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RESEARCH ARTICLE

HOMEMAKERS FROM UPPER SOCIOECONOMIC JOINT FAMILIES HAVING EARLIER MALE CHILD WOULD BE THE BEST PREDICTORS FOR ADEQUATE KNOWLEDGE AND PRACTICE REGARDING MANAGEMENT OF ARI AND DIARRHOEA AMONG UNDER-FIVE CHILDREN IN URBAN SLUM, KOLKATA.

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Abstract

Background: India leads in under-five child mortality. ARI and diarrheal diseases happen to be the most important causes responsible. Children residing in slum area are at risk owing to the environmental factors. This study aimed to determine the level of knowledge, describe the practice regarding ARI and diarrhoea of under-five children among mothers and find out any association of the knowledge level with the various factors influencing it. **Methodology:** This cross-sectional study performed in the months of August and September, 2014 was conducted on mothers with at least one living under-five child, whose families were permanent residents of the area. A predesigned pretested semi-structured schedule was used, on the participants chosen based on cluster sample design. **Results:** Study was conducted on 101 mothers. Mean educational level was up to 5th grade. 81.2% of the last born-children of the participants were delivered in hospitals. Majority of the mothers were aware about the danger signs and majority also sought medical care. Good practices were observed, which was assessed on mothers of 9 children suffering from ARI, 22 having cough with illnesses and 30 with diarrheal diseases. Though significant associations were not documented but this study found out the odds of having high knowledge level were more in favour of mothers in joint families, home-makers, having an earlier male child, upper socio-economic status. **Conclusions:** Home-makers living in an upper socioeconomic joint family, having a male child earlier had a high knowledge level. Most of the mothers were aware about the danger signs but knowledge regarding fluid management was lacking, resulting in imperfect practice.

Background:-

India leads the world in deaths of children under-five, contributing 25 percent of the 6.9 million under five deaths occurring worldwide every year ("6.9 Million Reasons - 6.9 million child deaths (under-5s) in 2011", 2016),

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(Gottipati S., 2012). Acute Respiratory Infections and Diarrhoea are considered to be the major causes of mortality and morbidity in under-five in India and world-wide. India tops in global pneumonia deaths of under-five children with 3.97 lakhs reported in 2010 (PTI, 2012). On the other hand data from the Global Enteric Multicentre Study (GEMS) shows diarrhoeal disease, which is responsible for one in every ten deaths during the first five years of life worldwide, has the highest rate of incidence in India compared to other countries (Jha D.N., 2013). Most of these deaths are due to dehydration and mismanagement or delayed management of the disease. Most of the disease episodes can be treated at home by mothers. The slums owing to their environmental features report a steady proportion of these cases. Therefore knowledge, attitude regarding the mentioned diseases and practices as well, of the mothers of the under-five children living in a slum area even more important to note in order to decrease both mortality and the morbidity burden.

Our study was aimed to explore the knowledge, attitude and practice regarding acute respiratory infections and diarrhoea among mothers of under-five children and to find the association between the level of knowledge and various factors affecting it.

It is well established that knowledge of the primary care givers are very important to prevent morbidity and mortality due to these primary killer diseases in child hood. Several studies have been done to assess level of awareness of primary care givers in relation to these diseases. A study by Shah MS, Ahmad A et al. (2012) in Aligarh highlighted that the mothers' knowledge regarding to those diseases was not adequate. Another study done by Gupta N, Jain SK et al. (2007) in a Delhi slum concluded that though the care givers were aware about the danger signs of ARI but still correct practices of home based management e.g. use of ORS, continued feeding etc. were deficient. Almost a similar study performed by Khamgaonkar MB, Kulkarni AP et al. (1999) revealed the lack of awareness regarding home management of diarrhoea and symptoms of pneumonia in around half of the mothers in a community.

Methodology:-

A Cross-sectional study among mothers of under-five children was conducted in the month of August& September, 2014 in a densely populated urban slum, situated within the limits of Kolkata Municipal Corporation (KMC), West Bengal.

Mothers, who gave consent and whose family were permanent residents of the area, having at least one living under five child at the time of interview was included in the study with the exclusion of mothers who were absent during the day of data collection.

According to a previous study (Gupta N, Jain SK et al., 2007) awareness of at least two danger signs present, was known by 34% mothers, the sample size was calculated 98 by putting a design effect of 1.1 with allowable error 10% of prevalence with the help of a cluster design. The particular area was well communicated with the heart of the city. There were 9 passage-lanes across the area and houses were built on both sides of them. With cluster sampling design, houses on either side of each passage-lane was designated as a cluster. Now from each of these clusters we took $98/9 \approx 11$ number of houses and one mother from each house. Study participants were chosen beginning with the houses on the left side of a passage-lane starting from the first house and proceeding along the passage-lane and then the houses on the right side in a reverse order. In each of the 9 clusters consecutive houses having the mother of under five children (meeting the inclusion criteria) were taken until we have reached 11number of mothers in that particular cluster.

A predesigned pretested semi-structured survey schedule was prepared based on World Health Organization (WHO) CDD / ARI core household survey questionnaire (World Health Organization, 1994) and was used for data collection after obtaining ethical clearance from the Institutional Ethics Committee. The collected data was entered in Microsoft Excel 2007 version and subsequently analysed in Statistical Packages for Social Sciences (SPSS) version 20.

The participant mothers received certain scores as per their responses to the questions. These scores have been used to quantify knowledge and attitude. The participants who scored more than or equal to the mean score (for knowledge) have been categorized into higher knowledge group and the rest poor knowledge group. The different socio-demographic factors which might have influenced the knowledge were considered for tests of significance analysis keeping the level of knowledge as dependent variable.

Results and Discussion:-

The present study was conducted by interviewing 101 study participants using a predesigned pretested schedule. The mean age of mothers was found to be 28.07 years (SD 5.13 years). Mean age of marriage of the participants was 20.68 years (SD 3.48 years) which was comparable to national figure of 21.2years ("Population composition - Census of India"). Majority belonged to a nuclear family (64.4 %) which was consistent with the fact that study was done in urban slum. Mean age of last child was 26.9 months (SD 17.15 months). Majority (81.2%) of the last-born children were delivered in hospital. Improved awareness of the benefits of institutional delivery along with the facility of being near to a major Government Medical College and Hospital was probably responsible for the results. Mean education of the participating mothers was 5th standard with the range varying from illiterate to graduate. This might be the reflection of their poor economic background which compelled them to leave school early. 40/101 mothers (39.6%) were illiterate. The result was almost consistent with national literacy rate for females ("Literacy rate India", 2011). Majority of the mothers were home-makers (84.2%) with only 15.8% having any relative attached to a health-care. Majority of the people were from upper lower (46.5%) and upper middle (36.6%) socio-economic category with no one belonged to lowest category of the Modified Kuppuswamy scale. Majority of the mothers (77.2%) had only one under five children at the time of the study. *(TABLE 1)*

Of the 101 children in this study 22 children suffered from diarrhoea, 36 children with illnesses with cough within last two weeks immediately before study. This may be due to the seasonal variation as it was rainy season during the period of study.70 episodes of respiratory symptoms (36 episodes from illnesses with cough, 31 were from blocked/ runny nose and 3 from sore throat) and 9 episodes of fast breathing were complained by the mothers *(TABLE 2)*.Similar finding was documented in the study done by Gupta N, Jain SK et al. (2007) in a Delhi slum, which showed only 8 (4%) had fast breathing.

Out of the 9 episodes of fast breathing 4 mothers thought that illness was due to problem in chest. Mothers sought outside care in cases of 8 episodes. *(TABLE 3)*.39.6 % of mothers said that a child with cough should be taken for health care when fever developed, 21.8% said if the child did not get better and 16.8% said that if the child had develop fast breathing*(TABLE 4)*. Though majority of mothers were aware about the warning signs of ARI, however in a similar study performed by Khamgaonkar MB, Kulkarni AP et al. (1999) in an urban slum in Nanded city, found that 50.4% of the mothers did not know a single symptom of pneumonia. In the present study, among children with cough, 83.3 % of mother sought outside care, among which majority sought care from Government Hospital or Government Health Centre or private physician *(TABLES 3 & 4)*, determined a good practice. Almost similar findings was explored by Gupta N, Jain SK et al. (2007) in a Delhi slum that, 80% of mothers were aware about one or more danger signs of pneumonia and 80% of them had sought outside treatment.

In the present study, most of the respondent (32.7%) correctly said that they would take their child with diarrhoea to health care facility if they had many watery stools, which was followed by a response from 21% that suffering from fever along with diarrhoea was the need for shouting the help from a health care. Remarkably very few (6.9%) knew that outside care should seek when child stopped eating or drinking *(TABLE 5)*. In a similar study done by Shah MS, Ahmad A et al. (2012) in Aligarh showed, life-threatening symptoms which mothers knew as a reason for seeking medical help were watery stool (85%) and repeated vomiting (54%). Study in a Delhi slum (Gupta N, Jain SK et al., 2007) revealed awareness of at least two danger signs as a requirement for seeking outside help was present in 34% mother.

The present study found that 48.5% of mother correctly knew to give more fluids when their child had diarrhoea where as 51.4% mother said they would give less or same amount of fluid, which was wrong knowledge. On the contrary, 62.5% of mothers correctly said they would give their child more or same amount of food when they had diarrhoea. Out of the 22 children who had diarrhoea, outside care was sought (either Government Hospital or Government Health Centre or private physician) in majority cases (86.4%).*(TABLE 5)*.In a previous study done by Gupta N, Jain SK et al. (2007) depicted that nearly three-fourth of mothers (71.3%) had reported to seek medical advice when their children suffered from diarrhoea. On the contrary, another study done by Shah MS, Ahmad A et al. (2012) in Aligarh, found majority had visited nearby unsanctioned health practitioner for seeking the help from diarrhoea.

The incorrect knowledge of majority of mothers (51.4%) about fluid management was reflected upon their practice as during the diarrhoeal episodes, as majority of children (59.1%) drank less fluid which was an inappropriate practice. During the attacks of diarrhoea majority of mothers (81.8%) gave less food, although the majority (52.5%)

had correct knowledge to give more or same amount of food. *(TABLE 5)*.The Delhi slum based study (Gupta N, Jain SK et al., 2007) explored that in 50% cases feeding were continued during the diarrhoeal episode.

In the present study, 86.4 % children of those who had diarrhoea were managed by Oral Rehydration Salt (ORS) and Recommended Home-based Fluid (RHF) during diarrhoeal episodes. The home based fluid given was either salt-sugar solution or rice water or dal water, which was as per recommended guideline for home based management of diarrhoea by World Health Organization (2005).Almost all the ORS and RHF were advised by Government Hospital or Government Health Centre or private physician. 66.66% of the mothers prepared ORS properly. *(TABLE 5)*.Almost similar result was established previously (Gupta N, Jain SK et al., 2007), that ORS was used in 38.6% cases of childhood diarrhoea while home available fluids was used in 42% cases. According to Shah MS, Ahmad A et al. (2012), less than half (46.5%) of the mothers knew about ORS and only 29.8% of them knew the correct method of preparation with only 38.7% of the respondents knew about suitable fluids available at home. However, Khamgaonkar MB, Kulkarni AP et al. (1999) found 48.5% of the mothers were unaware of any method of rehydrating the child with diarrhoea at home level and only 36.2% mothers were aware about home available fluids for rehydrating the child.

Finally, the study looked for the association of different socio demographic factors with the level of knowledge. It was supposed that advance maternal age would influence the knowledge but there was no statistical significant association found between the two. Mothers of U-5 children belonged to joint families had 1.7 times higher knowledge than mother who belonged to nuclear families. This was probably due to the fact that, in the joint family there was higher scope to get the information from different peers as they stay in the same household. It was supposed that mothers who had more than one child should have higher knowledge due to the experience gathered from child rearing but there was no such statistical significant association found. Hospital delivery of mothers did not found to be an influencing factor in developing knowledge over the home deliveries. This revealed the fact that mothers were not getting adequate health education from the hospital after delivery or at the time of discharge or it might not had been reinforced from time to time. There was no statistical association found between higher education of mothers and the level of knowledge. It was assumed that working mothers would have higher knowledge than their home-maker counter-part as it would possible for the working mothers to get the information by virtue of their more exposure to external environment as well as work places, but statistically significant association was not established. In our study the odds ratio calculated were more in favour of mothers who were home-makers (OR 1.333). This may be a spurious association due to very less representation (15.8%) of working mothers in the study. Mothers of under-five children whose relatives were working in any health facilities, their level of knowledge was 1.15 times higher than the others. Mothers those had a previous male child, had 1.5 times higher knowledge than who had prior female child. Socio economic status also did not have any statistical significant association in acquiring knowledge though upper socio economic status had 1.2 times more knowledge than the lower socio economic group. *(TABLE 6)*

Table 1:- Distribution of Study Participants According To Socio-Demographic Variables *(N=101)*

Variable	Variable Category	Frequency (percentage)
Type of Family	*Nuclear*	65 (64.4%)
	Joint	36 (35.6%)
	Total	101 (100%)
Place of delivery of last child	*Hospital*	82 (81.2%)
	Home	12 (11.9%)
	Others	7 (6.9%)
	Total	101 (100%)
Occupation of the mother	*Housemaid*	4 (4.0%)
	Homemaker	85 (84.2%)
	Sewing	6 (5.8%)
	Shopkeeper	2 (2.0%)
	Teacher	3 (3.0%)
	Tea stall owner	1 (1.0%)
	Total	101 (100%)
Near relatives working in health-care facility	*Yes*	16 (15.8%)
	No	85 (84.2%)

	Total	101 (100%)
Socio-economic status (Modified Kuppuswamy scale)	*Upper*	5 (5.0%)
	Upper middle	37 (36.6%)
	Lower middle	12 (11.9%)
	Upper lower	47 (46.5%)
	Total	101 (100%)
Number of Under 5 Children in the family	*1*	78 (77.2%)
	2	19 (18.8%)
	3	4 (4.0%)
	Total	101 (100%)

Table 2:- Children with different symptoms in last two weeks including the day of interview (multiple responses). *(n=101)*

Symptoms	Frequency	Percentage
Loss of appetite	42	41.6
Illness with cough	36	35.6
Blocked or runny nose	31	30.7
Fever	26	25.7
Diarrhoea	22	21.8
Fast breathing	9	8.9
Ear pain	7	6.9
Eye problems	6	5.9
Sore throat	3	3

Table 3:- Knowledge, attitude and practice of mothers regarding Acute Respiratory Infections (ARI).

Variable	Response Category	Frequency
Mother's perception on location of the problem (n=9)	blocked nose	2
	chest problem	4
	both	3
	Total	9
Outside care sought or not (n=9)	Yes	8
	No	1
	Total	9
Places from where outside care was sought (n=8)	Government Hospital	4
	Government Health Centre	3
	Private Practitioner	1
	Total	8

Table 4:- Knowledge, attitude and practice of mothers regarding illnesses with cough.

Variable	Response Category	Frequency (Percentage)
When to seek outside care/advice (n=101)	Fast Breathing	12 (11.9%)
	Difficulty in Breathing	17 (16.8%)
	Not Getting better	22 (21.8%)
	Fever	40 (39.6%)
	Noisy Breathing	5 (5.0%)
	Not Eating/ Not Drinking	5 (5.0%)
	Total	101 (100.0%)
Outside care sought or not (n=36)	Yes	30 (83.3%)
	No	6 (16.7%)
	Total	36 (100.0%)
Healthcare facility from where advice sought (n=30)	Govt Hospital	9 (30.0%)
	Govt Health Centre	11 (36.6%)
	Private Practitioner	5 (16.6%)
	Quack practitioner	2 (6.6%)
	Pharmacy	3 (10.0%)

	Total	30 (100.0%)

Table 5:- Knowledge, attitude and practice of mothers regarding diarrhoeal diseases.

Variable	Response Category	Frequency (Percentage)
When to seek outside care/advice (n=101)	Many watery stools	33 (32.7%)
	Repeated Vomiting	7 (6.9%)
	Not getting better	15 (14.9%)
	Fever	21 (20.8%)
	Marked Thirst	8 (7.9%)
	Not Eating/Not Drinking	7 (6.9%)
	Blood in stool	10 (9.9%)
	Total	101 (100.0%)
Perception of mother on fluid requirement when a child has diarrhoea (n=101)	More	49 (48.5%)
	Same	26 (25.7%)
	Less	26 (25.7%)
	Total	101 (100.0%)
Perception of mother on food to be given when a child has diarrhoea (n=101)	More	35 (34.7%)
	Same	18 (17.8%)
	Less	48 (47.5%)
	Total	101 (100.0%)
Outside care sought or not among children who developed diarrhoea (n=22)	Yes	19 (86.4%)
	No	3 (13.6%)
	Total	22 (100.0%)
Health Facility from where care was sought (n=19)	Government Hospital	7 (36.8%)
	Government Health Centre	8 (42.1%)
	Private Practitioner	4 (21.1%)
	Total	19 (100.0%)
Amount of fluid drank by the children who suffered from diarrhoea (n=22)	More	9 (40.9%)
	Less	13 (59.1%)
	Total	22 (100.0%)
Amount of food taken by the children who suffered from diarrhoea (n=22)	More	1 (4.6%)
	Same	3 (13.6%)
	Less	18 (81.8%)
	Total	22 (100.0%)
Number of times feeding of child with diarrhoea attempted (n=22)	≤4 times/day	8 (36.4%)
	>4 times/day	14 (63.6%)
	Total	22 (100.0%)
Type of fluid mainly drank during diarrhoeal episodes (n=22)	Oral Rehydration Solution (ORS)	15 (68.2%)
	Home Available Fluid	4 (18.2%)
	Water	3 (13.6%)
	Total	22 (100.0%)

Table 6:- Association between socio-demographic factors and level of knowledge. *(n=101)*

Name of the variables	Variable category	High knowledge score	Low knowledge score	Chi square value	'p' value	Odds ratio (OR)	95% CI of OR
Age of mother	*High*	35	14	0.398	0.528	0.750	0.307-1.835
	Low	40	12				
Type of family	*Joint*	29	7	1.161	0.281	1.711	0.640-4.575
	Nuclear	46	19				
Place of delivery of last child	*Hospital*	61	21	0.004	0.949	1.037	0.333-3.228
	Others	14	5				

Family planning practice	*Yes*	10	5	0.531	0.466	0.646	0.198-2.105
	No	65	21				
Education of mother	*High*	52	18	0.000	0.992	1.005	0.382-2.642
	Low	23	8				
Occupation of mother	*Home Maker*	66	22	0.197	0.657	1.333	0.373 – 4.761
	Employed	9	4				
Relative attached to health facility	*Yes*	13	4	0.052	0.819	1.153	0.340-3.913
	No	62	22				
Gender of last child	*Male*	40	11	0.939	0.333	1.558	0.633-3.836
	Female	35	15				
Socio-economic status	*Upper*[a]	41	13	0.169	0.681	1.206	0.494 – 2.946
	Lower [b]	34	13				

a: 'Upper' in this table includes all the population with Socio-Economic Status(As per Modified Kuppuswamy Scale) Upper, Upper-middle, Lower-middle.

b: 'Lower' signifies population with Upper-lower Socio-Economic Status (As per Modified Kuppuswamy Scale)

Conclusions:-

The study concluded with the facts that, though majority of the mothers were home-makers, belonged to upper-lower socio-economic category with an average educational qualification of 5th standard, yet most of them were aware about the danger signs of serious respiratory illness like pneumonia and diarrhoea and used to seek outside care from Government Hospital or Government Health Centre or private physician if required. It was also observed that, majority of mothers had lack of knowledge on home based fluid management during diarrhoea. The incorrect knowledge about fluid management was reflected upon their practice as during the attacks of diarrhoea majority of children drank less fluid. One third of study mothers prepared ORS wrongly. So, based on the findings continuous health education may be reinforced in future in that slum area and post health education evaluation of knowledge attitude and practice also can be compared.

Conflict of Interest: None.

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