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RESEARCH ARTICLE

EFFECTIVENESS OF COMMUNITY BASED NUTRITIONAL PROGRAMME (CBNP) ON PREVENTION OF STUNTED GROWTH AMONG CHILDREN IN TERMS OF KNOWLEDGE AND EXPRESSED PRACTICES OF MOTHERS IN SELECTED VILLAGES OF AMBALA DISTRICT.

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Abstract

Stunting, or being too short for one's age, can cause physical, mental distress. The aim of the study was to assess the effectiveness of CBNP in terms of knowledge and expressed practice of mothers. A Quasi experimental pretest posttest design was used. Forty mothers were selected using purposive sampling technique. Structured Knowledge Questionnaire was used to assess knowledge and structured expressed practices rating scale was used to assess expressed practices of mothers. The study showed that mean posttest knowledge (14.2) and expressed practice score was (59.5) was higher than mean pretest knowledge (7.16) and expressed score was (49.3) respectively. There was significant association of pretest knowledge score with socioeconomic status and "ever taken any food preparing advice" and for expressed practices score with mother's education, occupation at 0.05 level of significance. The study concluded that CBNP can be used for improving the knowledge and expressed practices of mothers on prevention of stunted growth among children.

Introduction:-

Childhood stunting is one of the most significant impediments, something that makes it difficult to progress to human development. Stunting, or being too short for one's age, is defined as "height for age" value less than two standard deviations of the World Health Organization (WHO) child growth standards median. [1]

Globally approximately 165 million children under the age of 5 years are affected with stunting. Annual Global Nutrition report 2017 says 38.4% of children under age 5 were affected by stunting. The prevalence of stunting is higher in South Asian region. According to UNICEF; India is at the 10th spot among countries with the highest number of underweight children, and at the 17th spot for the highest number of stunted children in the world. [2]

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Stunted growth is not caused by single factor. Various factors are responsible for stunted growth. These can be classifies as knowledge of mother regarding breastfeeding, complementary and supplementary feeding, deworming, inadequate care of child, low socioeconomic status, unhealthy household environment, and lack of utilization of health care services.[3]Nutrition-specific intervention would reduce stunting by about 20% . A combination of nutrition –specific and nutrition-sensitive intervention appears necessary in order to optimize reductions in stunting. [4]

A cluster randomized trial on effect of de-worming on malnourished children was done for 2 years in which 5 round of Tab. Albendazole was given to preschoolers. They reported that there was height gain and more weight gain in the children after administration of Tab Albendazole. [5]

A study was conducted in human nutrition unit of All India Institute of Medical Sciences, New Delhi. Severely malnourished children 26, weight for age 55.27±3.14, were identified in a colony of Muslim rural slum dwellers of low economic status. An equal number of normally nourished children matched for age , sex and per capita income were identified .A strong relation was found between nutritional status of the subjects and educational level of their mothers .It is concluded that maternal education and knowledge ,attitude ,practice are significantly and independently associated with children's nutritional status.[5]
Since mother's plays a prime role in providing nutrition. So they should have adequate knowledge of significance of protein and other nutrients in diet. So that mother can provide nutritious diet to their children which combat stunted growth.

Methodology:-

Quantitative research approach was adopted for the study and the design was "Quasi experimental: One group Pre-test Post-test Design. The independent variable was Community based nutritional programme on prevention of stunted growth and the dependent variable were knowledge and expressed practices of mothers regarding prevention of stunted growth .

Sampling Criteria: Following mothers were included in the study those:-

1. having under five children
2. willing to participate in the study.
3. able to speak and understand Hindi

A quasi experimental design was taken up and 40 mothers were selected by purposive sampling technique. Sample attrition was 3 The reliability coefficient for structured knowledge questionnaire and expressed practice rating scale were calculated by KR-20 and Cronbach alpha method and it was found to be 0.76 and 0.87 respectively.

Ethical approval was obtained from the ethical committee of Maharishi Markandeshwar (Deemed to be University) Mullana, Ambala to conduct the final study. Permission for pilot study was taken from the Surpanch of Suhana village, Ambala. Permission for final study was taken from the Surpanch of Simbla and Mullana village ,Ambala.Purpose of the study was explained to sample subjects before data collection.

Selected Variables was used to collect data and to assess previous knowledge and expressed practices regarding prevention of stunted growth by using structured knowledge questionnaire and structured expressed practice rating scale respectively. Pre test was taken on first day and post test was taken on 15th day. Structured Knowledge Questionnaire consisted of 20 multiple choice questions which are further categorized into four levels, very good (>75%), good (50-75%), average (25-50%), below average (≤25).

Structured Expressed Practice Rating Scale consisted of 26 questions. They are further categorized into three levels, inadequate practice (<50%) ,moderate practice (51-75%), adequate practice (>75%)

Development of tools

The tools were developed after reviewing the literature, seeking opinion from the experts. The content validity of the tools was established by 7 experts. Performa for selected variables consists of several items. Structured Knowledge Questionnaire to assess knowledge and expressed practices rating scale to assess expressed practices on prevention of stunted growth

The final data was collected from October to November 2018 using structured knowledge questionnaire and expressed practices rating scale. Formal approval was taken from Sarpanch of Simbla and Mullana village. Written consent was taken from the subjects. On day 1st, pre assessment of knowledge and expressed practices was done by structured knowledge questionnaire and expressed practices rating scale and CBNP was given to each group of mothers on 2nd and 3rd day. On day 2nd session-1of CBNP health education was given to each group of five mothers for 90 minutes. On day 3rd session-2 of CBNP Mix veg. Khichdi/Dalia was demonstrated to each group of five mothers for 90 minutes. On day 4th session-3 of CBNP Mix veg Pratha/ORS/Handwashing was demonstrated to each group of five mothers for 90 minutes . On day 5th session-4 of CBNP Nutritional Barfi, nutritional ladoo and Panjeri was demonstrated to each group of five mothers for 90 minutes. On the 15th day, post-test of knowledge and expressed practice on prevention of stunted growth was conducted.

Statistical Analysis

Data was analysed using Statistical Package for Social Sciences (SPSS) version 20. Data analysis was done by using descriptive statistics i.e. mean, standard deviation and inferential statistics such as t-test, ANOVA. Pearson ‟s correlation coefficient was used to check the relationship between the variable. Level of significance for the present study was $p \leq 0.05$.

Result:-

Section I: Selected Variables

Level of significance Frequency and percentage distribution of mothers showed that out of 37 mothers , Out of 37 mothers, more than half of mothers 59.5% were in the age group of 26-30 years. 100% mothers belonged to Hindu religion. Less than half 45.9% were in category III and IV of socio economic status. Most of them51.4% had completed secondary education .Majority 81.1% mothers were housewife. Most of them 89.2% ,97.3% mothers were living in pucca houses and own houses respectively. More than half 54.1% mothers monthly expenditure on food was > 30% of total income. More than half 70.3% mothers were vegetarian. 85.7% mothers had taken food preparing advice. Most of them 33.3% had taken advice from mother in law. 100% mothers heard about prevention of stunted growth and Most of them 40.5% had source of information from neighborhood.

Frequency and percentage distribution of child according to selected variables. Out of 42 children, Less than half of children 42.9% were in the age group of 2-3 years. Majority 47.6% of children were in 1st birth order. More than half 52.4% were girl. Less than half 40.5% children had attended play school education. Majority 83.3% ,90.5 children were not in the risk of stunted according to weight for age and height for age. Majority85.7% children had breastfeed exclusively for 6 months. All children had taken supplementary food at 6 month of age. Majority 90.5% children were immunized. Majority 95.2% children had taken deworming tablets. Most of 78.6% children were suffered from diarrheal disease during the last 7 days. Out of 21.4% children,14.3%were treated by home remedies and 21.4% children were recovered with in less than 7 day. Half of the children 50% were suffered from any other infection in the last 7 days. Out of 50% children 23.9% were suffering from respiratory infection.

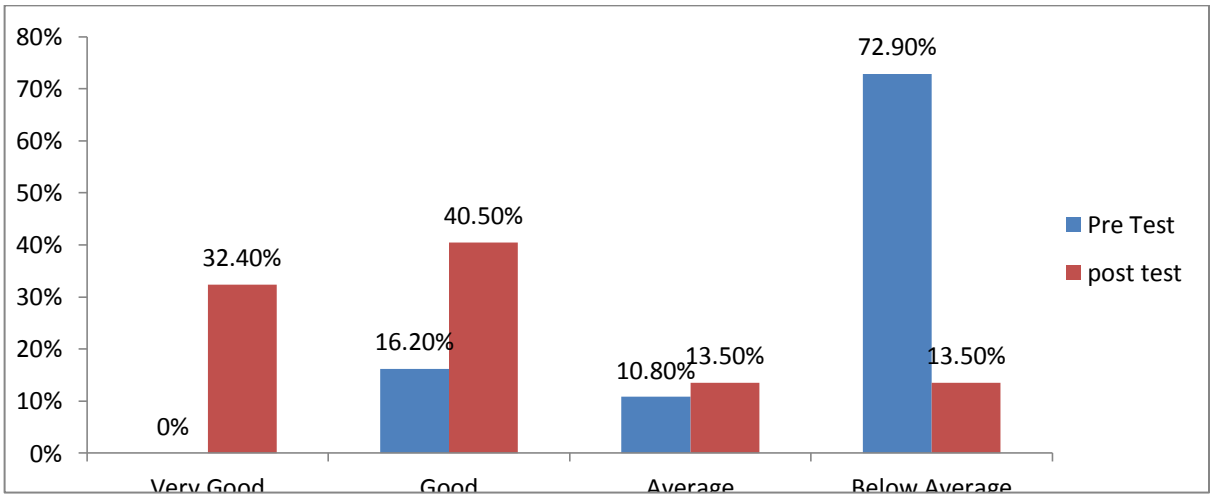

Figure 1:-Bar graph showing mean pre-test and post-test knowledge score of mothers in terms of level of knowledge on prevention of stunted growth among children

Figure 1 shows the frequency and percentage distribution of mothers in terms of level of knowledge. In pre-test of structured knowledge questionnaire most of the mothers 72.9% had below average, 10.8% had average knowledge and only 16.2% had good knowledge whereas in post-test nearly one third 32.4% of mothers had very good knowledge, less than half 40.5% of mothers had good knowledge ,only 13.5% of them had average knowledge and below average knowledge on prevention of stunted growth among children

Table 1:-Range, Mean, Standard Deviation and Median of Pre-Test and Post-Test Knowledge Score of mothers on prevention of stunted growth among children.

N=37

Knowledge Test	Range	Mean ± S.D.	Median
Pre-Test	1-15	7.16±4.34	6.00
Post-Test	6-19	14.24±3.23	15.00

Minimum Score=0 **Maximum Score=20**

Table 1 shows that mean post test knowledge score (14.24+3.2) was higher than mean pre-test knowledge score (7.16+ 4.34). The median for post test was15.0 and for pre test was 6.0 These findings showed that mothers developed good knowledge on prevention of stunted growth after the CBNP.

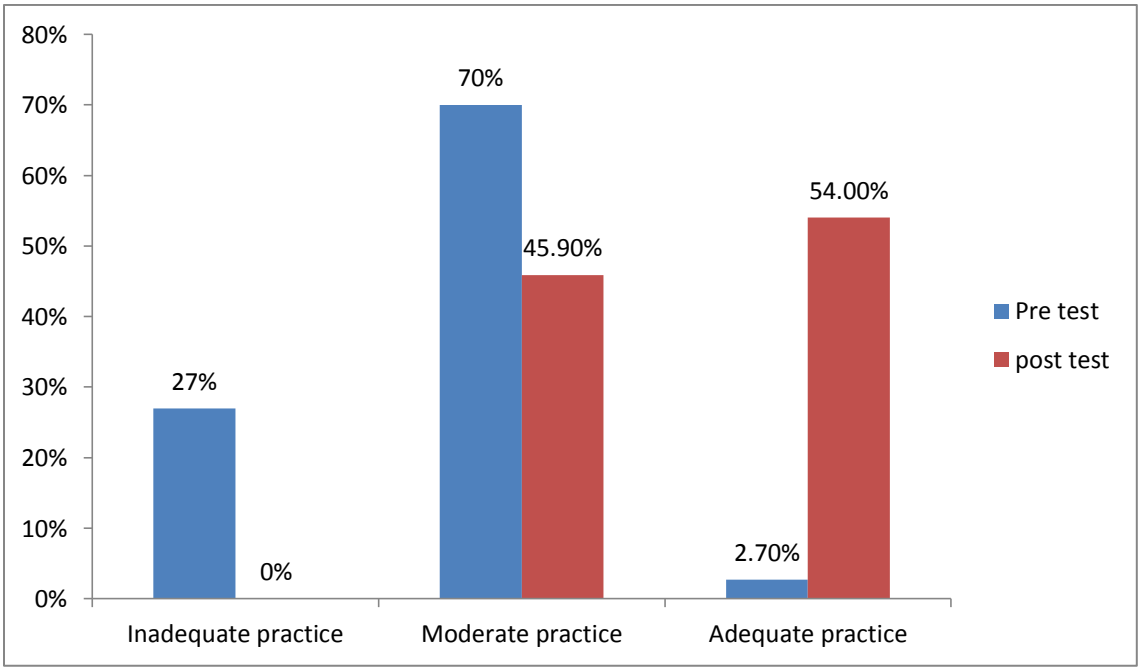

Figure 2:-Bar graph showing mean pre-test and post-test of mothers in terms of level of expressed practice on prevention of stunted growth among children

Figure 2 shows the overall frequency and percentage distribution of mothers in terms of level of expressed practice. In pre-test of most of mothers 70.0% had moderate practice, only 2.7% had adequate practices. Whereas in post-test more than half of mothers 54.0% had adequate practice, less than half 45.9% had moderate practices. .

Table 2:-Range, Mean, Standard Deviation and Median of Pre-Test and Post-Test Expressed Practice Score of Mothers on Prevention of Stunted growth among children.

N=37

Practice Test	Range	Mean ± S.D.	Median
Pre-Test	53-58	49.30+ 1.15	51.00
Post-Test	57-64	59.57+ 0.51	60.00

Minimum Score = 26 **Maximum Score = 78**

Table 2 shows that mean post test expressed practice score (59.57+ 0.51) was higher than mean pre-test practice score (49.30+ 1.15). The median for post test was 60.0 and for pre test was 51.0. These findings show that mothers improved in there practices as expressed by them.

Table 3:-Correlation between Post-Test Knowledge and Expressed Practice Scores of Mothers on Prevention of Stunted growth among children.

Pre-Test	**Expressed Practice score r (p value)**	**Knowledge score**
Knowledge score	0.70 (0.00*)	-

df- 36, r(36)=0.32 ***Significance (p<0.05)**

Table 3.1 depicts the correlation between knowledge and expressed practice score of mothers. It shows that 'r' value 0.32 which was found to be statistically significant between pre -test knowledge and expressed practice score. It shows there was highly positive co-relation between knowledge and expressed practice scores.

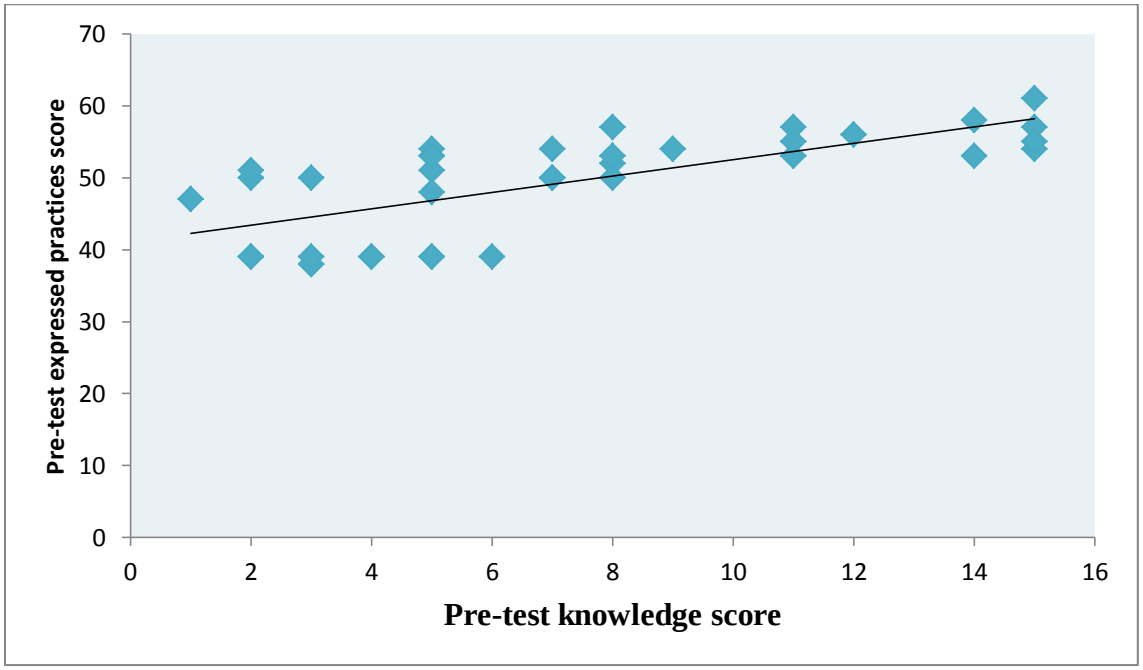

Figure 3:-Scatter diagram showing Correlation between Pre -Test knowledge and expressed practice scores of mothers on prevention of stunted growth among children.

Table 3:-Correlation between Post-Test Knowledge and Expressed Practice Scores of Mothers on Prevention of Stunted growth among children.

N=35

Post-Test	**Expressed Practice score r (p value)**	**Knowledge score**
Knowledge score	0.72 (0.00*)	-

df- 36, r(36)=0.32 ***Significance (p<0.05)**

Table 3 depicts the correlation between knowledge and expressed practice score of mothers. It shows that 'r' value 0.32 which was found to be statistically significant between post-test knowledge and expressed practice score. It shows there was highly positive co-relation between knowledge and expressed practice scores.

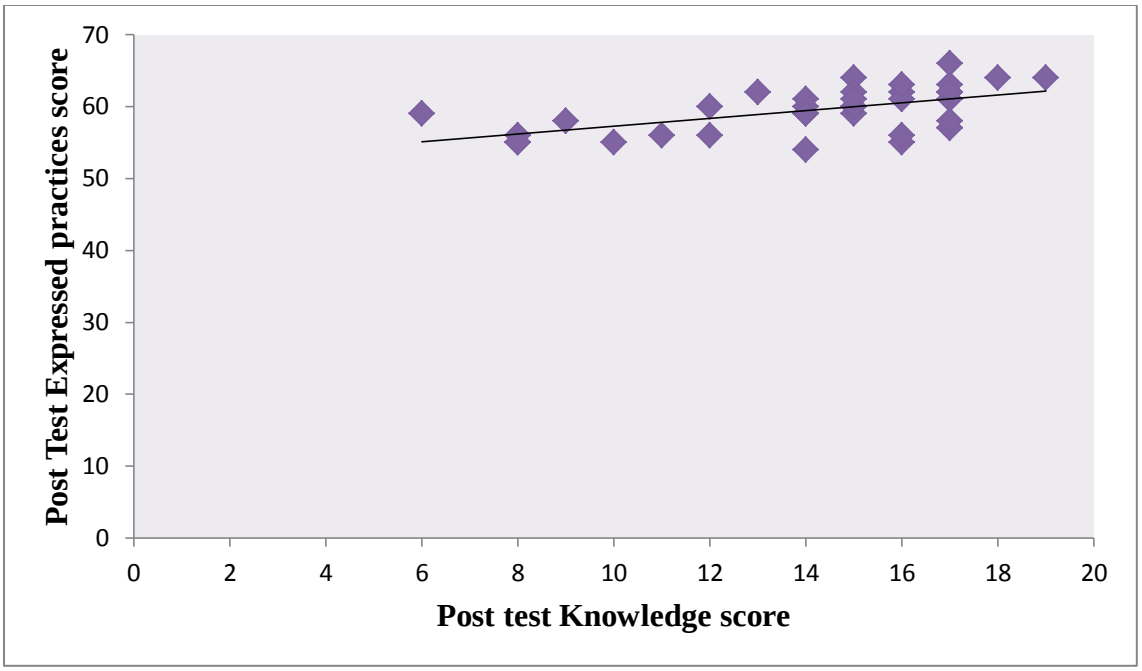

Figure 3:-Scatter diagram showing Correlation between Post-test knowledge and expressed practice scores of mothers on prevention of stunted growth among children.

Table 4:-ANOVA and t- Value Showing Association of Mean Pre-Test Knowledge Score of Mothers on Prevention of Stunted growth among Children With Selected Variables.

N=37

Selected variables	Mean	f/t	df	p value
1. Age				
1.1) 20-25 year	7.88	0.17	3/33	0.91^{NS}
1.2)26-30 year	6.91			
1.3)31-35 year	7.50			
1.4)36-40 year	5.00			
2.Type of family				
2.1) Joint	6.77	0.75	2/34	0.48^{NS}
2.2) Nuclear	6.78			
2.3) Extended	9.17			
3.Total Monthly Income of the Family				
3.1) Rs >126,360	-	4.67	3/33	0.00*
3.2) Rs 63,182-126,356	-			
3.3) Rs 47,266-63178	10.5			
3.4) Rs 31,591-47262	9.64			
3.5) Rs 18,953-31589	7.55			
3.6) Rs 6327-18949	4.23			
3.7) Rs ≤6323	-			
4.Socioeconomic status				
4.1)Category (I)	-			
4.2)Category (II)	11.00	6.177	3/33	0.00*
4.3)Category (III)	9.47			
4.4)Category (IV)	4.67			
4.5)Category (V)	3.00			
5.1) Non literate	3.00	2.28	3/32	0.08^{NS}
5.2) primary	5.00			

5.3) secondary	5.89			
5.4) graduate	10.14			
5.5) post graduate	9.14			
6.Mother's occupation				
6.1) House wife	5.93	5.58	4/32	0.00*
6.2) Public / Medical	14.00			
6.3) Private / Medical	14.50			
6.4) Public / Non –medical	15.00			
6.5) Private / Non – medical	9.67			
7.Type of house				
7.1) Pucca	7.24	0.31	35	0.87 NS
7.2) Kuccha	6.50			
8.Monthly expenditure on food				
8.1)Less than 10%				
8.2)10%-30% of total income	8.00	1.17	1/35	0.28 NS
8.3)> 30% of total income	6.45			
9.Dietary history				
9.1) Vegetarian	7.00	0.86	2/34	0.43 NS
9.2) Non-Vegetarian	6.29			
9.3) Eggetarian	9.75			
10.Have you ever taken any food preparing advice?				
10.1 Yes	7.52	1.43	35	0.02*
10.2 No	4.25			
If yes specify (N=36)				
10.1.1Mother in law	6.85			
10.1.2Sister	6.67			
10.1.3 Grandmother	12.50	1.96	5/30	0.10 NS
10.1.4Sister in law	2.00			
10.1.5Neighbour	15.00			
10.1.6Other	8.00			
If yes , source of information about stunted growth (N=41)				
11.1) Media	6.25			
11.2.)Health Personnel	6.33	1.27	4/36	0.29 NS
11.3)Newspaper	9.33			
11.4) Neighbour	6.23			
11.5)Any specific	3.00			

***Significant(p≤0.05)** **NS Not significant(p>0.05)**

Sample characterstics of child **N=42**

1.Age of the child				
1.1) 1-2 year	6.33			
1.2) 2-3 year	8.67			
1.3) 3-4 year	7.14	0.69	5/36	0.63 NS
1.4) 4-5 year	6.32			
2.Order of child				
2.2) 1	7.36			
2.2) 2	7.11	0.03	3/38	0.99 NS
2.3) 3	7.00			
2.4) 4	6.00			
3.Gender				
3.1Boy	6.59	7.35	35	0.28 NS
3.2Girl	7.65			

4.Education status				
4.1 Attending Aaganwadi	6.81			
4.2 Attending play school	6.38	1.07	2/39	0.35 NS
4.3 Not to any	9.13			
5.Weight for age				
5.1) Severe malnutrition=<-3SD	7.00			
5.2) Mild malnutrition=-3to-2SD	9.00	0.62	2/38	0.54 NS
5.3)Normal=-2 to +2SD	6..80			
5.4) obesity=>-2SD	-			
6.Height for age				
6.1)Normal= -2 to+2 SD	7.30			
6.2)Stunted = <-2SD	4.33	1.04	2/39	0.36 NS
6.3)Severe stunted=<-3SD	11.00			
7.Have you breast feed the baby exclusively for 6 months?				
7.1) Yes	6.97	0.50	35	0.99 NS
7.2) No	8.40			
8. Was the child immunized?				
8.1)Completely	7.11			
8.2) Partially	8.00	0.27	35	0.72 NS
9.Was you given deworming tablets to your child?				
9.1) Yes	8.00	-	-	-
9.2) No	7.14			
If yes when did you last deworm your child? (N=40)				
9.2.1) 1-3 month back	6.91			
9.2.2)4-6 month back	8..75			
9.2.3)7-9 month back	9.00	0.38	4/35	0.81 NS
9.2.4)10-12 month back	6.40			
9.2.5) Don't know	6.62			
10.Has the child suffered from diarrheal disease during the last 7 days?				
10.1 YES	6.4	0.56	35	0.98 NS
10.2 NO	7.3			
If yes ,how did you treat your child with diarrhea? (N=9)				
10.1.1) hospital	7.00	0.48	7	0.19 NS
10.1.2) home treatment	5.33			
11.Was the child suffered from any other illness in the last 7 days?				
11.1 YES	7.89	0.98	35	0.72 NS
11.2 NO	6.47			
12.1)If yes specify (N=21)				
12.1.1)Respiratory infection	6.91			
12.1.2)Gastrointestinal infection	7.14	1.41	7/29	0.23 NS
12.1.3)Fever	10.86			
Within how many days the child recovered ?(N=21)				
Less than seven day	7.58			
More than seven day	8.80	0.52	19	0.32 NS

Table 4. depicts the ANOVA/'t' value of age (0.91), type of family (0.48), occupation of the head of the family(0.06), education of the head of the family (0.19), mother's education (0.08) ,type of house (0.87) , monthly expenditure on food (0.28), dietary history (0.43%), have you ever taken any food preparing advice(0.10),source of information about prevention of stunted growth(0.29) ,age of the child (0.63),order of child(0.99),gender (0.28),education status(0.35),weight for age (0.54),height for age (0.36), have you breast feed the baby exclusively for 6 months(0.99),is the child immunized (0.72), have you given deworming tablets to your child (0.81), Has the child suffered from diarrheal disease during the last 7 days(0.98), has the child suffered from any other illness in the last 7 days (0.72), Within how many days the child recovered (0.32) were found to be non significant. Thus knowledge score of mothers were independent of selected variable whereas computed ANOVA value of total monthly income of the family (0.00*), socioeconomic status(0.00*), mother's occupation(0.00*), ever taken any food preparing advice(0.02*).was found to be statistically significant at 0.05 level of significance. It denotes the association with knowledge.

Table 4:-ANOVA and t- Value Showing Association of Level of Mean Post-Test Expressed Practice Score With Selected Variables.

N=37

Selected variables	Mean	f/t	df	p value
1.Age				
1.1) 20-25 year	52.25	1.31	2/36	0.28 ^{NS}
1.2)26-30 year	52.27			
1.3)31-35 year	54.83			
1.4)36-40 year	54.00			
3.Type of family				
3.1) Joint	52.45	0.29	2/34	0.74 ^{NS}
3.2) Nuclear	52.89			
3.3) Extended	53.50			
4.Total Monthly Income of the Family				
4.1) Rs >126,360	-	4.5	3/30	0.09 ^{NS}
4.2) Rs 63,182-126,356	-			
4.3) Rs 47,266-63178	51.5			
4.4) Rs 31,591-47262	54.73			
4.5) Rs 18,953-31589	53.18			
4.6) Rs 6327-18949	50.85			
4.7) Rs ≤6323	-			
5.Socioeconomic status				
5.1)Category (I)				
5.2)Category (II)	53.00	3.44	3/32	0.02*
5.3)Category (III)	54.24			
5.4)Category (IV)	51.24			
5.5)Category (V)	52.00			
6.Mother's education				
6.1) Non literate	-			
6.2) primary	50.00			
6.3) secondary	51.84	3.00	4/32	0.03*
6.4) graduate	54.00			
6.5) post graduate	55.14			
7.Mother's occupation				
7.1) House wife	52.07	4.61	4/32	0.005*
7.2) Public / Medical	58.00			
7.3) Private / Medical	53.5			
7.4) Public / Non medical	61.00			
7.5) Private / Non medical	54.33			
8.Type of house				

8.1) Pucca	52.94	1.23	35	0.22 ^{NS}
8.2) Kuccha	51.00			
9.Resident				
9.1) Owns	52.75	0.24	35	0.80 ^{NS}
9.2) Rented	52.00			
10.Monthly expenditure on food				
10.1)Less than 10%				
10.2)10%-30% of total income	53.18	0.69	1/34	0.41 ^{NS}
10.3)> 30% of total income	52.35			
11.Dietary history		1.1	2/34	0.21 ^{NS}
11.1) Vegetarian	52.65			
11.2) Non-Vegetarian	51.71			
11.3) Eggetarian	55.00			
12.Have you ever taken any food preparing advice?				
12.1 Yes	49.79	1.22	40	0.56 ^{NS}
12.2 No	45.25			
If yes specify (N=36)				
12.1.1Mother in law	49.31			
12.1.2Sister	48.67			
12.1.3 Grandmother	53.00	0.28	5/30	0.94 ^{NS}
12.1.4Sister in law	50.00			
12.1.5Neighbour	55.00			
12.1.6 Other	49.56			
13.If yes , source of information (N=41)				
13.1) Media	48.00			
13.2.)Health Personnel	48.67	1.81	4/36	0.15 ^{NS}
13.3)Newspaper	52.95			
13.4) Neighbour	47.77			
13.5)Any specific	38.00			

***Significant(p<0.05)** ^{NS} **Not significant**

Sample characterstics of child **N=42**

1.Age of the child				
1.1) 1-2 year	46.17			
1.2) 2-3 year	50.17			
1.3) 3-4 year	47.86	1.03	5/37	0.41 ^{NS}
1.4) 4-5 year	46.89			
2.Order of child				
2.2) 1	49.36			
2.2) 2	49.61	0.73	3/38	0.54 ^{NS}
2.3) 3	50.25			
2.4) 4	39.00			
3.Gender				
3.1Boy	49.0	0.18	40	0.45 ^{NS}
3.2Girl	49.50			
4.Education status				
4.1 Attending Aaganwadi	49.38			
4.2 Attending play school	46.77	2.24	2/39	0.12 ^{NS}
4.3 Not to any	53.25			
5.Weight for age				
5.1) Severe malnutrition=<-3SD	50.0			
5.2) Mild malnutrition=-3to-	49.67	0.01	3/38	0.98 ^{NS}

2SD				
5.3)Normal=-2 to +2SD	49.20			
5.4) obesity=>-2SD	-			
6.Height for age				
6.1)Normal= -2 to+2 SD	49.64			
6.2)Stunted = <-2SD	43.67	1.35	2/39	0.27 NS
6.3)Severe stunted=<-3SD	55.00			
7.Have you breast feed the baby exclusively for 6 months?				
7.1) Yes	48.66	1.42	40	0.007*
7.2) No	53.40			
8.Was the child immunized?				
8.1)Completely	49.03	0.97	40	0.06 NS
8.2) Partially	54.00			
9.Have you given deworming tablets to your child?				
9.1) Yes	53.00	0.52	40	0.60 NS
9.2) No	49.19			
10.If yes when did you last deworm your child? (N=40)				
10.2.1) 1-3 month back	50.73			
10.2.2)4-6 month back	51.00			
10.2.3)7-9 month back	55.00	1.69	4/35	0.17 NS
10.2.4) 10-12 month back	44.60			
10.2.5) Don't know	47.62			
11.Has the child suffered from diarrheal disease during the last 7 days?				
11.1 YES	50.78	0.72	40	0.08 NS
11.2 NO	48.28			
If yes ,how did you treat your child with diarrhea? (N=9)				
11.1.1) hospital	51.83	0.81	7	0.04*
11.1.2) home treatment	48.67			
12. Has the child suffered from any other illness in the last 7 days?				
12.1 YES	50.11	0.67	40	0.33 NS
12.2 NO	48.53			
If yes specify (N=21)				
12.1. 1) Respiratory infection	50.73			
12.1.2) Gastrointestinal infection	49.19	1.21	7/14	0.32 NS
12.1.3) Fever	52.60			
Within how many days the child recovered ?(N=21)				
12.1.1.1)Less than seven day	50.23			
12.1.1.2)More than seven day	49.80	0.12	19	0.16 NS

Table 4 depicts the ANOVA/'t' value of age (0.28), type of family (0.74), occupation of the head of the family (0.06), education of the head of the family (0.36), total monthly income of the family (0.09), type of house (0.22), resident (0.80), monthly expenditure on food (0.41), dietary history (0.21), have you ever taken any food preparing advice (0.56), source of information about stunted growth (0.15),age of the child (0.41),order of child(0.54),gender (0.45),education status(0.12),weight for age (0.98),height for age (0.27),is the child immunized (0.72), have you given deworming tablets to your child (0.60), Has the child suffered from diarrheal disease during the last 7 days(0.08), has the child suffered from any

other illness in the last 7 days (0.33), Within how many days the child recovered (0.16) were found to be non significant. Thus expressed practice score of mothers were independent of selected variable whereas computed ANOVA value of socioeconomic status(0.02*), mother's education(0.03*), mother's occupation(0.00*), have you breast feed the baby exclusively for 6 months(0.00*), how did you treat your child with diarrhea(0.04*)was found to be statistically significant at 0.05 level of significance. It denotes the association with expressed practice.

Discussion:-

In present study, More than half of mothers (59.5%) belong to age group of 26-30 year.These findings are partialy consistent with the study conducted by **Beniam Daniel** where they found that less than half (34%) belong to age group of 26-30 year. In the present study, None of the mothers had the very good knowledge regarding prevention of stunted growth and 72.9% had below average knowledge before the community based nutritional programme whereas 32.4% had very good knowledge while only 13.5% had below average knowledge regarding prevention of stunted growth after administration of community based nutritional programme.

Similar findings were reported in a study conducted by **M.edith** to evaluate the effectiveness of dietary practices to assess knowledge regarding prevention of malnutrition among under five children ,where the findings revealed that majority 56% of mothers had moderately adequate knowledge and 22% of mothers had adequate knowledge.
In the present study, pre test and post test knowledge mean score was 7.16 and 14.24 respectively which shows an increase in knowledge score of mothers after administration of CBNP. The findings of study consistent with a study conducted by **Almeneh K abeta Daba** et.al to assess the effectiveness of CMAM(community based management of acute malnutrition program) integrated with nutrition education of knowledge on infant and young child feeding (IYCF) among mothers, care given in Dilla Zuria South Ethiopia which showed that the mothers knowledge before CMAM was low with a mean score 5.39 and post test knowledge score increased to 7.8,which reveals the effectiveness of CMAM.

In the present study, the expressed practice of the mothers was assessed by structure expressed practice questionnaire which revealed that the expressed practice pre test and post test mean score was 49.30 and 59.57 respectively which was consistent with a study conducted by **Mastewal Erango Ersado** to assess the mothers practice on infant young child feeding showed that mothers practice before intervention was low with 8.27 and post test practice score increased to 9.66.

In the present study, the sample characteristics socioeconomic status was significantly associated with knowledge which was consistent with a study of **Mr. Eptihag Abdelrahman** et al. to assess the knowledge of mothers of under five children on Malnutrition and related factors in Kosti and tandalty hospital, White Nile state, Sudan. The findings of study showed that prevalence of under weight decreased significantly as family income increased and higher level of mothers education. The findings of study revealed that there was significant association between knowledge and selected demographic variables.

In present study, total children identified as Stunted were 3(7.1%) while severe stunted were 1(2.4%). These findings were inconsistent with the findings of **Pascale Vonaesch** where it was find that stunted children 51% (75/148) showed a moderate delay in linear growth for their age group while 49% (73/148) presented a severe delay.

Conclusion:-

The CBNP was effective in enhancing knowledge and expressed practices of mothers on prevention of stunted growth. There was significant relationship in the knowledge and expressed practices of mothers on prevention of stunted growth

Recommendations

1. A study can be replicated on a large sample of rural area of Haryana for wider generalizations of findings.
2. A study be carried out by using other strategies like structured teaching program etc.
3. A comparative study can be conducted to assess knowledge, attitudes and practices of mothers regarding prevention of stunted growth among rural and urban .
4. A study can be conducted on to assess attitude of mothers on prevention of stunted growth.
5. A longitudinal study can be conducted by using "Time series design" to find out the effectiveness of nutritional programme

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Conflict of Interest
The authors declare no conflict of interest.

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