (2016) in their research about "knowledge of complementary feed and its effect on child nutrition" highlighted the lack of awareness among the mothers about complementary feeding. The author found that there was a delay in the mean age of complementary feeding because of illiteracy, low economical and social status, attitudes and false beliefs of rural mothers, improper information which often lead to malnutrition of the child. Hence, to improve the health status and prevent malnutrition of the child, mothers should receive proper education regarding complementary feeding, practices, foods and preparation.

2.3 Complementary feeding practices followed by rural women

Bidwe (2018) stated that at the age of 4 to 6 months of their infants, 15 per cent of rural and 10 per cent of urban mothers gave liquid food whereas 43.7 per cent and 33.9 per cent of rural and urban mothers had given liquid food to the infants at the age of 9 to 7 months respectively. Infants of the age group of 4-6 months were given a semi-liquid food by 57.8 per cent of urban mothers and 52.5 per cent of rural mothers. Whereas infants at the age group of 7-9 months had been introduced to semi-liquid foods by 45 per cent of rural mothers rather than their urban counterparts. At the age of 10 to 12 months, infants who fed with the semi-liquid food were less than 10 per cent in both the areas. It was noted that at 7 to 9 months of age, infants were introduced to semi-solid food in higher per cent and at the age of 10 to 12 months, rural infants were fed semi-solid food at 50.6 per cent which was followed by 7 to 9 months ranged at 21.2 per cent. At 10 to 12 months of age, infants were fed only solid food.

Javalkar and Aras (2018) in the urban and rural areas of Mangalore Taluk made observations on the complementary feeding practices. They noted that the most preferred complimentary food combination was dal and rice while the number of meals differed from 2-4/ day and biscuits were the snacks that were most preferred. At the age of 6 months, 30.60 per cent of urban mothers and 69.30 per cent of rural mothers started giving complementary foods. Inappropriate practices were seen due to the marketing strategies influencing baby food, poor knowledge and family member's advice.

Kumari *et al.* (2017) researched infant feeding practices in Rural Warangal of Telangana state and noticed that complementary feeding had been introduced to 46.2 per cent infants. At 6 months of age, rice or wheat porridge was the first weaning food introduced to 42.5 per cent of them. Among (26%) illiterate mothers (78.9%) had not introduced complementary feeding at 6 months of age and was found to be statistically significant ($X2 = 4.82$, $P=0.02$). 70.6 per cent of them stated that due to sufficient breast milk being available, complementary feeding was introduced later. 10.1 per cent infants were introduced to artificial feeding out of which the majority 37.5 per cent were introduced to it at the age of 1 month and 87.5 per cent was because of inadequate breast milk. Cow's milk was given in 31.3 per cent and packaged milk or tinned milk powder was given in 56.3 per cent with 1:1 dilution.

Neme and Olika (2017) studied the "Knowledge and Practices of Complementary Feeding among Mothers/Caregivers of Children Age 6 to 23 Months" in Horo Woreda, Horo Guduru Wollega Zone, Oromia Region, Ethiopia. It was noticed that introduction of complementary feeding wasn't done timely by 60 per cent of caregivers/mothers. The study depicted that 65.80 per cent had low score in dietary diversity.

Sailaja *et al.* (2016) studied the nutritional status of children in rural Telangana concerning complementary feeding practices. It was observed that the children who were underweight accounted for 44.60 per cent, 37.70 per cent of them were stunted, 20.78 per cent of the children were wasted. Among the age of 18-23 months, under nutrition was high. The main factors for different forms of malnutrition were low economic and social status, a birth spacing of <2 years, prolonged exclusive breastfeeding, mother's education and frequency of complementary feeds being lower than the recommended levels.

Saxena and Kumar (2014) researched the complementary feeding practice in terms of frequency, quality, timings and consistency in infants (aged less than 2 years) of Doiwala block, Dehradun district. They noticed during the study period that among 336 children, complementary feeding for children aged more than six months accounted for 87.3 per cent. 70.1 per cent of them started complementary feeding on time however, 17.2 per cent were given green leafy vegetables whereas 36.4 per cent of children were put on the complementary feeding in liquid consistency. The point of focus on this research was that early complementary feeding was given currently to 25.1 per cent children aged below 6 months as the mothers had to resume their job or perceived that they didn't have enough milk.

Khan and Khan (2013) highlighted that early complementary feeding was given to 76.5 per cent of children of Ladakh whereas an almost equal percentage of infants from Jammu and Kashmir (20.2% and 19.5% respectively) were weaned earlier. It was observed that weaning was introduced prominently in Jammu (52.55%) which was followed by Kashmir (40.2%) and then Ladakh (1.3%). The families from high economical and social status carried out weaning earlier than the illiterate mothers who had the highest frequency of carried out late weaning. In Jammu, commercial cereal foods were used as first semi-solid food by a maximum number of mothers i.e 36.6 per cent but it was worst in Kashmir, as commercial cereal foods were used in weaning 57.5 per cent children.

Kumar *et al.* (2013) revealed in their study "Weaning practices in rural Tumkur", about the attitude, practice and knowledge on weaning among the lactating mothers. Among them, 68.85 per cent of mothers started weaning before six months and the weaning food that was most preferred was Ragi sari (porridge which is prepared with sprouted ragi). Weaning food was given twice daily by 45.9 per cent of the mothers whereas 31.14 per cent of them had given only once a day and a clockwise scheduled pattern was followed by 90.16 per cent whereas only (9.83%) of them were given on demand. Use of freshly prepared foods was preferred by 91.8 per cent of mothers and commercial foods like farex and cerelac were used by 13 per cent mothers. 18 per cent of mothers delayed the initiation of weaning because of the perception of having sufficient milk in (63.63%) and digesting food is difficult for the baby in (36.36%). During the study, vegetables and fruits were not introduced as weaning foods by 62.29 per cent and 68.85 per cent respectively.

Rao *et al.* (2011) conducted a cross-sectional survey, among two hundred mothers who were attending the pediatric outpatient department having children between the age group of six months and two years. Among them, complementary feeding was started at the recommended age by 77.5 per cent mothers whereas there was a delay in initiation of complementary feeding by 12 per cent mothers. The perception of having sufficient milk for the baby is the common reason for the late introduction of complementary feeding. Complementary feeds of adequate quantity were practiced by 32 per cent of mothers. Weaning was initiated with common homemade foods by 82 per cent of the mothers.

2.4 Intervention on selected standardized recipes of complementary feeding

Veni and Manjari (2018) in the adopted villages of Krishi Vigyan Kendra, Rudrur studied about the Pushti weaning mix which was used as a supplementary food to combat malnutrition among infants. The supplementary food of the Pushti weaning mix contains jaggery, roasted soya dal and roasted wheat ravva. Besides breast milk, the dosage of 50gms of Pushti weaning mix was orally fed thrice a day. In the control group, homemade mashed food along with breast milk was advised. Infants were examined in various aspects of development and growth, from the age of 6 months to 2 yrs. In all aspects of growth, an improvement was seen in infants. 21 per cent of weight gain was seen in the treated group and in the control group it was 11 per cent.

Talavera *et al.* (2014) in their study "Recipe Trials to Improve Complementary Feeding: The Philippine Experience" did modifications in the locally available complimentary food recipes and the evaluation was done in terms of the overall feasibility of the RT technique and the quality of the improved recipes. The protocol was performed nine times among the 83 caregivers of children in the age range of 6-8, 9-11, and 12-23 months old in three communities in the provinces of Sur Zamboanga del Sur, Iloilo, and Camarines of Philippine. Preparatory activities, Recipe Trial 1, Recipe Trial 2 and Follow-up visits were the 4 phases of this study. Twelve recipes which were prepared commonly and their regional variants were recorded during the RT1s and nutrient-rich foods were included in those recipes. In terms of nutritional quality, most of the recipes had improved after RT2. Rice porridge which was generally just plain rice boiled with water, had been improved drastically by adding various types of vegetables (e.g., carrots, mungbean, and Moringa leave) and protein-rich foods (e.g., liver, meat and eggs). The improved RT protocol had great potential in alleviating poor nutrition among young children and infants in the Philippines.

2.5 Change in knowledge after giving interventions on selected standardized locally available recipes

Masthalina and Agustina (2017) in their research in the district health centers of Lubuk Pakam, aimed to influence the attitude and knowledge of nursing mothers by imparting nutritional counselling on nutritional status and exclusive breast milk. A non-equivalent control group design of a quasi-experiment was applied. Results revealed that the knowledge in both groups, preceding the intervention did not vary (p= 0. 290). However, after the intervention there was a significant difference noted. The infant's average weight gain in the first months in the control group was 1.19 kg and in the treatment group, it was 1.25 kg whereas and in the second month, 1kg in the control group and 1.44 kg in the intervention group were seen.

Nikiema *et al.* (2017) in rural Burkina Faso, organized a cluster-random influenced trial. To improve the morbidity and child growth up to 18 months, the efficacy of facility-based personalized mother's were given counseling in nutrition. In this study, women were asked questions about morbidity history, dietary practices during pregnancy, child feeding practices and counseling experiences. In the intervention arm, more children between 6-18 months of age had benefited from the essential feeding frequency (68.8% vs 53.4% ; DP 14.1% ; 95%) and a large fraction had a minimum dietary diversity (28.6% vs 22.0% ; DP 5.9% ;95%) . Compared to the control arm, the birth weight of newborns were on an average of 84.8 g high in the intervention arm. Facility-based personalized maternal counseling in nutrition was related to an improved child birthweight, prenatal dietary practices, Young and Infant Child Feeding practices. Complementary strategies were endorsed to obtain a significant impact on morbidity and child growth. This includes strategies for ensuring effective care/nutrition practices in early childhood and a good provision of facility-based services.

Garg and Chadha (2016) evaluated the effect of the 'community-based nutrition counseling (CBNC) approach' on complementary feeding (CF) practices and growth of infants (6-12 months) from Ghaziabad district of rural Uttar Pradesh. Intervention includes the implementation of approaches by CBNC in the intervention group, which involves conveying of suitable nutritional counseling designed by community counselors .Assessment of the impact of CBNC was evaluated based on the growth of infants, CF practices, and morbidity at 12 months of age. The consequence of the intervention was the punctual introduction of CF after completing 6 months of age which was remarkably higher in intervention when compared with both comparison groups ($p< 0.01$, 97% vs. 6%,6%).

Manikyamba *et al.* (2015) evaluated the impact of nutrition education on the knowledge of mothers for young child and infant feeding practices (IYCF. It was noticed that prior to nutrition education, in complementary feeding 61.4 per cent, 34.6 per cent, and 5 per cent of mothers had fine, poor, and good knowledge respectively although, after nutrition education, 87 per cent of the mothers are well aware of complementary feeding. Complementary feeding practices of mothers have an average pre-test score of 11.3 and the post-test score of 22.4 which is statistically remarkable. Despite being well aware, there may be lacunae in the IYCF practices due to economical and social reasons and provincial cultural practices. Hence, repeated augmentation of accurate knowledge on IYCF practices through health care personnel at every approach of mothers can help in wadding up of this void and promote quality feeding practices.

Khan *et al.* (2013) evaluated the impact of nutrition education on children living in a resource-limited environment and on nutritional status. For the nutritional assessment, a 24-hour dietary recall method and Anthropometry was used to the targeted mothers. Nutrition counselling was the intervention strategy. The outcome of the study was to reduce the intensity of wasting and altering the feeding practices. Results depicted that in Tando jam, nearly 36 per cent of children and in Quetta, 32 per cent of children the nutritional status developed to a normal nutritional status. The number of meals taken had considerably increased per day. There was a notable increase in the intake of vegetables, dairy foods, and plant protein in Quetta as well as a considerable increase recorded in the intake of fruits, vegetables, and high starch food items in Tando Jam. Overall, it can be inferred that the nutrition education was effective in diminishing undernourishment in households having food insecurity.

Shano *et al.* (2013) found that nutrition education program on malnutrition among (4 months to 1 year) in the areas of Pathancheru and Moosapet (Hyderabad). A total of 100 mothers were chosen and nutrition education was given on various homemade weaning mixes that were prepared from provincially available foods and its importance. It was deciphered that due to the introduction of weaning foods in the experimental group after one month, results indicated an increase in the weight of infants. However, there was no variation in the height of infants even after the nutrition education as the study was organized for short period. Hence, it was inferred that if weaning was continued for a longer period then maximum growth can be discovered in the infants.

Shi *et al.* (2010) assessed a study on the effectiveness of an educational intervention on complementary feeding practices and growth in rural China. A total of 599 healthy infants, in the age range of 2-4 months were enrolled and pursued up until one year of age. Improved home-prepared recipes and educational messages in the intervention group were dispersed to caregivers through the home visits and group training. Anthropometric measurements and Questionnaire surveys were taken at benchmark and ages 6, 9 and 12 months. It was derived that hygiene practices, meal frequency and food diversity had enhanced in the intervention group. Over the study period, infants weighed 0.22 kg more and also gained 0.66 cm more length in the intervention group. Findings obtained from the study highlighted that an educational intervention conveyed through local health- care providers can assist in the substantial behavioral changes of caregivers and enhanced infant growth and development.

Chapter III

MATERIAL AND METHODS

The methodology followed for conducting this study is presented below. This chapter deals with the research design, sampling procedure, variables and their measurement, tools of data collection, statistical tests used and analytical procedures followed to interpret the data. The details of the methodology followed in the present investigation are presented under the following heads.

3.1 Research design

3.2 Sampling procedure

3.3 Variables and their empirical measurement

3.4 Selection of intervention

3.5 Tools for data collection

3.6 Statistical procedures

3.7 Conceptual frame work

3.1. Research Design

Research design is the arrangement of conditions for collection and analysis of data in a manner that aims to combine relevance to the research purpose with economy in procedure. The research design is the conceptual structure within which research is conducted; it constitutes the blueprint for the collection, measurement and analysis of data. As such the design includes an outline of what the researcher will do from writing the hypothesis and its operational implications to the final analysis of data. (Kothari, 2008)

Action research design is an educational research involving collecting information regarding current programs and outcomes, analyzing the information, developing a plan to improve it, collecting changes after a new plan is implemented and developing conclusions regarding the improvements. A pilot study was conducted before the main investigation which helped in gaining more insights and familiarity with the problem and to draw the diverse information with regards to the existing knowledge and practices on complementary feeding and related independent variables.

3.2 Sampling Procedure

3.2.1 Locale of the Study:

The study was conducted in the state of Telangana for the reasons that:

1. In the state of Telangana, Malnutrition is the major cause of deaths and disabilities.
2. It enabled easy accessibility for the student researcher since her place of study, College of Community Science is located at Hyderabad in this state.

3.2.2 Selection of the Districts and Mandals

Medak district was selected purposively based on the highest prevalence of under nutrition in the age group of <5 years according to Niti Ayog district fact sheet and socio-economic outlook report (2018). Among all the 20 mandals of Medak district, four mandals were selected randomly. The selected mandals were Alladurg, Kulcharam, Narsapur and Tupran mandals. The geographical location of the selected districts and mandals were presented in the Fig.3.1.

3.2.3 Selection of Villages

The list of villages under the selected mandals for the present study was collected from the district website. The villages were selected randomly. The selected villages in Narsapur mandal were Moosapet and Rustumpet, in Tupran mandal were Venktaipalle and Brahmanapalle, in Alladurg mandal were Chilever and Mahammadapur and the selected villages in Kulcharam mandal were Yenigandla and Konapur.

3.2.5 Selection of Respondents

From the selected eight villages, 15 women respondents from each village were selected by the Purposive Random Sampling procedure. The criteria for the selection of sample was that the mother having at least one child from 6 months to 2 years. The total sample selected for the study was 120, thus comprising of 30 samples from two villages of each mandals of Medak district. The Sampling procedures followed for the study were depicted in Fig.3.2.

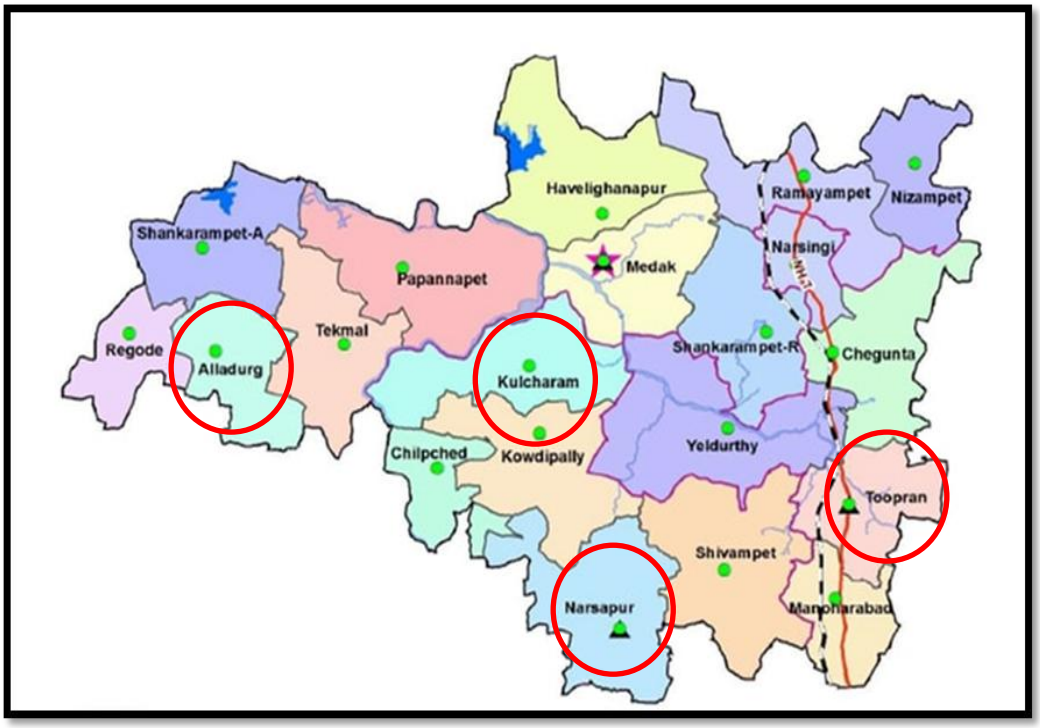


Figure: 3.1. Geographical location of the study

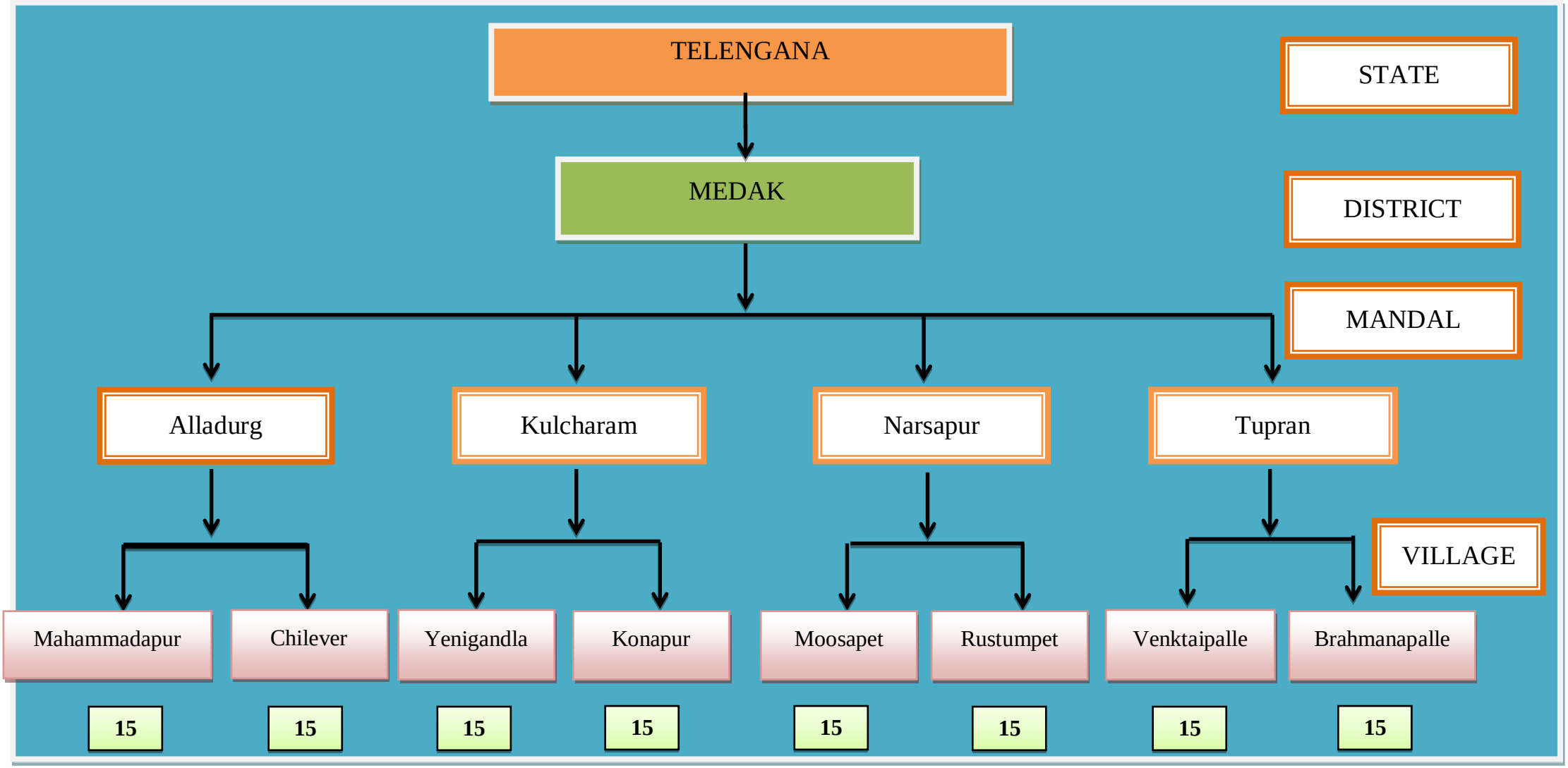


Figure: 3.2. Sampling Procedure followed in the study

Total 120 Respondents

3.3 Variables and their empirical measurement

The variables for the study were selected based on the review of the literature and in consultation with various experts in the field. The variables selected for the study along with their empirical measurement are given below.

Table 3.1 Variables and their Empirical measurement

S.No	Objectives	Variables	Measurement tools	Statistical tools
		Independent variables		
1.	To study the profile characteristics of rural women in selected districts of Telangana state	• Age of Mother	A structured interview schedule was used to study the independent variables.	Frequency Percentage
		• Education • Occupation • Income of family • Family type • Media exposure • Extension contact	Schedule developed by Deepika (2019)with suitable modifications was used to study	Frequency Percentage
		• Number of children • Age of child • Gender of the child • Birth order of child • Birth weight of the child	Schedule developed by Bidwe (2018) with suitable modifications was used.	Frequency Percentage
2.	To identify the existing	• Knowledge on complementary	*Schedule developed by	Frequency Percentage

	knowledge and practices on complementary feeding followed by rural women.	feeding • Complementary feeding practices	Chand *et al* (2018) with suitable modifications were used to study the knowledge and practices followed by rural women regarding CF. * Schedule developed by Bidwe (2018) with suitable modifications was used.	
3.	To provide intervention on the selected standardized recipes of complementary feeding foods from locally available foods.		* Standardized recipes of complementary foods were selected from AICRP- HSc, PJTSAU and Food and Nutrition Board, Hyderabad * Video was developed on selected standardized recipes of complementary feeding foods from locally available foods.	
4.	To find out the change in knowledge of		* Structured interview schedule was used to find out	Paired t-test

	rural women regarding complementary feeding practices after the intervention.		the change in knowledge	

3.3.1 Operational Definitions:

3.3.1.1 Age

The age was the number of years completed by the respondent at the time of the interview. Based on their age, the respondents were categorized into three groups i.e age less than 25 years, 25-35 years and above 35 years.

3.3.1.2 Education

The education was the number of years of formal education acquired by the respondent at the time of the study.

3.3.1.3 Occupation

The occupation was the livelihood undertaken by individuals to earn money to meet the monetary needs of the family.

3.3.1.4 Income

The annual income was the income received in rupees from their occupation such as labour, agriculture and entrepreneurship etc. in a year.

3.3.1.5 Family type

The type of family was a group of people who share a blood bond living together in one house either respondent's family, i.e., husband, wife and their children (nuclear) or respondents family along with in-laws families (joint family) or respondents family with parents and any other blood relation (extended).

3.3.1.6 Rural Women

Rural women were operationalized as the mother bearing a child age from 6 months – 2 years.

3.3.1.7 Knowledge

Knowledge is a familiarity, awareness or understanding of someone or something, such as facts, skills or objects.

3.3.1.8 Practice

Practice means to do something over and over, out of habit because it has become an accepted custom or the act of continually doing something to get better at it.

3.3.1.9 Intervention

An intervention is a combination of sequenced and planned actions designed to produce behaviour changes or to have an effect on its outcome among individuals or an entire population.

3.3.1.10 Consistency of Food

Consistency of food was operationalized as children in the age group of 6-8 months should be given liquid consistency complementary foods, thin semi solid consistency food to the children in the age group of 9-11 months and solid consistency food for children of 12-24 months.

As per WHO recommendations, the following operational definitions were used

3.3.1.11 Complementary feeding is defined as the process starting when breast milk alone is no longer sufficient to meet the nutritional requirements of infants and therefore other foods and liquids are needed, along with breast milk.

3.3.1.12 Recommended time of initiation of complementary feed: Introduce complementary food at six months of age (180 days) while continuing to breastfeed.

3.3.1.13 Amount of complementary food needed: Start at six months of age with small amounts of food and increase the quantity as the child gets older, while maintaining frequent breastfeeding. The energy needed from complementary foods for infants of developing countries are approximately 200kcal per day at 6–8 months of age, 300kcal per day at 9–11 months of age and 550kcal per day at 12–23 months of age.

3.3.1.14 Recommended meal frequency: The appropriate number of meals of complementary foods should be provided 2–3 times per day at 6–8 months of age and 3–4 times per day at 9–11 and additional snacks of 1-2 times for 12–24 months of age.

3.3.1.15 Time of initiation of complementary feed by the mother was compared with the recommended time of six months to decide if the feed in the child was early at recommended times or delayed. Adequacy of the feed was interpreted based on the amount of complementary feed the child received and the meal frequency.

3.3.2 Dependent variables

3.3.2.1 Knowledge on Complementary feeding

Bloom *et al.* (1956) defined the knowledge as those "behaviours and test situations which emphasizes the remembering either by recognition or by recall of ideas and material on some phenomenon". Knowledge was an important dependent variable in the study which was studied based on action research design.

Change in knowledge

Change in knowledge is operationalised as the quantum of knowledge newly learnt by the respondents after exposure to video programmes on the standardized locally available recipes.

The knowledge of rural women regarding complementary feeding was measured with the help of a schedule prepared by Chand *et al.* (2018) and Bidwe (2018) with suitable modifications for the present study (Appendix II). The knowledge regarding complementary feeding were divided into three sections namely Breastfeeding, Complementary Feeding, Meal frequency & preparation of complementary foods. The breast feeding, complementary feeding practices and Meal frequency and Preparation of CFs score for the respondents were computed by adding all the scores obtained by the respondents for all questions. The maximum and minimum scores were obtained. The respondents were divided into three categories Good, Average and Poor based on the difference of the maximum and minimum scores as given below.

S. No	Category	Breast Feeding	Complementary feeding Practices	Meal frequency and Preparation of CFs
		Scores		
1.	Good	Above 8	Above 20	Above 20
2.	Average	5-7	14-19	14-19
3.	Poor	0 to 4	0 to 13	0 to 13

3.3.2.2 Knowledge on the frequency of complementary feeding

The frequency of complementary feeding is known as the number of feeding given to child which depends on the energy density of local foods. Based on the responses given by the respondents, each category was given the score on the basis of the ideal frequency as given below:

Age	**Ideal frequency**
6-8 month	2-3 times
9-11 month	3-4 times
12-24 month	4-5 times

3.3.2.3 Knowledge on the consistency of complementary foods

Based on the responses given by the respondents, each category was given the score as 1,2,3,4 and 5 on the basis of ideal consistency of complementary foods as per WHO.

Age	**Ideal consistency**
6-8 month	Liquid
9-11 month	Semi solid
12-24 month	Solid

3.3.2.4 Knowledge on the quantity of complementary foods

Based on the responses given by the respondents, each category was given the score as 1,2,3,4 and 5 on the basis of ideal consistency of complementary foods as per WHO.

Age	**Ideal Quantity**
6-8 month	½ Cup
9-11 month	¾ Cup
12-24 month	More than 1 Cup

3.3.2.5 Complementary feeding Practices

Based on the complementary feeding practice followed by rural women they were categorized on the basis of the scores obtained. The maximum and minimum scores were obtained. The respondents were divided into three categories Good, Average and Poor based on the class interval length obtained by the difference of the maximum and minimum scores.

S.No.	Complementary feeding Practice	Scores
1.	Good	59-74
2.	Average	43-58
3.	Poor	26-42

3.3.2.6 Homemade complementary foods

The complementary foods which could be prepared at the household level by the mothers following traditional methods are commonly described as homemade complementary foods. Based on the popular homemade complementary foods given to children by the respondent's was measured on five dimensions as mentioned below.

S.No.	Homemade complementary food	F	%
1.	Rice , Dal		
2.	Java		
3.	Uggu		
4.	Others (Mashed rice, Dal, Fruit Juices, Mashed vegetables, egg etc)		
5.	Not using homemade complementary foods		

Fig no. 3.3 Homemade complementary foods

3.3.2.7 Ready made foods

Readymade foods don't need cooking, fuel and time and can be offered easily to the child, the intake of readymade foods is increasing day by day which was popular given by the respondents was measured on four dimensions as mentioned below.

S.No.	Ready made complementary food	F	%
1.	Commercially available Readymade food		
2.	Balamrutham		
3.	Commercially available Readymade food and Balamrutham		
4.	Not using readymade food		

Fig no. 3.4 Readymade complementary food

3.3.3 Independent variables

3.3.3.1 Age

The age of the respondents were measured as the number of years completed as said by the women. A score of one was given for every completed year. Based on the age, they were grouped into three categories as follows.

S.No	Age	Category
1.	Less than 25	1
2.	Between 25-35	2
3.	More than 35	3

3.3.3.2 Education of Mother

Education referred as the formal education level of the respondents. A schedule was developed to measure the education level of the respondents. The respondents were asked to indicate their educational level. Accordingly, education scores were obtained. The minimum and maximum possible scores were 1 and 4 respectively. The respondents were grouped into the following 4 categories.

S. No	Education of mother	Scores
1.	Illiterate	1
2.	Primary School and Middle School	2
3.	High School	3
4.	College education	4

3.3.3.3 Occupation of Mother

The operational definition of occupation was the livelihood, undertaken by individuals to earn money to meet the monetary needs of the family. A schedule was developed to know the occupation of the respondents. The respondents were asked to indicate their occupation. Accordingly, the occupation scores were obtained. The minimum and maximum possible scores were 1 and 5 respectively. The respondents were grouped into the following 5 categories. The respondents were asked to indicate their occupation. Accordingly the occupation categories were obtained. The minimum and maximum possible categories were 1 and 5 respectively.

S.No	Occupation	Score
1.	Agriculture	1
2.	Labour	2
3.	Small business	3
4.	Government Job	4
5.	Housewife	5

3.3.3.4 Family type

It referred to the type of the family from which respondents belonged. A schedule was developed to know the family type of respondents. The respondents were asked to indicate their family type. Accordingly, the scores were obtained. Score three for the nuclear family, two for the joint family, and one for the extended family were given.

S. No	Family Type	Scores
1.	Nuclear	3
2.	Joint	2
3.	Extended	1

3.3.3.5 Income

Income referred to the amount of money or its equivalent, received during a time in exchange for labour or services, from the sale of goods or property or as a profit from financial investments. An open-ended schedule was developed to know the annual income of the respondents. The respondents were asked to indicate their annual income.

Based on their annual incomes they were divided into three categories i.e, low annual income group for below Rs.60,000 income/ annum, middle annual income group for Rs. 60,000-1,20,000 income/ annum, high annual income group for respondents with the income above Rs. Above 1,20,000 per annum. Scores assigned for the three categories are 3, 2, and 1 for the high, medium and low annual income

S. No	Income (Rs/ Annum)	Scores
1.	Low (Below 60,000)	1
2.	Medium (60,000-1,20,000)	2
3.	High (above 1,20,000)	3

3.3.3.6 Number of children

Number of children were operationalized as to know the total number of children both girls and boys for each respondent. A schedule was developed to know the total number of children for all the respondents. The respondents were asked to indicate their children total how many girls and how many boys. The respondents' children were divided into the following 3 categories

S.No	Number of Children	Category
1.	1-2	1
2.	3-4	2
3.	Above 4	3

3.3.3.7 Gender of the child

According to the information collected about the gender of the child, they were categorized into the following two categories.

S.No	Gender of the child	Category
1.	Male	1
2.	Female	2

3.3.3.8 Age of the child

The exact age of respondents were calculated by making use of the local calendar of festivals and events or by asking the date of birth of infants to their mothers. The age of the child is a significant factor to be assessed.

S.No	Age of the child	Category
1.	6 month – 8 month	1
2.	9 month – 11 month	2
3.	12 month – 24 month	3

3.3.3.9 Birth order of the child

Birth order of the child or the position of the child was defined as the chronological order of sibling birth in a family. The respondents were asked about the child's birth order then it was indicated in the schedule. The birth order of the child was divided into the following 5 categories.

S.No.	Birth order of child	Category
1.	First child	1
2.	Second child	2
3.	Third child	3
4.	Fourth child	4
5.	More than four	5

3.3.3.10 Birth weight of the child

The birth weight of the child was defined as the first weight of the child which is taken soon after childbirth. A schedule was prepared to know about the birth weight of the child. The respondents were asked about the child's birth weight then it was indicated in the schedule. The birth weight of the child were divided into the following 4 categories.

S.No	Birth weight of the child	Category
1.	≤ 2000 g	1
2.	2100 - 2500 g	2
3.	2600 – 3000 g	3
4.	> 3000 g	4

3.3.3.11 Media exposure

The degree of media exposure was measured by using the schedule developed by Deepika (2019) with suitable modifications. The different components included under the media exposure variable were given below for which scores were assigned.

S. No	Types of Media exposure	Frequency of contact		
		Daily/ Regularly (3)	Occasionally (2)	Never(1)
1.	Radio Listening			
	a) Recreational programs			
	b) News			
	c) Health education programs			
2.	Television Viewing			
	a) Recreational programs			
	b) News			
	c) Health education programs			
3.	Newspaper reading			
	a) Recreational programs			
	b) News			
	c) Health education programs			
4.	Mobile			
	a) Recreational programs			
	b) News			
	c) Health education programs			
	d) Talking with friends			
	e) Chatting			
	f) Whatsapp			
5.	Internet			
	a) Recreational programs			
	b) News			
	c) Health education programs			

The media exposure score were computed by adding up all the scores, the minimum and maximum possible scores were 18 and 54 respectively.

The respondents were divided into three categories low, medium and high based on the class interval length obtained by the difference of the maximum and minimum scores divided by three.

S.No	Media exposure	Scores
1.	Low media exposure	18-30
2.	Medium media exposure	31-42
3.	High media exposure	43-54

3.3.3.12 Extension contact

It referred to the frequency of contact of the respondent with extension personnel. The extension contact was measured by using the schedule developed by Manasa (2012) with suitable modifications. The respondents were asked to indicate how often they had contacted the extension personnel during the last two years. The scoring pattern followed to measure the extension contact as given below.

S.No	Type of Extension Personnel	Frequency of contact				
		Weekly Once (5)	Once in Fort Night (4)	Monthly Once (3)	Rarely (2)	Never (1)
1.	Village Sarpanch					
2.	Anganwadi worker					
3.	Asha worker					
4.	ANM (Auxiliary Nurse Midwife)					
5.	PHC Doctor					
6.	Field Assistant					
7.	Any other Extension Personnel					
8.	NGO Personnel					

The extension contact score of the respondents were computed by adding all the scores obtained by the respondents on all the scores. The minimum and maximum scores obtained were 8 and 40. The respondents were divided into three categories low, medium and high.

S.No	Extension contact	Scores
1.	Low	8-18
2.	Medium	19-29
3.	High	30-40

3.4 Selection of recipes and preparation of interventions for change in knowledge of rural women

3.4.1 Identification of recipes for complementary feeding

An intervention with video for increasing knowledge regarding recipes of complementary feeding was the main focus of the study. After thorough survey recipes were selected and the video was developed. As many as 26 recipes were identified from the AICRP-WIA, PJTSAU and Food and Nutrition Board, Hyderabad considering the common crops grown in that area. (Annexure -III)

Then the list was subjected to the respondents during the pre-testing procedure. During pre-testing, respondents were asked to select recipes according to their availability of ingredients and interest level. Then the rank was given and the highest scored 6 recipes were selected for preparation of intervention.

3.4.2 Development of content for intervention video

As the study was focusing on complementary feeding and its recipes, the content was prepared by taking into consideration the following points:

- **Timely** – meaning that they are started when the need for nutrients and energy exceeds that can be provided through frequent and exclusive breastfeeding.
- **Adequate** – meaning that they provide sufficient protein, energy and micronutrients to be meet a growing child's needs.
- **Safe** – meaning that they are hygienically prepared, covered, stored and fed with clean hands using clean utensils.
- **Properly fed** – meaning that they are given adequate and consistent with child's signals of appetite and satiety and frequency of meal and feeding method – actively encouraging the child, even during the period of illness to consume sufficient food using clean hands, spoon or self-feeding –as suitable for the age.
- **Recipes**- Selected standardized six recipes of complementary foods considering the local availability.

3.4.3 Flowchart for the development of intervention

The following figure 3.5. illustrates the flowchart for the development of intervention video programme.

Figure 3.5 Flowchart for development of intervention video

3.5 Tools for data collection

3.5.1 Interview schedule

The tool developed for collecting the data from the respondents in the present study was a structured interview schedule. Keeping in view the objectives and different variables included in the study, the developed structured interview schedules were modified in consultation with the experts in the field of extension and nutrition studies.

3.5.2 Pre-testing of the Interview schedule

Before the data collection of the main study, the interview schedule was administered on another sample of respondents who were not included in the main sample under study. The difficulties encountered during the pilot study were considered and the final interview schedule was prepared with suitable modifications and was presented in Appendix I.

3.5.3 Establishing rapport

Prior to the data collection, sufficient rapport was established with the respondents during the first few days with the help of sarpanch, Anganwadi workers, and local leaders. It was made clear to the respondents that the study was purely academic. This helped the investigator to establish friendly relations with the respondents and gain the confidence and willingness of the respondents, so that data collection would be accurate.

3.5.4 Method of Data Collection for Pre-test

The data was collected by administering the structured interview schedule to the women respondents. The respondents were personally interviewed by the investigator, which enabled her to get first-hand information and provided her an opportunity to observe their reactions. It was made sure that the statements mentioned in the schedule were correctly understood by the respondents by repeating and clarifying them where ever necessary. A friendly atmosphere was maintained throughout the interview so that the respondents were at ease and expressed their opinion properly, easily and honestly. The selected recipes from the AICRP-WIA, PJTSAU and Food and Nutrition Board, Hyderabad were given in the interview schedule and most preferred six recipes of complementary foods by respondents were selected for the study.

3.5.5 Knowledge Intervention

Nutrition and health education is a process by which people gain knowledge and develop the confidence and skills needed for establishing good dietary and health practices. Most people have some knowledge in nutrition but very few have correct concepts of the subject hence there is a need for nutrition education for both literate and illiterate (Srilakshmi, 2012).

A number of teaching methods are used by extension personnel in educating farmers and farm women. As this research focused on rural women and their learning, it was considered appropriate to select such kind of teaching methods which are applicable to them. In this process, video was chosen as one of the modern teaching technique.

The change in knowledge and practices of the respondents can be possible only through providing intervention. To educate the respondents regarding complementary feeding and locally available complementary food recipes, video of 10-15 minutes duration were prepared to increase their knowledge. For the preparation of the video, the information related to complementary feeding and some selected standardized recipes were collected. Then the script was written and pictures were selected. Voice was recorded in the Telugu language as most of the respondents were illiterates and this was suitable for them. The video was developed by applying different materials.

3.5.6 Intervention with video

After the preparation of intervention video, all the respondents were asked for appropriate time according to their convenience to watch video. After pre test, the video was exposed to the rural women by taking time gap of 15 days. The intervention was carried out in eight villages for eight days as per the convenient time allotted by the respondents. Prescribed duration of each video was 10-15 minutes. A time line was followed to complete one video session in 15 minutes. Five minutes each for introduction of the complementary foods, 10 minutes for projecting the video and re-projecting if respondents feel essential and finally five minutes each for summing up. As the intervention video had contents regarding the concept, importance, introduction of different complementary foods so the effectiveness of intervention video was assessed by structured interview schedule.

3.5.7 Method of Data Collection for Post-test

After providing the intervention, the respondents were interviewed again after 15 days. The responses were collected regarding the change in knowledge of complementary feeding. The change in knowledge level was assessed by calculating the maximum and minimum scores obtained. The respondents were categorised into good, average and poor based on the scores obtained.

3.6 Statistical procedures

The collected data were coded and analyzed with the help of the following methods.

3.6.1 Class Interval

It is the range between the maximum and minimum scores obtained by the respondents for every category variable. The respondents were categorized based on the class intervals.

$$\text{Length of class interval} = \frac{\text{Maximum score} - \text{Minimum score}}{\text{Number of class intervals}}$$

3.6.2 Frequencies

The frequency was used to know the distribution pattern of the respondents according to the variables.

3.6.3 Percentages

Percentages were used for standardization of size by calculating the number of individuals in a given category when the total numbers were 120.

3.6.4 Correlation

A correlation was used to find out the extent of the relationship between the scores of independent variables and the scores of dependent variables.

$$r = \frac{n(\sum xy) - (\sum x)(\sum y)}{\sqrt{[n(\sum x^2) - (\sum x)^2]\,[n(\sum y^2) - (\sum y)^2]}}$$

r = coefficient of correlation between x and y

Σx = sum of independent variable x

Σy = sum of dependent variable y

$^{\Sigma x2}$= sum of squares of the x variable

$^{\Sigma y2}$= sum of squares of the y variable

n= size of the sample

The computed r values were then compared with the tabulated values at 1 and 5 per cent levels of significance.

3.6.5 Paired t-test

A paired sample t-test is a statistical technique that is used to compare two population means in the case of two samples that are correlated.

3.7 Conceptual frame work

A conceptual model frame work or a schematic model is a diagrammatic representation outlining the dominant elements of a system and their interrelationship with respect criterion variables.

In light of the inferences derived from evidences in the literature, keeping in mind the objectives on the study, hypotheses proposed and review of literature conceptual frame work was developed for the study which postulates relationship among the variables. The knowledge intervention was assessed in respect of change in knowledge, complementary feeding practices of acquired information. The selected independent variables representing the personal, socio-economic characteristics of rural women were selected. The relationship was diagrammatically represented in Fig. 3.6 which will help to derive hypotheses for empirical testing. The selected video programme depicted in the middle.

The model diagrammatically represented the postulated relationship between the selected personal, socio-economic characteristics of rural women considered as independent variables and existing knowledge and complementary feeding practices as dependent variables are shown on the left hand side. The rural women change in knowledge on complementary feeding after intervention was depicted on the right side.

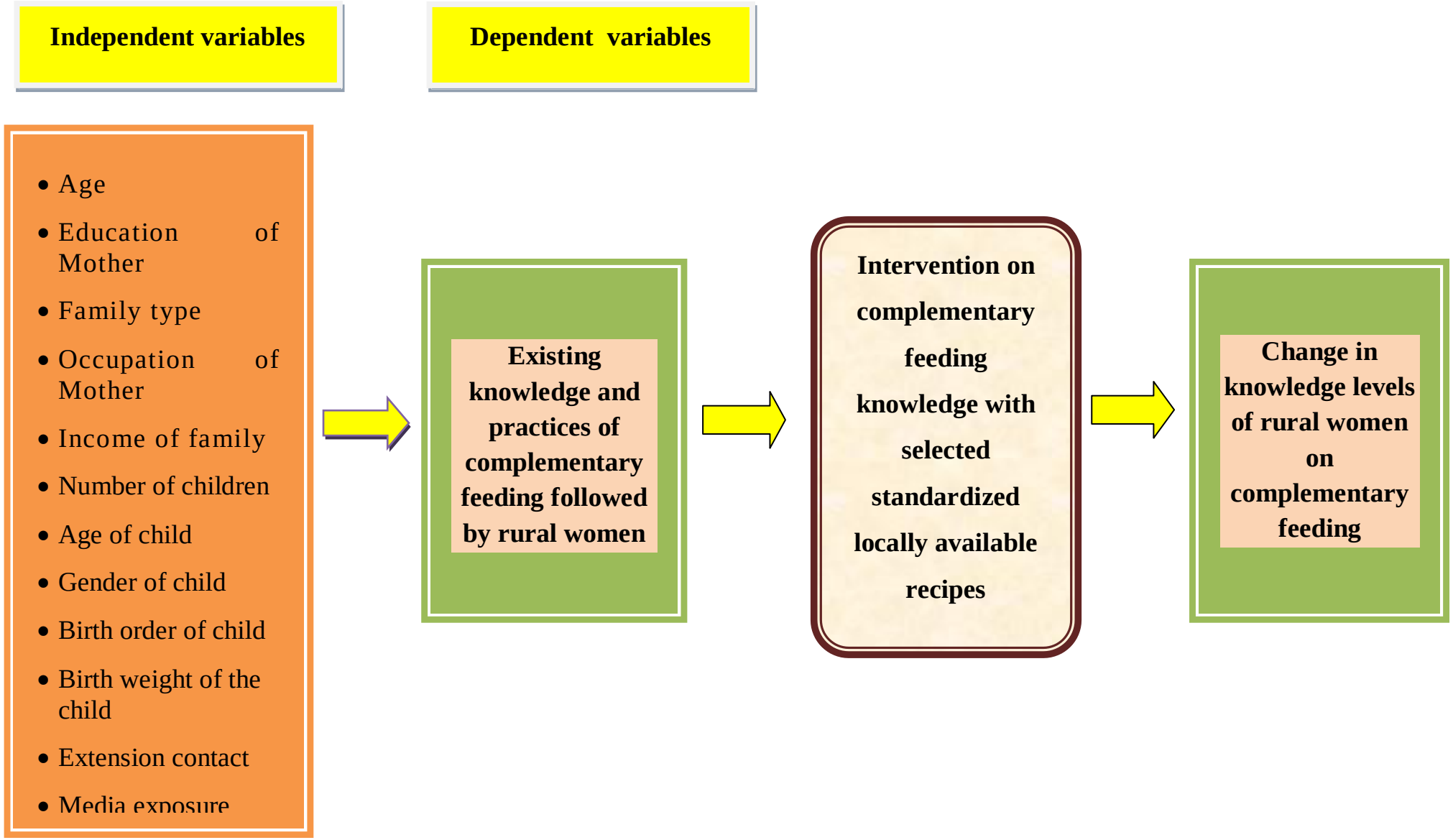


Fig 3.6 conceptual framework of the study

Figure 3.7. Personal Interview with rural women for collecting data.

Figure 3.8. Providing intervention on recipes of complementary feeding.

Chapter IV

RESULTS AND DISCUSSION

The results and discussion have been presented objective wise in this chapter. However, the presentation of findings and discussion were grouped under the following sections for the purpose of clarity. While presenting the results the related aspects were clubbed into different sections and finally at the end of each section, discussions of these results have been attempted.

4.1 Profile characteristics of rural women

4.2 Pre and Post test Knowledge of rural women regarding complementary Feeding

4.3 Existing complementary feeding practices followed by the rural women

4.4 Intervention on selected standardized locally available complementary feeding recipes.

4.5 Change in knowledge after providing intervention on selected standardized locally available recipes.

4.6 Empirical model of the study

4.1 Demographic profile characteristics of rural women

This section deals with the findings and discussion regarding the demographic profile characteristics of rural women. Profile of the respondents included age, education of mother, occupation of mother, income, family type, age of the child, number of children, birth order, birth weight, media exposure and extension contact. The distribution of the respondents into the different categories based on their profile characteristics were presented in the tables by dividing the sample into groups by class interval method and discussed.

4.1.1 Demographic characteristics of rural women

Information regarding the Demographic profile characteristics of rural women were furnished in Table 4.1 and in Fig. 4.1 to 4.6.

Table 4.1 Distribution of respondents according to their Demographic profile characteristics

n= 120

S. No.	Category	Frequency	Percentage (%)
1.Age (In Years)			
a)	Less than 25	72	60.00
b)	Between 25-35	37	30.83
c)	More than 35	11	9.17
2.Education of mother			
a)	Illiterate	31	25.84
b)	Primary and Middle School	41	34.17
c)	High School	28	23.33
d)	College education	20	16.66
3.Occupation of mother			
a)	Agriculture	44	36.67
b)	Labour	25	20.83
c)	Small business	09	7.50
d)	Government job	02	1.67
e)	Housewife	40	33.33
4.Income (Annual in Rupees)			
a)	Low income (Below 60,000)	57	47.50
b)	Medium income (60,000-1,20,000)	61	50.83
c)	High income (above 1,20,000)	02	1.67
5.Family Type			
a)	Nuclear Family	81	67.50
b)	Joint Family	36	30.00
c)	Extended family	03	2.50
6.Number of children			
a)	1-2	95	79.16
b)	3-4	25	20.84

It could be noticed from the Table 4.1 that the majority (60.00%) of the respondents belonged to the age group of less than 25 years followed by 25-35 years (30.83%) and more than 35 years (9.17%). Majority of the respondents belonged to the age category of less than 25 years. This might be due to early marriage of the respondents leading to the early conception of a child. Women in young age are generally engaged with reproduction and childcare activities whereas middle aged women were actively involved in the farm activities. A similar finding was reported by (Karim *et.al*, 2012).

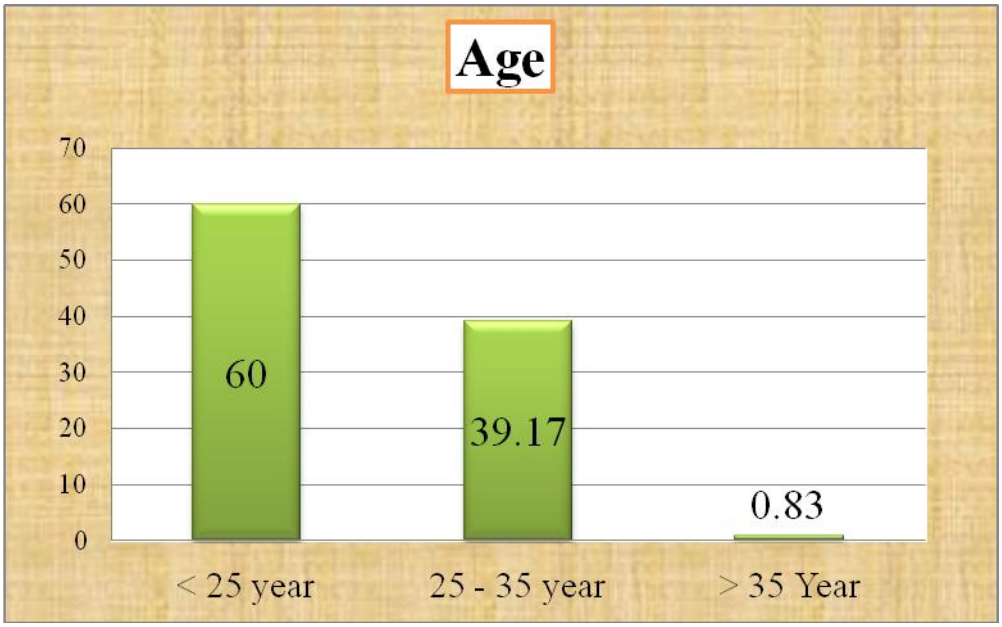


Figure 4.1 Distribution of respondents according to their age

With regard to the education, 34.17 per cent of the respondents had education up to primary and middle school, 25.84 per cent of the respondents were illiterate, 23.33 per cent of the respondents completed high school education followed by 16.66 per cent in college education. Education is one of the assets which will create awareness about good nutrition and health among rural women. The reason might be in rural areas, wherein women education is not considered important and also villages with poor infrastructure, with no proper school facilities and parents hesitate to send their daughters to other villages or towns for education. As the people are still traditional based, they generally do not prefer to send their daughters to school or colleges as they are expected to take care of their younger siblings. The results were in line with (Manjunatha and Gangadhar, 2018).

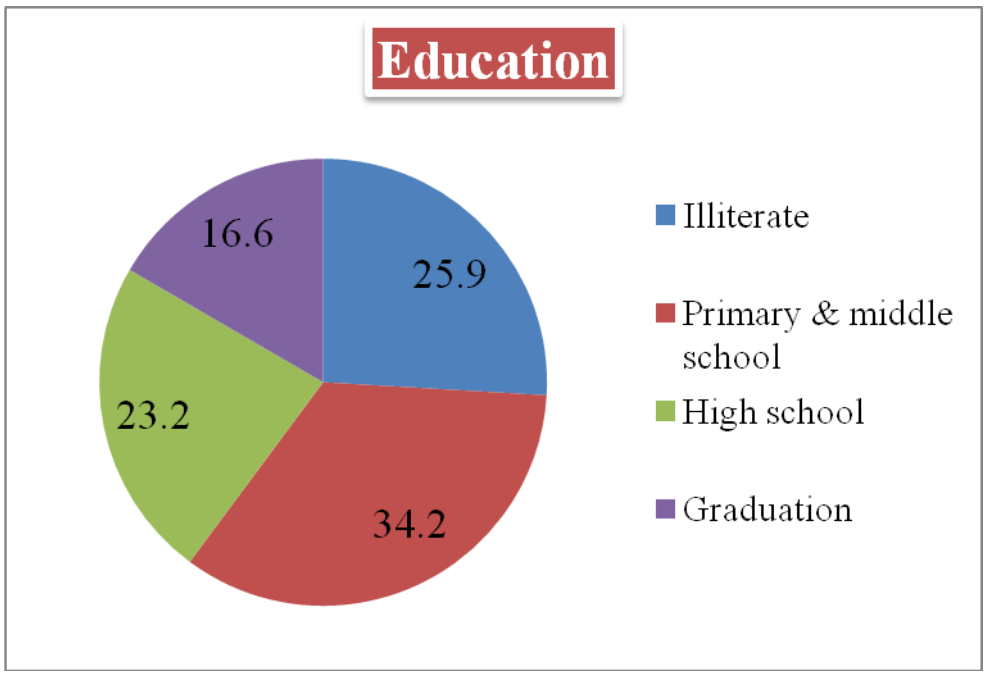


Figure 4.2 Distribution of respondents according to their education

Table 4.1 illustrated that 36.67 per cent of the respondents had agriculture as the primary occupation followed by housewife (33.33%), labour (20.83%), small business (7.50%) and government job (1.67%). Agriculture is the predominant activity of the respondent's in the study area, this might be due to the reason that most of the respondents were illiterates and were working in their lands. Also as the respondents were mothers of a child aged between 6-24 months so they were staying at home as housewives to take care of their children. By this it could be assumed that there existed favourable situation whereby the rural women curiosity towards video presentation for improvement in knowledge on complementary foods. This finding was similar to that of (Manjunatha and Gangadhar, 2018).

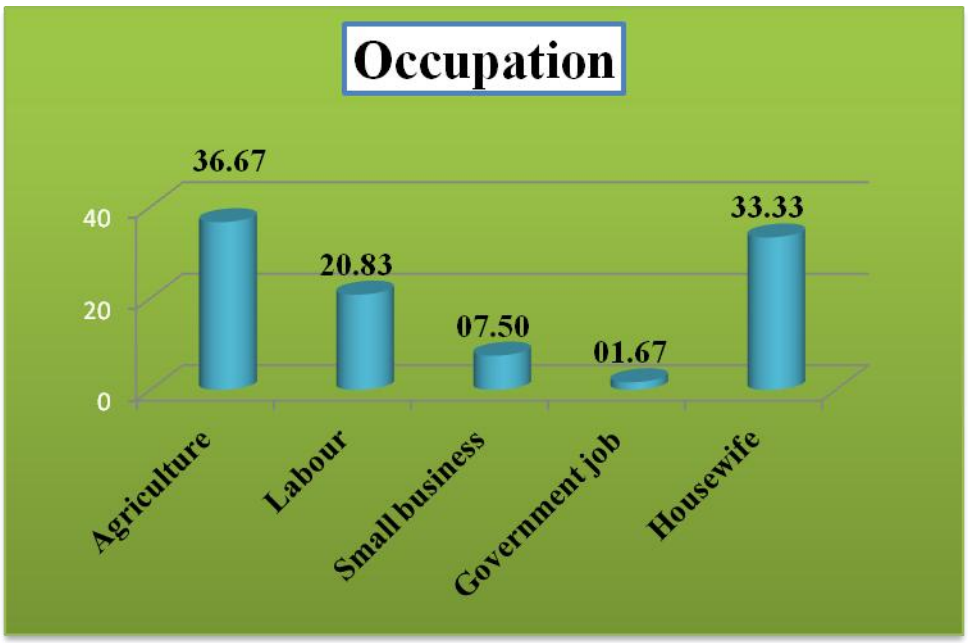


Figure 4.3 Distribution of respondents according to their occupation

It was observed from the Table 4.1 that 67.50 per cent of the respondents belonged to nuclear family followed by 30.00 per cent from joint family and 2.5 per cent of them belonged to extended families. This might be due to modern economic and social development in society that the joint family tradition had transformed from extended to nuclear families. Moreover, because of their small land holdings, they could not withstand large families. The results of Deepika(2019) was similar with the present study.

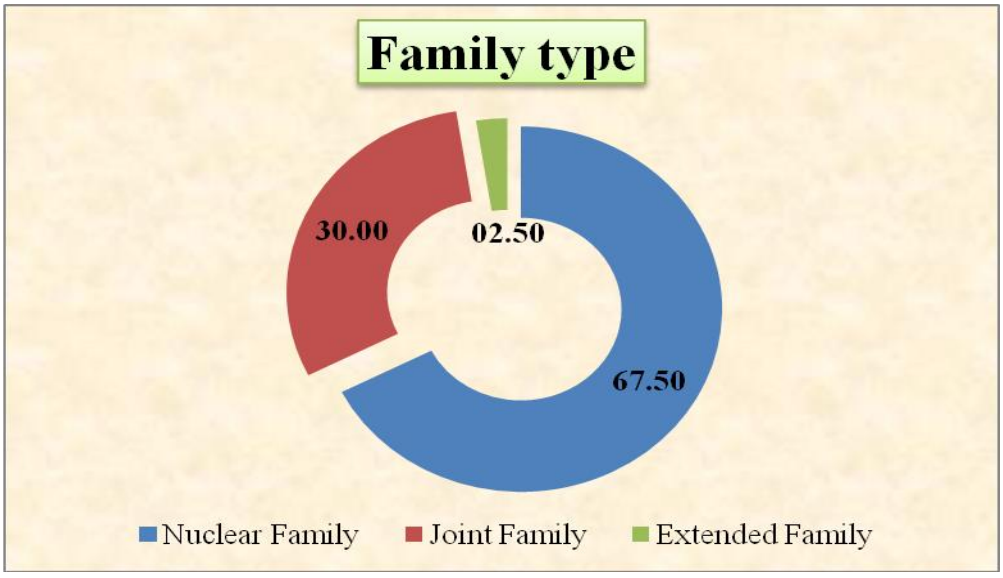


Figure 4.4 Distribution of respondents according to their type of family

From Table 4.1 it could be stated that the majority (50.83%) of the respondents belonged to medium-income group followed by low income (47.50%) and only 2 per cent of respondents belonged to high income group (1.67%). This might be the reason that most of the respondent's occupation was agriculture, housewife and also due to lack of more income generating enterprises. These findings were in conformity with the observation reported by Deepika (2019).

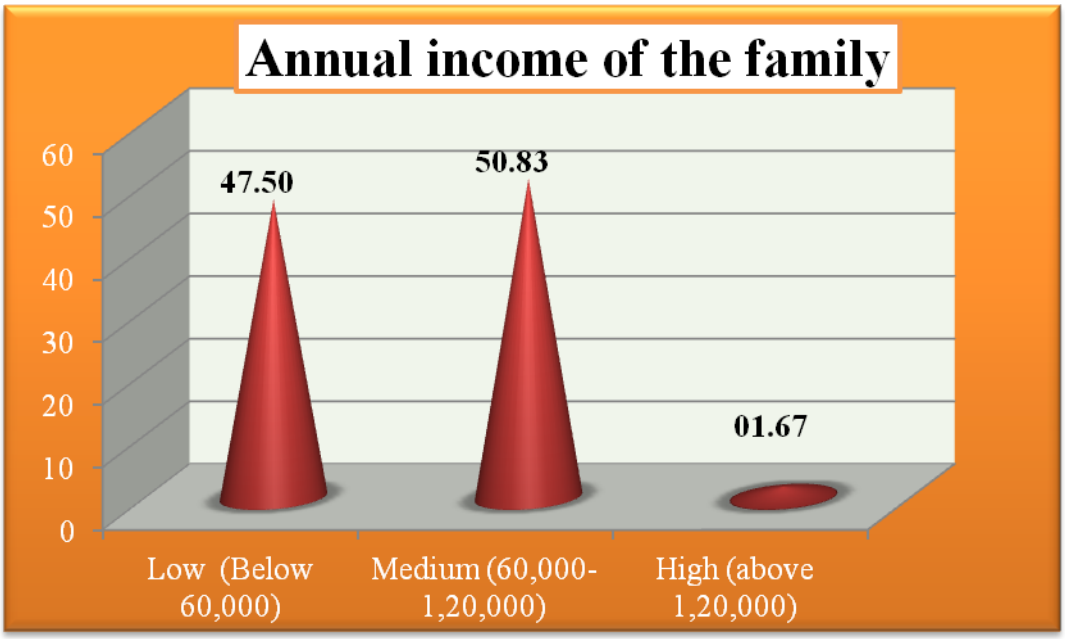


Figure 4.5 Distribution of respondents according to their income of family

Table 4.1 indicated that in rural areas, majority (79.16%) of the respondents were having 1-2 children followed by 20.84 per cent of the respondents had 3-4 children. This might be due to increased awareness by different national and international programs for controlling population growth. This finding was similar to that of Bidwe (2019).

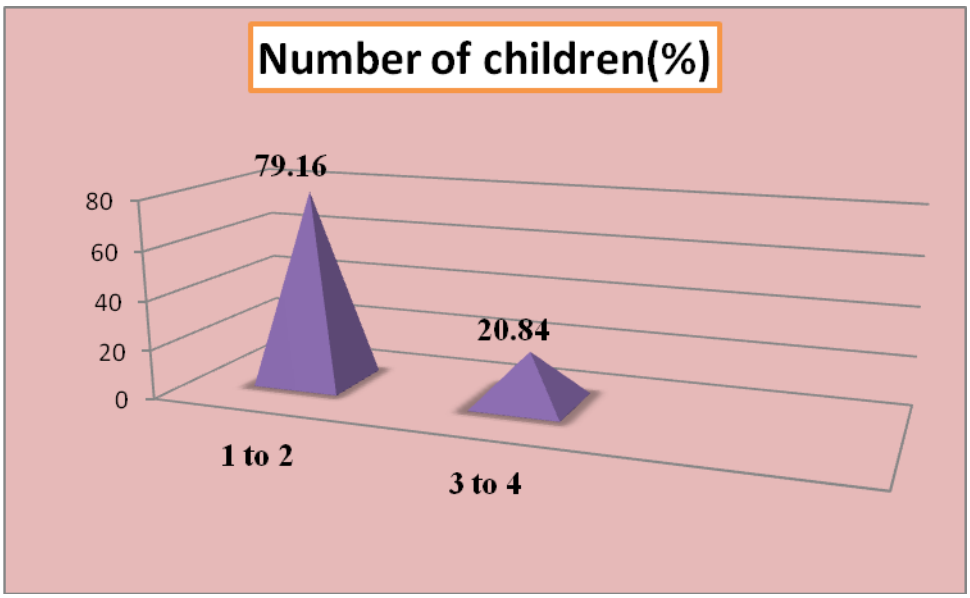


Figure 4.6 Distribution of respondents according to their number of children

4.1.2 General information about the respondent's child

Based on the general information about respondent's child, the data was presented in the following table.

Table 4.2 Distribution of respondents according to the general information about their child

n= 120

S. No.	Category	Frequency	Percentage (%)
1.Age of the Child			
a)	6-8 Month	30	25.00
b)	9-11 Month	25	20.83
c)	12-24 Month	65	54.17
2.Gender of the child			
a)	Male	71	59.17
b)	Female	49	40.83
3.Birth order of the child			
a)	First child	60	50.00
b)	Second child	42	35.00
c)	Third child	18	15.00
4.Birth Weight of the child			
a)	2100 - 2500 g	16	13.33
b)	2600 – 3000 g	66	55.00
c)	> 3000 g	38	31.67

The data furnished in Table 4.2, indicated that majority 54.17 per cent of the respondents had children in between the age group of 12 to 24 months followed by 6 to 8 months (25%) and 9 to 11 months (20.83%). The result was in conformity with Saxena and Kumar (2014).

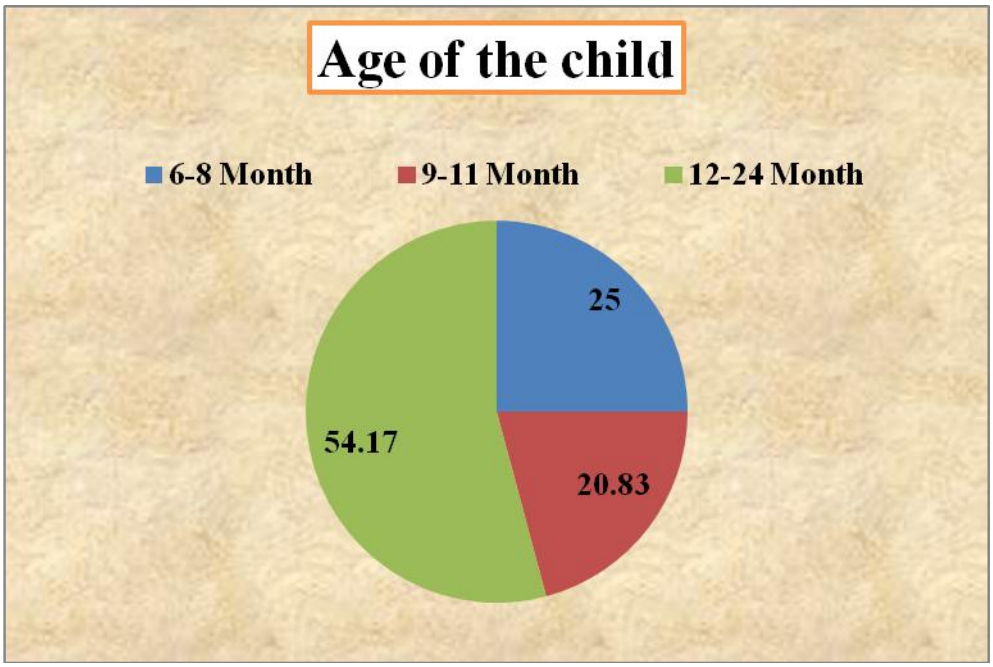


Figure 4.7 Distribution of respondents according to the age of child

Table 4.2 illustrate that majority 59.17 per cent of the respondents had male child and female children (40.83%). This might be due to the low female sex ratio in India i.e 943 females per 1000 male (Census 2011). Similar study was reported by Srivasatava *et al.* (2018).

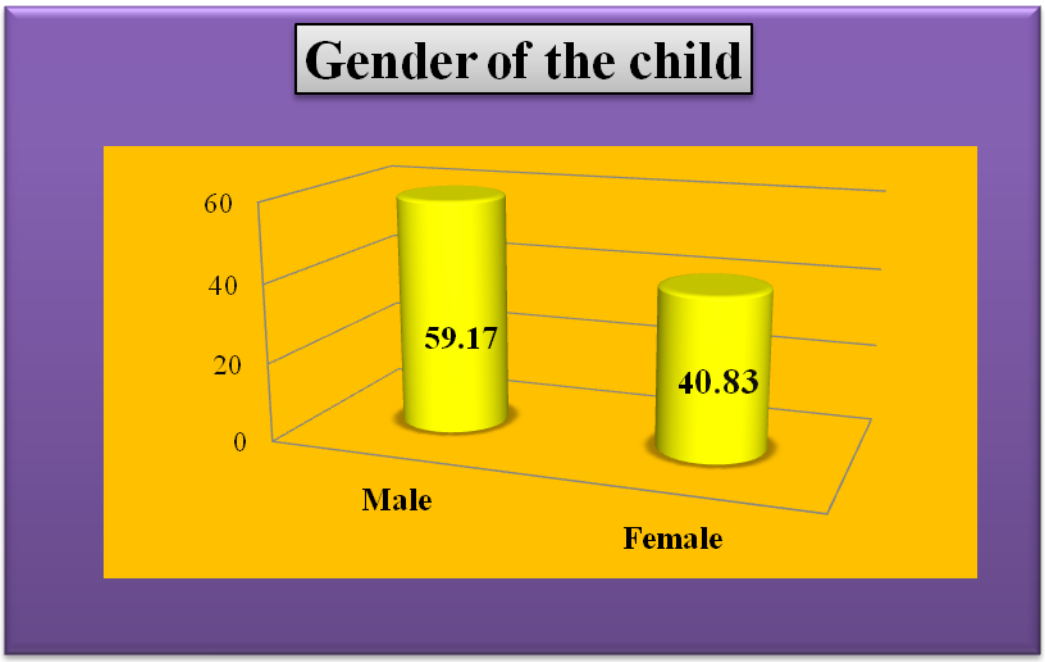


Figure 4.8 Distribution of respondents according to the gender of child

It is evident from table 4.2 that with regard to birth order of the child, majority (50%) of the respondents had first child followed by second (35%) and third child (15.00%). Similar study was found out by Shankar and Muthukumar (2015).

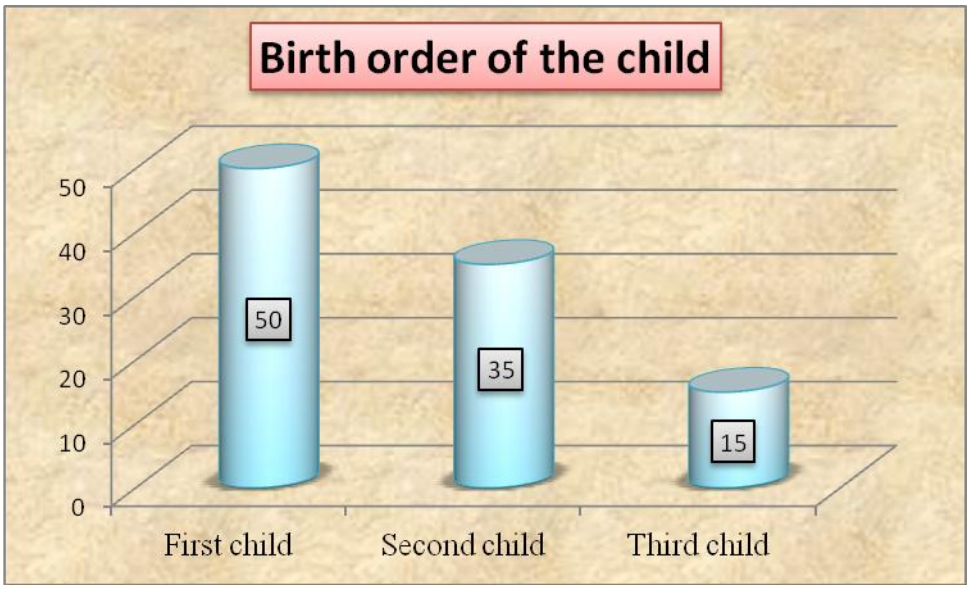


Figure 4.9 Distribution of respondents according to the birth order of child

Table 4.2 depicted data on the birth weight of the children and for majority (55%) of the respondent's birth weight of child ranged between 2600g to 3000g followed by > 3000g (31.67%) and 2100g to 2500g (13.33%). The results showed that mothers were aware of food intake patterns during pregnancy resulting in no underweight births The results were in conformity with Verma and Shrivastava (2016).

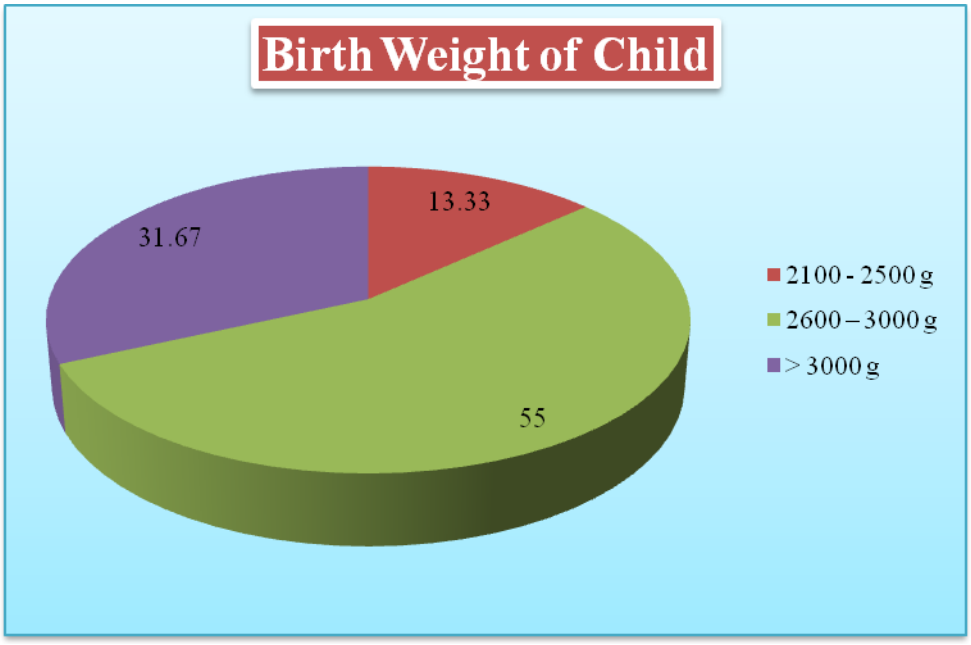


Figure 4.10 Distribution of respondents according to the birth weight of child

4.1.3 Media exposure

Media exposure was defined as getting exposed to different media. According to the frequent utilization of media the respondents were classified into three categories namely low (18-30), medium (30-42), and high (42-54).

Table 4.3 Distribution of respondents according to the media exposure level
n=120

S.No.	Media Exposure	F	%
1.	Low (18-30)	89	74.17
2.	Medium (30-42)	26	21.66
3.	High (42-54)	05	4.17
	Total	120	100.00

Table 4.3 indicated that the majority (74.17%) of the respondents had low media exposure followed by medium (21.66%) and high (4.17%). Majority (74.17%) of the respondents had low media exposure; the reason might be that most of the respondent's occupations were agriculture and responsibility of taking care of their children. Moreover the possible reason for this trend might be due to the non accessibility of media exposure. Hence there is need to create awareness regarding media exposure among the rural women which will motivate them in desired direction. The present study was supported by (Manasa, 2012) and (Bihari *et al.* 2012) where they found out that majority of the respondents had low level of mass media exposure.

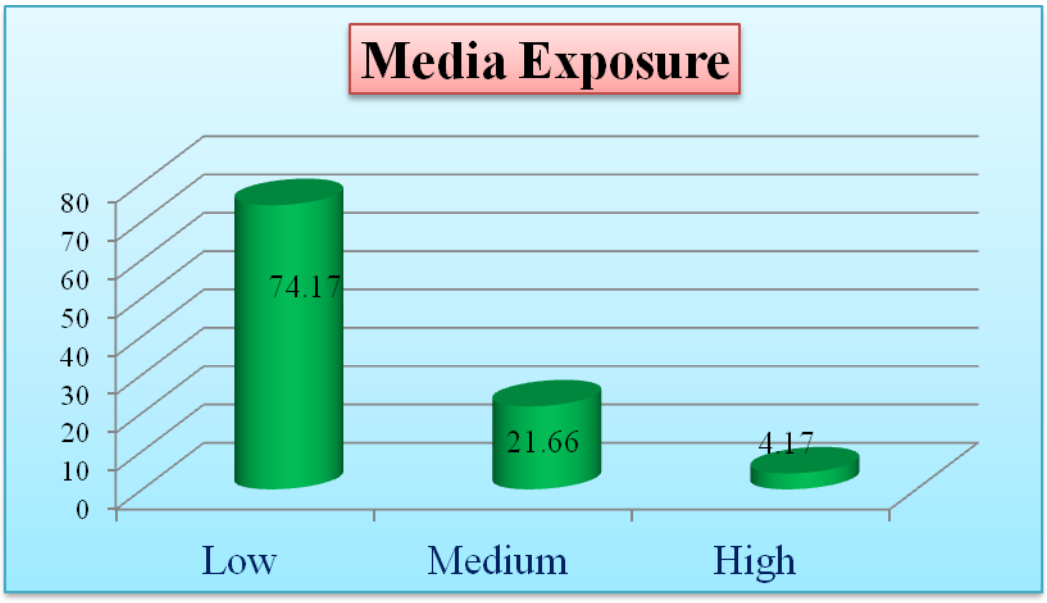


Figure 4.11 Distribution of respondents according to the media exposure level

4.1.4 Extension contact

The extension contact was measured as the contact of the respondents with the extension personnel in the last two years. Based on the score, respondents were classified into three categories namely low (8-18), medium (19-29), and high (30-40).

Table 4.4 Distribution of respondents according to the extension contact

n=120

S.No.	Extension Contact	F	%
1.	Low (8-18)	109	90.83
2.	Medium (19-29)	11	09.17
3.	High (30-40)	0	0
	Total	120	100.00

Table 4.4 showed that the majority 90.83 per cent of the respondents had low extension contact followed by medium (9.17%). Though our agricultural extension system is perhaps the largest in the world, it is not sufficiently equipped to meet the technical needs of the rural women, the probable reason for the above result might be due to illiteracy, shyness, ignorance which inhibits them to get into contact with extension personnel. The results are in line with the study conducted by Deepika (2019).

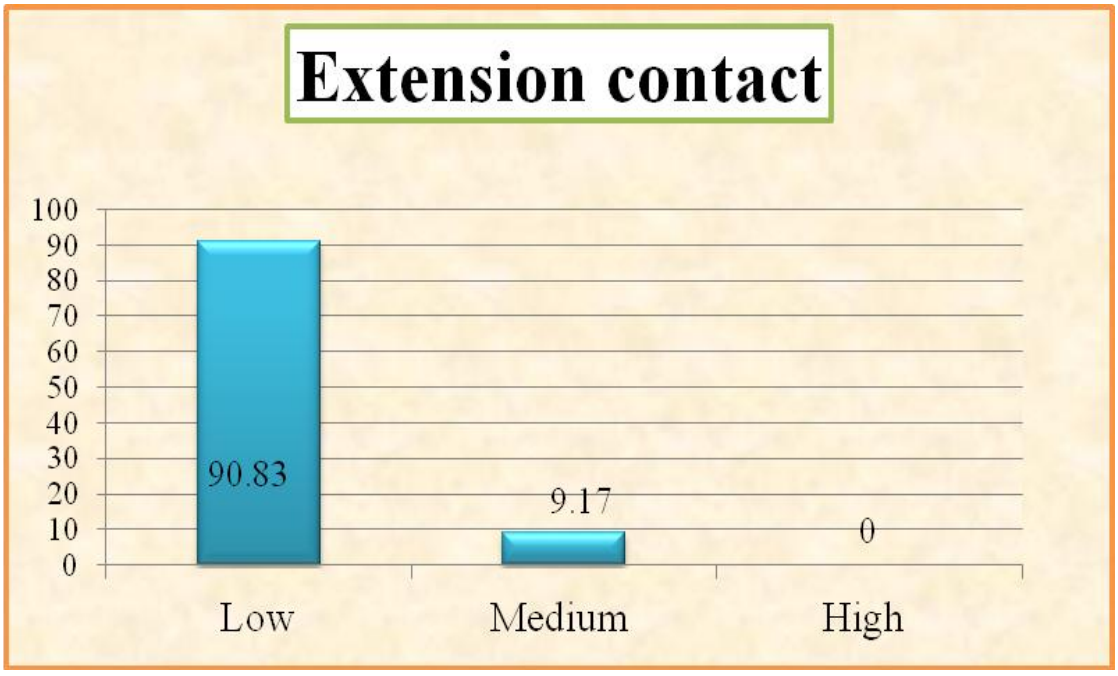


Figure 4.12 Distribution of respondents according to the extension contact

4.2 Pre and Post knowledge of rural women regarding complementary feeding and existing complementary feeding practices

This section deals with the findings and discussion regarding the pre and post knowledge of rural women regarding complementary feeding. Knowledge of the respondents include knowledge on breast feeding, complementary feeding, knowledge on the frequency of complementary feeding, consistency of complementary foods, quantity of complementary foods and hygiene practices. Existing complementary feeding practices include the complementary feeding practices followed by the respondents, homemade complementary foods and readymade complementary foods.

4.2.1 Pre and post knowledge of rural women on complementary feeding

Complementary foods should be adequate in nutrition, appropriate in consistency, given in sufficient quantity and under hygienic conditions. According to the WHO guidelines, complementary feeding should be started at the age of 6 months along with breastfeeding up to 2 years or more.

Table 4.5 Distribution of respondents according to the pre and post knowledge on Breast feeding, complementary feeding and meal frequency

n=120

S. No.	Dimensions	Pre- Knowledge						Post – Knowledge					
		Good		Average		Poor		Good		Average		Poor	
		F	%	F	%	F	%	F	%	F	%	F	%
1	Breast feeding	6	5.00	42	35.00	72	60.00	80	66.67	40	33.33	0	0
2	Complementary feeding	7	5.83	8	6.67	105	87.50	91	75.83	29	24.17	0	0
3	Meal frequency and preparation of CF	1	0.83	42	35.00	77	64.17	93	77.50	27	22.50	0	0

It could be clearly observed from the table 4.5 that pre knowledge indicated that majority 60 per cent of the respondents had poor knowledge followed by average (35.00%) and good knowledge (5.00%) on breast feeding. Further it could be also observed from Table 4.5, that Post knowledge on breasting feeding, majority (66.67%) of the respondents belonged to good knowledge group followed by 33.33 per cent average knowledge group. The results are in line with the study conducted by Geetha (2015).

With regard to pre knowledge on complementary feeding, majority (87.50%) of the respondents had poor knowledge followed by average knowledge (6.67%) and good knowledge (5.83%). Further the data evidently indicates that post knowledge on complementary feeding, majority (75.83%) of the respondents had Good knowledge followed by average knowledge (24.17%). The findings are in conformity with Glagn and Kejela (2019).

It is evident from the table 4.5 regarding pre knowledge on meal frequencies and preparation of complementary foods, majority (64.17%) of the respondents had poor knowledge followed by average knowledge (35.00%) and good knowledge (0.83%).Further it could be also observed from Table 4.5, that Post knowledge on meal frequencies and preparation of complementary foods, majority (77.50%) of the respondents belonged to good knowledge group followed by 22.50 per cent average knowledge group. The findings are in conformity with Glagn and Kejela (2019).

Further from the Table 4.5. the post knowledge data found that majority (66.67%) of the respondents had gained good knowledge on breastfeeding, further majority (75.83%) of the respondents had good knowledge of complementary feeding followed by the majority (77.50%) of the respondents had gained good knowledge on meal frequency and preparation of Complementary feeding .This might be due to the effectiveness of intervention, it could be seen that there was increase in knowledge on complementary feeding among the respondents. Further the findings inferred that the video exposed on recipes acted as an intervening variable in changing and increasing the cognitive domain of respondents. The findings had drawn support from the findings of Olatona *et al.* (2017).

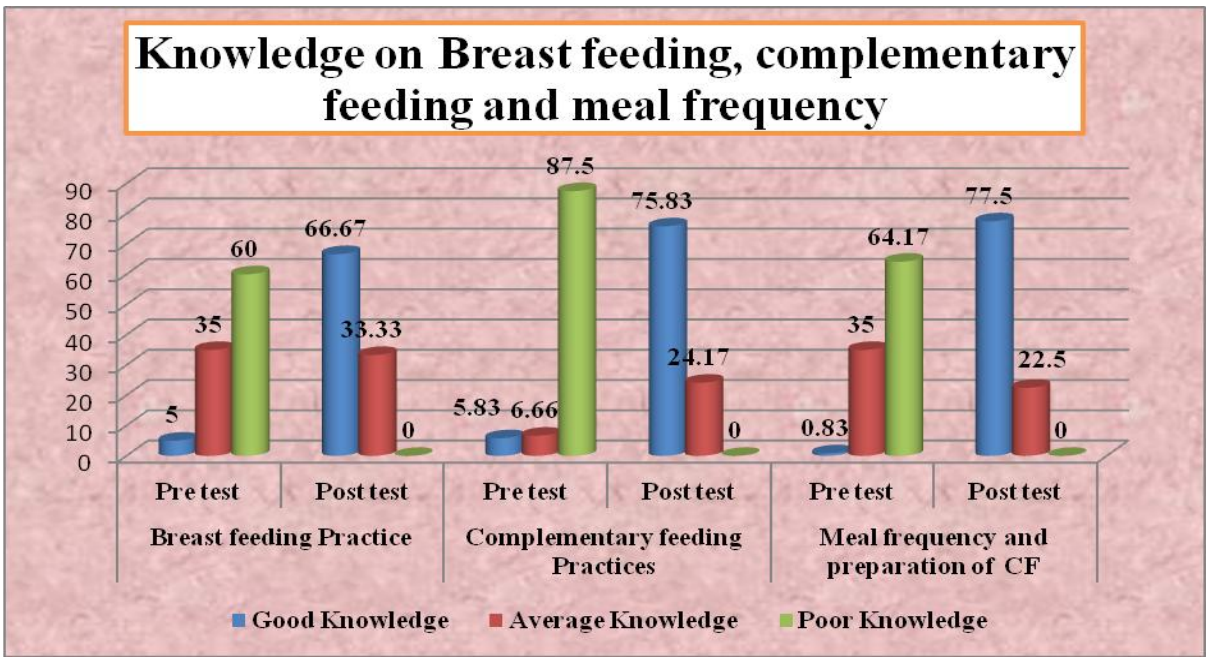


Figure 4.13 Distribution of respondents according to the pre and post knowledge on Breast feeding, complementary feeding and meal frequency

4.2.2 Pre and Post test Knowledge on the frequency of complementary feeding

Pre and post knowledge responses were taken from the respondents regarding the frequency of complementary feeding. The data were collected and presented in the following tables.

Table 4.6 Distribution of the respondents based on the pre and post knowledge about the frequency of complementary feeding

n=120

S. No.	Frequency of Complementary Feeding	Pre- Knowledge						Post- Knowledge					
		6-8 months (n=30)		9–11month (n=25)		12 – 24 month (n=65)		6-8 months (n=30)		9– 11 month (n=25)		12 – 24 month (n=65)	
		F	%	F	%	F	%	F	%	F	%	F	%
1.	1-2 times	21	70.00	0	0	23	35.38	4	13.33	0	0	0	0
2.	2-3 times	5	16.67	18	72.00	34	52.31	25	83.34	2	08.00	7	10.77
3.	3-4 times	0	0	4	16.00	0	0	1	3.33	22	88.00	15	23.07
4.	4-5 times	4	13.33	3	12.00	8	12.31	0	0	1	4.00	43	66.16

From Table 4.6 the pre- test knowledge on frequency of complementary feeding indicated that, majority (70.00%) of the respondents knew that child should be fed 1- 2 times in the age group of 6-8 months followed by 2-3 times (16.67%) and 4-5 times (13.33%). Among the respondents with children 9-11 months age group, the majority (72.00%) of the respondents knew that child should be fed 2-3 times followed by 3-4 times (16.00%) and 4-5 times (12.00%). Among respondents with children 12-24 months, the majority (52.31%) of the respondents knew that child should be fed 2-3 times followed by 1-2 times (35.38%) and 4-5 times (12.31%). Only (16.67%) of the respondents with children in the age group of 6-8 months children, (16.00%) in the age group of 9-11 months and (12.31%) in the age group of 12-24 months had correct knowledge about the frequency of complementary feeding .The reason might be as rural women were having low literacy level, low extension contact and low mass media exposure, so they were not having correct and accurate knowledge regarding frequency of complementary feeding. World Health Organisation recommended that children in the age group of 6-8 months should be given 2-3 times complementary foods per day in addition to breastfeeding, 3- 4 times to the children in the age group of 9-11 months and additional 1-2 times snacks for children of 12-24 months. The results are in coordination with Kujur *et al.* (2016) and Mohsin *et al*. (2014).

Table 4.6 post test knowledge on frequency of complementary feeding revealed that majority (83.34%) of the respondents gained knowledge regarding ideal frequency (2-3 times) of complementary feeding for the child aged between 6- 8 months followed by majority (88.00%) 3-4 times of complementary foods between 9-11 months and 66.15 per cent for 4-5 times of complementary foods between 12-24 months had knowledge regarding ideal frequency. This was the effectiveness of video which brought about positive and significant change in knowledge of rural women regarding age wise ideal frequency of complementary foods. The results are in coordination with Kujur *et al*. (2016) and Mohsin *et al*. (2014).

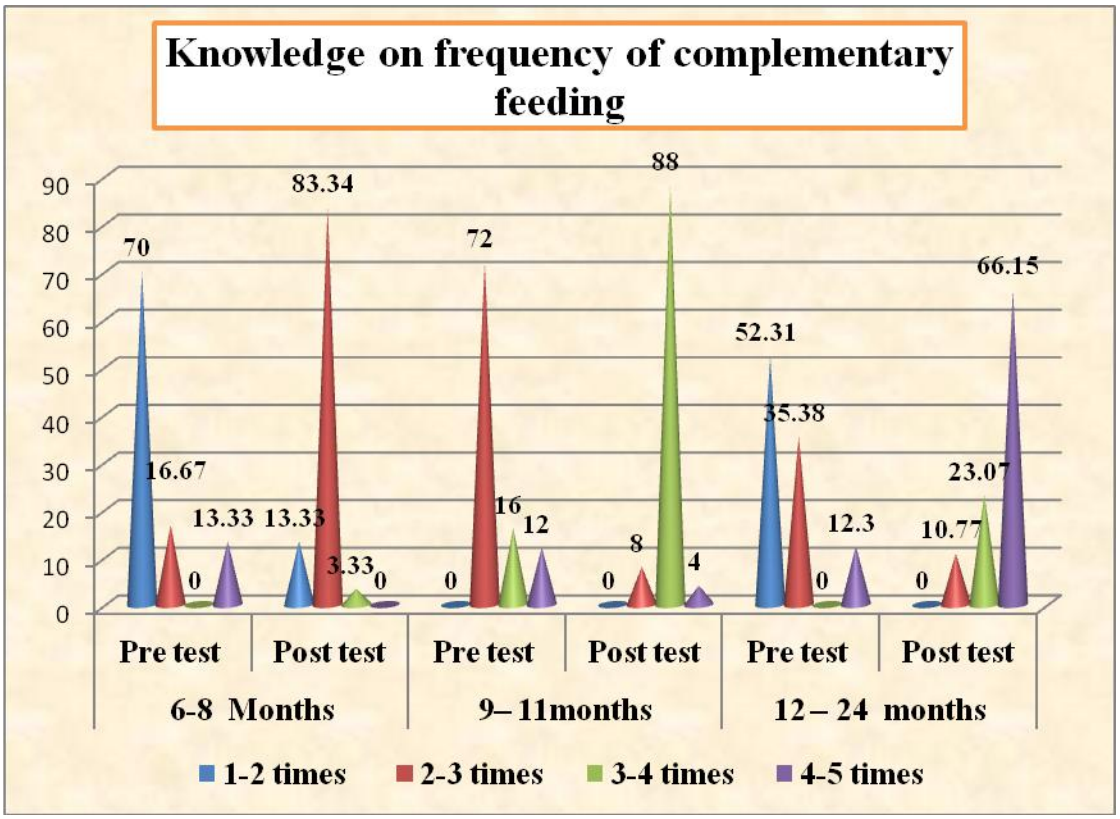


Figure 4.14 Distribution of the respondents based on the pre and post test knowledge about the frequency of complementary feeding

4.2.3 Pre and Post test Knowledge about the consistency of complementary food

The data were collected regarding the pre and post test knowledge on consistency of complementary food and presented in the following tables.

Table 4.7 Distribution of the respondents based on the pre and post test knowledge about the consistency of complementary food

n= 120

S. No.	Consistency of Complementary Foods	Pre- Knowledge						Post- Knowledge					
		6-8 Months (n=30)		9– 11 Month (n=25)		12 – 24 Month (n=65)		6-8 Months (n=30)		9– 11 Month (n=25)		12 – 24 Month (n=65)	
		F	%	F	%	F	%	F	%	F	%	F	%
1.	Clear liquid	10	33.33	04	16.00	0	0	1	3.33	0	0	0	0
2.	Liquid	08	26.67	11	44.00	0	0	28	93.34	0	0	0	0
3.	Thin semi solid	12	40.00	04	16.00	43	66.15	1	3.33	20	80.00	3	4.61
4.	Thick semi solid	0	0	06	24.00	9	13.85	0	0	5	20.00	54	83.07
5.	Solid	0	0	0	0	13	20.00	0	0	0	0	8	12.30

From the Table 4.7 , the pre test knowledge of rural women on the Consistency of Complementary Food it was clear that majority (40.00%) of the respondents knew that child should be given thin semi-solid within the age of 6-8 months followed by clear liquid consistency food (33.33%) and liquid consistency (26.67%). Among respondents with children of age group 9-11 months, the majority (44%) of them knew that children should be given liquid consistency food followed by thick semi-solid (24%), clear liquid (16%), and thin semi-solid (16%). Among respondents with children in the age group of 12-24 months, the majority (66.15%) knew that children should be given thin semi-solid (66.15%) followed by solid (20%) and thick semi-solid (13.85%). Only (26.67%) of the respondents in the age group of 6-8 months, (16%) in the age group of 9-11 months and (20%) in respondents with children in the age group of 12-24 months had correct knowledge about the consistency of complementary foods. The reason might be low educational level, low media exposure and low extension contact of the respondents. The findings are similar to Saxena and Kumar (2014).

Further it is evident from the Table 4.7 the post test knowledge of rural women on the Consistency of Complementary Food reveals that majority (93.34%) of the respondents gained knowledge on the liquid consistency of complementary foods between the age category of 6-8 months whereas before intervention few (26.67%) of the respondents knew about it. Similarly after intervention, majority (80.00%) the respondents got to know that child should be given thin semi solid complementary foods between 9-11 months as against only (16%) of the respondents had knowledge about it before intervention. Likewise after intervention, most (83.08%) the respondents got to know that child should be fed thick semi solid complementary foods between 12-24 months as against before intervention only (13.85%) of the respondents had knowledge about it. This is due to the effectiveness of video which enhanced the knowledge of rural women regarding the age wise ideal consistency of complementary foods. The probable reason could be that the respondents were exposed to the video programme giving vivid information on complementary foods and its preparation, the selected subject proven one having no controversy, consists of many locally standardised recipes might have attracted the respondents to concentrate with full attention and there by gain in knowledge. The findings are similar to Kujur *et.al*. (2016).

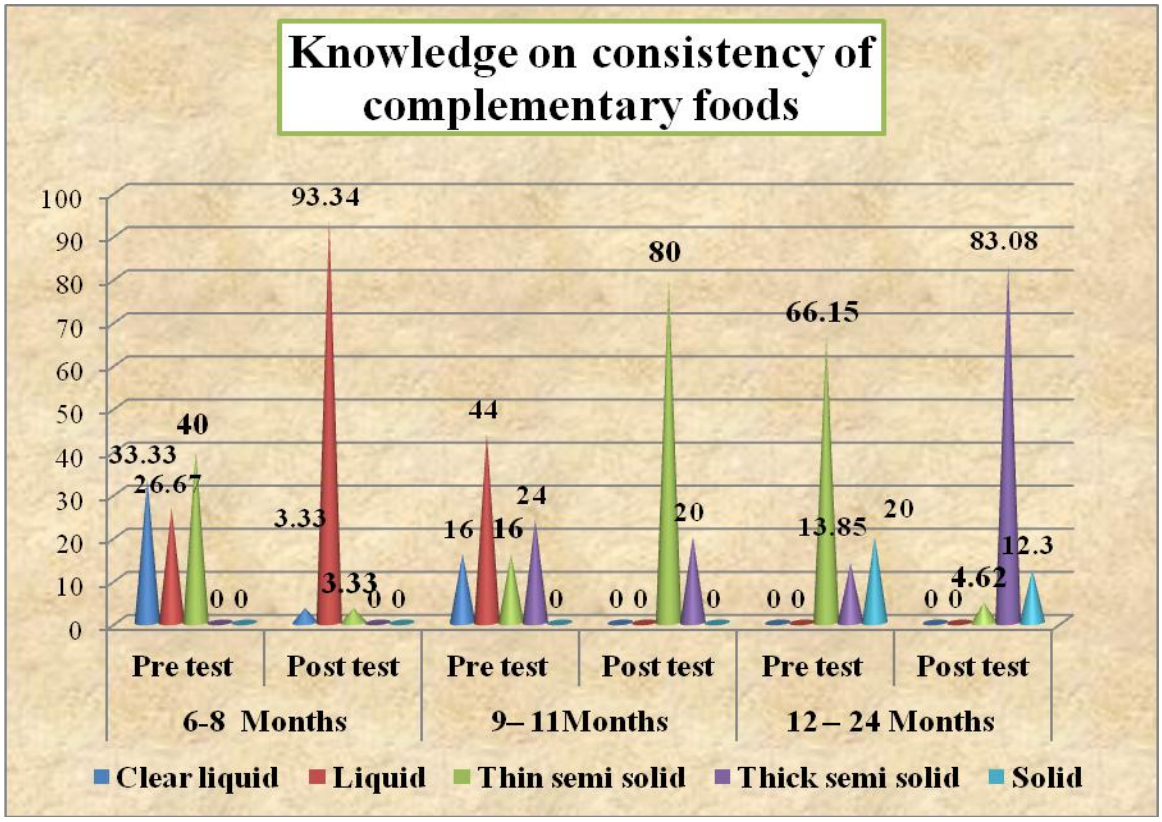


Figure 4.15 Distribution of the respondents based on the knowledge about the consistency of complementary food

4.2.4 Pre and Post test Knowledge about the quantity of complementary food

The data were collected regarding the pre and post knowledge on quantity of complementary food and presented in the following tables.

Table 4.8 Distribution of the respondents based on the pre and post test knowledge about the quantity of complementary food

n= 120

S. No.	Quantity of CF	Pre- knowledge						Post- knowledge					
		6-8 months (n=30)		9– 11 months (n=25)		12 – 24 months (n=65)		6-8 months (n=30)		9– 11 months (n=25)		12 – 24 months (n=65)	
		F	%	F	%	F	%	F	%	F	%	F	%
1.	1/ 4th CUP	22	73.33	0	0	0	0	3	10.00	0	0	0	0
2.	½ CUP	08	26.67	19	76.00	0	0	27	90.00	0	0	0	0
3.	3/4th CUP	0	0	05	20.00	15	23.08	0	0	21	84.00	0	0
4.	1 CUP	0	0	01	04.00	46	70.77	0	0	4	16.00	6	9.23
5.	More than 1 CUP	0	0	0	0	04	06.15	0	0	0	0	59	90.77

From the Table 4.8 , the pre test knowledge of rural women on the Quantity of Complementary Food inferred that majority (73.33%) of the respondents knew that child should be given ¼th cup complementary foods between 6-8 months followed by ½ cup complementary food (26.67%). Among respondents with the age group of 9-11 months children, the majority (76%) knew that children should be given ½ cup of complementary food followed by ¾ the cup complementary food (20%) and 1cup complementary food (4%). While respondents with age group 12-24 months children, the majority (70.77%) knew that children should be given 1 cup complementary food followed by ¾th cup complementary food (23.08%) and more than 1 cup (06.15%). Only (26.67%) of the respondents with children in the age group of 6-8 months, (20%) of respondents with children in the age group of 9-11 months and (6.15%) respondents with children in the age group of 12-24 months had correct knowledge about quantity of complementary foods. Due to low media exposure and extension contact, respondents were not aware about age wise correct quantity of complementary foods.

From the Table 4.8 , the post test knowledge of rural women on the Quantity of Complementary Food inferred that majority (90.00%) of the respondents gained knowledge that child should be given ½ cup of complementary foods between the age category of 6-8 months whereas before intervention few (26.67%) of the respondents knew about it. Similarly after intervention, majority (84.00%) the respondents got to know that child should be given 3/4th cup of complementary foods between 9-11 months as against only (20.00%) of the respondents had knowledge about it before intervention. Likewise after intervention, majority (90.77%) the respondents got to know that child should be fed more than 1 cup complementary foods between 12-24 months as against before intervention only (06.15%) of the respondents had knowledge about it. The post knowledge level of the respondents increased due to the implementation of video intervention where the information was given about the ideal age wise quantity of complementary foods.World Health Organisation recommended that children in the age group of 6-8 months should be given ½ Cup of complementary foods, 3/4th Cup of complementary foods to the children in the age group of 9-11 months and more than 1 Cup of complementary foods for children of 12-24 months. Kujur *et.al*. (2016) found in their study that only (52.6%) respondents had the correct knowledge about the amount of food according to age but practically (50.7%) were giving the correct amount of complementary feeding.

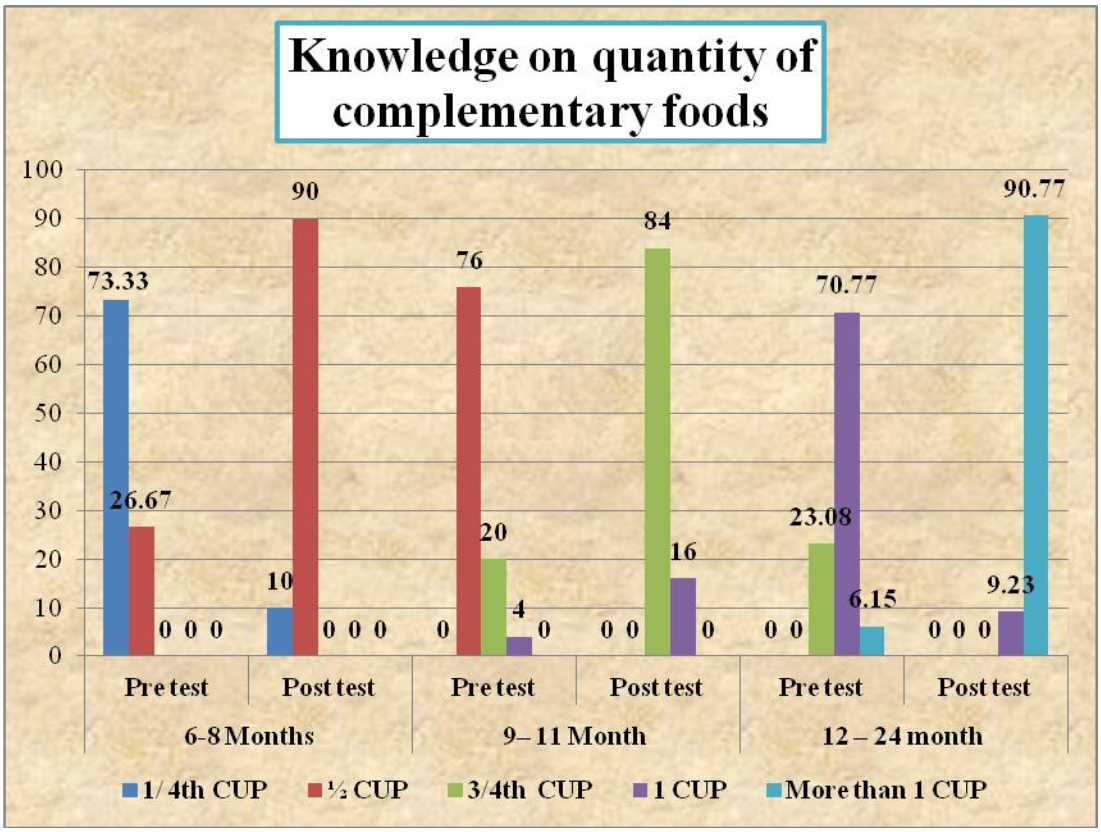


Figure 4.16 Distribution of the respondents based on the knowledge about quantity of complementary food after an intervention

4.3.1 Existing complementary feeding practices followed by rural women

Based on the complementary feeding practices followed by rural women they were categorized into three categories namely poor practice, average practice and good practice. The highest score was given to the good practice whereas the lowest score was given to the poor practice.

Table 4.9 Distribution of the respondents based on the existing complementary feeding practices

n=120

S.No.	Existing complementary feeding practices	Frequency	Percentage (%)
1.	Good Practice	30	25.00
2.	Average Practice	35	29.17
3.	Poor Practice	55	45.83

Table 4.9 indicated that in rural area, about 45.83 per cent of the respondents were following poor practice followed by average practice (29.17%) and good practice (25%). The major reason was that majority of the respondents didn't have good knowledge regarding complementary feeding and they were following only those practices which were suggested by their family members and relatives. Further the practices were followed by the respondents were greatly influenced by customs and traditions found in the study area. The present study was contradictory to Olatona *et.al*, (2017) where they found out that less than half (47%) of the mothers had good level of practice about complementary feeding whereas about few (43.9%) of the respondents had fair level of practice and only (9%) of the respondents had poor practice.

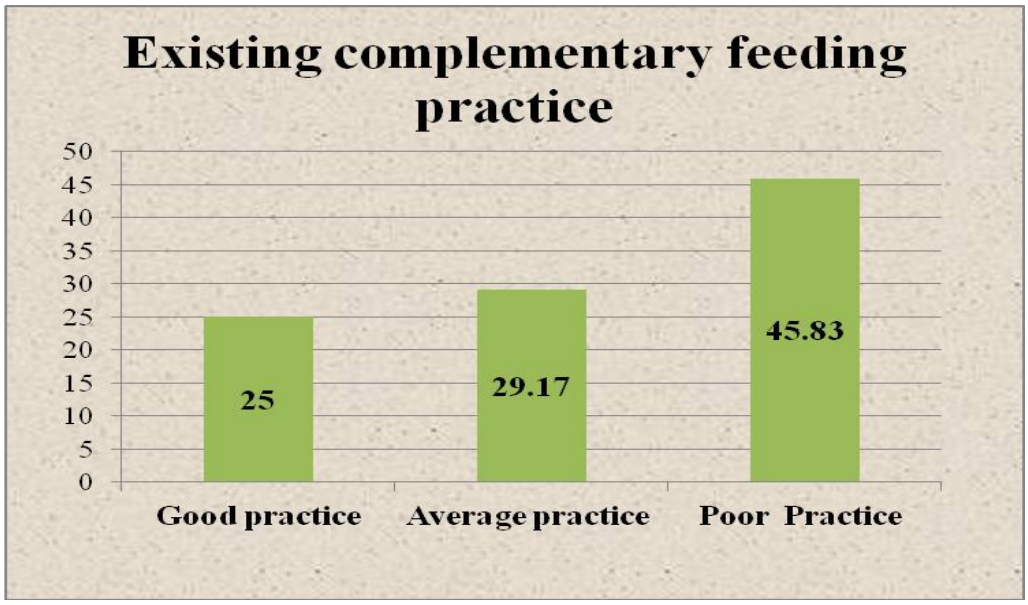


Figure 4.17 Distribution of the respondents based on the existing complementary feeding practices

4.3.2 Homemade complementary foods

The complementary foods which could be prepared at the household level by the mothers following traditional methods are commonly described as homemade complementary foods. Based on the homemade complementary foods given to children by the respondents, the information was collected and data were presented in the table below.

Table 4.10 Distribution of the respondents based on the home made complementary foods

n=120

S.No.	Homemade complementary food	F	%
1.	Rice and Dal	42	35.00
2.	Java	06	05.00
3.	Uggu	11	09.17
4.	Others (Mashed rice, Dal, Fruit Juices, Mashed vegetables, egg)	04	03.33
5.	Not using homemade complementary foods	57	47.50
Total		120	100.00

Table 4.10 indicated that out of the total respondents, less than half (47.50%) were not giving any homemade complementary foods to their children followed by (35%) of the respondents had given only rice and dal as a homemade complimentary food, uggu (9.17%), Java (5%) and other foods (3.33%). This might be due to low knowledge of rural women on foods that can be prepared with locally available foods.Similar study was conducted by Gupta (2019) with a total of 352 respondents. In her study, she found out that only (10.64%) of the respondents were preparing special homemade food for their children. Out of which (33.33%) of respondents gave Dalia to their children followed by (26.67%) gave khichri and dalia with halwa/khichri was offered by 20 per cent of respondents to their children. Equal per cent of mothers (10%) gave halwa and all special foods. Bidwe (2018) in her study found out that 148 urban and 155 rural mothers introduced homemade weaning foods to their children. It was found out that out of 155 rural mothers (97.5%) gave mashed rice as a weaning food and (94.8%) of the mothers gave khichdi.

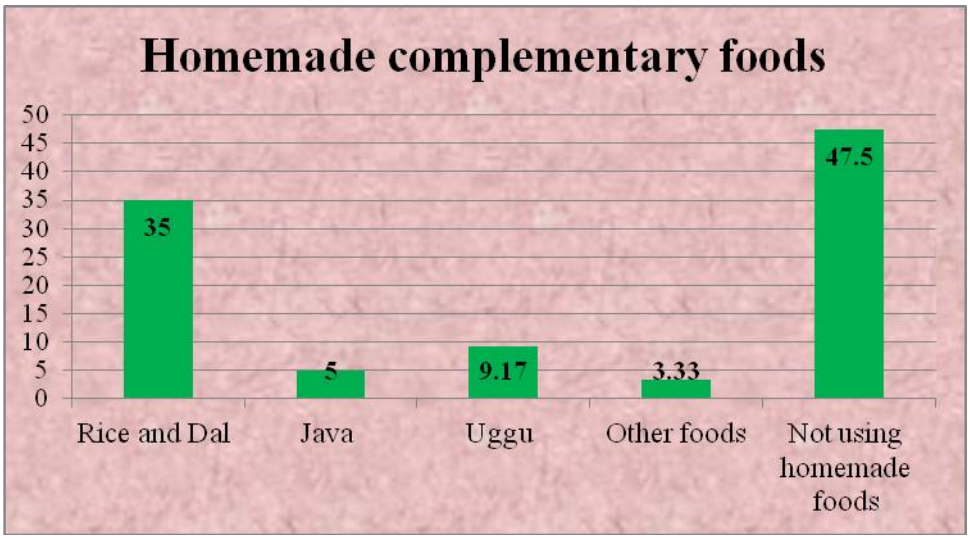


Figure 4.18 Distribution of the respondents based on the Home made complementary foods

4.3.3 Readymade complementary foods

Since readymade foods don't need cooking, fuel and time and can be offered easily to the child, the intake of readymade foods is increasing day by day. Based on the readymade complementary foods given to the child by the respondents the information was collected and data was presented in the table.

Table 4.11 Distribution of the respondents based on the ready made complementary foods

n=120

S. No.	Readymade complementary food	F	%
1.	Commercially available Readymade food	34	28.33
2.	Balamrutham	22	18.33
3.	Commercially available Readymade food and Balamrutham	09	07.50
4.	Not using readymade food	55	45.84
Total		**120**	**100.00**

Table 4.11 indicated that out of the total respondents, 45.84 per cent were not giving any readymade complementary foods to their children followed by (28.33%) of the respondents were giving only commercially available readymade food, Balamrutham (18.33%) and commercially available readymade food with Balamrutham (07.50%). Due to low annual income and poor knowledge regarding feeding practice, respondents were not using any readymade complementary foods. Bidwe (2018) in her study found out that out of 400 selected mothers, 54 urban and 43 rural used commercial weaning food. In rural areas, about (39.50%) of the respondents were giving biscuits, both Farex/ Cerelac and Biscuits (32.55%) and Farex/ Cerelac (27.90%). Even the results of the study conducted by Lodha and Bharti (2013) indicated that milk and biscuits were fed to the infants by the majority of the mothers.

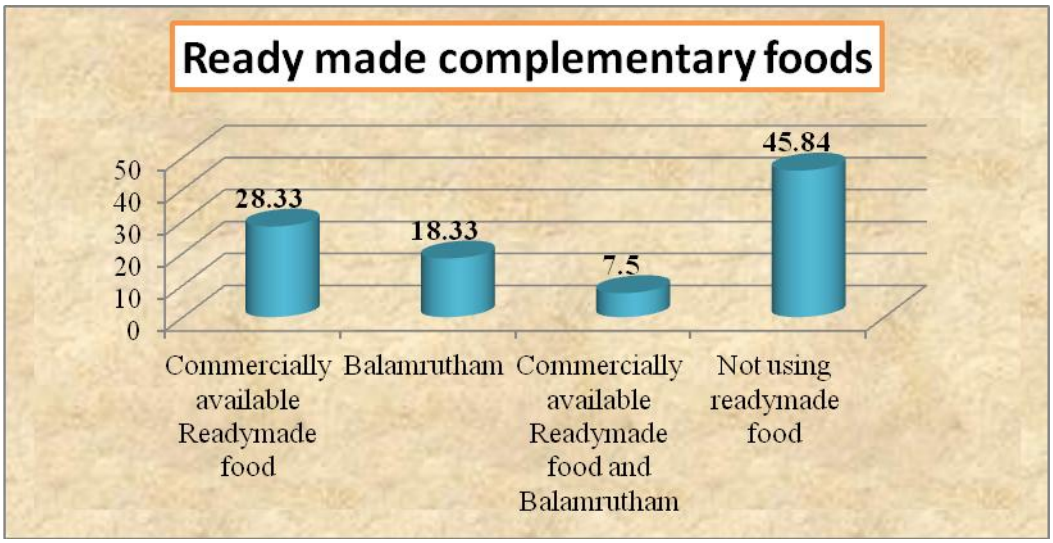


Figure 4.19 Distribution of the respondents based on the readymade complementary foods

4.4 Intervention on selected standardized locally available recipe

An intervention is a combination of program elements or strategies designed to produce a change in behaviour or awareness and health status among the community. Intervention influences an individual's knowledge, attitude, beliefs and skills increasing social support towards a suitable society.

Educational interventions for improving weaning practices provide information about proper weaning practices (proper timing for initiation of complementary feeding, continuation of breastfeeding after introduction of semisolid foods, hygiene, composition, amount, consistency and frequency) of complementary food and feeding of the infants during or after illness to caregivers of infants/children (PAHO/WHO 2003). (We define caregivers as mothers, guardians or other family members responsible for caring for and feeding the infant and personnel charged with the responsibility of looking after infants in childcare centers).

The complementary food given to the child influences his/her proper mental and intellectual development. Food doesn't only mean that what they are eating, how much they are eating and how many times they are eating if the complementary foods will be of poor quality it will affect nutrients of your body. So, the study was conducted to enhance the knowledge level of rural women.

Twenty-six (26) standardized recipes were selected from the recipe book of Food and Nutrition Board and Food and Nutrition department, AICRP, Professor Jayashankar Telangana State Agriculture University considering the crops grown in the selected district.

During pre-test the responses were taken from the respondents regarding local availability of the recipes and according to the responses given by respondents, those recipes were presented in the table below.

Table 4.12 Distribution of the respondents based on the selection of recipes

n =120

S.No.	Recipe names	Frequency	Per cent	Rank
1.	Rice Pongal	43	35.83	VII
2.	Rice food mix	67	55.83	II
3.	Khicheri	91	75.83	I
4	Wheat mix	62	51.67	III
5.	Wheat food mix	28	23.33	XII
6.	Wheat porridge	36	30.00	IX
7.	Ragi mix	33	27.50	X
8.	Malted ragi mix	05	04.17	XXIII
9.	Ragi green gram mix	54	45.00	V
10.	Maize mix	18	15.00	XIV
11.	Maize food mix	14	11.17	XVI
12.	Jowar food mix	49	40.83	VI
13.	Bajra food mix	16	13.33	XV
14.	Suji porridge	20	16.67	XIII
15.	Dalia porridge	08	06.67	XX
16.	Suji halwa	04	03.33	XIV
17.	Green gram rice porridge	62	51.67	IV
18.	Paushtic laddu	06	05.00	XXII
19.	Rawa payasam	09	07.50	XIX
20.	Banana carrot Halwa	02	01.67	XVI
21.	Ragi laddu	12	10.00	XVII
22.	Ragi halwa	38	31.67	VIII
23.	Jowar khicheri	07	05.83	XXI
24.	Spinach pongal	30	25.00	XI
25.	Sprouted salad	04	03.33	XV
26.	Soup	11	09.17	XVIII

From table 4.12 it was found out that Khicheri was the most selected recipe by (75.83%) of the respondents. The second most selected recipe was Rice food mix (55.83%) followed by wheat mix (51.67%), Green gram rice porridge (51.67%), Ragi green gram mix (45.00%) and Jowar food mix (40.83%) which were ranked third, fourth, fifth and sixth respectively.

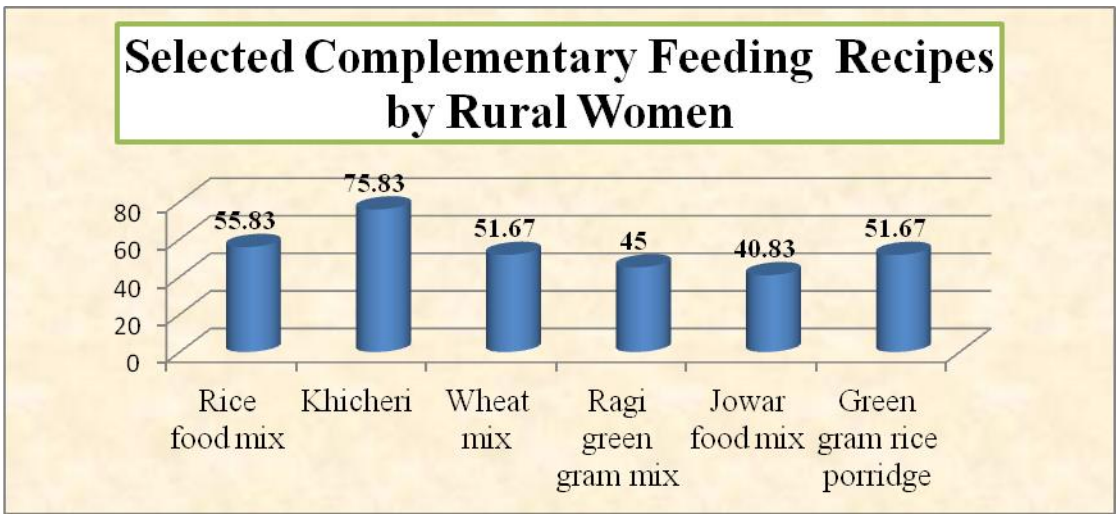


Figure 4.20 Distribution of the respondents based on the selection of recipes

Among all the recipes, highly chosen 6 recipes by the respondents were selected and video was prepared based on those recipes. Information was collected regarding complementary feeding recipes as given below :

Figure 4.21 Selected standardized locally available recipes

4.5.1 Change in knowledge after giving interventions on selected standardized locally available recipe

Testing of hypothesis

Null hypothesis: There will be no significant difference in knowledge after giving intervention.

Empirical hypothesis: There will be a significant difference in knowledge after giving intervention.

Table 4.13 Change in Knowledge on complementary feeding practice after the intervention

n= 120

S.No	Knowledge	Mean	SD	t- value
1.	Pre-test	47.80	0.75	2.99**
2.	Post-test	48.69	3.14	

** = Significant at 0.01 level of probability

An inference could be drawn from the table 4.13 that there was a significant difference in knowledge regarding complementary feeding after intervention as the t – value was found significant at 1% level of probability. Thus, the null hypothesis was rejected and the empirical hypothesis was accepted. This may be due to video intervention of complementary feeding which increased knowledge of respondents on the concept, method of preparation and importance of complementary feeding. Further the findings inferred that the video exposed on complementary feeding acted as an intervening variable in changing and increasing the cognitive domain of respondents. The video exposed was satisfied with the overall visual quality and overall sound quality, interactive links provided to each topics, classification of content into different parts, appropriate sequencing of the programme and clarity of the picture. It is concluded that the video method presentation is an audio-visual medium which involves more number of senses of the subjects reducing the monotony and thereby increasing the understanding of the difficult steps in easier manner. Thus, there was a significant difference in knowledge after giving intervention. The findings are similar to Masthalina and Agustina (2017).

4.5.2 Correlation between Demographic profile and knowledge on Complementary Feeding

To study the relationship between the Demographic characteristics and knowledge on complementary feeding of the rural women, the correlation coefficient, 'r' values were computed and values were presented in table 4. 14.

The relationship between the scores of Demographic profile characteristics of rural women and knowledge on complementary feeding of the respondents were tested by relevant null and empirical hypothesis.

Null hypothesis: There will be no significant relationship between the scores of profile characteristics of rural women i.e. age, education, occupation, family type, income, number of children, gender of child, birth order of child and scores of knowledge on complementary feeding.

Empirical hypothesis: There will be a significant relationship between the scores of Demographic characteristics of rural women i.e. age, education, occupation, family type, income, number of children, gender of child, birth order of child and scores of knowledge on complementary feeding.

Table 4.14 Correlation analysis of demographic profile with knowledge on complementary feeding

n =120

S.No	Demographic profile	Knowledge on Complementary feeding 'r' value
1.	Age of Mother	0.013 NS
2.	Number of children	0.100 NS
3.	Education	0.196*
4.	Occupation	0.185*
5.	Family type	0.187*
6.	Income of the family	0.217*
7.	Gender of the child	0.243**
8.	Age of Child	0.193*
9.	Birth order	0.004 NS

* = Significant at 0.05 level of probability

** = Significant at 0.01 level of probability,

NS = Non- significant

4.14.1.1 Education

From the table 4.14, it could be observed that there was positive correlation between knowledge on complementary feeding with the education of respondent (**r =0.196**$^{*)}$ at 5 per cent level of significance. This can be probably because as respondent's literacy and education increases, they become able to get exposed to access knowledge. Education is one of the most important resources that enable women to provide appropriate care for their children, which is an important determinant of children's growth and development. Olatona *et al.* (2017) in their study revealed that mother's education was significantly and positively associated with the level of knowledge.

4.14.1.2 Occupation

From the table 4.14, it could be seen that occupation of the respondent and knowledge on complementary feeding were positively correlated at 5 per cent level of significance (**r=0.185***). Therefore, it could be inferred that housewives get better time to take care of their child for ensuring effective care/nutrition practices in early childhood and a good provision of facility-based services and so it's easy for them to access knowledge easily rather than mothers having other occupations.. Olatona *et al.* (2017) in their study found that mother's occupation was significantly and positively associated with the overall complementary feeding practice.

4.14.1.3 Family type

From the table 4.14, it could be concluded that the coefficient of correlation of knowledge on complementary feeding with family type of respondent was found to be **r =0.187*** at 5 per cent level of significance. Therefore, it could be inferred that there was a positive and significant relationship between the family type of respondent and knowledge of complementary feeding. The reason might be probably that due to majority of the respondents were belonged to nuclear families and they got more time to give attention towards their children.

4.14.1.4 Income of the family

From the table 4.14, it could be observed that the coefficient of correlation of knowledge on complementary feeding with the income of the family was found to be **r =0.217*** at 5 per cent level of significance. The reason for relation between income of family with knowledge might be that due to increase in income, the respondent were able to get exposed to media like TV, radio, mobile and news paper etc. from where they were being able to get knowledge.

4.14.1.5 Gender of the child

From the table 4.14, it could be observed that the coefficient of correlation of knowledge on complementary feeding with the gender of the child was found to be **r =0.243****which at 1 per cent level of significance. Hence the null hypothesis was rejected and the empirical hypothesis was accepted. Therefore, it could be inferred that there was a positive and significant relationship between the gender of child and knowledge of complementary feeding. The reason might be the prolonged breast feeding of male child which is influencing late introduction of complementary foods and due to negligence of female child breast feeding, they are initiating complementary feeding earlier. For this reason mothers are accessing more knowledge to feed the child.

4.14.1.6 Age of child

From the table 4.14, it could be observed that the correlation coefficient of knowledge on complementary feeding with the age of the child was found to be **r =0.**0.**196*** at 5 per cent level of significance. Therefore, it could be inferred that there was a positive and significant relationship between the age of child and knowledge of complementary feeding. The reason might be that with increase of child's age their demand and needs increases which lead mothers to access more knowledge on it.

4.5.3 Correlation between Demographic profile and Complementary feeding practice

To study the relationship between the profile characteristics and complementary feeding practices of the rural women, the correlation coefficient, 'r' values were computed and values were presented in table 4. 15.

The relationship between the scores of profile characteristics of rural women and knowledge on complementary feeding of the respondents were tested by relevant null and empirical hypothesis.

Null hypothesis: There will be no significant relationship between the scores of profile characteristics of rural women i.e. age, education, occupation, family type, annual income, number of children, gender of children, birth order of children and scores of complementary feeding practices.

Empirical hypothesis: There will be a significant relationship between the scores of profile characteristics of rural women i.e. age, education, occupation, family type, annual income, number of children, gender of children, birth order of children and scores of complementary feeding practices.

Table 4.15 Correlation analysis of Demographic profile with Complementary feeding practices

n =120

S. No.	Demographic profile	Complementary feeding Practices 'r' value
1.	Age of Mother	0.201*
2.	Number of children	0.021 NS
3.	Education	0.101 NS
4.	Occupation	0.286**
5.	Family type	0.031 NS
6.	Income	0.191*
7.	Gender of the child	0.185*
8.	Age of Child	0.709**
9.	Birth order	0.114 NS

* = Significant at 0.05 level of probability
** = Significant at 0.01 level of probability,
NS = Non- significant

4.15.1.1 Age of mother

From the table 4.15, it could be observed that age of the mother and complementary feeding practice were positively correlated at 5 per cent level of significance (r = 0.201*). This implies that with the increase in age of mother, they are getting more exposure to observe the feeding practice followed by family members, neighbours and relatives. Hence, the mother's experience and understanding capacity regarding complementary feeding practice also increases.

4.15.1.2 Occupation

From the table 4.15, it could be seen that there was a positive and significant correlation between the occupation of respondent and complementary feeding practice followed by them at 1 per cent level of significance (r= 0.286**). Therefore, it could be inferred that respondents as housewife were following complementary feeding practice in a better way rather than respondents having other occupations. This might be because housewives get better time to take care of their child for ensuring effective care/nutrition practices in early childhood and a good provision of facility-based services rather than mothers having other occupations. Olatona *et al.* (2017) in their study found that mother's occupation was significantly and positively associated with the overall complementary feeding practice.

4.15.1.3 Income of the family

From the table 4.15, it could be observed that income of the family was positively correlated with complementary feeding practice at 5 per cent level of significance (r =0.191*). The reason for this can be probably because as the annual income increases, the economic status of the families also increases and influences the complementary feeding practice and respondents become able to introduce commercial readymade complementary foods to their children. As feeding practices like time of initiation of breast feeding, exclusive breast feeding, timely initiation of complementary feeding and ideal feeding affect the growth and development of child, it can be assumed that there is an relationship of economic indicators with under nutrition, wasting, stunting, exclusive breast feeding and initiation of breast feeding and the relationship of income with complementary feeding.

4.15.1.4 Gender of the child

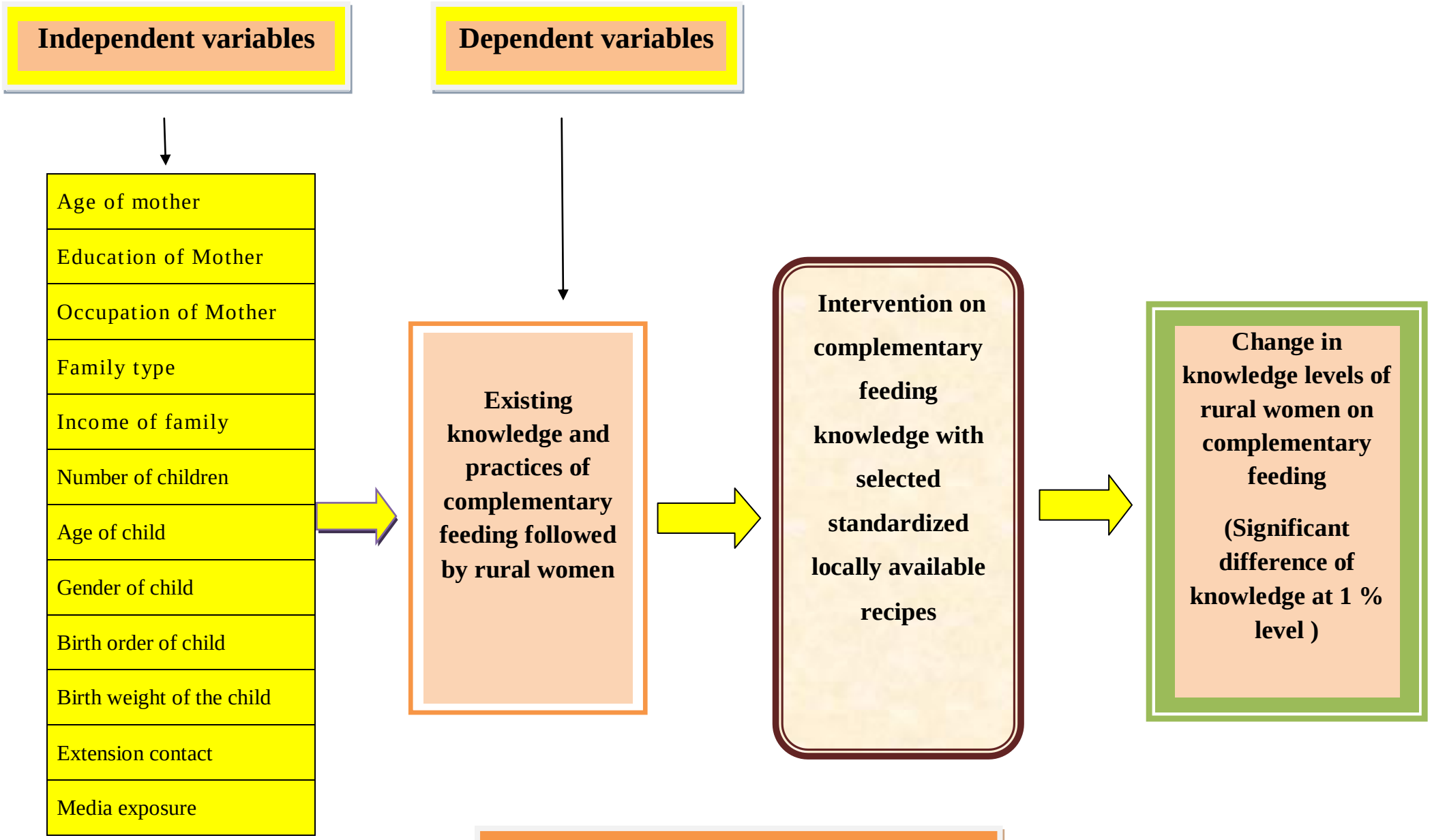
From the table 4.15, it could be found out that gender of the child had positive correlation with the complementary feeding practice at 5 per cent level of significance (**r =0.183**$^{*)}$. This implies that respondents having female child were following better complementary feeding practice rather than male child. The reason might be the prolonged breast feeding of male child which is influencing late introduction of complementary foods. The results showed that the male child was weaned late than the female child. Venugopal and Chandrashekar (2016) revealed that there was relation between gender and initiation of complementary feeding. The male child was weaned late than the female child.

4.15.1.5 Age of child

From the table 4.15, it could be seen that there was a positive correlation between complementary feeding practice with the age of the child (**r =0.709**$^{**)}$ at 1 per cent level of significance. The reason might be that as age of the child increases, the rural women's confidence to introduce various complementary foods increases also.

4.6 Empirical model of the study

The present study was to assess the existing knowledge levels and practices of rural women on complementary feeding. On the basis of the results obtained from the data analysis (Frequency, Percentages and Correlation), an intervention module on complementary feeding knowledge with selected standardized locally available recipes were developed, standardized, validated and provided to the rural women. After intervention, the change in knowledge was assessed through paired t-test.



4.22 Emperical model of the study

Chapter V

SUMMARY AND CONCLUSIONS

The purpose of the present study was to know about the profile characteristics of rural women and to identify existing knowledge and practices on complementary feeding followed by rural women. Then an intervention was provided on the selected standardized recipes of complementary feeding foods from locally available foods and found out the change in knowledge of rural women regarding complementary feeding practice. The present study was conducted considering the following objectives:

1. To study the profile characteristics of rural women in selected districts of Telangana state.
2. To identify the existing knowledge and practices on complementary feeding followed by rural women.
3. To provide intervention on the selected standardized recipes of complementary feeding foods from locally available foods.
4. To find out the change in knowledge of rural women regarding complementary feeding practices after the intervention.

Action research design was followed in the present study. Medak district was selected purposively due to the highest prevalence of under nutrition in the age group of <5 years. 4 mandals and 8 villages were selected randomly. From each village 15 samples were selected randomly thus comprising a total of 120 respondents. The data was collected by using suitable structured interview schedule. After collecting information regarding the existing knowledge, suitable knowledge intervention had given on the selected standardized recipes of complementary feeding foods. After that the response were collected from respondents regarding the change in knowledge of complementary feeding. Statistical procedures like frequency, percentage, correlation and paired t- test were employed to analyze and interpret the data.

5.1 Major findings

5.1.1 Profile characteristics of rural women

- In rural area, most (60.00%) of the respondents belonged to the age category of less than 25 years.
- Among the respondents, about (34.17%) of the respondents had education up to primary and middle school followed by illiterate (25.84%), high school education (23.33%) and college education (16.66%).
- Among the respondents, about (36.67%) of the respondent's occupation was agriculture followed by house wife (33.33%), labour (20.83%), small business (07.50%) and government job (01.67%).
- In rural area most (67.50%) of the respondents were belonged to nuclear families followed by joint families (30.00%) and extended families (02.50%).
- Half (50.83%) of the respondents belonged to medium income group followed by low income (47.50%) and high income (1.67%).
- Majority (79.16%) of the respondents had 1-2 children followed by (20.84%) of the respondents had 3-4 children.
- Most (74.17%) of the respondents had low media exposure followed by medium media exposure (21.66%) and high media exposure (4.17%).
- Majority (90.83%) of the respondents had low extension contact followed by medium extension contact (9.17%) and none of the respondents had high extension contact.

General information about their child

- More than half (54.17%) of the respondents had child between the age group of 12 to 24 month followed by 6 to 8 months (25%) and 9 to 11 months (20.83%).
- More than half (59.17%) of the respondents had male child and female child (40.83%).
- According to the birth order of child about half (50%) of the respondents had first child followed by second child (35%) and third child (15%).
- More than half (55%) of the respondents child's birth weight was between 2600g to 3000g followed by more than 3000g (31.67%), between 2100g to 2500g (13.33%).

5.1.2 Existing knowledge and practices of rural women regarding complementary feeding

- Among the respondents, the majority (60%) of the respondents had poor knowledge of breastfeeding followed by average knowledge (35%) and good knowledge (5%). Regarding complementary feeding, the majority (87.50%) of the respondents had poor knowledge followed by average knowledge (6.67%) and good knowledge (5.83%). In the context of meal frequency and preparation of complementary foods, the majority (64.17%) of the respondents had poor knowledge followed by average knowledge (35%) and good knowledge (0.83%).

- The respondents with a child aged category of 6-8 months, the majority (70%) of the respondents knew that child should be fed 1- 2 times followed by 2-3 times (16.67%) and 4-5 times (13.33%). Among respondents with children 9-11 months age group, the majority (72%) of the respondents knew that child should be fed 2-3 times followed by 3-4 times (16%) and 4-5 times (12%). Among respondents with children 12-24 months, the majority (52.31%) of the respondents knew that child should be fed 2-3 times followed by 1-2 times (35.38%) and 4-5 times (12.31%). Only (16.67%) of the respondents with children in the age group of 6-8 months children, (16%) in the age group of 9-11 months and (12.31%) in the age group of 12-24 months had correct knowledge about the frequency of complementary feeding .

- In rural area majority (40%) of the respondents knew that child should be given thin semi-solid food within the age of 6-8 months followed by clear liquid consistency food (33.33%) and liquid consistency (26.67%). Among respondents with children of age group 9-11 months, majority (44%) of them knew that children should be given liquid consistency food followed by thick semi-solid (24%), clear liquid (16%), and thin semi-solid (16%). Among respondents with children in the age group of 12-24 months, the majority (66.15%) knew that children should be given thin semi-solid (66.15%) followed by solid (20%) and thick semi-solid (13.85%). Only (26.67%) of the respondents in the age group of 6-8 months, (16%) in the age group of 9-11 months and (20%) in respondents with children in the age group of 12-24 months had correct knowledge about the consistency of complementary foods.

- In rural areas majority (73.33%) of the respondents knew that child should be given ¼ cup complementary foods between 6-8 months followed by ½ cup complementary food (26.67%). Among respondents with the age group of 9-11 months children, the majority (76%) knew that children should be given ½ cup of complementary food followed by ¾ the cup complementary food (20%) and 1cup complementary food (4%). While respondents with age group 12-24 months children, the majority (70.77%) knew that children should be given 1 cup complementary food followed by ¾ the cup complementary food (23.08%) and more than 1 cup (06.15%). Only (26.67%) of the respondents with children in the age group of 6-8 months, (20%) of respondents with children in the age group of 9-11 months and (6.15%) respondents with children in the age group of 12-24 months had correct knowledge about quantity of complementary foods.

- It was found out that after the intervention majority (66.67%) of the respondents had gained good knowledge of breastfeeding whereas before intervention only (5%) of the respondents had good knowledge in this area. Similarly, after the intervention, majority (75.83%) of the respondents had gained good knowledge of complementary feeding practices whereas before intervention only (5.83%) of the respondents had good knowledge in this area. After the intervention, majority (77.50%) of the respondents had gained good knowledge on meal frequency and preparation of CF whereas before intervention only (0.17%) of the respondents had good knowledge in this area.

- After giving intervention majority (83.34%) of the respondents gained knowledge regarding ideal frequency (2-3 times) of complementary feeding for the child aged between 6- 8 months whereas before intervention only (16.67%) of the respondents knew about it. Similarly after intervention, majority (88%) the respondents got to know that child should be fed 3-4 times of complementary foods between 9-11 months as against only (16%) of the respondents had knowledge about it before intervention. Likewise after intervention, most (66.15%) the respondents got to know that child should be fed 4-5 times of complementary foods between 12-24 months as against before intervention only (12.31%) of the respondents had knowledge about it.

- After giving intervention majority (93.34%) of the respondents gained knowledge that child should be given liquid consistency of complementary foods between the age category of 6-8 months whereas before intervention few (26.67%) of the respondents knew about it. Similarly after intervention, majority (80%) the respondents got to know that child should be given thin semi solid complementary foods between 9-11 months as against only (16%) of the respondents had knowledge about it before intervention. Likewise after intervention, most (83.08%) the respondents got to know that child should be fed thick semi solid complementary foods between 12-24 months as against before intervention only (13.85%) of the respondents had knowledge about it.

- After giving intervention majority (90.00%) of the respondents gained knowledge that child should be given ½ cup of complementary foods between the age category of 6-8 months whereas before intervention few (26.67%) of the respondents knew about it. Similarly after intervention, majority (84.00%) the respondents got to know that child should be given 3/4th cup of complementary foods between 9-11 months as against only (20.00%) of the respondents had knowledge about it before intervention. Likewise after intervention, majority (90.77%) the respondents got to know that child should be fed more than 1 cup complementary foods between 12-24 months as against before intervention only (06.15%) of the respondents had knowledge about it.

5.1.3 Complementary feeding practices followed by rural women

- In rural area, about 45.83 per cent of the respondents were following poor practice followed by average practice (29.17%) and good practice (25%).

- Out of the total respondents, less than half (47.50%) were not giving any homemade complementary foods to their children followed by (35%) of the respondents were given only rice and dal as a homemade complimentary food, uggu (9.17%), Java (5%) and other foods (3.33%).

- Out of the total respondents, 45.84 per cent were not giving any readymade complementary foods to their children followed by (28.33%) of the respondents were giving only commercially available readymade food, Balamrutham

(18.33%) and commercially available readymade food with Balamrutham (07.50%).

5.1.4 Providing intervention on the selected standardized recipes of complementary feeding foods

- Twenty-six (26) standardized recipes were selected from the recipe book of Food and Nutrition Board and Food and Nutrition department, AICRP, Professor Jayashankar Telangana State Agriculture University considering the crops grown in the selected district.
- It was found out that majority (75.83%) of the respondents selected Khicheri. The second most selected recipe was Rice food mix (55.83%) followed by Wheat mix (51.67%), Green gram rice porridge (51.67%), Ragi green gram mix (45.00%), Jowar food mix (40.83%) which were ranked third, fourth, fifth and sixth respectively.
- Based on the highly chosen six recipes by the respondents, intervention video was prepared and it was provided to rural women after 15 days of pre-test.

5.1.5 Change in knowledge of rural women after giving intervention

- There was a positive significant relationship between the independent variables i.e, profile characteristics like education, occupation, family type, income and age of child with existing knowledge of complementary feeding at 5% level of significant ($p < 0.05$).
- There was a positive significant relationship between the independent variables i.e, profile characteristics like gender of child with existing knowledge of complementary feeding at 1% level of significant ($p < 0.01$).
- There was a positive significant relationship between the independent variables i.e, profile characteristics like age of mother, income and gender of child with practices of complementary feeding at 5% level of significant ($p < 0.05$).
- There was a positive significant relationship between the independent variables i.e, profile characteristics like occupation and age of child with practices of complementary feeding at 1% level of significant ($p < 0.01$).
- Thus there was significant difference in knowledge after giving intervention as t value were found significant at 1 % level of probability.

5. 2 Implications of the study

- Results revealed that majority of the respondents had low media exposure and low extension contact. Hence government and educational institutes have to initiate program to increase awareness regarding media sources to improve their knowledge in accessing the Government Schemes.
- It was observed that rural women were having very low knowledge regarding complementary feeding so government should increase their knowledge by providing regular nutrition and health education.
- As the knowledge level after intervention has increased, so the accessibility to intervention can be widened by maximizing the mass media utilization for the purpose.

Future Research

The results of the present study demand the need of further investigations in other directions. The following suggestions could be used by the future researchers who were willing to take the similar studies.

- A comprehensive study with a large sample on the same topic may be conducted in future.
- Cross sectional study can be conducted among different regions of India.
- Comparative study between urban and rural can be taken up for meaningful comparison.
- Since the sample belonged to one region of Telangana, the results are specific and cannot be generalized.
- Mass media based approach can be taken up for reaching huge rural population.

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INTERVIEW SCHEDULE

Respondent No :

Name of the Respondent :

Village and Mandal :

District :

Respondent contact no. :

ANNEXURE- I

I. PROFILE CHARACTERISTICS OF RURAL WOMEN

1.	Age of the mother (In Years)	a) < 25 b) 25-35 c) >35
2.	Number of children	a) 1-2 b) 3-4 c) Above 4
3.	Education of the mother	a) Illiterate b) Primary School c) Middle School d) High School e) Intermediate/ Diploma f) Graduation& Above
4.	Occupation of the mother	a) Agriculture b) Labour c) Small business d) Government Job e) Housewife f) Any other
5.	Family type	a) Nuclear family b) Joint family c) Extended family
6.	Income (Rs./ Annual)	a) 0 – 60,000 b) 60,000 -1,20,000 c) 1,20,000 and above
7.	Gender of the child	a) Male b) Female
8.	Age of the child	a) 6 month – 8 month b) 9 month – 11 month c) 12 month – 24 month
9.	Birth order of the child	a) First child b) Second child c) Third child d) Fourth child e) More than Four
10.	Birth weight of the child (in Gram)	a) ≤ 2000 b) 2100- 2500 c) 2600- 3000 d) >3000

II. Media Exposure

Sl. No	Type of Media	Frequency of contact		
		Daily/ Regularly	Occasionally	Never
1.	Radio Listening			
	d) Recreational programmes			
	e) News			
	f) Health education programmes			
	g) Any other (specify)			
2.	Television Viewing			
	d) Recreational programmes			
	e) News			
	f) Health education programmes			
	g) Any other (specify)			
3.	Newspaper reading			
	d) Recreational programmes			
	e) News			
	f) Health education programmes			
	g) Any other (specify)			
4.	Mobile			
	g) Recreational programmes			
	h) News			
	i) Health education programmes			
	j) Talking with friends			
	k) Chatting			
	l) Whatsapp			
	m) Any other (specify)			
5.	Internet			
	d) Recreational programmes			
	e) News			
	f) Health education programmes			

III. Extension Contact

Frequency of contact with the extension workers

S. No	Type of Extension Personnel	Frequency of contact				
		Weekly Once	**Once in Fort Night**	**Monthly Once**	**Rarely**	**Never**
1.	Village Sarpanch					
2.	Anganwadi worker					
3.	Asha worker					
4.	ANM (Auxiliary Nurse Midwife)					
5.	PHC Doctor					
6.	Field Assistant					
7.	Any other Extension Personnel					
8.	NGO Personnel					

ANNEXURE- II

KNOWLEDGE ON COMPLEMENTARY FEEDING AMONG RURAL MOTHERS

S. No.	Aspects of Knowledge on complementary feeding practices	
BREAST FEEDING		
1.	Optimal time to start breast feeding	a) Soon after birth b) One day after birth c) Don't know
2.	Exclusive Breast feeding should be done	a) Till 1 year b) Up to 6 months c) Up to 4-5 months d) Don't know
3.	When should breast feeding be stopped?	a) 6 month b) 7-12 month c) 13-18 month d) 19-24 month
COMPLEMENTARY FEEDING (CF)		
4.	Do you know about complementary feeding?	a) Yes b) No
5.	What do you mean by Complementary feeding?	a) Only breast feeding b) Introduction of homemade liquid, semi-solid and solid foods along with breast feeding c) Commercial infant formula d) Any other
6.	Do have knowledge regarding introduction of complementary foods?	a) Yes b) No
	If yes then, Introduction of complementary feeding should be	a) Before 6 month b) 6 month c) After 6 month – 1 year d) After 1 year e) Don't know
7.	Why do you think to start the CF at this age ?	a) Milk alone is not sufficient for the growth of the baby b) Breast milk is not sufficiently secreted c) Painful feeding d) Disease of the mother e) Pregnancy f) Refusal by the child to breastfed g) Mother has to go out for work h) Doctor's advice

		i) Any other
8.	Number of food to be introduced at first time when complementary feeding is started	a) Introduce with one type of food at a time to check if it causes allergy b) Introduce more than one type of food group because it will not cause any allergy c) Don't know
9.	When should Water be introduced to the infant	a) As soon as he is born b) 4 – 6 months of age c) 6 month – 1 year d) More than 1 year e) Don't know
	MEAL FREQUENCY AND PREPARATION OF CF	
10.	When do you think child should be given complementary feed?	a) At scheduled time b) Anytime when the child gives a clue c) When family is eating d) Any other
11.	Do you have the knowledge regarding frequency of complementary feeding?	a) Yes b) No
12.	What is the risk of starting complementary feeding late?	a) Better development b) Malnutrition c) Increased height d) No risk
13.	Do you have the knowledge about commercially available complementary foods?	a) Yes b) No If yes mention:
14.	Source of knowledge of commercially available complementary foods items	a) Health professional b) Family c) Electronic Media d) Relatives e) Any other
15.	Do you know about the example of foods which are rich in calorie?	a) Yes b) No
16.	Do you have knowledge about iron rich foods?	a) Yes b) No
17.	Do you have Knowledge about adding iodized salt in foods?	a) Yes b) No
18.	Do you have knowledge regarding age wise frequency of complementary feeding given to child?	a) yes b) No

	Serving of complementary food/ day		**Age category**		
			6-8 Month	**9– 11 Month**	**12 – 24 Month**
	a.	1-2 times			
	b.	2-3 times			
	c.	3-4 times			
	d.	4-5 times			
19.	Do you have knowledge on age wise consistency of complementary foods?		a) yes b) No		
	Food consistency given to child/ day		**Age category**		
			6-8 Month	**9– 11 Month**	**12 – 24 Month**
	a.	Clear liquid			
	b.	Liquid			
	c.	Thin semi solid			
	d.	Thick semi solid			
	e.	Solid			
20.	Do you have knowledge on age wise quantity of complementary foods?		a) yes b) No		
		Quantity of foods given to child (Cup of 250 ml)	**Age category**		
			6-8 Month	**9– 11 Month**	**12 – 24 Month**
	a.	1/ 4^{th} CUP			
	b.	½ CUP			
	c.	$3/4^{th}$ CUP			
	d.	1 CUP			
	e.	More than 1 CUP			
SAFE PREPARATION AND STORAGE OF CF					
21.	Hands should be washed before preparing complementary food		a) Yes b) No		
22.	Water for preparaing food and drinks for children should be treated.		a) Yes b) No		
23.	Appropriate utensils for giving complementary feed to a child		a) Bowl and spoon b) Cup c) Feeding bottle		
	Feeding during illness				
24.	Do not fed sick / recovering child on dilute 114orridge/ Fruit juice		a) Yes b) No		

	Responsive feeding	
25.	Mother should assist a child to eat until 2 years	a) Yes b) No
26.	A mother should be the primary feeder of the child	a) Yes b) No
	Food items for CF	
27.	A childs main meal should be balanced	a) Yes b) No
28.	Do you know about foods which are included under complementary foods?	a) Yes b) No
29.	Do you know any recipes of complementary feeding?	a) Yes b) No
	If yes, Then mention	
30.	If no, Then rank these recipes according to your interest	a) Rice Pongal b) Wheat porridge c) Wheat mix d) Wheat food mix e) Rice food mix f) Ragi mix g) Malted ragi mix h) Ragi green gram mix i) Maize mix j) Maize food mix k) Jowar food mix l) Bajra food mix m) Suji porridge n) Dalia porridge o) Suji halwa p) Green gram rice porridge q) Paushtic laddu r) Rawa payasam s) Khicheri t) Banana carrot halwa u) Ragi laddu v) Ragi halwa w) Jowar khicheri x) Spinach pongal y) Sprouted salad z) Soup

ANNEXURE- III

COMPLEMENTARY FEEDING PRACTICES FOLLOWED BY RURAL WOMEN

Sl. No.	Complementary feeding practices	
1.	Have you given breast milk to your child?	a) Yes b) No
2.	What feed did you first give to your baby?	a) Breast milk (Colostrum) b) Water c) Any other
3.	When did you start to give breast milk?	a) Before 1 hour of birth b) Between 1-5 hour of birth c) Between 5- 24 hour of birth d) After 24 hour of birth
4.	How long did you offer complete breast feeding?	a) 1 month b) 4 month c) 6 month d) 12 month
5.	Have you introduced complementary feeding to your child?	a) Yes b) No
6.	If complementary foods haven't introduced, then why?	a) Child isn't of age b) Breast milk alone is sufficient c) Inadequate fund d) Any other
7.	At what age did you introduce complementary foods to your child?	a) Below 6 month b) 6month- 1 year c) 1-2 year d) Above 2 year
8.	When do you feed your child?	a) At scheduled time b) Anytime the child gives a clue c) When family is eating d) Any other
9.	Frequency of giving breast milk to your child	a) 2 times b) 3 times c) More than 3 times d) On demand of child
10.	Does your child have any problem associate with commencement of complementary food?	a) Fever b) Diarrhoea c) Vomiting d) Asthma e) Food allergy f) Irritation
11.	How often did you introduce new foods in a week between 6 and 12 months of age?	a) Once b) Twice c) Three times

		d) Four times e) Five times
12.	What type of food item you use mostly?	a) Homemade b) Readymade c) Both
13.	What do you use to feed your child?	a) Feeding bottle b) Bowl and spoon c) Hand feeding
14.	Method of feeding by mother	a) By making the child sit on lap b) By making the child sit on chair c) Leaving the child to roam around
15.	Who feeds your child?	a) Myself b) Family member c) Leave the child him/herself
16.	Preparation of complementary foods	a) Prepare separately CF for children b) Prepare with an adult food
17.	Continuation of complementary feeding during child's sickness	a) Continue b) Discontinue
18.	How do you feed your child when sick and lost appetite	a) Feed slowly and patiently b) Give favourite foods c) Feed the child forcefully d) Reprimand the child
19.	What are the home made complementary food items you are giving to your child?	
20.	What are the readymade complementary food items you are giving to your child?	

		Yes	No
21	Did you start to give complementary food along with breast milk?		
22	Do you prepare any special food for your child?		
23	Do you use milk supplementation along with complementary foods?		
24.	Do you dilute top milk in complementary feed?		
25.	Do you use oil / ghee while preparing complementary foods?		
26.	Do you use separate container for the complementary feeding?		

27. HYGIENE PRACTICES FOLLOWED BY RURAL WOMEN

S. No.	Hygiene practices	Always	Sometimes	Never
1.	Clean hands before feeding			
2.	Clean utensils to be used before feeding			
3.	Wash hands of children before feeding			
4.	Boil drinking water of child			
5.	Cover foods after cooking			
6.	Reheat leftover foods before serving			

PRACTICAL GUIDANCE ON THE QUALITY, FREQUENCY AND AMOUNT OF FOOD TO OFFER CHILDREN 6-23 MONTHS OF AGE WHO ARE BREASTFED ON DEMAND

Age	Energy Required Per Day In Addition To Breast Milk	Texture	Frequency	Amount Of Food An Avarage Child Will Usually Eat At Each Meal
6-8 months	200 kcal per day	Start with thick porridge, well mashed food Continue with mashed family foods	2-3 meals per day Depending on the child's appetite, 1-2 snacks may be offered	Start with 2-3 tablespoons per feed, increasing gradually to ½ of a 250 ml cup
9-11 months	300 kcal per day	Finely chopped or mashed foods and foods that baby can pick up	3-4 meals per day Depending on the child's appetite, 1-2 snacks may be offered	½ of a250 ml cup/ bowl
12-23 months	550 kcal per day	Family foods, chopped or mashed if necessary	3-4 meals per day Depending on the child's appetite, 1-2 snacks may be offered	½ to full 250 ml cup/ bowl

Further information

The amounts of food included in the table are recommended when the energy density of the meals is about 0.3 to 1 kcal/ g.

If the energy density of the meals is about 0.6 kcal/g, the mother should increase the energy density of the meal (adding special foods) or increase the amount of food per meal.

For example-:

- For 6 to 8 months, increase gradually to two third of cup
- For 9 to 11 months, give three quarters cup
- For 12 to 23 months, give a full cup

The table should be adapted based on the energy content of local complementary foods.

The mother or caregiver should feed the child using the principles of responsive feeding, recognising the signs of hunger and satiety. These signs should guide the amount of food given at each meal and the need for snacks.

If baby is not breastfed, give in addition 1-2 cups of milk per day and 1-2 extra meals per day.

ANNEXURE- IV

COMPLEMENTARY FOOD RECIPES

WHEAT MIX

Ingredients	Amount
Wheat flour (Whole)	100 g.
Bengal gram (Roasted & de-husked)	30 g.
Groundnut (Roasted)	20 g.

Method of Preparation :

1. Roast wheat flour.
2. Remove the skin of groundnut.
3. Make powder of roasted Bengal grams and groundnut.
4. Mix with Wheat flour thoroughly.
5. Store in a dry airtight container.

Nutritive Value Per 100 g.

Calories	377 kcal
Protein	16 .1 g.
Iron	5 .54 mg.
Carotene	41 .93 µg.

RICE FOOD MIX

Ingredients	Amount
Rice	75 g.
Moong dal	25 g.

Method of Preparation :

1. Roast rice and moong dal separately.
2. Grind rice and moong dal to a fine powder.
3. Mix the dry powder and fill in an air-tight bottle.

Nutritive value per 100 gms :

Calories	346 kcal
Protein	11 .2 g.
Iron	1 .5 mg.
Carotene	12 µg.

RAGI GREEN GRAM MIX

Ingredients :	Amount
Ragi	65 g.
Gram Dal	30 g.
Groundnut	15 g.

Method of preparation :

1. Roast ragi, green gram dal and Groundnuts separately.
2. Powder these roasted ingredients separately.
3. Mix thoroughly.
4. Store in dry airtight container.

Nutritive value per 100 gms :

Calories	366kcal
Protein	14 .56 g.
Iron	3 .8 mg.
Carotene	38 .18 µg

JOWAR MIX

Ingredients :	Amount
Roasted Jowar Flour	45 g.
Roasted Bengal gram Powder	20 g.
Roasted Groundnut	10 g.
Sugar	25 g.

Method of preparation :

1. Mix all the ingredients thoroughly
2. Add powdered sugar and store in air tight container.

Nutritive value per 100 gms :

Calories	388kcal
Protein	11 .80 g.
Iron	4 .06 mg.
Carotene	43.75 µg.

GREEN GRAM RICE PORRIDGE

Ingredients :	**Amount**
Green gram dal	30 g.
Rice	30 g.
Water	200 ml.
Milk	50 ml.
Jaggery	20 g.

Method of preparation :

1. Wash & cook rice and dal together till soft, mash well and add milk, jaggery and stir thoroughly.
2. Simmer till jaggery dissolves and serve.

Nutritive value per 100 gms :

Calories	273kcal
Protein	9 .4 g.
Iron	4 .32 mg
Carotene	24 µg

KHICHERI

Ingredients :	**Amount**
Rice	100 g.
Lentils	50 g.
Spinach	100 g.
Carrots	50 g.
Oil	10 g.
Salt	To taste

Method of preparation :

1. Cook rice and dal separately.
2. Mash cooked rice and dal.
3. Wash and cut carrots and spinach. Cook to form Puree.
4. Add carrot spinach Puree to rice dhal mixture along with salt.
5. Add oil to the khicheri.

Nutritive value per 100 gms :

Calories	212kcal
Protein	7 g.
Iron	2 mg.
Carotene	1961 µg