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A Study to Assess the Effectiveness of Structured Teaching Programme on Knowledge Regarding Baby Bottle Syndrome among Mothers of Infants, in A Selected Primary Health Centre Bangalore

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Abstract: ***Introduction: Baby bottle syndrome has been a huge health problem since the past few decades and continues till today affecting in many ways the normal growth and development of the child and also the day to day activities of the child. Despite all recent advances and diagnostic techniques available, baby bottle syndrome is seen as a socially prevalent disease among the when as well as rural children in our country. The objectives of this study were to assess the level of knowledge regarding baby bottle syndrome among mothers of infants, to evaluate the effectiveness of structured teaching programmes on knowledge regarding prevention of baby bottle syndrome among mothers of infants, to find out the relationship between posts test knowledge scores and selected demographic variables. Conceptual framework: The modified conceptual framework of the present study is based on Health belief model theory. In the present study evaluative approach was selected, one group pre-test and post-test design was adopted. The structured interview schedule on baby bottle syndrome among mothers of infants was developed to collect the data. Purposive sampling technique was adopted; the data collected was analysed and interpreted based on descriptive and inferential statistics. Result: The overall mean knowledge scores in the pre-test were 10.47 (41.88%) with standard deviation of 3.218. The overall mean knowledge scores in the post test were 16.98 (67.92%) with standard deviation of 2.902. The obtained value 22.275 was greater than the table value 2.014 found to be highly significant at the level of p<0.05, from it is evident that the planned program was effective in enhancing the knowledge of baby bottle syndrome among mothers of infants. The present study attempted to assess the effectiveness of structured teaching programmes on knowledge regarding the baby bottle syndrome among mothers of infants, and concluded that there was a significant improvement in the knowledge after structured teaching programs. Thus, structured teaching programs are effective in improving the knowledge of the mothers of infants.***

Keywords: Baby bottle syndrome, standard deviation, demographic variables.

1. Introduction

God created the earth and this is the only planet, where one can experience faith, touch, affection, emotion, caring relationship, sacrifice, endurance and dedication. Earth is the only planet where one can find the mother and all the above mentioned aspects are inculcated and hence the life survived on earth. A woman becomes a mother when she gives birth to a child who is most precious to her and she wholeheartedly shares all the inculcated qualities for holistic development of the child. Breastfeeding is known to be the best way to feed infants by providing the psychological and health benefit to both the mother and child. It is therefore considered physiologically, biochemically, immunologically and psychologically suited for this. However, there has been a general decline in the practice of breast feeding both in terms of prevalence and duration in the past few decades[1]

Experts from the American Academy of Pediatrics agree with the U.S. Department of Health and Human Services Healthy People 2025 goals for the nation, recommending exclusive breastfeeding for six months and continued breastfeeding for the first year of life and as long afterwards as mutually desired by mother and child. Breastfeeding duration has been linked to numerous positive health outcomes for both child and mother. Yet some dental health experts have stated that early weaning is recommended to promote oral health, while other dental experts recommend continued breastfeeding.[2]

A study was conducted in Ludhiana among 609 children of 3-6 yrs age group to determine the prevalence and to examine the relationship between age and caries experience by 105 caregivers showed that 52.87% children of 3-4 yrs, 45.1% children of 4-6yrs and 58.55% children of 5-6yrs age group are suffered from caries. It was concluded that this study can be used for screening child populations in need of treatment, helping public workers and planners to develop dental health programs to aid early intervention and prevention [13] . A study was conducted to assess the Effectiveness on oral health of a long-term health education programme for mothers with young children showed that prevention of baby bottle syndrome might be achieved by education of prospective and new parents on good oral hygiene and dietary practices, by agents such as fluoride, and by use of non-cariogenic sweeteners.[3]

A study conducted in Native Americans to find out the prevalence of baby bottle tooth decay among children in head start centers showed that the overall prevalence was 70%, 87% displayed the most severe manifestation of the disease. The study concluded that further study is needed to identify the factors contributing to the difference in prevalence and to identify effective measures for reducing the occurrence of baby bottle tooth decay.[4]

A cross sectional survey of 1006 children aged 1-6 years was carried out in Italy. In addition a comparison was made for the prevalence of BBS between immigrant native born children. The results showed that the prevalence of BBS in <36 men (17.2%) at 3 years (13.2%) at 4 years (18.95%) at 5 years

(26.75%). They concluded that BBS prevalence is increased with age and it was 3 times more frequent in immigrant children than in native born.[22] A study was conducted in Kuwait to identify the severity of BBs and its feeding patterns. A classification scale with different scores was constructed to classify the samples. 86 cases were reviewed for classification. The findings showed a strong relation between disease severity and degree of feeding abuse. The study concluded that education programmes are necessary to educate mothers to develop good feeding practices.[5]

A study was conducted to investigate the effects of early childhood caries (BBS) on children's oral health-related quality of life (QOL) in the USA among sixty-nine children diagnosed with BBS. The parents/guardians responded to face-to-face administered surveys before a dental treatment was started. The results showed that children with BBS have significantly lower oral health-related QOL than children without BBS as assessed both by the children and the parents/guardians at baseline. The children with BBS who received dental treatment had a significantly improved oral health-related QOL at the follow-up assessment when compared with their baseline measurement as measured both with the children's self-ratings of oral health-related QOL and the parents/guardians' perception of their child's oral health-related QOL.. The study concluded that BBS and its treatment affect children's oral health-related QOL in a significant way.[6]

A study was conducted to assess the effectiveness of STP on minor disorders of pregnancy and it has management among antenatal mothers in the selected area, raichur among 40 samples selected by convenient sampling technique. The findings reveal that in pretest the majority of antenatal mothers had knowledge of 90%, 70% hall average knowledge, wherein post test 50% secured high knowledge and 205 scored average knowledge. This supports the structured teaching programme was effective method in improving knowledge on management of minor disorders.[7]

Objectives of the Study

1) To assess the level of knowledge regarding baby bottle syndrome among mothers of infants.
2) To evaluate the effectiveness of structured teaching programmes on knowledge regarding prevention of baby bottle syndrome among mothers of infants.
3) To find out the relationship between posts test knowledge scores and selected demographic variables.

Hypotheses:

H1: There will be significant gain in knowledge of mother on prevention of baby bottle syndrome after attending STP
H2: There will be significant association between selected demographic variables and the post test knowledge scores.

Assumptions

1) Mothers may have some knowledge on baby bottle syndrome.
2) STP may help in improving the knowledge on baby bottle syndrome.

Limitations

1) The study is limited to mothers of infants.
2) The study is limited to the knowledge aspect only.
3) The study is limited to Mothers of infants residing in Avalahalli area.
4) The study is limited to the period of 2 weeks.

Delimitations

Extraneous variables such as subjects' exposure to any other teaching program/ media regarding baby bottle tooth decay was not controlled in both pre test and post test groups.

2. Conceptual Framework

The Health Belief model is a health behavior change and psychological model developed by Rosenstock's in 1974. Originally, the model was designed to predict behavioral response to the treatment received by acutely or chronically ill patients, but in more recent years the model has been used to predict more general crackpot health behaviors.

The Health Belief Model

The health belief model, developed by researchers at the U.S. Public Health Service in the 1950s, the original model included these four constructs:

- **Perceived susceptibility:** It is the individual's assessment of their risk of getting BBS. Here, perceived susceptibility to baby bottle syndrome is the mother's level of knowledge regarding baby bottle syndrome and its effects on the health of a growing child.
- **Perceived seriousness:** It is an individual's assessment of the seriousness of the condition, and its potential consequences. Here, perceived seriousness of baby bottle syndrome is the mother's perception of the child's oral health and its complications due to baby bottle syndrome.
- **Perceived threat:** It is the danger imposed by not using baby bottles proper and not undertaking certain health actions recommended. Here, the perceived threat of baby bottle syndrome is resulting in complications like crowding permanent teeth, malocclusion, abscess, death of nerves etc.
- **Likelihood of taking action;** it is the likelihood of mothers taking preventive health action on the perceived benefits of the action of the mothers. Here the mothers perceived benefits by attending the STP on BBS.

3. Material and Methods

One group pre-test, post-test research design, which is a pre experimental design, was selected to assess the knowledge of mothers of infants on prevention of baby bottle syndrome. In this study the target population was the mothers of infants, Bangalore. The accessible population in the present study was the 60 mothers of infant's Bidar Halli PHC Bengaluru. The sample consisted of 60 mothers of infants.

The following criteria are used in the present study to select samples

Inclusion criteria:

- Mothers who have infants with breast feed or bottle feeding
- Mothers who can understand Kannada

Exclusion criteria:
- Mothers who are not willing to participate.
- Mothers with sickness

Description of the Tool
The tool used for data collection was a structured knowledge interview schedule. Structured interview consist of two parts

Section 1: Demographic variables
Demographic variables with 5 items on age, education, occupation, monthly income, and source of information on baby bottle syndrome respondents were instructed to select a most appropriate answer.

Section 2: Structured Knowledge interview schedule
Structured knowledge interview schedule consists of 25 items about prevention of baby bottle syndrome. The interview schedule was made under the following headings: General information regarding baby bottle syndrome (11items), etiology, signs and symptoms of baby bottle syndrome (8 items), prevention of baby bottle syndrome (6 items).

Description of the STP
The STP was titled as "Knowledge on prevention of baby bottle syndrome"
- Definition of baby bottle syndrome.
- Etiological factors of baby bottle syndrome
- Signs and symptoms of baby bottle syndrome.
- Prevention and complication of baby bottle syndrome of baby bottle syndrome.

Method of Data Collection:
Data collection is the procedure of gathering information needed to address a research problem.
1) A prior formal permission was obtained from the Medical officer of Bidharhali primary health Center.
2) Informed consent was obtained from the subject after explaining the purpose of study,
3) Samples were selected by using purposive sampling technique.
4) Pre test was done to assess the existing knowledge of baby bottle syndromes with help of a structured interview schedule.
5) The duration for the assessment of knowledge took 45 minutes.
6) On the same day STP was given to mothers of infants on knowledge regarding prevention of baby bottle syndrome by using instructional aid for 45 mts-1 hr duration.
7) On the completion of the 7th day post test was taken.
8) Proposed duration of data collection was 30 days.

4. Results

Section I
Demographic profile of mothers of infants

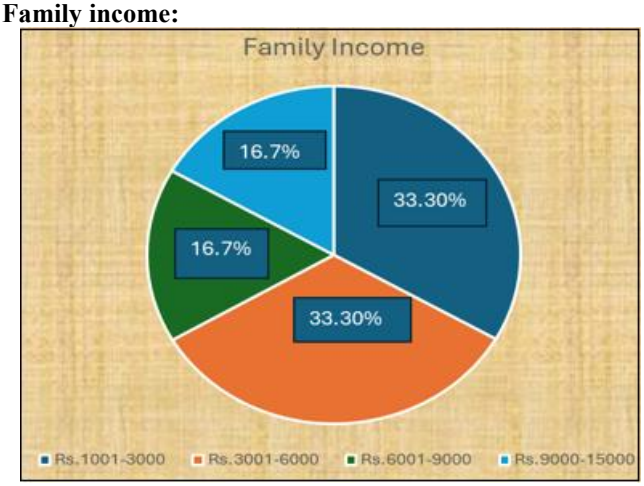
Table 1: Frequency and percentage distribution of mothers of infants by their age, N=60

1. Age of the mother	Frequency	Percentage
a. Below 20 years	14	23.3
b. 21-24 years	23	38.3
c. 25-30 years	17	28.3
d. Above 30 years	6	10
Total	60	100

The Table above indicates that the majority of subjects 38.3% belong to the age group of 21-24 years 28.3% belong to 25-30 years, 23.3% belong to below 20 years, and only 10% belong to above 30 years.

The Pie Chart below shows that 33.3% of subjects had family income between Rs. 1001-3000/month and 3001-6000, and 16.7% subject income was Rs 6001-9000/month and only 16.7% subjects income was below Rs 900-15000/.

Family income:



Percentage distribution of mothers of infants according to family income

Section II

Knowledge of Mothers of Infants Regarding Baby Bottle Syndrome in Pre Test and Post Test

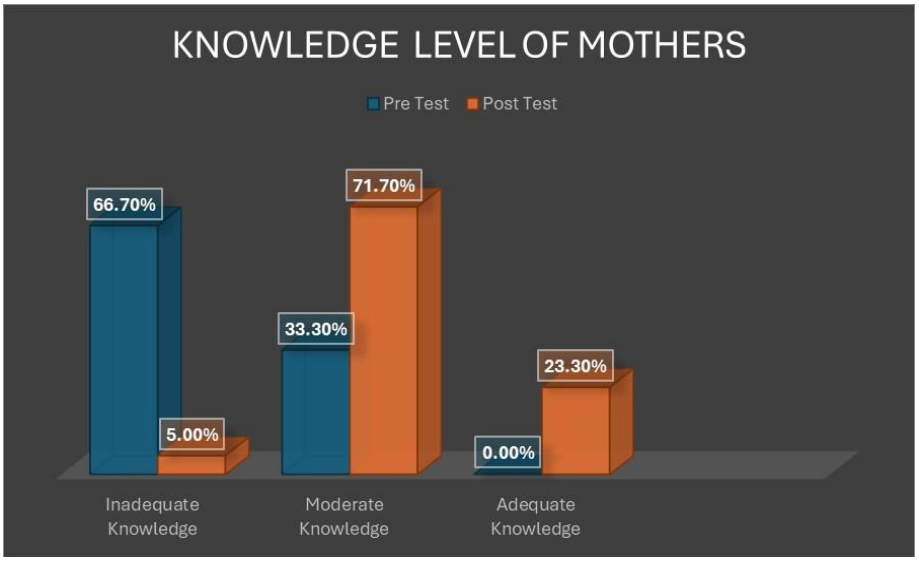


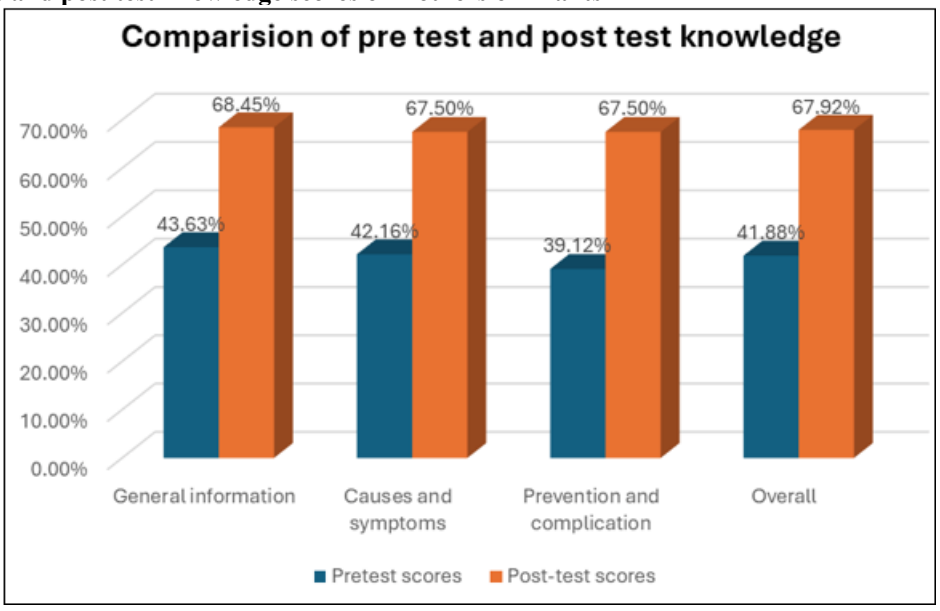
Figure showing Pre test and post test knowledge level of mothers of infants .

Mean, Mean percentage and standard deviation for the pre test knowledge of mothers of infants N=60

S No.	Knowledge aspects	No. of items	Max score	Mean	Mean%	Median	SD
1	General information	11	11	4,8	43,63	5	1.4
2	Causes, signs and symptoms	6	6	2.53	42.16	3	1.214
3’	Prevention and complication	8	8	3.13	39.12	3	1.25 5
	overall	25	25	10.47	41.88	10	3.218

The above table-6 shows that the maximum mean percentage obtained sample is found in the aspects of BBS in General information 43.63% followed by BBS causes, signs, and symptoms 42.16% and in prevention 39.12%. The overall knowledge obtained by the subjects is 41.88 with standard deviation of 3.218.

Comparison of pre and post test knowledge scores of mothers of infants



Comparison of pre and post test knowledge scores of mothers of infants

Section IV: Association of Post Test Knowledge Scores of Mothers of Infants with Selected Demographic Variables

Variables	Below Median	Median and above	Chi square	Df	P Value (0.05)	Inference
1. Age in years						
a) Below 20 years	8	6				
b) 21-24 years	2	21	19.315	3	7.82	S
c) 25-30 years	12	5				
d) Above 30 years	1	5				
2. Education						

a) Illiterate	8	1				
b) Primary education	12	15	17.109	3	7.82	S
c) Secondary education	1	11				
d) Graduate	2	10				
3. Occupation						
a) House wife	13	19				
b) Working women						
• 4 years	6	6	3.023	3	7.82	NS
• 8 years	3	5				
• 12 years	1	7				
4. Income						
a) Rs 1001-3000	11	9				
b) Rs3001-6000	12	8	18.754	3	7.82	S
c) Rs. 6001-9000	0	10				
d) Rs. 9.000-15000	0	10				
5. Source of information						
a) Mass media	5	6				
b) Health personnel	3	24	17.184	3	5.99	S
c) Family members	7	4				
d) Significant others	8	3				

NS; Non- significant S; Significant (0.05 level)

The table 9 shows x2 value computed between the knowledge level of baby bottle syndrome among mothers of infants and selected demographic variables. Variables such as age (x2 19.315), education (x2= 17.109), family income (x2-18.754), source of information (x2= 17.184), significant at 0.05 level. But occupation (22-3.023), was not significant. Therefore, the hypothesis H, is accepted i. e there is significant relation between knowledge scores and selected demographic variable

5. Discussion

The findings of the study are discussed under the following headings

Section-1 Demographic Variable of the Mothers Section:

a) **Age**: The distribution of the subjects by age revealed that the majority of the subjects 23(38.3%) between 21-24years of age group and 10% belong to above 30 years.
b) **Educational qualification**: The distribution of the subjects by education revealed that the majority of the subject 24/40.0%) were primary education, and only 9(15.0%) were illiterate.
c) **Type of occupation**: The distribution of the subjects by occupation revealed that the majority of the subject 28/46.7%) were housewives and only 4(6.7%) were working for 12 years.
d) **Family income/month**: The distribution of the subjects by family income revealed that the majority of the subjects 20(33.3%) had the income between Rs. 3001-6000 and 1001-3000 and 16.7% had income between 6001-9000 and 9000-15000.
e) **Sources of information**: The distribution of the subjects by sources of information revealed that the majority of the Subjects 27(45.0%) got information from Health personnel and 11 (18.3%) got formation from mass media, family members and significant others.

Section II: Knowledge of Mothers of Infants Regarding Baby Bottle Syndrome in Pretest and Post- test:
The present study reveals that the overall mean knowledge score is stained by the subjects 1. with standard deviation 3.218 in the pre-test and the overall mean knowledge score obtained by the subjects was 67.92 with standard deviation 2.0902 in the post test.

Section III: Comparison of pre test and post test knowledge section-III: regarding baby bottle syndrome among mothers of infants.
The present study reveals that the overall mean knowledge score obtained by the subjects was 41.88 in the pre- test whereas the overall mean knowledge score obtained by the subjects was 67.92 in the post test. The improvement means score in overall knowledge in the post test was 67.92 with the Value of 22.275 and found to be significant at the level of P<0.005. It evidenced that Joped STP was effective in improving the knowledge of mothers regarding baby bottle syndrome

Section IV: Association of the Pre Test Knowledge Scores of Mothers of Infants with the Selected Demographic Variables.
It was evident that there was statistically significant association between the knowledge score with some demographic variables like age, education, family income/month and sources of data at 0.05 level of significance. Hence the research hypothesis stated that there will be significant association between the post test levels of knowledge score with selected demographic variables is accepted.

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"Gratitude is the language of the heart"

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