

Knowledge, Attitude and Practice (KAP) on Nutrition among Rural Farm Women of Chickballapur District of Karnataka, India

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Authors' contributions

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

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ABSTRACT

The present study was carried out with the objectives to assess Knowledge, Attitude, and Practice (KAP) of rural farm women on nutrition along with personal, socio economic profile. A total of 200 rural farm women from five villages of Shidlaghatta block, Chickballapur district, Karnataka, India were selected purposively for the study as Chikkaballapur district falls in the Eastern dry climatic zone and about 76% of the net sown area is under rainfed condition. Random sampling technique was used for the selection of the respondents. The data on socio-economic status, personnel characteristics and nutritional Knowledge, Attitude and Practice of the subjects were collected through a pre tested questionnaire. Study results reveals that 44.5% of the rural farm women belongs to middle age, 28.0% had high school education followed by 24.0% illiterate. Majority (93.0%) are married, most (63.5%) of them have agriculture as main occupation, More than half (53.0%) belongs to nuclear family, 47.5% have small family, nearly three fourth (69.0%) have 2-4 earners in the family. About 53.5% have marginal land holdings followed by 27.5% small, 65.0% belong to medium family income, 65.5% had medium mass media exposure, and 70.5% had medium level of extension contact. More than one third (34.5 %) of the rural farm women had high knowledge, followed by low (33.5%) and medium (32.0%). Thirty six percent had less favorable

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attitude towards nutrition, whereas 34.0% had favorable attitude and 30.0% had more favorable attitude. In case of nutrition practice 40.0% had poor practice, 35.5% had fair practice, and 24.5% had good practice. From present study it is concluded that there was more knowledge of rural farm women on nutritional aspects, less favorable attitude and poor practice of nutrition. Hence, intervention strategies like promotion of Nutri-gardens in Schools, Households and the rural Community, promotion of Nutri-sensitive crops or biofortified crops to address the malnutrition, promotion of Nutrition Thali through integrated farming system model, Awareness programmes or modules to educate the farm families for cultivation of nutri crops or bio-fortified crops and their nutritional importance and Nutritional deficiencies and its prevention through ICT, skill trainings for development of value added products or Nutrification of traditional recipes, encourage farm families to develop value added products and establish microenterprises to achieve economic security, convergence with all line departments (Women and Child welfare, Agriculture, Horticulture, Fisheries, livestock departments, health department etc.) for achieving the food, nutrition and health security of rural farm women.

Keywords: Knowledge; attitude and practices (KAP); nutrition; rural farm women; socio economic profile.

1. INTRODUCTION

Malnutrition is a complex global Problem; though green revolution has increased food production, still poverty and malnutrition continue to exist and even today malnutrition remains a pressing global challenge. Food and nutrition security would be the major challenges for growing population. Agriculture and nutrition are closely linked and agriculture has strong potential in many ways which it can influence the underlying determinants of nutrition outcomes through improving global food availability and access and through enhancing household food security, dietary quality, income and women's empowerment.

Traditionally agricultural interventions have focused on increasing food production and rising incomes to reduce malnutrition, hunger and poverty. Although this remains part of a valid approach, it is now recognized that higher levels of production and income alone have limited impact on improving nutrition. More comprehensive approach is necessary to optimize agriculture's contribution to good nutrition and make agriculture nutri-sensitive.

According to the World Food Programme, 135 million suffer from acute hunger largely due to man-made conflicts, climate change and economic downturns. The COVID-19 pandemic could double the number in upcoming years [1]. Malnutrition, in all its forms, includes undernutrition (wasting, stunting, and underweight), inadequate vitamins or minerals, overweight, obesity, and resulting diet-related non-communicable diseases. 1.9 billion adults

are overweight or obese, while 462 million are underweight. Globally in 2020, 149 million children under 5 were estimated to be stunted (too short for age), 45 million were estimated to be wasted (too thin for height), and 38.9 million were overweight or obese. Around 45% of deaths among children under 5 years of age are linked to undernutrition. These mostly occur in low- and middle-income countries. At the same time, in these same countries, rates of childhood overweight and obesity are rising. The developmental, economic, social, and medical impacts of the global burden of malnutrition are serious and lasting, for individuals and their families, for communities and for countries [2]. To address this nutritional supplementation is done through many modes like commercial fortification, medical supplementation, dietary diversification and bio fortification.

Nutritional supplements are expensive it estimated that Rs. 41,764 lakh crore is required a year to deliver 14 essential nutrition interventions at full coverage across India [3]. Despite a National Nutritional Anaemia Prophylaxis Programme addressing anaemia through supplementation over the past 50 years, more than half of India's children under five (58.6%) and women (53.1%) were anaemic in 2016 [4].

Nutrition intervention strategies are selected to change nutritional intake, nutrition-related knowledge or behavior, environmental conditions, or access to supportive care and services. Nutrition intervention goals provide the basis for monitoring progress and measuring outcomes. Nutrition intervention refers to

corrective measures that are undertaken to rectify the occurrence of overall malnutrition on specific nutrient deficiency or excess when there is a nutritional problem in a country and if the magnitude and the causes of the problem are known intervention can be planned.

The nutritional status of a community is influenced by a lot of interrelated and complex factors. Nutrition knowledge, their attitude and practice is also one among them. Knowledge of nutrition is one of the factors that shape the nutritional behavior of individuals as well as communities. It is crucial for encouraging healthy eating habits and is also a need to promote a positive attitude and practice towards healthy eating habits. Hence the present study was undertaken to assess the nutrition knowledge, attitude and practices of the respondents so that gaps can be identified and suitable effective intervention can be designed.

2. MATERIALS AND METHODS

The present investigation was carried out in Chickballapur district of Karnataka State, India during 2021-22. A total of 200 rural farm women were interviewed from five villages viz. Thippenahalli, Bodaguru, Basavapattana, Yenanguru and Hosapete of Shidlaghatta taluk using a pre-tested interview schedule developed by [5] with required modifications. “Ex-post facto” research design was used.

Information regarding socio-demographic characteristics viz., age, education, marital status, occupation, family size, family type, number of earners in the family, land holding, family income, mass media exposure and extension contact was analyzed using percentage, frequencies, mean, standard deviation and correlation coefficient.

Nutritional KAP (Knowledge, Attitude and Practice) in the present study is operationally defined as the ‘know how about nutrition, positive or negative feelings towards nutrition and usage of nutritional food in their daily diet’. It was analyzed using pre-tested interview schedule developed for the study. Knowledge component consists of 23 statements and each statement was measured using Yes or No by assigning a score of 1 and 0, respectively. The minimum and maximum score one could get was 0 and 23, respectively. Higher the score indicates that the rural farm women having more knowledge towards nutrition and lesser the score

indicates that the rural farm women having less knowledge towards nutrition. Based on mean (11.87) and standard deviation (4.33), the rural farm women were categorized into low, medium, and high categories.

Table 1. Categorization of knowledge level of rural farm women based on mean and standard deviation

Category	Criteria	Score
Low	<(Mean – ½ SD)	<9.71
Medium	(Mean ± ½SD)	9.71-14.1
High	> (Mean + ½ SD)	>14.1

Mean =11.875; Standard deviation = 4.335

Attitude component consists of 23 statements and each statement was measured on a three-point continuum namely agree, disagree, and do not know by assigning a score of 2, 1 and 0, respectively. The summated score for all the 23 attitude statements was considered as attitude score. The minimum and maximum score one could get was 0 and 46, respectively. Higher the score indicates that the women possess favorable attitude towards nutrition and lesser the attitude score indicates that the women possess unfavorable attitude. Based on mean (32.18) and standard deviation (3.92), the rural farm women were categorized into less favorable, favorable, and more favorable attitude categories.

Table 2. Categorization of attitude level of rural farm women based on mean and standard deviation

Category	Criteria	Score
Less favorable	<(Mean – ½ SD)	<30.22
Favorable	(Mean ± ½SD)	30.22-34.13
More favorable	> (Mean + ½ SD)	>34.13

Mean = 32.18; Standard deviation = 3.92

Practice component consists of 23 statements and each statement was measured using Yes or No by assigning a score of 1 and 0, respectively. The minimum and maximum score one could get was 0 and 23, respectively. Higher the score indicates that the rural farm women practicing more nutritional food and lesser the score indicates that the rural farm women practicing less nutritional food. Based on mean (10.32) and standard deviation (3.61), the rural farm women

were categorized into poor, fair and good categories.

Table 3. Categorization of practice of rural farm women based on mean and standard deviation

Category	Criteria	Score
Poor	<(Mean – ½ SD)	<8.51
Fair	(Mean ± ½SD)	8.51-12.12
Good	> (Mean + ½ SD)	>12.12

Mean = 10.32; Standard deviation = 3.61

Correlation coefficient: This was used to find out the relationship between the independent and dependent variables.

3. RESULTS AND DISCUSSION

3.1 Socio-Demographic Profile of Rural Farm Women

Results in Table 4 highlights that 44.5% of the rural farm women belong to middle age category followed by young (32.0%) and old age (23.5%). It was incidental that more number of respondents was in the middle age group. Moreover, middle aged farm women have more family responsibility, efficiency, and sensibility. They may also work with a sense of commitment and involvement.

It could be seen from Table 4 that 28.0% had high school education followed by 24.0% illiterate, 14.0% middle school, 13.0% intermediate, 11.0% graduation and above, 10.0% up to primary school. It is universal fact that education plays a key role in moulding and

bringing desirable changes among human beings. All the respondents were relatively educated, which could be the result of a common social environment. As the majority of the farm women were educated, they were able to gather knowledge on nutritional practices in the present scenario. Contradictory findings were reported by [5,6].

Majority (93.0%) of rural farm women are married, negligible number (06.0%) is separated and none of them are divorced/single.

It is evident that most (63.5%) of the rural farm women have agriculture as main occupation, followed by 22.0% are house wife, 06.5% are labor, 06.0% are service (Govt./Private) and 02.0% have small business.

It is observed that 47.5% of rural farm women have small family followed by medium family (33.0%) and large family (19.5%). The present trend in the villages is also to have a small family for better decision making, economic progress, and quality of life. Similar findings were reported by [6-8].

More than half (53.0%) of the rural farm women belongs to nuclear family, 36.5% belongs to joint family and only 10.5% belongs to extended family. The findings are in line with the findings of [9].

It could be seen in Table 4 that nearly three fourth (69.0%) of rural farm women have 2-4 earners in the family followed by less than 2 earners (21.0%) and more than 4 earners (10.0%).

Table 4. Demographic profile of rural farm women

Characters	Category	No.	%
Age	Young (18-35yrs)	64	32.0
	Middle (36-50yrs)	89	44.5
	Old(above 50yrs)	47	23.5
Education	Illiterate	48	24
	Up to Primary School	20	10
	Middle School	28	14
	High School	56	28
	Intermediate	26	13
	Graduation& Above	22	11
Marital Status	Single	0	0
	Married	186	93
	Divorcee	0	0
	Widow	12	6
	Separated	2	1
Occupation	Agriculture	127	63.5
	Labour	13	6.5

Characters	Category	No.	%
	Service (Govt./Private)	12	6.0
	Small Business	4	2.0
	House wife	44	22.0
Family Size	Small family (1-4 members)	95	47.5
	Medium family (5-6 members)	66	33.0
	Large family (>6 members)	39	19.5
Family type	Nuclear family	106	53
	Joint family	73	36.5
	Extended family	21	10.5
Number of earners in the family	< 2 earners	42	21.0
	2 – 4 earners	138	69.0
	> 4 earners	20	10.0

3.2 Socio-Economic Profile of Rural Farm Women

From Table 5 it could be seen that 64.5% of rural farm women have marginal land holdings followed by 27.5% small, 5.5% semi-medium, 1.5% medium and none were in large land holding category. The land holding distribution is matching with the general trends in the country that 80 per cent of the land holding in the country are small and medium size. The possible reason that could be attributed to this may be that agriculture was found to be the main occupation of the family who has inherited it from their ancestors and almost all depend on their land for living.

It is evident from the Table 5 that 65.0% of rural farm women belong to medium family income followed by 34.5% low and 0.5% was in high income category.

A glance at the Table 5 reveals that 65.5% of the rural farm women had medium mass media exposure, followed by low (18.0%) and high (16.5%). Farmers in present days are having more access to the mass media such as television, radio, newspapers, and farm magazines. They have the habit of reading newspaper and farm magazines, listening to radio programmes and watching television for agricultural information in general and nutritional aspects in particular. Mass media are known for their accuracy, consistency, security, timeliness, completeness, reliability, accessibility, objectivity, relevancy, usability, understandability, reputation, usefulness, efficiency and value-addition. Majority of the rural farm women had medium participation in mass media which explains that they were very much dependent on mass media not only as a source of news and information, but also as a source of entertainment and leisure. In

general, it increases the awareness levels of the farm women on the nutritional KAP. They help to update latest developments which are a good sign and speak about the interest of respondents to view the things. Thus, their mass media exposure helps for upgrading nutritional knowledge.

It is accounted from Table 5 that 70.5% of rural farm women had medium level of extension contact which is followed by high (16.0%) and low (13.5%). Different sources of information influence the knowledge, attitude, and practice of the individual towards nutrition. The medium extension contact of rural farm women was due to the fact that extension contact results is a purposeful action to seek more information and to clarify the doubts pertaining to the nutrition from the officials of the development departments and other selected organizations.

3.3 Nutritional Knowledge, Attitude and Practice of Rural Farm Women

3.3.1 Nutritional knowledge of the rural farm women

A glance of Fig. 1 reveals that more than one third (34.5 %) of the rural farm women had high knowledge, followed by low (33.5 %) and medium (32.0%). These results of the study are in conformity with that of [10]. However, the findings are contradictory to that results reported by [11].

3.3.2 Statement-wise nutritional knowledge of rural farm women

The results in Table 6 presents the data on the statement-wise nutritional knowledge of rural farm women, nearly cent per cent of rural farm women have knowledge on Kitchen garden

provides fresh fruits and vegetables (98.5 %) and cutting nails timely is hygienic practice (98%). Rural farm women having sufficient knowledge on most of the nutritional statements considered under present study probable reason could be their mass media exposure, extension contact. But only few have knowledge on awareness of super foods (14%), nutrithali (27.5%), GLV's are good source of folic acid (33.0%) and Supplementary diet is necessary to overcome deficiency of nutrients (36.0%), hence, more capacity building programmes, awareness campaigns, skill trainings etc needs to be conducted to enhance the knowledge on these aspects.

3.3.3 Nutritional attitude of the rural farm women

It is evident from Fig. 2 that 36.0% of rural farm women had less favorable attitude, whereas 34% had favorable and 30.0% had more favorable attitude towards nutrition. The findings are in line with the results reported by [11].

3.3.4 Statement-wise nutritional attitude of the rural farm women

Data in Table 7 reveals that statement-wise nutritional attitude of the rural women, the statement. Rural farm women have positive attitude on maintenance of personal hygiene, consuming raw vegetables for good health and sprouted. They have less favourable attitude towards consumption of super foods is essential for getting phytonutrients, include green leafy vegetables in daily diet to prevent anaemia and avoid drinking direct tap water. The probable reason could be lack of capacity building programmes, literacy programme etc, hence, interventions needs to be planned to change the mindset of people on above mentioned nutritional statements.

3.3.5 Nutritional practice of the rural farm women

Fig. 3 revealed that 40.0% of rural farm women had poor practice, 35.5% had fair practice, and 24.5% had good practice of nutrition. The findings are in line with the results reported by [11].

3.3.6 Statement-wise nutritional practice of the rural farm women

Data in table 8 reveals that statement-wise nutritional practice of the rural farm women. Most of the rural farm women have poor practice on use of Chia seeds, Quinova seeds and flax seeds in their diet, supplement diet, consumption of GLV's daily, maintaining kitchen garden at home, daily walk and jogging, exercise or walk, work out to maintain ideal body weight, consists of all five foods in their daily diet and consumption of roots and tubers daily and many other statements mentioned in Table 8. The probable reason could be less favourable attitude, lack of awareness, lack of time to practice as they engaged in farm activities.

3.3.7 Correlation between socio-demographic profile with KAP

Data in Table 9 indicates the relationship between independent variables and KAP. The variables like land holdings, family income, number of earners in the family, family size, extension contact had positive relationship with nutritional knowledge and attitude, whereas age and mass media exposure had negative relationship. In case of nutritional practice age, number of earners in the family, family size, mass media exposure and extension contact had negative relationship, whereas land holdings, family income had positive relationship.

Table 5. Socio-economic profile of rural farm women

N=200			
Characters	Category	No.	%
Land Holding (hectares)	Marginal holding (Up to 1 hectares)	129	64.5
	Small holding (1-2 hectares)	57	27.5
	Semi-medium holding (2-4 hectares)	11	5.5
	Medium holding (4-10 hectares)	3	1.5
	Large holding (10 hectares or above)	0	0
Family Income	Low (BPL) upto 1,32,000	69	34.5
	Medium (1,32,000 to 5,72,000)	130	65.0
	High (APL) (above 5,72,000)	1	0.5
Mass media exposure Mean = 7.46 SD = 1.103	Low	36	18.0
	Medium	131	65.5
	High	33	16.5

Characters	Category	No.	%
Extension contact Mean = 8.49 SD = 2.83	Low	27	13.5
	Medium	141	70.5
	High	32	16

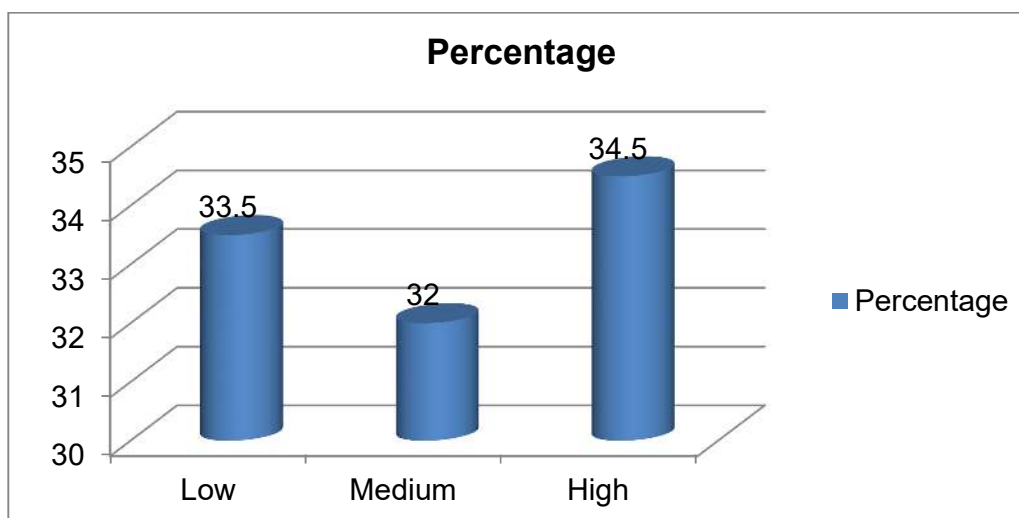


Fig. 1. Nutritional knowledge of the rural farm women

Table 6. Statement-wise nutritional knowledge of the rural farm women

N=200			
No.	Statements	No.	%
1	Are you aware of super foods	28	14.0
2	Millets are better for health than rice and wheat	142	71.0
3	NutriThali is nothing but a balanced diet	55	27.5
4	Balanced diet is essential for good health	142	71.0
5 (-)	Skipping meals is good for health	29	14.5
6	Cutting nails timely is hygienic practice	196	98.0
7 (-)	Anaemia is due to deficiency of Vit. A	113	56.5
8	Ideal body weight is necessary to maintain good health	126	63.0
9 (-)	Intake of green leafy vegetables (GLV) enhances Vit. C	73	36.5
10	Drinking tap water is not good for health	127	63.5
11 (-)	Washing hands before eating food is not a good practice	37	18.5
12	Morning walking and jogging are good for health	178	89.0
13	Kitchen garden provides fresh fruits and vegetables	197	98.5
14	Cereals are rich source of carbohydrates	93	46.5
15 (-)	Sprouting will not improve nutrient availability	68	34.0
16	Obesity may be due to excess intake of fat	154	77.0
17	Egg is complete protein	101	50.5
18 (-)	Regular consumption of junk food is good for health	40	20.0
19	Milk and milk products enhance calcium and is important for bone health	157	78.5
20 (-)	Females need more iron in diet than male	108	54.0
21	GLV's are good source of folic acid	66	33.0
22	Supplementary diet is necessary to overcome deficiency of nutrients	72	36.0
23 (-)	Protein is necessary for good Hb status	73	36.5

* (-) – indicates negative statements

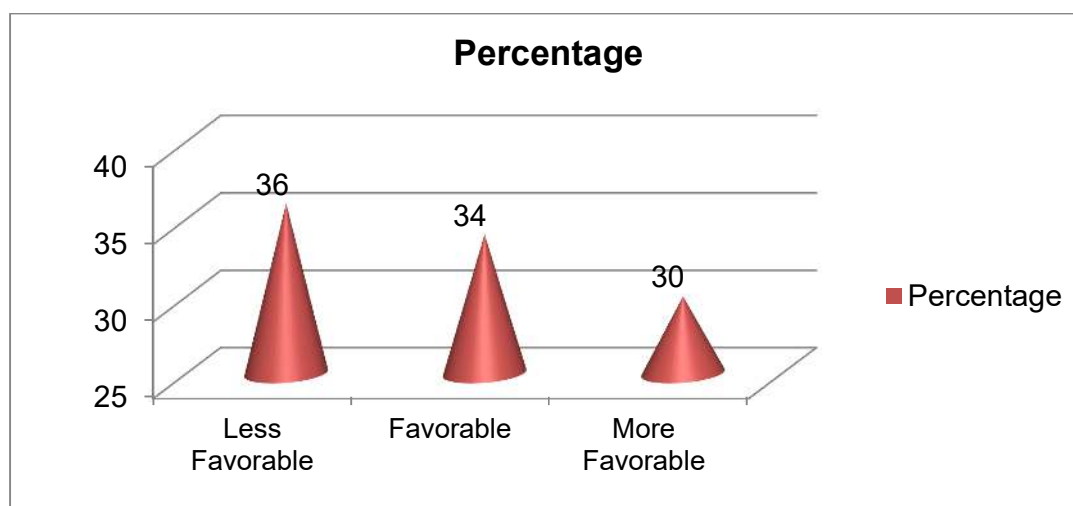


Fig. 2. Nutritional attitude of the rural farm women

Table 7. Statement-wise nutritional attitude of the rural farm women

No.	Statements	Score	Rank	N=200
1	Consumption of super foods is essential for getting phytonutrients	234	18	
2	Millets helps in management of lifestyle disorders	297	13	
3 (-)	NutriThali is not essential for all age group	186	19	
4	We should consume balanced diet	323	10	
5	We should not skip meals	335	7	
6	We should cut nails regularly	367	4	
7	We should maintain personal hygiene	381	1	
8 (-)	There is no need to maintain ideal body weight	161	20	
9	We should include green leafy vegetables in daily diet to prevent anaemia	270	17	
10	We should avoid drinking direct tap water	272	16	
11 (-)	We should not wash hands before food intake	36	23	
12	Morning walk and jogging improves the health	348	6	
13	Kitchen garden is necessary to get fresh fruits and vegetables	363	5	
14	Protein rich food should be included in our diet	294	14	
15	We should consume sprouted grains	368	3	
16	Fried, baked foods should be restricted	289	15	
17	Consuming raw vegetables is good for health	380	2	
18 (-)	Junk and road side food are healthy and hygienic	111	22	
19 (-)	There is no need for diet diversification Diet should include variety of foods	325	9	
20	Diet should include cup of milk	330	8	
21	Egg should be included in daily diet	314	11	
22	The daily diet include grains, root and tubers	308	12	
23 (-)	Nuts and oilseeds should be avoided in daily diet	143	21	

* (-) – indicates negative statements

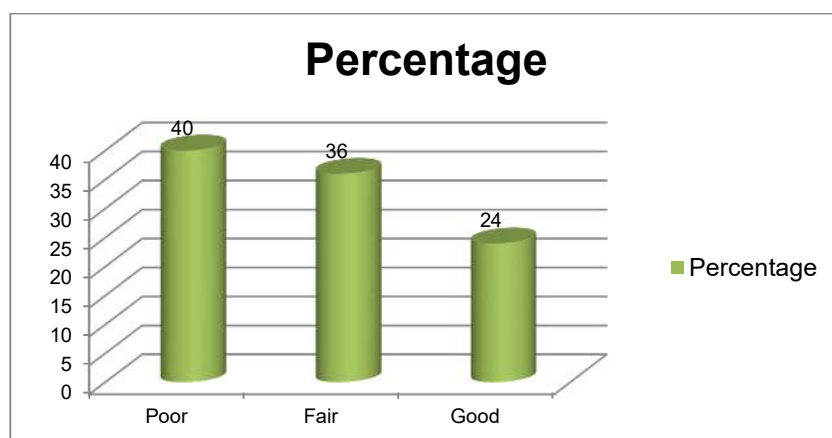


Fig. 3. Nutritional practice of the rural farm women

Table 8. Statement-wise nutritional practice of the rural farm women

		N=200	
No.	Statements	No.	%
1	Do you use Chia seeds, Quinova seeds and flax seeds in your diet	5	2.5
2	Do you use millets in your daily diet	170	85.0
3	Your daily diet consists of all five foods	49	24.5
4	Do you consume balanced diet daily	64	32.0
5 (-)	Do you skip meals	133	66.5
6	Do you cut your nails frequency	167	83.5
7	Do you keep yourself hygiene	170	85.0
8	Will you do any work out to maintain ideal body weight	42	21.0
9	Do you consume GLV's daily	28	14.0
10 (-)	Do you drink tap water	70	35.0
11	Do you wash your hands before having food	192	96.0
12	Will you do daily walk and jogging	37	18.5
13	Are you maintaining kitchen garden at home	31	15.5
14	Do you consume cereals in daily diet	184	92.0
15	Do you consume sprouted grains	175	87.5
16 (-)	Do you consume fried, baked foods daily	44	22.0
17	Do you eat enough fruits and vegetables	104	52.0
18	Do you drink milk and milk products daily	151	75.5
19	Do you exercise or walk daily	38	19.0
20	Do you consume roots and tubers daily	50	25.0
21	Do you take supplement diet	16	8.0
22	Do you eat egg daily/frequently	66	33.0
23	Do you eat fruits and vegetables daily	78	39.0

* (-) – indicates negative statements

Table 9. Correlation between socio-demographic profile with KAP

Variable	Knowledge	Attitude	Practice
Age	-0.131	-0.149	-0.110
Land holdings (Acres)	0.058	0.094	0.105
Family Income	0.261	0.182	0.157
Number of earners in the family	0.138	0.116	-0.026
Family Size	0.075	0.030	-0.064
Mass Media Exposure	-0.035	-0.044	-0.118
Extension Contact	0.017	0.024	-0.040

4. CONCLUSION

From present study it is concluded that there was more knowledge of rural farm women on nutritional aspects, less favorable attitude and poor practice of nutrition. Hence, intervention strategies like promotion of Nutri-gardens in Schools, Households and the rural Community, promotion of Nutri-sensitive crops or biofortified crops to address the malnutrition, promotion of Nutrition Thali through integrated farming system model, Awareness programmes or modules to educate the farm families for cultivation of nutri crops or bio-fortified crops and their nutritional importance and Nutritional deficiencies and its prevention through ICT, skill trainings for development of value added products or Nutrification of traditional recipes, encourage farm families to develop value added products and establish microenterprises to achieve economic security, convergence with all line departments (Women and Child welfare, Agriculture, Horticulture, Fisheries, livestock departments, health department etc.) for achieving the food, nutrition and health security of rural farm women.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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