Original Research Article

A study to identify knowledge, attitude and practices prevalent amongst the caregivers of children below five years presenting with acute diarrhoea in a tertiary care centre

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Received: 21 March 2020
Accepted: 22 April 2020

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ABSTRACT

Background: Diarrhoeal infections are the second leading cause of death worldwide in under-five children covering 9% of the total deaths. The objective of the study was to assess and compare mothers’ knowledge, attitude and practice regarding prevention and management of diarrhoea in children.

Methods: A cross-sectional hospital-based observational study was conducted in a tertiary centre amongst all 356 children between age group 2 months to 60 months admitted with acute watery diarrhea. A pre-tested questionnaire and face-to-face interviews with the mothers was used as a data collection tool.

Results: Most of the mothers 282 (79.2%) were 20-30-year-old, 51.4% were illiterate, 57.3% were unemployed and 27.2% were daily wage labourers. 44.6% people came from rural background and 78.9% belonged to lower socio-economic strata. 30.3% were exclusively breastfed and 69.7% were on top feeds. Animal milk was taken by 62.1%, 46.6% had dilution and 50.6% used bottles for feeding. 70.5% of mothers washed their hands at the time of feeding of their child. 93.8% mother covered food in their houses while only 26.7% of mothers gave freshly cooked food. Mother’s outlook on various aspects of diarrhoea was sought. Very few mothers considered poor sanitation (2.5%) and contaminated water (12.6%) as a source of diarrhea. Only 8.7% mothers knew about the role of ORS in diarrhoea and maximum (53.4%) considered that diarrhoea could not be avoided by any measure.

Conclusions: Mother’s knowledge regarding causes, management and prevention of diarrhoea needs to be upgraded to allow better utilisation of health resources by the families.

Keywords: Bottle feeding, Hand-washing, Illiteracy, Mother, ORS

INTRODUCTION

Globally, diarrhea is the second most common cause of mortality in children below five years of age and accounts for 15% of cause-specific proportional mortality.¹ ²

A sustainable solution to childhood diarrhoea must combine treatment with actions to eliminate diarrhoeal disease through prevention. It is estimated that 90% of this disease burden is the result of poor sanitation conditions and inadequate personal, household and community hygiene behaviours.³

Therefore, this study was done to identify the knowledge, attitude and practices prevalent amongst caregivers of children to understand environmental and behavioural risk factors and their interactions as a prerequisite for devising effective preventive approaches.
METHODS

This study was a hospital based cross-sectional study. It included all children in the age group of 2 months to 60 months admitted in Department Of Paediatrics of Kamla Nehru Hospital, Bhopal from January 2016 to December 2016 with chief complaints of loose stools (at least 3 episodes per day) in the last 7 days.

Exclusion criteria

Children of age less than 2 months or more than 60 months, diarrhea lasting for more than 7 days at the time of admission, episodes of loose stools less than 3 per day, patients being treated on OPD basis and those with non-consenting caregivers were excluded from the study.

Data collection technique

Face-to-face interviews using a pre-tested questionnaire were conducted after informed consent with mothers of children who were recruited into the study on the day of admission. If mothers were unavailable, father or the closest care-taker was interviewed.

Questions were asked regarding their outlook towards diarrhea in various fields. They were asked what they feel causes diarrhea, what can prevent diarrhea, what can cure diarrhea, technique of ORS preparation and other dos and don’ts once the child has diarrhea.

Data handling and data analysis

The data obtained was subjected to statistical analysis with the consult of a statistician. The data so obtained was compiled systematically. A master table was prepared and the total data was subdivided and distributed meaningfully and presented as individual tables along with graphs.

Statistical analysis was done using Statistical Package of Social Science (SPSS Version 20; Chicago Inc., USA). Data comparison was done by applying specific statistical tests to find out the statistical significance of the comparisons. Quantitative variables were compared using mean values and qualitative variables using proportions. Significance level was fixed at $p < 0.05$.

RESULTS

Demography of caregivers

Most of the mothers 282 (79.2%) were 20-30-year-old. Out of 356 cases of diarrhea, most of children’s mothers were Illiterate i.e. 183 (51.4%) and only 29 (8.1%) were graduate or post graduate. Most Fathers 214(60.1%) were daily wage labourers.

The study population belonged to lower socio-economic strata (78.9%) and 44.6% came from rural background.

Knowledge of care-givers

Table 1 reveals distribution of Cases of Diarrhea according to Water Source used for drinking purposes. Use of filtered water for drinking is seen in only 14.3% families whereas rest of the families are using unsafe and non-potable water.

Table 1: Source of drinking water used.

| Water Source            | Total N (%) |
|-------------------------|-------------|
| Filtered water          | 51 (14.3%)  |
| Tap water               | 133 (37.4%) |
| Well                    | 43 (12.1%)  |
| Tube well/Hand pump     | 101 (28.4%) |
| Pond/lake               | 28 (7.9%)   |
| Total                   | 356 (100.0%)|

Table 2: Distribution of cases of diarrhea according to sanitation.

| Sanitation    | Total N (%) |
|---------------|-------------|
| Home          | 140 (39.3%) |
| Community     | 121 (34.0%) |
| Open Field    | 95 (26.7%)  |

Table 2 reveals distribution of Cases of Diarrhea according to Sanitation. Open Field sanitation was seen in 140 (39.3%) followed by community sanitation i.e. in 121 (34.0%). 95 (26.7%) were using Open Field sanitation.

Table 3: Distribution of cases of diarrhea according to hygienic practices.

| Hygienic Practices     | Number | Percentage |
|-------------------------|--------|------------|
| Hand washing            |        |            |
| No                      | 105    | 29.5%      |
| Yes                     | 251    | 70.5%      |
| Covered food            |        |            |
| No                      | 22     | 6.2%       |
| Yes                     | 334    | 93.8%      |
| Freshly cooked food     |        |            |
| No                      | 261    | 73.3%      |
| Yes                     | 96     | 26.7%      |
| Washing utensils before use |    |            |
| No                      | 232    | 65.2%      |
| Yes                     | 124    | 34.8%      |

Table 3 reveals distribution of Cases of Diarrhea according to hygienic practices. Most of the mothers knew the importance of washing hands before feeding.
their children i.e. 251 (70.5%) whereas 93.8% mother covered food while storing them. However only 95 (26.7%) mothers prepared food fresh before serving and only 34.8% washed utensils before their use.

Table 4: Distribution of cases of diarrhea according to type of feed.

| Type of feed          | Total N (%) |
|-----------------------|-------------|
| Breast Feeding (EBF)  | 108 (30.3%) |
| Top Feeding           | 248 (69.7%) |
| Total                 | 356 (100.0%)|

Table 4 reveals distribution of cases of diarrhea according to type of feeds being given to the children. Out of 356, 30.3% cases were on breast feeding whereas 69.7% cases were on top feeds.

Table 5: Distribution of cases of diarrhea according to type of top feed.

| Top feeds            | Total N (%) |
|----------------------|-------------|
| Animal milk          | 221 (62.1%) |
| Formula feeds        | 27 (7.6%)   |
| Undiluted            | 82 (23.0%)  |
| Diluted              | 166 (46.6)  |
| Katori spoon feeding | 68 (19.1%)  |
| Bottle feeding       | 180 (50.6)  |

Table 6: Family outlook on causes of diarrhea.

| Causes of Diarrhea         | Number | Percentage |
|----------------------------|--------|------------|
| Contaminated food          | 24     | 6.7%       |
| Contaminated water         | 45     | 12.6%      |
| Poor sanitation            | 9      | 2.5%       |
| Poor nutrition             | 0      | 0%         |
| Seasonal effect            | 81     | 22.8%      |
| Some underlying disease    | 146    | 41.0%      |
| Unspecified                | 51     | 14.3%      |

Table 7: Family outlook on management of diarrhea.

| Management of diarrhea    | Number | Percentage |
|---------------------------|--------|------------|
| Stop feeding              | 0      | 0%         |
| Boiled water              | 6      | 1.7%       |
| Sugar-salt solution       | 18     | 5.1%       |
| ORS                       | 31     | 8.7%       |
| ORS with Zinc             | 0      | 0%         |
| Consult Asha/Anganwadi   | 9      | 2.5%       |
| Consult doctor            | 292    | 82.0%      |

Table 5 describes the division of different type of top feeds being given to the children by the parents.

Of 248 children who were on top feeds, 221 were on animal milk and 27 on formula feeds. Out of those on animal milk, 166 received diluted milk. 180 parents preferred using bottles for feeding whereas only 68 used katori-spoon method.

Table 6 reveals family outlook on causes of Diarrhea. Out of 356 parents, maximum 146 (41.0%) considered some underlying disease was the cause of diarrhea. Seasonal effect (22.8%) and contaminated water (12.6%) was the cause according to some families whereas poor sanitation was considered by only 2.5% parents. Poor nutrition was not considered significant by any family.

Table 7 reveals family outlook on Management of Diarrhea. Out of 356 parents, maximum 292 (82.0%) considered consulting a doctor primarily for treatment of diarrhea. 31 (8.7%) said ORS should be given and 18 (5.1%) told sugar salt solution should be given. No one considered stopping feeding. Out of the 31 families that considered ORS as a treatment, only 11 could prepare ORS correctly.

Table 8: Family outlook on prevention of diarrhea.

| Prevention of diarrhea    | Number | Percentage |
|----------------------------|--------|------------|
| Hand washing              | 57     | 16.0%      |
| Preparation of fresh meal | 38     | 10.7%      |
| Use of covering food      | 3      | 0.8%       |
| Boiled/Clean water        | 68     | 19.1%      |
| Can not be avoided        | 190    | 53.4%      |

Table 8 reveals family outlook on prevention of diarrhea. According to maximum 190 (53.4%) parents, diarrhea cannot be avoided while 68 (19.1%) parents considered that diarrhea can be prevented by use of boiled or clean water. 57 (16.0%) considered diarrhea can be prevented by hand washing and 38 (10.7%) told it can be prevented by preparation of fresh meal.

DISCUSSION

The term acute watery diarrhoea refers to diarrhoea characterized by abrupt onset of frequent, watery, loose stools without visible blood, lasting less than two weeks.45 Usually, acute watery diarrhoeal episodes subside within 72 hours of onset. The common causes of acute watery diarrhoea are viral, bacterial, and parasitic infections. First estimates of the global burden of childhood mortality and morbidity became available in the early 1980s. Diarrhoeal illnesses accounted for about 4.6 million deaths from around 1 billion episodes of diarrhoea every year in children younger than 5 years.1,2

A decade later, despite little change in incidence of diarrhoea, the number of deaths attributable to the disease fell to 3.3 million per year.

Mother’s knowledge and attitude have significant impact on the health of a child. The awareness amongst the mothers regarding health, disease and preventive services can be used to measure the progress of family,
community and the country. In our study, most of the mother’s i.e. 79.2% belonged to age group 20-30 years. 51.4% mothers were illiterate and 20.5% had primary schooling.

Most of them were housewives (57.3%) and 27.2% were daily wage labourers. Demographic status of father was also studied through our study. It revealed 74.2% fathers between the age group 20-30 years. 50.3% were illiterate and 60.1% were daily wage labourers.

The association between the age of the caretaker and disease rates may be explained through an increasing experience in childcare, improving hygiene and feeding practices with advanced age.6

Education is a vital tool in changing healthcare seeking behaviour and practice of the family. This knowledge is said to affect their behaviour, especially as it relates to child rearing practices and healthcare.5-13 The studies done by Tumwine JK et al had concluded education level of family head as a risk factor for diarrhea and also one done by Khaled Y et al had included father’s illiteracy as a risk factor for same.14,15

While extracting information regarding knowledge of the care-givers/family, specific questions were asked about causes of diarrhea, water source, sanitation, feeding habits, hygienic practices and immunisation. With respect to causes, most care-givers (41%) considered some underlying disease process as the cause of same while seasonal effect was considered by the next majority of people (22.8%). Causes such as poor sanitation, contaminated food and water were considered by only a few whereas myths such as tooth eruption leading to diarrhea remained higher. These results show the ignorance and lack of knowledge regarding the true cause of diarrhea amongst the society. This lack of knowledge ultimately reflects in the approach to management of a child with diarrhea at home wherein either the family runs around to hospitals for drugs or leave the child at home and do nothing in the initial phase of the disease. Similar results were shown by some other Indian study which had reported that just 15% and 6% mothers know that dirty water and dirty environment could cause diarrhoea.16 Studies from Asia and Africa had shown different results for community knowledge, attitudes and practices towards personal and environmental hygiene factors in relation to diarrhoeal illness in small children.17 Khalili et al in a study reported that 81% and 58% mothers acknowledge unsafe water and unclean hands respectively as cause of diarrhoeal illness.7 Also, Cabatbat in the study reported that 77%, 34% and 23% mothers acknowledge unsafe drinking water, failure to wash hands after defecating and handing faeces respectively as common reasons for illness.18 Choudhary P et al had similar observation about teething as cause of diarrhoea as of our study whereas other studies from India and Iran had reported this misconception in 64% and 48% mothers respectively.12,18,19 Gorter AC et al studied 46 ‘good’ practices out of which washing of hands, domestic cleanliness (kitchen, living room, and yard) and the use of diaper/underclothes by the child had the strongest protective effect.20 Results regarding various hygiene related practices amongst mothers were analysed. Hand washing was observed in 70.5% cases, covering of prepared food was practiced in 93.8% families whereas consumption of freshly cooked food was seen in 26.7% of the total cases.

Washing utensils before use was practiced by only 34.8% mothers. Various researchers have done meta-analysis on the effect of hand washing with soap and risk of diarrhea in community and concluded an inverse relationship of the same.21,22

This study showed that only 14.3% families used filtered water. Rest all used non-potable sources of drinking water such as taps, wells, tube wells, ponds and lakes. Incidence of diarrhea hence was more in these cases rather than families using filtered or boiled water for drinking. Source of water is important in measuring the magnitude of this problem, especially in rural setups. Role of clean water source was also stated in many studies worldwide.14,23-25 Sanitation factors were also studied in details in our study. In-house latrines were used by 39.3% families followed by community-based latrines (34%) and open field sanitation in 26.7%. Open field defecation is a source of contamination of soil and water of the community and promotes flies and other vectors of disease propagation.

Similar results were shown by other studies.12,20,26-29 Results concerning knowledge about sanitation measures becomes limited in this study due to the lower socio-economic strata dealt with in this part of the country. Even if the care-givers have knowledge about in-home and closed latrines, they do not have the resources or access to same. Improvement in this area can lead to decreased incidence of diarrheal diseases as a whole.

Of all the cases, 69.7% children were being fed with top milk. This was animal milk in 62.1% cases, dilution was done in 46.6% children and use of bottles was seen in 50.6% cases. The rates of breast feeding as found in this study were 30.3%. This was higher than that of Choudhary P et al in whom there was lack of awareness in population regarding exclusive breast feeding as a tool in prevention of diarrhea and its continuation during diarrheal illness.17 Low levels of awareness have also been reported in other studies.18

Immunization provides protection against various diseases especially measles. Post-measles diarrhea and pneumonia still remains a major complication and cause of death in children. Introduction of rotavirus vaccine has provided an opportunity to control infective diarrhea. Improving immunization coverage will lead to improved immunity and will reduce the burden of diarrheal diseases. However the awareness regarding complete
imunisation and availability of a specific vaccine for diarrhea still lacks in developing countries like ours. In this study also, only 36.0% children were completely immunized while 60.7% were partially immunized and 3.4% were not immunized. Similar results were observed by other researchers.\textsuperscript{22,30} Such high rates of partial immunisation indicate lack of awareness regarding importance of complete immunisation, not only for diarrhea but also for other deadly communicable diseases. In the study by Gollar and Avabratha, 65% of mother’s had not vaccinated their babies because of poor knowledge, higher costs and no government supply of vaccine. This creates a major loophole in the programme for control of vaccine preventable diseases and also diarrheal diseases as a whole.\textsuperscript{31}

Through this study, authors tried to assess family’s outlook on management of diarrhea. Since 82% families considered visiting a doctor rather than self-treating at home, it was evident that diarrhea was considered a serious problem by them. This finding is in accordance with that of study of Gollar and Avabratha.\textsuperscript{31} In the study by Choudhary P et al, medical attention was not sought immediately in the slums of Delhi.\textsuperscript{17} Knowledge regarding the type of diet to be followed at home during diarrheal episodes was poor in our study. However the myth about stooping feeds during diarrhea was not followed. In another study, 23.7% subjects had used dalia, khichdi, dal ka pani during diarrhea.\textsuperscript{32}

Use of ORS and home-made fluids was low in our study. This is in contrast with the study done by Choudhary P et al, where interviewed mothers had administered increased amount of fluids and ORS, attitude towards prime importance of ORS was relatively low and even proper preparation of ORS was lacking in substantial number of mothers. 76% mothers used ORS while only 42% mothers were knowing about correct technique of ORS preparation.\textsuperscript{33} In another study from Maharashtra, 89% mothers were aware of ORS and 70% knew how to prepare it.\textsuperscript{33} GR Mahar in his study from Bhopal found that only 40% of all the interviewed mothers knew correct methods of preparation of ORS.\textsuperscript{34} In most studies, health care providers were the most common source of information followed by mass media.\textsuperscript{17,35,36} Low usage and incorrect preparation of ORS in our study can be explained due to high illiteracy rates (51.4%), rural background (44.3%) and low socio-economic status (78.9%) found in our cohort.

**CONCLUSION**

Through our study, we conclude that awareness about complete immunisation of children as well as use of ORS and zinc is very low in the community. Although the seriousness of diarrhea is well understood amongst the care-givers yet their lack of knowledge prevent them from using the available resources effectively. Therefore, use of ORS, zinc, immunisation and hygienic practices must be promoted and further addressed via social health workers at peripheral level to improve the knowledge, attitude and practices prevalent amongst mothers/care-givers in the community regarding prevention and management of diarrhea.

**Funding:** No funding sources

**Conflict of interest:** None declared

**Ethical approval:** The study was approved by the Institutional Ethics Committee

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Cite this article as: Gohiya P, Shrivastava V, Mandavi S, Dwivedi R. A study to identify knowledge, attitude and practices prevalent amongst the caregivers of children below five years presenting with acute diarrhea in a tertiary care centre. Int J Contemp Pediatr 2020;7:1361-6.