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A Study to Assess the Effectiveness of Planned Health Education on Weaning Among Mothers in the Selected Urban Slums, Hyderabad, Andhra Pradesh.

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Abstract: *A single group pre-test and post-test design was undertaken to assess the effectiveness of Planned Health Education on Weaning among mothers in the selected urban slums, Hyderabad, Andhra Pradesh. The study was conducted by Ms. K. Tasrufoon, at Apollo College of Nursing, Hyderabad in partial fulfillment of the requirement to obtain degree of M.Sc.(N), Dr.N.T.R.University of Health Sciences, Gunadala, Vijayawada, Andhra Pradesh.*

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I. Introduction

Infancy is a period of rapid growth and development. An infant requires extra nourishment for new tissue development and growth [1]. The term weaning comes from the Anglo-Saxon word weanian "to become accustomed to something different". It is complex process involving nutritional, immunological, biochemical, and psychological adjustments. The very first introduction of food other than breast milk is by definition, "the true beginning of weaning". [2]

Weaning means introducing a wide range of foods gradually until the baby is eating the same food as the rest of the family. Until six months, the baby needs only breast milk or infant formula milk. Around six months of age, the baby needs initially semisolid foods and later on gradually solid foods are introduced in addition to breast or formula milk. [3]

Complementary feeding is extremely an essential feeding from six months of age, to meet the growing needs of the growing baby. Infants grow at a rapid rate, most of the organs of the body grow rapidly both structurally and functionally during the early life and then later on the growth slows down. Most of the growth in the nervous system and brain is complete in the first two years of life. In order to achieve optimum growth and development, there is an increased demand for the regular supply of weaning foods in the form of better nutrition. [4]

Health experts agree that six months is the best age for introducing semisolids and later on solids. The baby's digestive system is still developing, so waning at early age may increase the risk of infections and allergies. If the mother decides to wean at delay, also leads to non fulfillment of nutritional gap leading to malnutrition and anemia. [5] At about six months, babies are ready to be move on to a mixed diet, the child begins to erupt, and the biting movements begin. The tendency to push solids out of the mouth also decreases. The infant achieves voluntary control of swallowing. [6]

Usually weaning requires a lot of patience, and can take time, depending upon the age of the baby. The experience is different from every one. In India the tradition of prolonged breast feeding and introduction of complementary foods from 6 months of age through an "annaprashan ceremony" occurs. [7]

Traditional foods for the infants should be started once the child is eating the cereal porridge well, mixed foods including cooked cereal, pulse and vegetables could be given to the child and other traditional foods will be given with little modifications to the infants are kichidi, upma, and idly . Instant infant foods are prepared with combination of roasted cereals, pulses, and millets powder. [8]

Each year, several hundred infants are asphyxiated by food on an average one death every five days is reported in children from infancy to nine years of age. Apples, cookies and biscuits cause chocking most often in infants. Keen supervision is needed while infant takes to weaning. [9]

The research approach adopted in the present study was experimental research approach aimed to assess the effectiveness of planned health education on weaning among mothers who were having infants of 5-12 months of age.

The research design adopted for the present study is Pre Experimental design. Under the Pre Experimental design, 'one group pre and post test design' was selected for the present study. In this design

whole group was pre tested, followed by the introduction of independent variable i.e. Planned Health Education irrespective of their pre tested dependent variable. The effectiveness of independent variable on the dependent variable was tested with the help of the post test after one week.

R O_1 X O_2

O_1 – Pretest for the assessment of level of knowledge on weaning.
X - Planned health education on weaning.
O_2 – Post test for the assessment of level of knowledge on weaning.
R- Randomization., No control.

Sample for the present study consists of mothers of infants at 5-12 months of age, who are residing at Sriram Nagar and Rahamath Nagar, Hyderabad.The sampling technique adopted for the present study is systematic random sampling. The total number of mother who was having infants of five to 12 months of age was 508. Sample frame was made by list out of houses by listing out and every kth element i.e 10^{th} element from the sample frame was taken in order to take 10% of the target population, the accessible population is 50. Data was collected from mothers who have infants of 5-12 months of age at Sriram Nagar and Rahmath Nagar, Hyderabad, with the help of a structured interview by using a questionnaire. It is a method of gathering self report information from respondent. The questionnaire includes a set of questions that are generally answered in a specified sequence and pre designed response. The structured questionnaire was selected to gather appropriate data from the mothers for study purpose.

A draft of the planned health education was developed keeping in mind objectives, literature reviewed as well as expert's opinions. Main factors like literacy level of the sample, method of teaching to be adopted, simplicity of language, appropriate use of teaching aids as well as attention span kept in mind.

II. Objectives of the Study

- To assess the Effectiveness of Planned Health Education on Weaning among mothers in selected urban slums.
- To determine the association between the knowledge of mothers on weaning and the selected demographic variables.

III. Materials and methods

The study adapted pre experimental design of one group pre-test and post- test method with planned health education on weaning as independent variable and mother's knowledge as dependent variable. The study was conducted at Sriram Nagar and Rahmath Nagar urban slums, Hyderabad, A.P. The population for the study was mothers of infants at the age group of 5-12 months. The sample size was 50 and was selected by systematic random sampling. Planned health education material was prepared and delivered by lecture cum demonstration method; it took one hour for presentation. Structured questionnaire was prepared with the help of literature in text books, journals and experts guidance in the field of Nutrition, Medicine and Nursing. The data was collected by using Structured Interview Schedule on knowledge about Weaning. The reliability of the tool was tested by test and retest method. The correlation co-efficient was obtained by using Karl Pearson formula. Obtained (r=0.869). The data was collected with the help of a structured interview questionnaire and planned health education was implemented. After seven days post test was conducted with the help of same structured interview questionnaire.

IV. Results

Majority of the mothers falls under the age group of 19-23 years. Most of the mothers were Hindu religion, fifty four percent of the mothers were illiterates, there were $2/3^{rd}$ of families have single child, the highest percent (68%) of the mothers were having five to seven months of age group of infants.The analysis and interpretation was done by using descriptive and inferential statistics. In the pre test 20% of respondents obtained were below average scores and 60% respondents were scored average marks, 20% respondents were above average marks. In the post-test the knowledge scores were improved significantly after Planned Health Education on Weaning. In post-test none of them scored below average marks, 30% respondents scored average marks and 70% respondents scored above average marks.

The effectiveness of planned health education was estimated by comparing the pre and post test scores with the help of paired't' test. The pre test mean was 49.60% and post test mean was 72.88%. After the Planned Health Education there was a significant difference in the pre and post-test knowledge scores which showed that exposure to Planned Health Education would result in an increase in knowledge. The calculated't' value is 9.83 and it is highly significant at $p < 0.05$ level. Hence it can be concluded that Planned Health Education on Weaning was effective.

Majority of the mothers have shown a lot of interest to know, learn about weaning and weaning preparations. The above findings clearly indicate that mothers of infants 5-12 months of age should be educated

on weaning for the growth and development of an infant and also for the prevention of infectious diseases. The association between the demographic variables and mother's level of knowledge was computed by using chi-square value. The demographic variables like religion, education, occupation, type of family, age of child in months, no. of children in the family, monthly income and source of information were not associated to their level of knowledge. The demographic variables like age and prior information were associated to their level of knowledge.

DESCRIPTION OF TOOL

Part – 1: Deals with demographic data of mothers regarding age of the Mother, Religion, Education, Occupation, Dietary pattern, and Type of family, Number of children in the family, Monthly income, previous information on weaning and Source of information.
Part – II: Section-I deals with questions related general aspects on weaning - four items.
Section-II deals with questions related to basic principles on weaning - six items.
Section-III deals with questions related to classification and introduction of weaning food items - seven items.
Section-IV deals with questions related to preparation of weaning foods - four items.
Section-V deals with questions related to problems on weaning - four items.

SCORE INTERPRETATION

The tool consists of 25 questions with multiple choice answers and each question has one simple choice as correct answer. Each correct answer was given a score of one mark and score of zero was given for incorrect answer. The percentage distribution was categorized into below average (33.3%), average (33.3-66.6%) and above average (66.6%).

DATA COLLECTION PROCEDURE

In order to collect the data for the study, the investigator obtained written permission from the District Medical and Health Officer, Hyderabad. The subjects for the study were selected according to the criteria of systematic random sampling. The mothers were given health education, each time health education was given to a group of five mothers. One co-operative house was selected to impart health education where five mothers were gathered. Health education was given by the investigator by giving explanation about purpose of the study and the health education class was taken by lecture method and various weaning foods preparations were demonstrated by investigator. It took one hour to complete single secession, during the period of data collection over of 10 secessions were taken by the investigator to cover the 50 mothers. After seven days of teaching, post test has been conducted to the same group by using the same knowledge assessment questionnaire to evaluate the effectiveness of planned health education on weaning. Data analysis enables the researcher to reduce, summarize and evaluate, interpret and communicate the findings. [46] After collecting the data, it is planned to analyze the data by using both descriptive and inferential statistics. The analysis and interpretation of the data is planned in three parts.

Part – 1: Formulating frequency and percentage distribution of demographic data of mothers who are having infants at the age of 5-12 months.
Part – 2: Item wise analysis of knowledge.
Part – 3: Comparing pretest and post test knowledge scores of effectiveness of planned health education on weaning by mean, standard deviation and paired't' value.
Part – 4: Identifying the association between knowledge and selected demographic variables of mothers by using chi-square value.

V. Analysis, Interpretation And Discussion

PART: 1 Deals with frequency and percentage distribution of mothers according to demographic data which includes Age of the mother, Religion, Education, Occupation, Dietary Pattern, Type of Family, Number of children in the Family, Family monthly Income, Previous Information on Weaning and Source of information.

Frequency and Percentage Distribution of Mothers according to Age.

n = 50.

Characteristics	Frequency	Percentage (%)
Age in Years		
19-23	43	86
24-28	03	6
> 28	04	08
Total	**50**	**100**

The above table shows that high frequency of (43) 86% were in the age group of 19-23 years, 6 % were in the age of 24-28 years and 8 % of them were in > 28 years age group.

Frequency and Percentage Distribution of Mothers according to Religion. The majority of mothers (60%) of them belong to Hindu religion, lowest percentage of (8%) of them belongs to Muslim religion, and 22% of them belong to Christian religion and 10% belongs to other religion.

Frequency and Percentage distribution of Mothers according to Education. The most of the mothers 54 % were illiterates, 30% were educated till primary level, 14% have studied up to secondary level of education and only 2% have studied up to graduation.

Percentage distribution of Mothers according to Occupation. The 14 % of mothers were employed, 78% were unemployed and only 8% were having self employment

Frequency and Percentage distribution of Mothers according to Source of Information on Infant Weaning. The 14% have not received any prior information and rest had prior information. Among them , 60% of them received information on infant feeding from the non technical person, out of them 34% received from their mothers, 6% each from siblings and mother-in-law, 16% by rearing the first child and only 24% from mass media.

Part: II

SECTION-I

Item Wise Percentage Distribution of knowledge scores in Pre and Post test.

Frequency & Percentage Distribution of Item Wise Knowledge regarding Importance of Weaning.

n=50.

Questions On Knowledge.	Test							
	Pre				Post			
	Wrong		Correct		Wrong		Correct	
	f	%	f	%	f	%	f	%
Q1. Meaning.	6	12	44	88	1	2	49	98
Q2. Use.	36	72	14	28	3	6	47	94
Q3.Timing start.	29	58	21	42	8	16	42	84
Q4.Selection of food item.	25	50	25	50	5	10	45	90

Regarding meaning of weaning it is good note that 88% of them told right concept in pre test, where as in post test 98% were answered it correctly. Hence the knowledge level was improved.

Regarding the purposes of weaning only 28% of the mothers answer correctly, health education made 94% of them gave correct answer.

In relation to the ideal month to start weaning to an infant 58% of mothers were told as wrong, where as in post test only 84% have responded correctly.

Regarding kind of food to be selected for weaning preparation equal percentage i.e 50% were told as easy digestable, remaining have answered as more roughage, palatable food in pre test, where as in post test 90% of them acquired knowledge that, easily digestable food to be given.

The obtained mean knowledge score in per test was 2 .08, in post test was 3.66 out of total score six

SECTION-II

Frequency & Percentage Distribution of Item Wise Knowledge regarding Basic Principles of Weaning.

n=50

Questions On Knowledge.	Test							
	Pre				Post			
	Wrong		Correct		Wrong		Correct	
	f	%	f	%	F	%	f	%
Q5.progress weaning foods.	15	30	35	70	4	8	46	92
Q6.Continuation -breast milk.	22	44	28	56	10	20	40	80
Q7.Boring-food items.	36	72	14	28	12	24	38	76
Q8. Sensitivity.	29	58	21	42	19	38	31	62
Q9. Type of food.	14	28	36	72	13	26	37	74
Q10. Adding- food item.	29	58	21	42	16	32	34	68

In regard to the progress of offering solid foods, most of the mothers (70%) were gave in correct answer, in the case of post test the 92% of the mothers have expressed as correct answer.Regarding to continuation of breast milk along with the weaning there were 56% of mothers who answered correctly in pre test and after health education 80% were answered correctly. In pre test the least identified area of knowledge (28%) was related to how to identify avoiding of boring food items for an infants and only around 2/3rd (76%) have acquired correct concept in post test.Regarding identification of food sensitivity for an infant, only 42%

have told correct answer in per test, where as in post test 62% have answered as right answer.In regard to type of food item to be given to an infant there was no much gain in knowledge scores of mothers (only 2%), from pre test (72%) to post test (74%)There was only 10% of knowledge improvement in regard to the new food item adding to an infant during weaning period.In pre test the mean score was only half i.e 3.10 out of total score six and the gain in mean score in the post test 4.52

SECTION-III

Frequency & Percentage Distribution of Item Wise Knowledge regarding Classification and Introduction of weaning. n=50

Questions on knowledge.	Test							
	Pre				Post			
	Wrong		Correct		Wrong		Correct	
	f	%	f	%	F	%	f	%
Q11.Fruit juice	34	68	16	32	32	64	18	36
Q12. Porridge.	35	70	15	30	23	46	27	54
Q13. Yellow of egg	34	68	16	32	20	40	30	60
Q14.Meaning finger foods.	17	34	33	66	13	26	37	74
Q15.Fingerfoods encouraged	43	86	7	14	28	56	22	44
Q16.Minced meat.	48	96	2	4	26	52	24	48
Q17. Adult food.	9	18	41	82	20	40	30	60

In regard to age of the infant for introducing of fruit juice, only 32% have correct answer in pre test, after health education also there was 36% of knowledge improved. Regarding age of an infant for introducing of porridge, 30% of mothers were expressed as correct option, where as in post test 54% of mother's knowledge was improved. Regarding age of introduction of yellow of the egg to an infant only 28% of knowledge scores were improved in mothers.

Regarding meaning of finger foods, 66% of mothers were told as correct answer, and in post test 74% were told correct answer. With regard to age of introduction of finger foods only 14% of mothers were expressed at the age of seven nine months, where in post test 44% of mothers answered correctly. With regard to age of introduction of cooked minced meat to an infant, 96% of mothers were told incorrect response to the question in pre test, in comparison to post test 48% were told as correct answer. It is surprising that 82% of mothers who told correctly for starting adult food to the baby, the response of the mothers were dropped to 60% in the post test. The mean knowledge score in the pre test is 2.60 out of seven total score and the gain in knowledge was only 50% in post test i.e 3.76. It cautions that nurses should explain in detail about classification of food and introduction of weaning.

SECTION-IV

Frequency & Percentage Distribution of Item Wise Knowledge regarding Preparation of Weaning. n=50

Questions on knowledge.	Test							
	Pre				Post			
	Wrong		Correct		Wrong		Correct	
	f	%	f	%	f	%	f	%
Q18. Hygienic	9	18	41	82	2	4	48	96
Q19. Cleaning.	6	12	44	88	0	0.0	50	100
Q20.Fruit juice.	11	22	39	78	1	2	49	98
Q21.Green leafy vegetables	37	74	13	26	2	4.1	47	95.9

Regarding preparation of weaning foods all most all the mothers' knowledge scores were improved above (96%) than in pre test. Good noticeable gain knowledge was seen in regard to cooking of green leafy vegetables, it was only 26% in pre test and 95.9% in post test. Regarding cleaning of vessels for the preparation all of the mothers gave correct answers in post test.The pre test mean knowledge score was 2.70 and post test mean knowledge score was 3.88 out of total 4. It is highest area of knowledge gain regarding weaning.

SECTION-V

Frequency & Percentage distribution of item wise Knowledge regarding Problems of weaning. n=50

Questions on knowledge.	Test							
	Pre				Post			
	Wrong		Correct		Wrong		Correct	
	F	%	f	%	f	%	f	%
Q22. Aspiration.	30	60	20	40	22	44	28	56
Q23Concentrated	48	96	2	4	27	54	23	46

Q24.deficiency.	19	38	31	62	20	40	30	60
Q25.sugar, sweet.	9	18	41	82	11	22	39	78

Regarding measures for prevention of aspiration of food to an infant, only 40% of the mothers were told correct response (feeding of an infant in sitting position) after health education only 56% of the mothers have given correct answer.

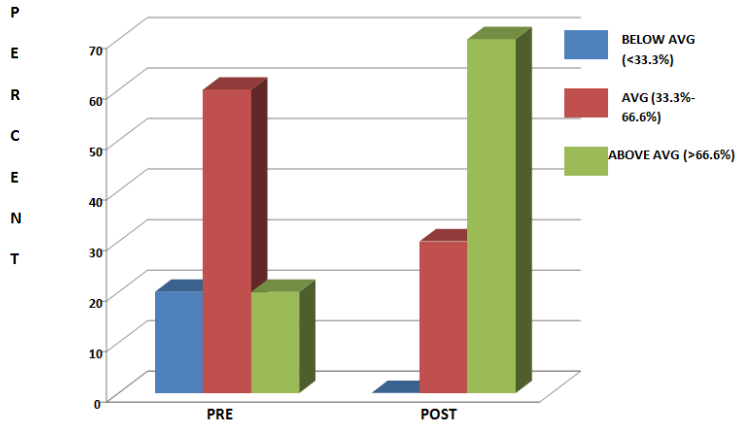
Regarding excessive concentration of weaning foods, only 4% of the mothers gave correct answer; the same was improved to 45% in post test (56%) of mothers. Knowledge in the pre test on common nutritional problems was 62% and hazards of excess of sugar and sweets intake was 82% in pre test.

The pre test mean knowledge scores 2.14, post test 3.34. It was the highest gained knowledge score area. Mothers who gave correct responses ranged from 46 to 78%.

PART: III

Significant Test for Knowledge

The data collected in regard to mother's knowledge on weaning were categorized into below average, average and above average in Pre-test and Post-test. This part deals with comparison of Pre-test and Post-test knowledge scores of mothers, Mean, Standard deviation, and 't' value of Pre-test and Post-test knowledge scores and association between demographic variables in Pre-test and Post-test scores



Frequency and Percentage of Mothers according to Percentage of Knowledge scores in Pre and Post Test Scores on Weaning.

The above table shows that in Pre-test 20% of each have got below and above average and 60% of mothers have got average marks. In Post-test 30% were in average and 70% of mothers were above average, none of them scored below average. This indicates that, the knowledge scores were improved after Planned Health Education on Weaning.

Mean Standard Deviation and 't' Value of Pre Test and Post Test knowledge scores on Weaning.

n = 50

Level of Knowledge	Mean	S.D	't' Value	df	Significant value
Before planned health education (pre test).	49.60%	17.53	9.838	49	0.00
After planned health education (post test).	72.88%	15.18			

H_0 = There was no significant relationship between (pre-post) knowledge on weaning before and after health education.

The obtained 't' value was 9.838 at df 49 and its significant value p = 0.00 (p < 0.01 and 0.05 level of significance). A null hypothesis is rejected. So there was significant difference in knowledge before and after Planned Health Education among mothers.

PART: IV

Association between Knowledge level of mothers and Selected Demographic variables of Mothers.

Association between Pre-test and Post-test knowledge of Mothers according to Age.

n = 50.

Test	Demographic variables	< Avg.		Avg.		> Avg.		χ^2 value	df	Sig.
		N	%	N	%	N	%			
Pre	Age							9.548	4	0.049 S
	19-23 Yrs.	9	20.9	28	65.1	6	14			
	24-28 Yrs.	1	33.3	1	33.3	1	33.3			
	> 28 Yrs.	-	-	01	25	3	75			
Post	19-23 Yrs.	-	-	13	30.2	30	69.8	3.636	2	0.162 NS
	24-28 Yrs.	-	-	02	66.7	1	33.3			
	> 28 Yrs.	-	-	-	-	4	100			

NS-Not Significant, S- Significant.

The obtained is χ^2 value 9.548, p=0.04 (p<0.01 level of significance). Hence there is significant difference in the knowledge between various age groups in pre-test. Where as in post test the obtained χ^2 value is 3.636, p=0.162(p>0.05) related to mother's age. There is no significant difference. Hence it was concluded that even though knowledge was differing in pre-test as per age, the planned health education was effective could not be influenced with age as variable in the post-test , all age group mothers could able to improve their knowledge.

Association between Pre-test Post-test knowledge of Mothers according to Religion.

n = 50.

Test	Demographic variables	< Avg.		Avg.		> Avg.		χ^2 value	df	Sig.
		N	%	N	%	N	%			
Pre	Religion							6.692	6	0.350 NS
	Hindu	4	13.3	22	73.3	4	13.3			
	Muslim	1	25	02	50	1	25			
	Christian	3	40	05	45.5	3	27.3			
	Others	2	40	01	20	2	40			
Post	Religion							3.362	3	0.339 NS
	Hindu	-	-	08	26.7	22	73.3			
	Muslim	-	-	-	-	4	100			
	Christian	-	-	05	45.5	6	54.5			
	Others	-	-	02	40	3	60			

NS-Not Significant

In the pre-test the obtained χ^2 value is 6.692, p=0.350 (p<0.01 level of significance) and in post-test χ^2 value is 3.362, p=0.339 (p<0.01 level of significance). So there is no significant relationship between the level of knowledge of mothers and the religion both in pre and post-test.

Association between Pre-test and Post-test knowledge of Mothers according to Education.

n = 50

Test	Demographic variables	< Avg.		Avg.		> Avg.		χ^2 value	df	Sig.
		N	%	N	%	N	%			
Pre	Education							7.619	6	0.26 NS
	Illiterate	6	22.2	18	66.7	03	11.1			
	Primary	3	20	09	60.0	03	20			
	Secondary	1	14.3	03	42.9	03	42.9			
	Graduate	-	-	01	100	01	100			
Post	Education							1.474	3	0.688 NS
	Illiterate	-	-	09	33.3	18	66.7			
	Primary	-	-	05	33.3	10	66.7			
	Secondary	-	-	01	14.3	06	85.7			
	Graduate	-	-	-	-	01	100			

NS-Not Significant

In the pre-test the above table shows that the obtained χ^2 value is 7.619, p=0.26 (p<0.05 level of significance) and in the post-test χ^2 value is 1.474, p=0.688(p<0.05 level of significance).So there is no significant relationship between the level of knowledge of mothers and their educational status both in pre and post-test.

Shows Association between Pre-test and Post-test knowledge of Mothers according to Education.

The above figure shows that, in the pre-test illiterate mothers have highest average knowledge level (66.7%), graduates have above average knowledge level (100%), where as in post-test as literacy level increases the percent of knowledge levels also improved to above average.

Association between Pre-test and Post-test knowledge of Mothers according to Occupation.

n = 50

Test	Demographic variables	< Avg.		Avg.		> Avg.		χ^2 value	df	Sig.
		N	%	N	%	N	%			
Pre	Occupation							6.252	4	0.181 NS
	Employee	01	14.3	03	42.9	03	42.9			
	Unemployed	09	23.1	25	64.1	05	12.8			
	Self employee	-	-	02	50	02	50			
Post	Occupation							0.065	2	0.968 NS
	Employee	-	-	02	28.6	05	71.4			
	Unemployed	-	-	12	30.8	27	69.2			
	Self employee	-	-	01	2.5	03	75			

NS-Not Significant.

The above table shows that the obtained χ^2 value is 6.252, p= 0.181 (p< 0.05 level of significance) in pre-test, and in post-test χ^2 value is 0.065, p= 0.968 (p<0.05 level of significance). So there is no significant association between the level of knowledge and their occupation in both pre-test and post-test.

Association between Pre-test and Post-test knowledge of Mothers according to Dietary pattern.

n= 50

Test	Demographic variables	< Avg.		Avg.		> Avg.		χ^2	Df	Sig
		N	%	N	%	N	%			
Pre	Dietary pattern							1.389	2	0.499 NS
	Vegetarian	-	-	01	50	01	50			
	Nonvegetarians	10	20.8	29	60.4	09	18.8			
Post	Dietary pattern.							0.397	1	0.529 NS
	Vegetarian	-	-	01	50	01	50			
	Nonvegetarians	-	-	14	29.2	34	70.8			

NS- Not Significant.

The above table shows that the obtained χ^2 value is 1.389, p= 0.499, (p<0.05 level of significance) in pre-test, in post-test the χ^2 value is 0.397, p= 0.529 (p>0.05 level of significance). Hence there is no significant relationship between mother's knowledge level and their dietary pattern in both pre and post-test.

Association between Pre-test and Post-test knowledge of Mothers according to Type of family.

n = 50

Test	Demographic variables	< Avg.		Avg.		> Avg.		χ^2 value	df	Sig.
		N	%	N	%	N	%			
Pre	Type of family.							3.042	2	0.218 NS
	Nuclear	08	22.2	19	52.8	09	25			
	Joint	02	14.3	11	78.6	01	7.1			
Post	Type of family.							0.680	1	0.409 NS
	Nuclear	-	-	12	33.3	24	66.7			
	Joint	-	-	03	21.4	11	78.6			

NS-Not Significant

The above table shows that the obtained χ^2 value is 3.042, p= 0.218,(p<0.05 level of significance) in pre-test and in post-test obtained χ^2 value 0.680, p= 0.409 (p<0.05 level of significance). Hence there was no association between the knowledge and type of the family.

Association between Pre-test and Post-test knowledge of Mothers according to No. of. Children in the Family. n = 50

Test	Demographic variables	< Avg.		Avg.		> Avg.		χ^2 value	Df	Sig.
		N	%	N	%	N	%			
Pre	No. of children in the family.							2.158	4	0.707 NS
	One	7	18.4	24	63.2	7	18.4			
	Two.	2	20	5	50	3	30			
	Three	1	50	1	50	-	-			
Post	No. of children in family.							1.103	2	0.576 NS
	One	-	-	10	26.3	28	73.7			
	Two	-	-	4	40	6	60			
	Three	-	-	1	50	1	50			

NS-Not Significant

The above table shows that the obtained χ^2 value 2.158, p= 0.707 (p<0.05 level of significance) in pre-test and in post-test χ^2 value is 1.103, p= 0.576 (p<0.05 level of significance).There was no significant association between the knowledge and no. of children in the family.

Association between Pre-test and Post-test knowledge of Mothers according to age of Child in Months. n = 50

Test	Demographic variables.	< Avg.		Avg.		> Avg.		χ^2 value	df	Sig.
		N	%	N	%	N	%			
Pre	Age of child in moths.							1.370	4	0.849 NS
	5-7 months	07	20.6	20	58.8	07	20.6			
	8-10 months	02	15.4	09	69.2	02	15.4			
	11-12 months	01	33.3	01	33.3	01	33.3			
Post	Age of child in months.							1.379	2	0.50NS
	5-7 months	-	-	11	32.4	23	67.6			
	8-10 months	-	-	04	30.8	09	69.2			
	11-12 months	-	-	-	-	03	100			

NS-Not Significant.

The above table shows that the obtained χ^2 value is1.370, p=0.849(p<0.05 level of significance) in pre-test and in post-test χ^2 value is 1.379, p=0.50 (p<0.05 level of significance). So there was no significant relationship between mother's knowledge level and their age of child in months.

Association between Pre-test and Post-test knowledge of Mothers according to Monthly Income. n = 50

Test	Demographic variables	< Avg.		Avg.		> Avg.		χ^2 value	df	Sig.
		No	%	No	%	No	%			
Pre	Monthly income							8.167	4	0.086 NS
	< 3,000/-	06	35.3	08	47.1	03	17.6			
	3,001/-5,000/-	03	12.5	18	75	03	12.5			
	>5,000/-	01	11.1	04	44.4	04	44.4			
Post	Monthly income							4.171	2	0.124 NS
	< 3,000/-	-	-	08	47.1	09	52.9			
	3,001/-5,000/-	-	-	06	25	18	75			
	>5,000/-	-	-	01	11.1	08	88.9			

NS-Not Significant.

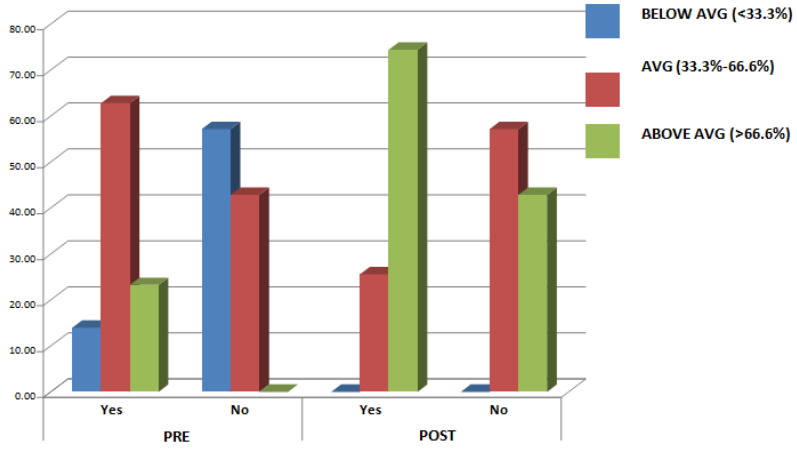
The above table shows that the obtained χ^2 value is 8.167, p=0.086 (p<0.05 level of significance) in pre-test and in post-test the χ^2 value is 4.171, p=0.124 (p<0.05 level of significance). So there is no significant relationship between mother's knowledge level and their family income per month in pre and post-test.

Association between Pre-test and Post-test knowledge of Mothers according to Prior Information.
n = 50.

Test	Demographic variables	< Avg.		Avg.		> Avg.		χ^2 value	df	Sig.
		N	%	N	%	N	%			
Pre	Information on weaning before							7.641	2	0.022 S
	Yes	6	14	27	62.8	10	23.3			
	No	4	57.1	03	42.9	-	-			
Post	Information on weaning before							2.856	1	0.091 NS
	Yes	-	-	11	25.6	30	74.4			
	No	-	-	04	57.1	03	42.9			

NS-Not Significant S=Significant.

The above table shows that the obtained χ^2 value is 7.641, p=0.022 (p<0.05 level of significance) in pre-test. So there is significant relationship between the mother's knowledge level and the prior information on weaning in pre-test. Where as in post test χ^2 value is 2.856, p=0.091(p<0.05 level of significance). Hence there is no significant relationship between the mother's knowledge level and the prior information on weaning in post-test.



Association between Pre-test and Post-test Knowledge of Mothers according to Prior Information.

The above figure shows, the mothers who know prior information on infant weaning in the pre-test have average knowledge 62.8%, where in post-test the same mother's knowledge improved to above average (74.4%).

Association between Pre-test and Post-test knowledge of Mothers according to Source of Information.
n= 50.

Test	Demographic variables	< Avg.		Avg.		> Avg.		χ^2 value	df	Sig.
		N	%	N	%	N	%			
Pre	Source of information.							11.839	10	0.296 NS
	Nil.	04	57.1	3	42.9	-	-			
	Experience	01	12.5	5	62.5	2	25			
	Parents, elders, siblings.	-	-	3	100	-	-			
	Mother in law.	01	33.3	2	66.7	-	-			
	Mother.	03	17.6	10	58.8	4	23.5			
	Television & news paper.	01	8.3	07	58.3	4	33.3			
Post	Source of information.							4.453	5	0.486 NS
	Nil.	-	-	04	57.1	3	42.9			
	Experience.	-	-	03	37.5	5	62.5			
	Parents/elders.	-	-	01	33.3	2	66.7			
	Mother in law.	-	-	-	-	3	100			
	Mother.	-	-	04	23.5	13	76.5			
	Television &News paper.	-	-	03	25	9	75			

NS-Not Significant

The above table shows that the obtained χ^2 value is 11.839, p=0.296(p<0.05 level of significance) in pre-test and in post-test the χ^2 value is 4.453, p=0.486(p<0.05 level of significance).So there is no significant relationship between the mother's knowledge level and the source of information.

VI. Findings, Conclusion Findings of The Study

The findings were shown that there was a significant difference in pre-test and post-test knowledge scores among mothers.

The mother's knowledge was significantly improved in all areas on weaning. The areas on weaning the areas were importance of weaning, in that there were 98% of the mothers told correctly regarding meaning of weaning. In the area of basic principles, there was 42% of mothers were answered correctly to the adding of new food during weaning in pre test, in contrast 68% were answered correctly in post test. It shows that there was little knowledge gain regarding adding of new foods to an infant. In the area of classification and introduction of weaning food items, there were 82% of mothers answered correctly for an adult food introduction to an infant in pre-test, where as in post-test the percentage of mothers were reduced to 60%. It shows that the mothers were unable to respond for that question after Planned Health Education. In the area of preparation of weaning foods there was 88% mothers were told regarding cleaning of vessels for food preparation in pre-test. In post-test 100% of mothers were responded correctly for that aspect. It shows the effectiveness of Planned Health Education after one week, the mothers were remembered and answered very well.

The obtained mean knowledge score in pre-test was 2 .08, in post-test was 3.66 out of total score 6. The mean score was only half i.e 3.10 and the gain in mean score in the post-test 4.52. The mean knowledge score in the pre-test is 2.60 out of seven total score and the gain in knowledge was only 50% in post-test i.e 3.76. It cautions that nurses should explain in detail about classification of food and introduction of weaning. The pre-test mean knowledge score was 2.70 and post-test mean knowledge score was 3.88 out of total 4. It is highest area of knowledge gain regarding weaning. The pre-test mean knowledge scores 2.14, post-test 3.34. It is the highest gained knowledge score area. Mother's responses range from 46 to 78%.

In the area of problems of weaning an average percent of (37%) mothers were answered correctly in pre-test, where as in post-test 60% of mothers were told correctly regarding problems of weaning.

The findings were indicated that the pre-test mean score was 12.40 and post-test mean score was 18.22. The obtained't' value was 9.83 ($p<0.01$ level of significance) there was significant difference in pre-test and post-test knowledge.

No significance was found between knowledge score in pre-test and post- test age, religion, education, type of family, no. of children in the family, age of infant in months, monthly income, before information on infant weaning and source of information. There was significance found between knowledge score in post-test dietary pattern, occupation among mothers of infants, where as same for in pre-test significance was not found.

VII. Conclusion

The following conclusions were drawn from the findings of the study.

- After the Planned Health Education there was a significant difference in the post-test knowledge scores which shows that exposure to planned health education would result in an increase in knowledge.
- Majority of the mothers have shown a lot of interest to learn about weaning of their infants.

The relationship between the mother's knowledge on weaning and demographic variables such as age, religion, education, occupation, family income/month, type of family, dietary pattern, no. of children, age of the child in months and previous exposure to information regarding weaning were computed by using chi square test.

The findings were shown that the Planned Health Education would improve the mother's knowledge on weaning of infants 5-12 months age. **Venter C, Pereira B. (2009)** conducted an associative study on "Factors associated with maternal dietary intake, feeding and weaning practices, and the development of food hypersensitivity in the infant. Maternal diet during pregnancy and breastfeeding, as well as infant feeding and weaning practices, may play a role in the development of sensitization to food and food hypersensitivity. The finding of the study stated that maternal dietary intake during pregnancy, and breast-feeding duration did not appear to influence the development of sensitization to food allergens or food hyper sensitivity. Weaning age may affect sensitization to foods and development of food hypersensitivity. A history of allergic disease has very little impact on maternal dietary, feeding, and weaning practices. [22]

Sule SS, Onayade AA. (2009) conducted an evaluative study the impact of nutritional education on knowledge, attitude and practices of mothers concerning infants and young children feeding and their children's nutritional status in two semi-urban communities of south-west Nigeria. This is a community intervention study. They were taken 150 mothers of children aged 0-18 months independently from the intervention and control communities through a multi-stage sampling technique. They collected data with the aid of an interviewer-administered questionnaire at baseline and at six months after intervention from both communities to obtain information on feeding of infants and young children. Before intervention, taken mothers and their children from the two communities were comparable in terms of all the parameters assessed. After six months of intervention, mothers who had nutritional education demonstrated better knowledge and attitudes to key infant and young children feeding recommendations. There was also limited improvement in feeding practices in this

study, nutritional education of mothers only had positive impact on their level of knowledge and practices on infant and young children feeding. [23]

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