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RESEARCH ARTICLE

HYGIENE AND SANITATION PRACTICES OF MOTHERS AND PREVALENCE OF DIARRHEA AMONG ≤ 2 YEARS OF CHILDREN IN A RESETTLEMENT COLONY

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Abstract

Diarrhea is the major health issue in developing countries with high morbidity and mortality rate among children below 2 years of age. Mother's hygiene behaviour is associated with occurrence of diarrhea in children as they are the primary care givers. We carried out a survey to assess the behavioural practices of mother regarding hygiene and sanitation and prevalence of diarrheal diseases in children below 2 years of age. Stratified systemic sampling technique was used to draw sampling frame. Based on the calculated sample size of 84, a total of 101 subjects were enrolled for the study. Data was collected in the month of July-Nov, 2014 by using interview schedule and observational checklist. 62 variables were used in the checklist to measure the behaviour score of mother's on hygiene and sanitation practices. The mean score of hygiene and sanitation practices of mother was 48 out of 62 and the range was 32-52. The diarrhea episodes in the past 3 months were considered for measuring the prevalence of diarrhea among children below 2 years of age. Mean no. of diarrheal episode occurred in children was 1 and the range was 1-3. The prevalence of diarrhea among children was 89%. It seems that the hygiene and sanitation practices of mother's are associated with occurrence of diarrhea among children.

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Introduction:-

Diarrhea remains a leading cause of mortality among young children in low and middle-income countries.¹ In 2010, 1.7 billion cases and 760,000 children deaths occur due to diarrhea among less than five years children in low and middle economic countries. Most children who die from diarrhea actually die from severe dehydration and fluid loss. Thus diarrheal diseases form the major killer in addition to diseases like ARI, Measles and other such infections.^{2,3}

A study was conducted to estimate the prevalence of rotavirus diarrhea among hospitalized children less than 5 years of age in Kerala State. The results shows that the prevalence of rotavirus diarrhea in infants less than 6 months of age was 24.7%; 6- 11 months 31.9%; 12- 23 months 41.9%; 24- 35 months 46.9%; and 33.3% in 36- 59 months of aged children.⁴

A study in Brazil reveals that mother's behaviour is significantly associated with diarrhea in children. There is significant association with maternal age ($p=0.018$), per capita income ($p=0.023$), type of housing ($p=0.032$), garbage disposal from the dwelling ($p=0.000$), origin of the water drunk by the children ($p=0.002$), type of sanitary

installation ($p=0.001$), type of drainage ($p=0.046$) and resources used by the mothers for personal hygiene ($p=0.002$).⁵

Behaviour practices of mother regarding hygiene and sanitation play a very important role in reduction of diarrhea in children like hand washing practices, food hygiene including breast feeding, safe drinking water, personal and child hygiene, sanitation and waste disposal. As mother contacts more with under 2 year children and the child is dependent on her so, there is a need to assess mothers behavioural impact on occurrence of diarrhea in children. Keeping in view all these aspects the researcher has felt the need to conduct the study on this aspect.

We decided to assess the practices of mothers related to hygiene and sanitation practices, to assess the occurrence of diarrhea in children below 2 years of age.

Materials And Methods:-

This was a study conducted from July to November, 2014 in DadduMajra Colony, Chandigarh. The sample was taken by stratified systemic sampling technique. The sample size was calculated by using formula $4pq/r^2$. A total of 101 subjects were enrolled for the study. Ethical approval was taken from the institute ethics committee. PGIMER, Chandigarh. Tools for behaviour change practices of mothers related to hygiene and sanitation were prepared and validated by experts. Pilot study was done on to check the feasibility of the study. It was found that it was feasible to implement the tool. Data was collected from subjects in the period of July to November, 2014. Behavioural practices of mothers related to hygiene and sanitation was observed and no. of episodes of diarrhea among children was recorded. Individual score was used for each item related to hygiene and sanitation. The collected data was analyzed by using the descriptive statistics.

Results:-

The children were between the age range of 1-21 months with mean age 10.72 ± 6.04 months. More than 40% of the children were in the age group of ≤ 8 months. Approximately 60% of the children were males. Most of the families were Hindu. About 50% of the subjects were from nuclear family and more than one-third family size ≤ 6 . The per capita income ranged from Rs.500-8000/-.

Hand washing practices of mothers:-

Most of the women (95%) under study were washing their hands before preparing food, before eating food, after contact with dirty surfaces, before feeding the child and after changing babies' nappy. Nearly 50% of mothers were using soap and water for washing hands while others were washing hands with water or sometimes soap and water.

Water and food hygiene related practices of mothers:-

(Table 1) Most of the mothers use tap water for drinking and cooking. Less than half of the mothers (48%) store water in bucket. Majority of them, 96% use cup/mug/jug/glass or bowl to take water from storage container. About 88% of mothers use towel or clean cloth to wipe hands in kitchen. For food hygiene majority of mothers 94% in tie or cover their hairs while working in kitchen while others give no attention to hairs. As the practice of tasting food was concerned approx. 56% of mothers use spoon to taste food and others use fingers/hand. Majority of mothers keep the food covered in experimental and control group. Approximately $1/3^{\text{rd}}$ of mothers, are giving bottle feed to the child. 3.9% of mothers were in practice of re-feeding the left over bottle milk to the child. Frequency of boiling the feeding bottle is concerned, 13.8% boil the bottle after every feed, while others boil it less than 4 times a day.

Table no. 1:- Water & Food hygiene related practices of mothers.

Water & Food hygiene practices	N=101 n(%)
Water used for drinking	
Tap water	73(72.2)
Boiled / Filtered water	30(29.7)
Water used for cooking	
Tap water	84(83.1)
Filtered water	17 (16.8)
Container for storing water	

Camper/ Bottles	53(52.4)
Bucket	48(47.5)
Utensil used to take water from storage container	n=48
A long handled utensil	6 (12.5)
Cup/mug/jug/glass/bowl	42(87.5)
Cloth used to wipe hands in kitchen	
Towel or clean cloth	89(88.1)
Dupatta/worn clothes	12(11.8)
Hairstyle while working in kitchen	
Ties/ Cover them with dupatta	93(92.0)
Gives no attention to hairs	8 (7.9)
Practices used to taste food	
Spoon	57(56.4)
Fingers /hand	44(43.5)
Method of keeping the cooked food	
Covered	98(97.0)
Uncovered	3 (2.9)
No. of child took food from outside in last week	6 (5.9)
No. of child given bottle feed	33(32.6)
Re- feeding left over bottle milk to the child	4(3.9)
Practice of keeping feeding bottle	
Covered with cap	28(27.7)
Uncovered	5 (4.9)
Frequency of boiling the feeding bottle	
After every feed	14 (13.8)
Less than three times a day	19 (18.8)

Home hygiene practices of mothers:-

The frequency of general home hygiene related practices of mothers showed that 46% & 55% of mothers broom and mop respectively the house twice a day. Majority of the mothers in experimental and control group clean their toilet/bathroom once a day. As dusting of doors and windows of rooms, kitchen, bathroom and toilet is concerned, near about 25% of mothers do dusting once a day and approx. 45% do it once a week. Majority of the mothers do dusting of furniture once in a day. Emptying of the dustbin once a day is practiced by 72% in control group while 22% and 11% empty it on alternate day. 87% of the mothers added disinfectant like phenol and HCl in water while mopping the floor and 91% of mothers added disinfectant in water while cleaning toilet/bathroom.

Practices of mothers regarding hygiene and sanitation Hand washing practices of mothers:-

Table no.2 shows the steps of hand washing performed by mothers. Results showed that 67% of mothers applied soap and 77% rub their hands together for 15-30 seconds. 100% of the mothers cover areas like palms and back side of hands and less than 1/3rd of the mothers cover areas like fingertips, thumbs and area under nails. 70% of the mothers use a clean cloth or towel to dry their hands.

Table no 2:- Hand washing practices of mothers.

S.no	Variables	N =101 n(%)
Hand washing observation		

1	Wet hands under running water	101(100.0)
2	Apply soap/sanitizer	68(67.3)
3	Rubs hands together for 15-30 seconds	78(77.2)
Areas covered during hand washing		
4	Palms	101(100.0)
5	Between fingers	68(67.3)
6	Fingertips	31(30.6)
7	Thumbs	15(14.8)
8	Backside of hands	101(100.0)
9	Under nails	21(20.7)
10	Wash hands under running water	101 (100.0)
11	Dried hands using a clean cloth or towel	71(70.2)

Table no.3 depicts the personal hygiene practices of mother and child. Approximately 90% of the mother and child appearance was neat and clean at the time of observation. 56% of the mothers had given bath to the child. 1/2 of the child's finger nails and 81% of the child's toe nails were clean and trimmed. Approximately 1/2 of the mothers had taken bath and combed their hairs at the time of observation. 56% of the mother's finger nails and 11% of the mother's toe nails were clean and trimmed during the observation time.

Table no.3:- Personal hygiene practices of mother and child.

S.no	Variables	N =101 n(%)
Personal hygiene		
1	Child's appearance neat and clean	91(90.0)
2	Bath given to child	57(56.4)
3	Child's clothes are clean	91(90.0)
4	Child's hair combed	72(71.2)
5	Child's hair without pediculosis	100(99.0)
6	Child's bottom is cleaned	93(92.0)
7	Child's finger nails clean and trimmed	55(54.4)
8	Child's toe nails clean and trimmed	82(81.1)
9	Mother's appearance neat and clean	90(89.1)
10	Brushing done (on enquiring)	100(99.0)
11	Bath taken (on enquiring)	55(54.4)
12	Mother's clothes are clean	84(83.1)
13	Hairs without pediculosis	100(99.0)
14	Hairs combed	56(55.4)
15	Finger nails clean and trimmed	57(56.4)
16	Toe nails clean and trimmed	12 (11.8)

Mean behavioural score of mother regarding hygiene and sanitation was 48 out of 62 with range from 32-52. Prevalence of diarrhea among children was 89%.

Discussion:-

A high rate of morbidity and mortality in children below 2 years is caused by diarrhea which is related to the behavioural practices of mothers regarding hygiene. Mothers are the primary care givers which come in contact with children. Children below 2 years of age are dependent on their mothers for accomplishing their basic needs. Many studies have reflected the association of mothers' practices like hand washing, food hygiene including breast feeding, safe drinking water, personal and child hygiene, sanitation and waste disposal in the prevention of diarrhea in children.

In a community setting, there are variations in the practices of the individuals as per their religion, caste, family background (rural and urban), income, occupation and educational status. Researcher observed the behavioural practices of mothers regarding hygiene which leads to frequent occurrence of episodes of diarrhea among children in her area of work i.e. DadduMajra Colony, Chandigarh. A total of 101 subjects were enrolled for study by using stratified systemic sampling technique.

A cross sectional survey in Nigeria investigated the occurrence of diarrhea among children under age five years, their mothers' knowledge about the management of diarrhea, and their practices, including care-seeking practices and the use of oral rehydration solutions (ORS). Mothers were interviewed and results showed that 33% and 37% of the children in Bodija and Gbagi markets, respectively, were reported to have had diarrhea and dehydration within the previous 3 months.

The results of the present study showed that the prevalence of diarrhea among children in the previous 3 months was 89% and mothers practices related to hygiene and sanitation mean score was 48/62 with range 32-52.

The nurses working in the community and other health workers such as ASHAs and Anganwadi workers should create awareness in the community regarding hygiene practices of mothers by the help of community leaders, NGOs and Local governing bodies to prevent the diarrhea among children

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