

Assessment of knowledge of mothers from migrant population regarding use of oral rehydration solution in diarrheal illness in under-five children from rural Pune

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ABSTRACT

Background: Diarrhea is one of the important causes of morbidity and mortality among under-five children in India. Lack of knowledge of mothers about the management of diarrheal diseases is a common problem in many developing countries. Use of oral rehydration solution (ORS) largely depends, on the level of mother's knowledge. **Objective:** The objective of the study was to assess the knowledge of the mothers, from rural migrant population regarding the use of ORS in under-five children with diarrhea. **Materials and Methods:** A cross-sectional study was carried out from December 2016 to March 2017, among mothers of the migrant population residing and working at brick kilns and construction site in the field practice area of the rural health training center, Lavale, Pune. We included the mothers whose children were under five years of age. Those mothers, who had serious illness and had hearing and speech problems, were excluded from the study. Data were collected by interview method from mothers with the help of a pre-structured and pre-tested questionnaire. **Results:** A total of 54 (93.1%) mothers from brick kiln sites were included among whom, 43.10% were aware of ORS. Only 37.93% of mothers knew the use of homemade sugar salt solution for diarrhea in children. In this study, 25 (43.10%) mothers were illiterate and the study showed that knowledge regarding ORS was lower in illiterate mothers. **Conclusion:** Majority of the mothers were not aware regarding ORS, and as per the study, knowledge regarding ORS was lower in less educated mothers. Government schemes would help these mothers to increase the awareness which will result in a decrease in mortality rate.

Key words: Diarrhea, Oral rehydration solution, Under-five children

Diarrhea is one of the most common causes of morbidity and mortality among young children in developing countries. Young children, especially under the age of 5 years, are the most vulnerable. Globally, 1.4–2.5 million deaths occur annually in children under the age of 5 years [1]. In developing countries, children under 3 years old, experience on an average of three episodes of diarrhea every year. Each episode deprives the child of the nutrition necessary for growth. It is the vicious cycle, as diarrhea is a major cause of malnutrition and malnourished children are more likely to fall ill from diarrhea. Timely management of the children with ORS has substantially declined the mortality and morbidity from acute infectious diarrhea [2].

In 2004, the World Health Organization (WHO) released recommendations for the treatment of diarrhea, including the liberal use of low-osmolarity oral rehydration solution (ORS) and zinc supplementation [3]. In accordance with the WHO guidelines, Government of India promotes oral rehydration therapy as one of the top priority activities for ensuring child survival during

diarrhea. This program is aimed at educating mothers and communities about causes, symptoms, and treatment of diarrhea.

However, lack of knowledge of mothers about diarrheal diseases is a common problem in many developing countries. Use of ORS largely depends on the level of mother's knowledge [4]. Despite the well-documented effectiveness of ORS in preventing deaths from diarrhea, most diarrhea cases in low-income countries are still not treated with ORS [5]. Oral fluid therapy is based on the observation that glucose given orally enhances the intestinal absorption of salt and water and is capable of correcting the electrolyte and water deficit [6]. Sugar salt solution (SSS) is also recommended for home management of diarrhea. There is a paucity of studies regarding the assessment of knowledge of mothers from the migrant population at brick kiln sites. The brick kilns serve a source of livelihood for thousands of unskilled laborers from across the country. The seasonal nature of the work attracts migrant labor; many of them are landless farmers. These migrants are among the poorest and most vulnerable groups in the country.

The present study was planned to assess the knowledge of mothers of under-five children from migrant population especially from brick kilns and construction site, toward the use of oral rehydration solution (ORS) during diarrheal illness.

MATERIALS AND METHODS

This was an observational cross-sectional study by convenient sampling technique, which was carried out in a field practice area of the rural health training center, Lavale, Pune. There were pockets of migrant workers residing and working at brick kilns and a construction site. The study was carried out from December 2016 to March 2017 after getting the consent from the mothers and obtaining the ethical committee approval. Mothers of under-five children, from migrant families at brick kilns and construction site, in the field practice area of Rural health training center, Lavale, Pune, were included in the study. The mothers, who had serious illness and those who have to speak and hearing difficulty, were excluded from the study.

Total 58 mothers were included, and we conducted weekly visits to collect data, from nine brick kilns and one construction site, in the field practice area of the rural health training center, Lavale, Pune. During these visits, the study was explained to mothers in the language they understood the best, and informed verbal consent was obtained by the investigator. Mothers who were willing to participate in the study were interviewed and study questionnaire was filled by the investigator. Data were collected with the help of a pre-structured and pre-tested questionnaire.

After the interview, the preparation of ORS and SSS was demonstrated to the mothers. The mothers were also explained about the importance of its use for children during diarrhea. Data were entered into Microsoft Excel sheet and statistical analysis was done by SPSS version 25.0.

RESULTS

In the current study, the mean age of mothers was 23.2 + 3.2 years; the majority of the mothers were in the age group of 15–24 years of age. Baseline demographic details of the studied subjects are presented in Table 1.

Out of the total 58 study participants, 43.10% were illiterate and of the literate women 31.03% of mothers had education only up to primary level. The majority of mothers were brick kiln workers 45 (77.58%) and only 4 mothers (6.90%) were from the construction site. Nine mothers were (15.52%) housewives staying at brick kiln sites. Out of 58 mothers, only 25 (43.10%) mothers were aware of ORS and knowledge regarding the use of homemade SSS was still less, i.e., 22 (37.93%).

Out of 25 illiterate mothers, only 8 (32%) had knowledge of ORS; whereas out of 33 literate mothers, 17 (51.5%) knew about the use of ORS (Table 2). Thus, it shows that maternal education does have positive influence on her knowledge of ORS, though the “P” value was not statistically significant.

Table 1: Baseline demographic characteristics of the study population

Category	Frequency (%)
Education	
Illiterate	25 (43.10)
Primary	18 (31.03)
Secondary (<SSC)	08 (13.80)
SSC	06 (10.34)
HSC	01 (1.72)
Occupation	
Brick kiln workers	45 (77.58)
Construction site workers	04 (6.90)
Housewife	09 (15.52)
Total	58 (100)

SSC: Secondary school certificate, HSC: Higher secondary certificate

Table 2: Association between knowledge of ORS and maternal education

Knowledge of ORS	Mothers education			p-value
	Illiterate	Literate	Total (58)	
Yes	8	17	25	0.137
No	17	16	33	

DISCUSSION

Although it is proven that administration of ORS can substantially reduce the morbidity and mortality resulting from diarrhea, poor knowledge about diarrhea and its management has been a hurdle in the developing countries to curb diarrheal morbidity and mortality [7]. ORS is clearly efficacious in preventing diarrhea-related mortality, yet there are barriers toward promoting its use, which has led to stagnated global rates of ORS use for the treatment of childhood diarrhea [8].

In many low- and middle-income countries, the health-care-seeking behavior and caregivers' recognition of childhood illnesses is inadequate, and the use of oral rehydration therapy (ORT) for diarrhea is unacceptably low [9]. The present study was carried out to assess the knowledge of mothers from migrant families regarding the use of ORS in diarrhea. In the present study, only 43.10% mothers had knowledge about ORS, similar to the study by Shah *et al.* [10] in which 46.5% participants knew of ORS, but is low as compared to many previous Indian studies. Rani *et al.* [11] in their study reported that 73% mothers had knowledge about ORS, while Jain [1], Rokkappanavar *et al.* [12], and Mahor [2] in their studies mentioned that 80% and 86.27% and 88% mothers were, respectively, aware of the ORS. In another Indian study, 62% of mothers had knowledge about ORS [6]. In study by Thammanna *et al.* [13], 74.8% mothers were aware of the use of ORS in diarrhea and a study carried out in the urban area of Pudduchery, 78% mothers were aware of ORS [14].

A study from civil hospital Karachi showed that 75.55% of mothers were aware of ORS use [15]. In the 40 countries having

Demographic and Health Surveys in or after 2,000 and in which this indicator was measured, a median of 89% (Range: 46–98%) of mothers of children with diarrhea knew about ORS [16]. According to the National Family Health Survey-4, 58.8% of under-five children had received ORS during recent episodes of diarrhea [17]. While according to the District Level Household-4 survey, 65.5% of children had received ORS during recent episodes of diarrhea [18]. Thus, in this study, mother's knowledge regarding the use of ORS during diarrhea for under-five children is lower than other Indian studies probably because our study was from the migrant rural population, which is the neglected sector of the community.

Regarding knowledge of the use of homemade SSS for children during diarrhea, only 37.93% mothers knew about it, which is similar to study by Shah *et al.* [10], in which 38.7% knew about SSS. A study from Ethiopia, in which the awareness of the use of sugar and salt solution for the home management of diarrhea among participants was also low, i.e., 11.4%, [19] whereas, a study by Saurabh *et al.* [14] reported that 82.9% of mothers knew about the use of homemade SSS.

Mother's education is one of the most important determinants of child survival. In this study, 25 (43.10%) mothers were illiterate, and it was observed that knowledge regarding ORS was lower in these mothers. Our finding is in sync with several other studies. A study by Ghatam *et al.* [6] showed that literacy status of mother was significantly associated with knowledge of ORS. Various studies revealed that illiterate mothers had poor knowledge toward diarrhea management as compared to educated mothers [12,13,20].

Small sample size adds to the limitation of this study and a study with a larger sample size is recommended for better results. Lack of adequate maternal knowledge concerning childhood diarrhea management highlights the need for counseling and education, especially among the illiterate population in India [21].

CONCLUSION

We found lower awareness about ORS in the population studied as compared to many previous studies. Majority of the mothers were not aware regarding ORS and knowledge regarding ORS was lower in illiterate mothers. Mother's knowledge about diarrhea management using ORS and SSS can be improved through educational interventions.

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