

Awareness of quantity of ORS and Zinc among mothers of under five children with diarrhoea at a tertiary care Centre Lahore

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Abstract

Objective: To assess mothers' knowledge about the quantity of oral rehydration salt and zinc in the management of diarrhoea.

Method: The cross-sectional study was conducted from May to August 2019 at The Children's Hospital, Lahore, Pakistan, and comprised mothers accompanying children aged <5 years admitted with diarrhoea complaints. Data was collected regarding demographics and mothers' awareness of signs of dehydration in diarrhoea, familiarity with the term oral rehydration salt, its correct preparation and administration and zinc supplementation. Data was analysed using SPSS 20.

Results: Of the 334 mothers interviewed, 154(46%) were able to identify the signs of dehydration. Maternal awareness regarding use of oral rehydration salt and zinc in diarrhoea were significantly associated with maternal education and socioeconomic status ($p < 0.05$).

Conclusion: There is a need to generate awareness among mothers about the use of oral rehydration salt and zinc in diarrhoea.

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Introduction

Every year 2.5 billion cases of diarrhoeal diseases occur in children aged <5 years and, on an average, >1,400 children die each day.¹

In developing countries, like Pakistan, childhood diarrhoea is a widespread problem and is a major public health concern. The control of diarrhoeal diseases is imperative in order to reduce <5 mortality. Most diarrhoeal episodes are treated at home by the mothers of young children. Mothers should be able to recognise signs of dehydration in their children.² Timely management of diarrhoea in children with oral rehydration salt (ORS) can substantially decrease mortality and morbidity from acute diarrhoea.³ A study conducted in Rawalpindi showed that 91% mothers had awareness regarding use of ORS as a means of diarrhoeal home management.⁴ A study in Karachi showed that most mothers (75.5%) knew how to prepare ORS correctly.⁵ Another study in Rawalpindi revealed positive attitude among mothers regarding the use of ORS in the prevention of dehydration, but certain lapses were seen in the knowledge and practices of mothers regarding its administration.⁶ Correct administration of ORS is as important as correct preparation, but studies have shown poor knowledge and practices regarding quantity of ORS administered despite good awareness about ORS.^{2,3,7}

The World Health Organisation (WHO) has recommended

zinc supplementation for 10-14 days along with low-osmolar ORS in acute diarrhoea.⁸ Although Pakistan was among the first countries to include zinc in paediatric diarrhoea treatment protocols, only 2% Pakistani children age <5 with diarrhoea receive zinc as part of their acute diarrhoea treatment.⁹

The current study was planned to assess mothers' knowledge regarding the quantity of ORS and zinc in the management of diarrhoea at home.

Subjects and Methods

The cross-sectional study was conducted at the diarrhoea ward of The Children's Hospital (TCH), Lahore, Pakistan, from May to August 2019. After approval from the institutional ethics review board, the sample size was calculated using Open-Epi calculator¹⁰ at 95% confidence level, 5% absolute precision and anticipated 91% awareness of ORS as a means of diarrhoeal home management.⁴ The validity of the study was boosted by inflating the required sample size by >250%. The sample was raised using non-probability purposive sample technique from among the mothers accompanying their children of either gender aged 2-59 months admitted for rehydration therapy with the diagnosis of acute watery diarrhoea on the basis of history and clinical examination. Informed consent was taken from the subjects. Mothers who refused to give consent were excluded.

Mothers were interviewed by a single interviewer using a pre-designed questionnaire. Socio-economic status (SES) of the family was categorised as poor with monthly income

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Pakistani Rupees (PKR) $\leq$ 15,000, middle class PKR15-50,000, and upper class PKR>50,000. Literacy of the mother was categorised as illiterate, primary, secondary and graduate. Data was collected regarding age, gender, residence, number of children in the household, mothers' knowledge about the signs of dehydration due to diarrhoea, like depressed fontanel, loss of skin turgor, sunken eyes and dry lips, familiarity with the term ORS and its correct preparation and administration, fluids other than ORS which are given during diarrhoeal episodes and knowledge about use of zinc in diarrhoea. The correct method to prepare one litre of ORS from sachet is to dissolve one sachet of ORS in one litre of clean water. Quantity of ORS given after each loose stool was considered appropriate if 50-100ml (1/4-1/2 cup) in children aged <2 years, and 100-200ml (one cup) in those aged >2years.

Data was analysed using SPSS 20. Descriptive statistics of socio-demographic characteristics and variables regarding maternal awareness of ORS were presented as mean and standard deviation or frequencies and percentages. Chi square test was employed. $P<0.05$ was considered significant.

Results

Of the 334 mothers interviewed, 323(96.4%) belonged to urban area, 231(69%) had poor SES, 218(65%) were educated and 236(70%) had more than one child. Among the children, 180(53.9%) were boys. The overall mean age was 17.97 ± 1.47 months (range: 2-59 months), and 263(78.7%) children were aged <2 years (Table 1).

Table-1: Socio-demographic characteristics (n=334).

Variable	n (%)
Age (years)	
< 2	263 (78.7)
>2	71 (21.3)
Gender	
Male	180 (53.9)
Female	154 (46.1)
Residence	
Urban	323 (96.4)
Rural	11 (3.6)
No. of children	
1	98 (29.3)
>1	236 (70.7)
Socioeconomic	
Poor	231 (69.2)
Middle	100 (29.9)
Upper	3 (0.9)
Education	
Illiterate	116 (34.7)
Primary	53 (15.9)
Secondary	119 (35.6)
Graduate	46 (13.8)

Table-2: Maternal knowledge of oral rehydration salt (ORS) (n=334).

Variable	n (%)
ORS knowledge	
Yes	326 (97.6)
No	8 (2.4)
ORS use for rehydration	
ORS	300 (89.8)
Water	26 (7.8)
Qehwa	8 (2.4)
Information source	
Doctor	246 (73.7)
Family member	75 (22.5)
Health worker	13 (3.8)
ORS role	
Prevent dehydration	315 (94.3)
Stop diarrhoea	11 (3.3)
Not known	8 (2.4)
ORS type	
Unprepared	224 (67.1)
Prepared	46 (13.8)
Both	48 (14.4)
Never used	16 (4.8)
ORS preparation	
Adequate knowledge	272 (81.4)
No knowledge	43 (12.9)
Partial knowledge	19 (5.7)
ORS use after preparation	
<24 hrs	270 (80.8)
>24 hrs	47 (14.1)
Not known	17 (5.1)
ORS quantity	
Appropriate	121 (36.2)
Inappropriate	200 (59.9)
Not known	13 (3.9)

Among the mothers, 154(46%) were able to identify signs of dehydration, 326(97%) were aware of ORS, 300(89%) were using ORS, and 8(2.4%) were unaware of ORS. The source of information was doctors in 246(73.7%) cases. Correct role of ORS in diarrhoea was known to 315(94%) mothers, 224(67%) were using unprepared ORS sachet pack, correct method of ORS preparation was known to 272(81.4%), 270(80.8%) were using it within 24 hours of preparation, and 200(60%) mothers were giving inappropriate amount of ORS (Table 2).

Also, 281(84%) mothers were not aware of zinc supplementation, 53(16%) had used zinc in diarrheal episodes but none of them was aware of its role. Maternal awareness of ORS ($p=0.04$) and zinc ($p=0.001$) use in diarrhoea were significantly associated with maternal education and SES ($p<0.05$).

Discussion

Of the 334 mothers interviewed, majority were educated 218(65%) belonging to urban area 323 (96.4 %) and having

poor SES 231(69%). These results are contrary to a study conducted in Dadu, Sindh, where the majority was uneducated and belonged to rural areas, but the current findings are similar to other studies where the majority was educated (75%) and belonged to poor SES (78%).¹¹⁻¹³

Age <2 years was the most common group among children 263(78.7%) with male preponderance 180(53.9%) in the current study. In a study done in Cameroon, 1-12 months was the most common age group (37.2%).¹⁴

Most mothers had more than one child 236(70%). The increase in the number of children in the family significantly influences the use of ORS ($p<0.05$)¹⁴, but no such association found in the current study.

As many as 46% mothers could identify the signs of dehydration in the current study, while only 11.3% could identify these in an earlier study.¹⁵

Majority of the mothers were aware of ORS 326(97%) but 300(89%) were actually using ORS. Studies conducted in Cameroon and India also showed similar results.^{13,14}

In the current study, association was found between ORS use and maternal SES ($p=0.002$). This might be due to the fact that mother-child pairs belonging to upper class were very few in the study 3(0.9%).

Most mothers got information regarding ORS from the doctors 246(73.7%), which is similar to an earlier study.¹⁶

In the current study, 94% mothers knew the correct role of ORS in diarrhoea, while 2.4% were unaware of the advantages of ORS. Similar results have been reported from India.¹²

Unprepared sachet pack was the most commonly used ORS type 224(67%). Similar results were reported by a local study.³

Most mothers knew the correct method of ORS preparation 272(81.4%). Similar results found in a local study¹¹ but the finding is in contrast to an Indian study reporting only 31%.¹⁵ The ratio of mothers with adequate knowledge of preparing ORS was higher in mothers from urban areas,¹¹ but no such association was found in the current study.

Positive association was found between maternal education and maternal awareness of ORS ($p=0.04$). Similar results were reported earlier.^{12,15} Contrasting results have also been reported in this regard.¹⁶

Majority were using ORS within 24 hours of preparation 270(80.8%), but it was being given in inappropriate amount by 200(60%). In a hospital based study conducted in Kasur, only 38.9% mothers knew correct amount of ORS to be

given after each loose stool.² Another study showed 39% mothers had sufficient knowledge.¹⁴ A good percentage of mothers having knowledge of administration of ORS (60%) has also been reported.⁴

Awareness of zinc supplementation in diarrhoea was poor as only 53(16%) mothers had used it in the current study, which was similar to 51(20.4%) reported from India.¹⁷ In a hospital-based study in Rawalpindi, among mothers who were aware of the use of ORS, only 41.8% were also aware of the use of zinc.⁴

In the present study zinc use in diarrhoea was significantly associated with maternal education ($p=0.001$) and SES ($p=0.001$). It was better among mothers with higher education and improved SES.

The current study has its limitations. It was a single-centre study with a small sample size and selection bias due to its hospital-based nature. Multicenter and community-based studies are recommended that would provide better estimates in this critical area. Also, there is a need to create awareness about the quantity of ORS administration and zinc supplementation in diarrhoea through effective public education.

Conclusion

Majority of the mothers were aware of ORS and doctors were the main source of their information. Many knew the correct role of ORS in diarrhoea and its method of preparation. Although ORS use rate was high, most mothers were unaware of the appropriate quantity to be given. Zinc use in diarrhoea was very low.

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