OPENING MINDS:
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DEVELOPMENT

Knowledge, Attitudes and Practices on Oral Rehydration Salt Solution for Diarrhoea among Mothers with Children under Five Years Old

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1 INTRODUCTION

Diarrhoea is the passage of loose or liquid stools three or more times per day or more frequent passage of stools than normal for the individual (World Health Organization [WHO], 2013). Diarrhoeal diseases have become the second leading cause of death among children under five years old (WHO, 2013). Nearly 1.3 million childhood deaths occur per year due to diarrhoea (United Nations International Children's Emergency Fund [UNICEF] 2012) as a result of severe dehydration and fluid loss (WHO, 2013). Dehydration can be defined as loss of water and salts essential for normal body function (Oxford Medical Dictionary, 2017). As the major public health effort in management of diarrhoea, prevention and treating for dehydration is practiced and it has reduced the annual death rate. It can be primarily achieved by ensuring the children with diarrhoea are provided with more fluids during the acute episode. Using Oral Rehydration Salt (ORS) solution combined with increased fluids have proven as very powerful interventions in preventing childhood deaths from diarrhoea (UNICEF, 2012). ORS is simple, inexpensive, easy and most effective primary intervention to treat dehydration (WHO, 2006). ORS is a glucose, citrate and salt mixture which is called as *"Jeewani"* in Sri Lanka. Composition of new ORS formula in grams per litre is Sodium Chloride 2.6, Potassium Chloride 1.5, Tri-sodium Citrate dehydrate 2.9, and Glucose anhydrous 13.5 (WHO, 2006). ORS is the immediate and best applicable step in effective home management of acute childhood diarrhoea (Chattopadhyay, 2008) and a simple proven intervention to prevent and treat dehydration due to diarrhoea (Munos *et al.*, 2010). Dehydration from diarrhoea and vomiting threaten lives of children under five years old especially, in developing countries (Onwukwe *et al.*, 2015).

When consider Sri Lanka, childhood deaths due to diarrhoeal diseases has reached 1646 (1.3%) of total deaths (WHO, 2014). Better maternal knowledge, attitudes and their practice towards the usage of ORS are associated with more compliance to use it (Al-Atrushi, Saeed and Yahya, 2012).

Therefore, it is paramount important to study about knowledge, attitudes and practice on ORS among mothers with children under five years old in Sri Lanka.

2 METHODOLOGY

The aim of this study was to assess the knowledge, attitudes and practices on ORS among mothers with five years old children in District General Hospital, Kalutara. A descriptive quantitative study was used in this study (Burns and Grove, 2007). A sample of 228 mothers within 18- 45 years having under five years old children who were admitted to the paediatric wards in the District General Hospital, Kalutara was recruited for this study by using convenience sampling. A self-administered questionnaire was used to collect data on mothers' knowledge, attitudes and practices on use of ORS for diarrhoea. Content validity of the questionnaire was assured by referring standard literature and opinions of experts. Ethical approval was obtained from the Ethical Review Committee at the National Institute of Health Sciences in Sri Lanka (NIHS). Informed consent was taken from each voluntary participant. Anonymity and confidentiality were assured by securing the information only among research team. The data were analysed using Statistical Package of Social Sciences (SPSS) 22.

3 RESULTS AND DISCUSSION

Among a total of 228 participants, majority (32%) were 26-30 years old, Sinhalese (87%). Most of the mothers (80%) were not employed and, 52% were educated up to O/L (Table 1).

Table 1: Demographic data

Race		Age Group (Years)		Employed Status		Education Level	
Sinhala	87%	18-25	21%	Employed	20%	Up to Grade 8	12.5%
Muslim	10%	26-30	32%	Non- Employed	80%	Up to O/L	52%
Tamil	3%	31-35	29%			Up to A/L	27%
		36-40	11%			University Education	0.5%
		41-45	7%				

3.1 Mothers' awareness of on ORS

The findings of this study revealed that most (95%) women had heard about ORS. Further, the majority (90%) knew about the proper way of ORS preparation, storage after preparation (90%) and the correct time to discard ORS (72%). Similar results have been obtained in a study done in India (Kadam, Hadaye and Pandith, 2013). However, findings of a study conducted in Iraq (Al-Atrushi *et al.,* 2012) has shown that 67% of participants did not know exactly about ORS. Further, they showed that 48% and 35.7% did not know the proper way of preparation and administration of ORS respectively. In that study 54% of mothers had a low level of education and most of them were housewives.

Further, current study shows that the most mothers (90%) also were aware of dehydration. This finding is also supported by similar studies conducted in Nigeria, Pakistan and Kenya (Kalu *et al.*, 2016; Sultana *et al.*, 2010 and Othero *et al.*, 2008). However, on the contrary only a minority of the participants were aware of dehydration in a study done by Senevirathne (2003). In this study, 66.6% had detected diarrhoea through body

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weakness whereas 58.3% detected it by observing dry lips and tongue. But, in Kenya, they used excessive thirst and sunken eyes (Othero *et al.*, 2008). However, in this study, 12% of mothers were unable to identify any sign or symptom of dehydration. This is compatible with the findings of the study done in Nigeria (Kalu *et al.*, 2016). This is consistent with the study findings performed in India (Dhadave *et al.*, 2012). In the current study, a majority (86%) of participants had heard about diarrhoea and dehydration from various sources including health care workers (doctors and nurses) while others from Television and radio (45%), parents and friends (38%), posters and leaflets (15%), and through the internet (10%).

3.2 Mothers' attitudes on ORS

With regard to the attitudes of mothers on ORS solution, majority believed that ORS is the best treatment (77%) for dehydration and can cure diarrhea (75%). However, unfortunately, some thought Jeewani exaggerates diarrhoea (15%), and it harms the child by increasing the salt level of the body (15%). Further, 58% thought that physician's prescription is needed to initiate ORS. This finding further highlighted the study findings of Rasania *et al.* (2005) which was conducted in India. Those Indian mothers believed that ORS has a bad taste. Furthermore, current study findings revealed that 23% believed that ORS administration should be started after passage of stools two times, while 12% thought after once and 11% stated it should be after the child becomes weak. In contrast, in Iraq 77% of women did not believe ORS is enough as a treatment. The lack of understanding of the correct effects of ORS is further highlighted by study findings obtained from a study done in India, as 31.72% mothers thought ORS stops loose motions (Kadam, Hadaye and Pandith, 2014).

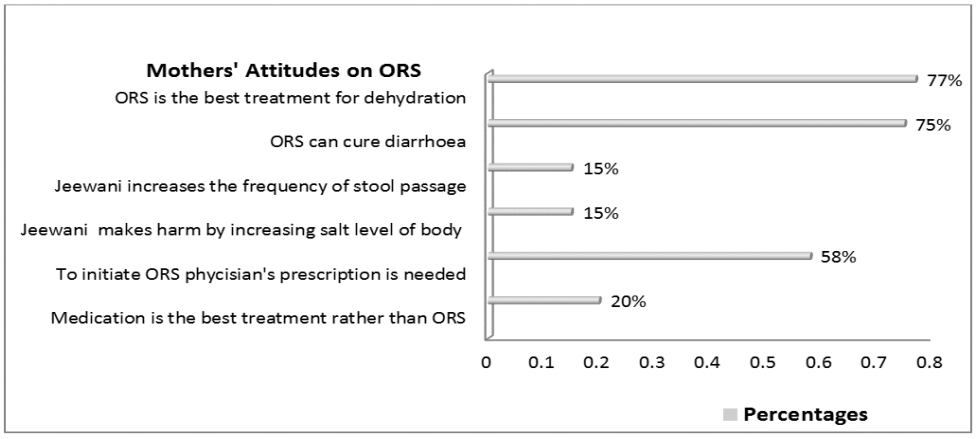

Figure 1: Mothers' attitudes on ORS

3.3 Practices on usage of ORS

With regard to the practices on ORS solution among mothers of this study, 71% have used ORS to prevent diarrhoea induced dehydration at least once. Similarly, a study done in South Africa, 66% of mothers had used ORS (Onwukwe

et al., 2015). In contrast, a study revealed that only 46% had used ORS in India (Rasania, 2005). In Gambia also found a low use rate (4%) of ORS in practices (Sillah *et al.*, 2013). Of the sample of current study 50% (n=114) have administered ORS according to physician's instructions while 37% had done it after following the instructions of the packet. Comparatively, a study which was conducted in Brazil found that mothers commenced administration of ORS after the physician's prescription. In this study 90% of mothers had used boiled cooled water to prepare the solution. However, in India, only 50% of women had used boiled cooled water in ORS preparation (Chattopadhyay, 2008). Moreover, current study findings have shown that only 72% of participants had discarded ORS after 24 hours whereas others were after 12 hours (8%) and after 6hours (17%). Similarly 83% women discarded ORS after 24 hours (Chattopadhyay, 2008). However, according to findings of a study, in Iraq 59% did not know that ORS should be discarded after 24 hours (Al-Atrushi *et al.*, 2012). When considering the storage of the solution, in this study, 90% of women had kept ORS at room temperature, while the rest stored it in refrigerator or had no idea about storage. As a major barrier of ORS usage, the current study further revealed that ORS is not available at home (72%).

When considering the education level of mothers, most mothers (92%) in the current study were educated up to A/L and they knew about ORS and could identify that dehydration resulted from diarrhoea. Therefore, the contrast for the differences of knowledge, attitudes and practice about ORS among mothers may be due to less education level of mothers. The findings of a study conducted by Gazi (2015) revealed that, knowledge level of mothers was average (66.2%), favorable attitude was (76.5%) while an average level of practice (72.2%). Furthermore, they found that education level, occupation and socio-economic status as influencing factors of KAP on home care of diarrhea.

Table 1: Mothers' practices on ORS

Practice of Mothers on ORS	Percentages
Commenced ORS administration after passage of loose stools more than two times	23%
Administered ORS following instructions on the packet	37%
Stored ORS in room temperature	90%
Discarded ORS after 24 hours its preparation	72%
ORS packets are readily available at home	28%

4 CONCLUSIONS AND RECOMMENDATIONS

According to the findings of this study, maternal knowledge level on ORS and dehydration was good. Majority of mothers were aware of diarrhoea and dehydration and they had known ORS as a treatment method. Most of the mothers had the ability to identify signs and symptoms of dehydration. However, their attitudes on ORS were poor. The majority believed that without physician's prescription they could not initiate ORS. They have some misconceptions on ORS such as, ORS increases the frequency of diarrhoea, salt level of the body and it leads to body swelling. Moreover, the practices on ORS usage were average among the study participants. When considering the practices, the majority had

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used ORS but only small number of mothers had followed the instructions on the packet. Their practice is not satisfactory on initiation, administration, storage and discarding of ORS solution. Mothers have inadequate concern about keeping ORS packets available at home. There are some gaps still present in knowledge, attitude and practice of home management of acute diarrheal diseases among mothers with five year old children.

As ORS is a vital treatment to prevent dehydration due to diarrhea, awareness programs are highly recommended to improve mothers' knowledge on dehydration and especially proper usage and practice of ORS. As the education level is at a higher level it will be easy to transfer the correct messages to them. Both hospital and community based awareness campaigns and poster competitions should be organized and mass media should be used effectively in enhancing the knowledge, attitudes and practices on ORS solution. The government in conjunction with relevant pharmaceutical agencies should ensure regular provision and prompt availability of ORS sachets in all health care settings. Further research should be carried out on knowledge of ORS among mothers in different settings.

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