ORIGINAL ARTICLE

Knowledge, Attitude and Practices of Mothers Regarding Diarrheal Risk Factors and Management in under 5 Children: A Cross Sectional Survey in Dadu and Badin Districts of Sindh, Pakistan

Aneela Iqbal Khan[1], Syed Hasan Danish[2], Ahsan Ashfaq[3], Farah Ahmad[2], Syed Mohammad Ali Warsi[4] and Muzammil Parvaiz Khan[4]

ABSTRACT

Objective: To assess the knowledge, attitude and practices of mothers regarding risk factors for diarrhea and its management in children under five years of age living in rural districs of Pakistan.

Materials and Methods: A cross sectional study was conducted in two union councils of Dadu and Badin Districts of Sindh in 2014**.** The sample size from each Union council was n=450. Cluster sampling technique was utilized for selection of households in both of the Union Councils. Personal interviews were conducted from mothers by trained data collectors on pretested questionnaire. Descriptive analysis was done on SPSS version 20.

Results: 46% in Badin and 44% under 5 children in Dadu had suffered an attack of acute diarrhea in the last three months. Regarding the signs of dehydration, 36% mothers identified that absence of tears as a principle sign of dehydration in Badin, while 41% in Dadu identified lethargy as the chief sign. Contaminated water and stale food was identified as a cause of diarrhea by most participants in both districts. 48% in Badin and 41% in Dadu identified hand washing the most important method for prevention against diarrhea. When management of diarrhea was taken into account for majority 50% mothers it was through ORS.

Conclusion: Knowledge on diarrhea and its treatment and prevention was found to be bleak in our survey among rural residents of Sindh. Results displayed poverty besides illiteracy, improper water and sanitation facilities and unhygienic practices serving as barricades dragging down health indicators similar to other rural parts of the country.

Key words: Mothers, Pakistan under 5 children, rural areas, management, diarrhea, risk factors

How to cite this article: Khan AI, Danish SH, Ashfaq A, Ahmad F, Warsi SM, Khan MP. Knowledge, attitude and practices of mothers regarding diarrheal risk factors and management in under 5 children: a cross sectional survey in dadu and badin districts of sindh, Pakistan. J Dow Uni Health Sci 2016; 10(1): 19-24.

INTRODUCTION

Every year around 10.8 million children in developing countries pass away before reaching five years of their life[1]. Diarrhea is the chief cause of deaths among children in South Asia and globally with a special predilection in low income countries[2]. In poor countries Diarrhea ranks second major killer for under 5 children.Based on World Health Organization (WHO) estimates Diarrhea causes 1.6 million deaths among children under 5 from developing countries[3]. Despite declining rates of mortality on account of diarrhea it has persisted with a high level of morbidity with major health issues worldwide[4]. WHO claims around 700 million episodes of diarrhea worldwide annually among children less than 5 years of age. Although mortality has taken a downturn yet incidence has been steadfast with 3.2 episodes per child on average[5].

Incidence of diarrhea in children of Pakistan is 3-4 episodes per year[6]. Amounting to 120 million episodes yearly[7]. The sustained attack of diarrheal illness on Pakistani children has a substantive blow on child survival by direct impact and indirect effect on nutritional status[8]. Diarrhea turns mortal for majority with fluid loss and accompanying severe dehydration[9]. Timely treatment from ORS has reduced morbidity and mortalityfrom diarrhea[10]. Appropriate knowledge and use of ORSis acardinal component of WHO diarrheal control program[11]. Even then study in Asia and Africa demonstrated ORS administration and

1 German Red Cross.

2 Department of Community Health Sciences, Ziauddin University, Karachi, Pakistan.

3 Department of Physiology, Liaquat National Hospital and Medical College, Karachi, Pakistan.

4 Pakistan Red Crescent Society.

Correspondence: Dr. Farah Ahmad, Department of Community Health Sciences, Ziauddin University, Karachi, Pakistan.

Email: farga24@gmail.com

knowledge only by small number of participants[12]. Different communities exhibit change of beliefs and practices regarding childhood diarrhea[13]. Hence the objective of this study is to determine the frequency of diarrhea and knowledge, attitude and practices of mothers regarding its management in children under five years of age among rural districts.

MATERIALS & METHODS

The baseline survey was conducted from January 2014 to August 2014 by Pakistan Red Crescent Society in two districts of Sindh, Dadu and Badin. The survey area consisted of 17845 individuals from one union council in Dadu having 96 villages and 3765 households. The survey area from Badin consisted of one union council with 106 villages having 4416 households and a total population of 27632 individuals. With assistance from Pakistan Bureau of Statistics (PBS), Pakistan Red Crescent Society compiled household listings for districts Dadu and Badin. To determine a representative household sample, sample size was calculated using OpenEpi, through the following equation:

$$n = \frac{N\pi(1-\pi)}{(N-1)(C/Z_{\alpha/2})^2 + \pi(1-\pi)}$$

Where n was the recommended sample size, N is population size, is proportion of a characteristic of interest, C is error rate (confidence interval), and / 2 *Z* is tabulated value for confidence level (Tryfos, 1996). The proportion for a baseline survey was taken at 50% for the maximum sample size calculation. At 95% confidence level and bound of error of 5% with the actual target population, the calculated sample size came out to be n=387, which was augmented to n=450 for both the union councils.

Cluster sampling technique was used for selecting households. The Inclusion criterion was mothers with at least one child of under five years of age. The respondents were the mothers of under five year old child and those who were living in the selected for atleast one year. Females having distinct language barrier and those who were residing as the guest in the house were excluded from the study.

In the first phase, two focus group discussions (FGD) were carried out by trained individuals after random selection of two villages. For FGD 10-12 villagers including Mosque imam, community workers, school teachers, area influential's, elder females and heterogeneous individuals with diverse background were taken for highlighting the felt needs of the community. Information from FGD helped construction of semi structured questionnaire with both open ended and close ended questions. Before the pilot study, questionnaire translated in Urdu, national language of Pakistana and the Sindhi, regional language of Sindh. Supervisors and Interviewers were given a training session in both districts before data collection. After training one day field practice was carried out in different villages. Eight teams were organized to collect data; each consisted of a field supervisor, one male interviewer and a female interviewer. Objectives of the survey were explained in detail before initiating face to face in-house interviews and informed consent was taken verbally from each head of the household.

The questionnaire was based on demography, knowledge regarding the risk factors of diarrhea and its prevention and mother's attitude towards management. For all levels of data collection, data quality was ensured with supervisors reviewing the completed questionnaires to ensure that information was recorded correctly and verifying information by revisiting and re interviewing respondents and finally signing the questionnaires. For the purpose of maximum verification data was entered by two data entry officers. It was entered first on Microsoft excel version 10 which after editing was imported to SPSS version 20 for data analysis. Descriptive analysis was carried out with frequencies and percentages for categorical variables and mean and standard deviation for numerical variables.

All procedures followed were in accordance with the ethical standards of the responsible committee on human experimentation (institutional and national) and with the Helsinki Declaration of 1975, as revised in 2008. Informed consent was obtained from all patients for being included in the study.

RESULTS

The demographic profile of the households revealed that majority head of households were males in both 52% in Badin whereas 65% in Dadu were illiterate. Regarding occupation 30% were farmers in Badin compared to 50% in Dadu, while remaining were laborers or working in other professions. Majority 94% were married in both districts. When risk factors of diarrhea was assessed, poverty was rampant in both districts, as 75% in Dadu and 69% in Badin were earning less than rupees 10,000 per month. 60% households were nuclear in structure. 70% households in Badin and 63% in Dadu were made of mud walls and thatched roofs as noted by the data collectors.

Although 90% and above in both districts owned their houses yet overcrowding was rampant with 7-8 members residing in 1-2 rooms. 67% homes in Badin and 77% in Dadu had human/animal feces visible in the yard, while 70% households had solid waste visible in the yard in both districts, with sewage overflow in majority of homes.

Table 1: Information Regarding Drinking Water, Fuel & Electricity And Waste Disposal

	Dadu		Badin	
	n=450	%	n=450	%
Main Source of Drinking Wate				
Piped Water	51	11.2	95	21.1
Hand pump	388	85.3	328	72.9
River branch water	6	1.3	17	3.8
Well	2	.4	5	1.1
Filter	8	1.8	5	1.1
Means of carrying water from the source to the house				
Utensils	289	63.5	139	30.9
Earthen pots	157	34.5	303	67.3
Bladders	9	2.0	8	1.8
Type of cooking fuel utilized				
Wood	164	36.0	238	52.9
coal	9	2.0	11	2.4
Kerosene	11	2.4	26	5.8
Cow dung	10	2.2	1	.2
Both wood and cow dung	261	57.4	174	38.7
Source and status of electricity				
Metered	194	42.6	231	51.3
Kunda	247	54.3	143	31.8
No Electricity	6	1.4	29	6.4
Non Functional	8	1.7	47	10.4
Disposal of Garbage				
Throw outside the house	426	93.7	398	88.4
Bury it in the soil	19	4.2	33	7.3
Someone collects from your house	1	.2	1	.2
Burn the waste	9	2.0	18	4.0

When asked if their children suffered from diarrheal episode in last 3 months, 46% in Badin and 43.5% in Dadu replied affirmatively. In Badin 92% while 84% in Dadu had received the treatment for diarrhea. When knowledge was assessed regarding the signs of dehydration 36% replied absence of tears as a principle sign of dehydration in Badin while 41% in Dadu identified lethargy as the chief sign. Contaminated water and stale food was identified as a cause of diarrhea by bulk of participants in both districts. Better knowledge was observed regarding the preventive aspects of diarrhea as 48% in Badin and 41% in Dadu identified hand washing the most important method for prevention against diarrhea.

Clean food and safe drinking water were also identified important in preventing diarrhea. 55% in Badin and 53% in Dadu said that diet of child should be less than usual during diarrheal episode. 19% participants in Badin and 36% in Dadu had no clue of diet frequency and amount while child suffers from diarrhea. Treatment of diarrhea was based on packet of ORS by majority of mothers 50% in both districts. 12% mothers in Badin and 4.6% in Dadu reported using homemade ORS

Table 2: Safe Water, Hygiene and Sanitation

	Dadu		Badin	
	n=450	%	n=450	%
Measures taken to make water safer to drink				
Boil	71	15.6	56	12.4
Strain with cloth	41	9.0	203	45.1
Let it stand and settle	153	33.6	81	18.0
Treat it chemically	3	0.7	5	1.1
Do Nothing	175	38.5	81	18.0
Strain with cloth and chemical treatment	7	1.5	23	5.1
Boil and strain with cloth	5	1.1	1	.2
Hand washing practices				
Before eating	427	93.8	425	94.4
After defecating	327	71.9	319	70.9
Before preparing food	152	33.4	198	44.0
Before feeding children	67	14.7	79	17.6
After eating	90	19.8	72	16.0
After handling animals	161	35.4	95	21.1
Others	14	3.1	1	0.2
Means for washing hands				
Soap and water	405	89	336	74.9
Ash	13	2.9	19	4.2
Sand	8	1.7	6	1.3
Water only	29	6.4	89	19.8
Status of sanitation and hygien				
Own latrine facility	336	73.8	99	22.0
Do not own latrine facility	119	26.2	351	78.0
If do not own the latrine facility place to defecate				
Toilet shared with others in the community made by NGOs and privately	40	8.8	62	17.7
Bush/In the field	79	17.3	289	82.3
In case of heavy rainfalls/ floods, situation of sanitation in the village				
Sewage overflow	194	42.6	146	32.4
Scattered garbage	212	46.6	264	58.7
Increase flies	85	18.7	26	5.8
Increase mosquitoes	213	46.8	244	54.2
No marked change in the sanitation	25	5.5	49	10.98

while around 32% participants in both districts respectively, took their child to doctor for treatment.

In Badin 23% mothers compared to 28% in Dadu is continued breastfeeding the child during diarrhea whereas remaining were either unaware or halted the practice. When immunization status was taken into account 73% in Badin and 71% in Dadu were completely immunized with EPI vaccines. Majority of people in both districts were vaccinating their children through vaccinators in village only. When practices regarding postnatal care were assessed, 60% in Badin and 74% in Dadu fed mother's milk to the child. Among other practices feeding ghutti and honey after birth were quite common in both districts. When inquired

Table 3: Knowledge About ORS

	Dadu		Badin	
	n=450	%	n=450	%
Glasses of water are required to make one packet of ORS				
Correctly answered (Four glasses)	198	43.5	234	52.0
Incorrectly answered	49	10.8	56	12.4
Don't know/ didn't answered	208	45.7	160	35.6
Procure packet of ORS				
Medical store	297	65.3	272	60.4
PHC centre	7	1.5	20	4.4
Government health centre	14	3.1	63	14.0
Other	9	2.0	3	.7
Both medical store and BHU	6	1.3	22	4.9
Don't know/ didn't answered	122	26.8	70	15.6
Knowledge about making of Homemade ORS				
Yes	86	18.9	192	42.7
No	369	81.1	258	57.3
After making ORS how long can it be used?				
Less than 12 hours	94	20.7	157	34.9
12 to 24 hours	162	35.6	128	28.4
More than 24 hours	27	5.9	19	4.2
Don't know/didn't answer	172	37.8	146	32.4
For diarrhea how long should the child be given ORS?				
One day	74	16.3	114	25.3
Two day	25	5.5	43	9.6
Till diarrhea persist	227	49.9	197	43.8
Other	5	1.1	3	0.6
Don't know/didn't answer	124	27.3	93	20.7
Breast feeding during diarrhea				
Stopped	183	40.2	236	52.4
Continued	126	27.7	105	23.3
Don't know/didn't answer	146	32.1	109	24.2

regarding the duration of mother's milk given to the last child, up to two years was quoted by 82% in Badin and 76% in Dadu.

DISCUSSION

Diarrhea is not fatal by itself, infact incorrect knowledge and improper management leads to its severity[14]. Our study elucidates that diarrhea cannot be underestimated, with high prevalence in both districts keeping up with earlier studies in India and rural Sindh[15,16].

Diarrhea morbidity and mortality banks on multiple factors including female literacy, inadequate health services, poverty, poor sanitation, hygiene and lack of breastfeeding[17].

Large bulks of participants in our study were dubious about causes of diarrhea. This comes to contrast with earlier study in Karachi squatter settlement where mothers blamed dirty water and unhygienic food[16]. Although half of participants had no idea of danger signs of diarrhea. This comes to contrast with studies in squatter settlement of Karachi where majority females were cognizant[16]. However another study earlier in Sindh displayed similar results with 40% being unaware[18]. Studies in Asia and Africa have shown that only few signs (lethargy, sunken eyes) are associated with seeking health care from licensed care provider[12].

In a study conducted in India 88% while in Pakistan 11% compromised diet during diarrhea[11]. Vast majority of our participants opined that diet should be reduced during diarrhea. Similar results came out from a study in Karachi with 55% illustrating this habit[16]. Likewise findings were elucidated in studies where grandmothers thought that resting the gut was essential during diarrhea[11] but in contrast to Bangladesh study where majority continued feeding[19]. In studies conducted earlier like our study almost half of participants halted breast feeding their children[20]**.** CDC recommends maintenance of energy and food intake at higher levels without halting feeding patterns during diarrhea[21] ORS is regarded as treatment of choice in diarrhea[6] while clinically regarded as effective as intravenous therapy that can be carried at home[11].

Among children, mortality and morbidity in acute infectious diarrhea have dramatically reduced due to ORS and early realimentation[10]. A study conducted in Africa and Asia including Pakistan showed only 20% children receiving ORS at home while only 50% were given more fluids[12].

Another study in rural districts of Peshawar, Pakistan showed only 6% giving ORS[22] National survey of Pakistan shows use of ORS in 33% under 5 children[23]. Knowledge of ORS was found to be low in our participants where majority did not know the duration of administration and most were devoid of any idea to make ORS from home ingredients. Our study displayed ORS utilization by 55% residents similar to a study conducted in Pakistan this year where usage was below 50%[11]. Our study showed correct preparation by merely 43% residents which was lower compared to studies in Karachi where 75% were cognizant[16,21].

It is estimated that daily 1100 children under 5 lose life due to diarrhea and diseases stemming from impure water, sanitation and hygiene[24]**.** In Bangladesh half of mothers were not using boiled water and utilizing ground water for cleaning utensils[25]. Ironically in our study a meager 15% were boiling water. Majority were using cow dungs for cooking purpose and rearing animals at home. Prevalence of diarrhea has been found to be higher in rural areas of Sindh where animals are kept in households as shown in our study[18]. As previously stated children in houses using hand pump,

well or river water are more prone to diarrhea such was the case in our study as well[18]. One quarter residents did not own latrines and were defecating in the field a common socio-cultural practice in rural areas(Local Government Division., 2008)[26].

A study conducted in 2 villages of Pakistan showed that improving water quality reduces diarrheal incidence[27]. Lack of awareness on part of mother concerning safe drinking water, defecation practices, attitude towards hygiene and feeding hygienic food to children is implicated as a major cause[28]

Our strength lies in the fact that we conducted home based surveys[12] in local language overcoming that barrier. Strength is the cluster sampling technique employed for selecting the households from a large rural community setting with high participation rates that took care of bias. This study suggest a pressing need for focusing mothers attention on usage and proper preparation of ORS, maintenance of sanitation and hygiene and hazards of withholding feeding and fluids. First we relied on parental recall ability factor which at times jeopardizes the results shedding some doubts on certainty of diarrhea infact as informed by studies underestimating it.

Health messages should be mobilized via electronic and print media while educating gate keepers i.e. religious scholars, teachers etc by using health education tools which are locally acceptable. Primary Health Care centre, Basic Health Units, Lady health workers and trained volunteers have the potential to spread the word for battling down diarrhea as demonstrated by earlier studies[21]. Our study recommends it is high time decision makers design and implement interventions, motivate practitioners to treat by IMNCI guidelines and make vaccinations available.

CONCLUSION

Knowledge of diarrhea its treatment and prevention was ascertained to be quite bleak in our survey among rural residents of Sindh.

Our results displayed poverty besides illiteracy, improper water and sanitation facilities and unhygienic practices serving as barricades dragging down health indicators similar to other rural parts of countryThe survey provided vital information that can be harnessed to design targeted interventions aimed at improving the case management of diarrhea in the home and healthcare facilities and achieving a fruitful outcome.

REFERENCES

1. Hanif SM, Maqbool S, Arif MA. Textbook of Pediatrics. 5th ed. Karachi: PMA 2007; 14- 493.
2. Black RE, Cousens S, Johnson HL, et al. Global, regional, and national causes of child mortality in 2008: a systematic analysis. Lancet 2010; 375:1969-87.
3. Farthing M, Lindberg G, Dite P, Khalif I, Salazar-Lindo E, Ramakrishna BS et.al. World Gastroenterology Organization practice guideline: Acute diarrhea. © World Gastroenterology Organization 2008; 3-4.
4. Carneiro NB, Diniz-Santos DR, Fagundes SQ, et al. Clinical and Epidemiological Aspects of Children Hospitalized with Severe Rotavirus-Associated Gastroenteritis in Salvador, BA, Brazil. Braz J Infect Dis 2005; 9:525-8.
5. Abramson JS, Abzug MJ, Adger H et al. Nelson Textbook of Pediatrics. 18th ed. ELSEVIER 2008; 337: 1605.
6. Meier R, Burri E, Stenerwald M. The role of nutrition in diarrhea syndrome. Curropinclin Nutr Metab Care 2003; 6:563-7.
7. Kundi MZ, Ahmad I, Anjum M: Evaluation of diarrhoea management of health professionals trained at the diarrhea training unit of Rawalpindi General Hospital. JPMA 1997; 47:3-6.
8. Black RE, Allen LH, Bhutta ZA, Caulfield LE, De Onis M, Ezzati M et al. Maternal and child undernutrition: global and regional exposures and health consequences. Lancet 2008; 371:243-60.
9. World Health Organization. Diarrheal disease fact sheet 2013. http://www.who.int/mediacentre/factsheets/fs330/en/index.html accessed on 10th April 2013.
10. Cezard JP, Bellaiche M, Viala J, Hugot JP. Medication in infectious acute diarrhea in children. Arch Pediatr 2007; 14:169-75.
11. Seyal T, Hanif A. Knowledge, Attitude and Practices of the Mothers and Doctors Regarding Feeding, Oral Rehydration Solution (ORS) and Use of Drugs in Children during Acute Diarrhea. Annals 2009; 15:38-41.
12. Nasrin D, Wu Y, Blackwelder WC, Farag TH, Saha D, Sow SO et.al. The American Society of Tropical Medicine and Hygiene Health care seeking for Childhood Diarrhea in Developing Countries: Evidence from Seven Sites in Africa and Asia. Am J Trop Med Hyg 2013; 89:3-12.
13. Ansari M, Palaian S, Ibrahim M. The role of mothers in the management of childhood diarrhea in Nepal. Aust Med J 2009; 14:235-8.
14. Rehan SH, Gautam K, Gurung K. KAP of mothers regarding diarrhea. Indian J prevSoc Med 2003; 34:1-6.
15. Shah SM, Yousafzai M, Lakhani NB, Chotani RA, Nowshad G. Prevalence and correlates of diarrhea. Ind J Pediatr 2003; 70:207-11.
16. Zahid SS, Zehra N, Ullah S, Khan N, Javed MH, Khan M. Mother's Awareness and Practices Regarding Home Management of Childhood Diarrhea in a Squatter Settlement in Karachi. Pak J Med Dent 2014; 3:
17. Javed Z. Inadequate Health Facilities In Rural Areas. [online] 2013 [cited 2013 Aug 12]. Available from: URL: http://www.utrade.co/Magazine/Utrade

18. Agha A, white F, Younus M, Kadir MM, Alir S, Fatimi Z. Eight key household practices of integrated management of childhood illnesses (IMCI) amongst mothers of children aged 6 to 59 months in Gambat, Sindh, Pakistan. J Pak Med Assoc 2007; 57:288-93.

19. Rabbi SE, Dey NC. Exploring the gap between hand washing knowledge and practices in Bangladesh: a cross-sectional comparative study. BMC public health 2013; 13:89-95.

20. Berisha M, Gashi SH, Gashi M, Ramadani N. Maternal practice on management of acute diarrhea among children under five years old in Kosova. TAF Prev Med Bull 2009; 8(5):369-72.

21. CDC. Managing acute gastroenteritis among children 2003; November 21, /52(RR16):1-16.

22. The State of World's Children. 2007. [Online] Available from: http://www.unicef.org/publications/files/The_State_of_the_Worlds_Children_2007_Executive_Summary_.pdf

23. Gul R, Amin R. Knowledge, Attitude and Practice of Mothers Regarding Management of Diarrhea in Children of Early Age.J Dow Uni Health Sci2011; 5 (3): 129-31

24. UNICEF news, may 5, 2008, www.unicef.org/infoby country/pakistan.html

25. Kundu TR, ChaikulLP ,Sen-Ngam K. Relationship between Maternal Perceptions and Preventive Behaviors Regarding Acute Diarrhea of Children in Bangladesh. Palliative Care_009. 10 April 2010. PP 1-11

26. Local Government Division. (2008). Bangladesh country paper: Sanitation in Bangladesh Third South Asian Conference on Sanitation, SACOSAN-III.[Online] Available from http://www.un.org.np/sacosan/uploads/document/file/BANGLADESH

27. Nanan D, White F, Azam I, Afsar H, Hozhabri S. Evaluation of a water, sanitation, and hygiene education intervention on diarrhea in northern Pakistan. Bull World Health Organ 2003; 81: 160-5

28. Bangladesh: Hot weather poverty to blame for diarrhea outbreak (2008). InuestorRelationInformation Network (IRIN).