

FREQUENCY OF DIARRHOEA AND ITS RISK FACTORS AMONG CHILDREN UNDER-FIVE YEARS OF AGE IN THREE TEACHING HOSPITALS OF PESHAWAR

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ABSTRACT

OBJECTIVE:

To determine the frequency of diarrhea and its risk factors among children under-five years of age.

METHODOLOGY:

Study design was descriptive observational. Duration of the study was three months (Jan – March 2014). Study was conducted in three tertiary hospitals of Peshawar namely Lady reading hospital, Khyber teaching hospital & Hayatabad Medical Complex.

MATERIALS AND METHODS:

Sample size for this study was calculated based on diarrhea prevalence of 21% in Peshawar by using WHO sample size calculator. A total of 450 children under 5 years of age who were attending outpatient department of three tertiary hospitals of Peshawar were studied. After getting consent from parents of children, data was collected from parents. A semi structured questionnaire was used as study tool. Data was presented in the form of tables and graphs.

RESULTS:

Frequency of diarrhea was found to be 59% among those 450 children who attended pediatric OPD. Most susceptible age group was less than 2 years (88%). Common risk factors found to be involved in cases of diarrhea were illiteracy of mothers 77%, poverty 86.4% parents were having household income less than 20,000 PKR per month, bottle feeding 34%, improper hygiene (83% either don't wash or occasionally wash hands before feed, 52.3% mothers wash their hands with plain water after attending toilet), Joint families 58%, lack of proper immunization 54%, lack of clean drinking water 66%.

CONCLUSIONS:

Diarrhea is more common in younger children i.e.; less than 2 years of age. Illiteracy, low household income, bottle feeding, hand washing especially after attending toilet, joint family system and poor immunization status are the key risk factors.

KEY WORDS:

Diarrhea, risk factors, household income, illiteracy

INTRODUCTION

Diarrhea is one of the leading causes of mortality and morbidity in developing countries. Annually 1.7 billion diarrhea episodes occur around the world¹. Approximately 1.3 million deaths per year occurred among children under five years of age; this makes it second most common cause of child deaths worldwide. Presently half of the deaths occur in five countries: India, Nigeria, Afghanistan, Pakistan and Ethiopia². Prevalence of diarrhea in Pakistan was 23% according to Pakistan demographic health survey³. A study done on prevalence of diarrhea in Peshawar result showed that prevalence of diarrhea was 21% under 5 years of age⁴. Diarrhea is defined as passage of three or more stools in a day, of soft consistency than usual for the child or one watery stool. Major causative factors for diarrhea includes different bacteria's, viruses (esp. Rota virus accounting for 40% of all cases) and various parasites⁵.

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The frequency of diarrhea varies according to education of mother, being significantly lower among children of more educated mothers than among children of mothers with no education. This is probably because education provides the knowledge of the rules of hygiene, feeding and weaning practices, and the interpretation of symptoms which enhances timely action on childhood illness.⁶ In 2012, another study done in Nigeria results showed that common risk factors for diarrhea were low maternal education, non-exclusive breast feeding and previous diarrhea episode in siblings.⁷

Instead of widespread use of oral rehydration therapy (ORT) the incidence of diarrhea has not declined, this is because most population of the world especially developing countries lack access to portable water due to poverty and sanitation and lack of hygiene.⁸ The purpose of this study was to determine frequency and different risk factors leading to diarrhea Under-Five years of age coming to the three teaching hospitals of Peshawar. This study will help to find key risk factors which could be responsible for occurrence of disease among children especially under two years of age.

METHODOLOGY

It was a simple descriptive observational study conducted on 450 children attending outpatient department of pediatric unit of three tertiary care hospitals of Peshawar. This study was conducted for duration of three months from January to March 2014. Non probability convenient sampling technique was used. Children less than 5 years of age group coming to Pediatric OPD of these three tertiary care hospitals were included in the study and those children who were on antibiotics or are on drugs which can lead to diarrhea were excluded from the study. Pilot study was done on 10% sample size to check feasibility and applicability of the questionnaire. Data was collected from parents of sick children after taking a verbal consent, on a semi structured questionnaire. Sample size was calculated using WHO sample size calculator. Results were presented in form of graph and tables.

RESULTS

Out of 450 children studied 264 (59%) were having diarrhea as chief complaint as compare to rest of 186 (41%) children (Table 1). 232 (88%) children were under 2 years of age group and only 32 (12%) from between 2 years and 5 years. Out of 264 diarrheal patients mothers, 202 (77%) children mothers were illiterate. 225 (97%) mothers were housewives and only 9 (3%) were working mothers. Majority 228 (86.4%) of the parents have household income less than PKR 20,000/month and only 36 (13.6%) were earning more than PKR 20,000/month. 134 (50.8%) children were breast fed. 220 (83.3%) mothers said that they either occasionally or don't wash hands before giving feed to children and only 44 (16.7%) wash hands before giving feed to children. Majority of mothers said that they washed hands after use of toilet, however 126 (47.7%) mothers washed hands with soap and rest of the mothers used only plain water. 153 (58%) lived in joint family system and 111(42%) lived in nuclear family system. Only 121 (45.8%) were properly immunized and 143 (54.2%) were either not immunized or partially immunized. 173 (65.5%) families were using boring water and only 91 (34.5%) were using piped water.

Table: 01 Frequency of diarrhea among children Under-Five years of age

Diarrhea	Frequency	Percent
Yes	264	58.7%
No	186	41.3%
Total	450	100

Table: 02 Age group more susceptible to diarrhea

Age in months	Frequency	Percent
Less than 24 months	232	88%

More than 24 months	32	12%
Total	264	100

Table: 03 Common risk factors of diarrhea under 5 years of age

Risk factors		Frequency	Percent
Maternal education	Illiterate	202	76.5%
	Literate	62	23.5%
Household income	Less than 20,000	228	86.4%
	More than 20,000	36	13.6%
Feeding	Bottle	27	10.2%
	Breast	134	50.8%
Washing hands before giving feed	Yes (every time)	44	16.7%
	No or occasional	220	83.3%
Washing hand after attending toilet	Yes	225	85.2%
	No	39	14.8%
Hand wash with	Soap	126	47.7%
	Plain water	138	52.3%
Family system	Joint	153	58%
	Nuclear	111	42%
Immunization status	Immunized	121	45.8%
	No or partial immunized	143	54.2%
Source of water use	Boring water	173	65.5%
	Piped water	91	34.5%

DISCUSSION

Each year, an estimated 2.5 billion cases of diarrhea occur among children Under-Five years of age, and estimates suggest that overall incidence has remained relatively stable over the past two decades. More than half of these cases are in Africa and South Asia, where bouts of diarrhea are more likely to result in death or other severe outcomes. The incidence of diarrheal diseases varies greatly with the seasons and a child's age. The youngest children are most vulnerable: Incidence is highest in the first two years of life and declines as a child grows older. Despite these declines, diarrhea remains the second most common cause of death among children under five years of age globally, following closely behind pneumonia, the leading killer of young children⁹. This study showed a higher frequency 59% (264) of diarrhea out of 450 cases. While a similar study was done in 2012, by Kakulu in Tanzania showed the 33% diarrheal frequency out of 301 children Under-Five years of age.¹⁰ In our study most susceptible age for diarrhea was found to be children less than 24 months of age (88%). A study was done in 2011 by Khattak T A et al in PAF hospital, Rawalpindi showed that in acute watery diarrhea children peak age was between 13-24 months. This age group is important as a child passes through different developmental stages like teething, crawling, weaning etc¹¹. It is a known fact that there is a strong relationship between the child's health and the parents education especially mother's education. According to our study results illiterate mothers were found to be 76.5% and illiterate fathers were 28%. So illiteracy rate among mothers was very high. In Tanzania Kakulu, s et al study results showed that parent's education has a significant association with diarrhea¹⁰ In our study it was found out that most of the mother's were housewives (97%). In 2004, study done by Khan MH et al in Peshawar showed that mothers of diarrheal children's were largely housewives (96%). Fathers of those children's were either employed or self-employed 72%¹². Analysis results showed that 51% (134) children were exclusively breast feed. While 10.2% (27) children were on bottle feed and 23.5% (62) children received mixed feed (Breast + Bottle) and 15.5% (41) children was on solid food only the diarrhea rate is high in bottle feed then in the breast feed. While study

done by Khans' et al revealed that diarrhea episodes were more common 84% in formula-fed infants as compared to breastfed infants 16%¹². In our study the frequency of hand washing before feeding was found to be for every time 17% (44), occasional or no hand washing was 83.3% (220). This is an important risk factor for diarrhea especially in Under-Five years children. Similarly in our study results showed that only 85.2% mothers wash their hand every time after attending toilet and 52.3% wash their hand with plain water and only 47.7% wash with soap. In 2004, study done by Luby SP et al, in Karachi, results showed that in a setting in which diarrhea is a leading cause of child death, improvement in hand washing in the household reduced the incidence of diarrhea among children at high risk of death from diarrhea¹³.

In our study 86.4% families had income less than PKR 20,000 per month. Low income and non availability of proper nutrition most of children are having mild to moderate malnourish which make them prone for infections, like diarrhea & Respiratory Tract Infections. According to Khan, s study results low socio-economic status of parents corresponded with greater vulnerability of their infants¹². Analysis of data showed that joint families are 58% while nuclear are 42%. The impact of joint family on diarrhea disease is higher in joint families then nuclear family, because in joint family there are no proper hygienic measures during food preparation. Improper latrine cleaning and common latrine sharing among many people are associated risk factors for diarrhea. In our study Children's with the complete immunization were 45.8% (121), with partial or no immunization 54.2% (143). Immunizations help reduce deaths from diarrhea in two ways: by helping prevent infections that cause diarrhea directly, such as Rotavirus, and by preventing infections that can lead to diarrhea as a complication of an illness, such as measles. Rotavirus is estimated to cause about 40 per cent of all hospital admissions due to diarrhea among children under -five years of age worldwide. Diarrhea is one of the most common causes of death associated with measles worldwide¹⁴. The study results showed the frequency of boring water 65.5% (173), pipeline 18.9% (85) and other method 6 (1.3%). In 2011, study done by Kakakhel ZM et al, in Nurpur Pakistan, results showed that Of the 107 households surveyed, 2.8% used wells, 63% used tap water and 32.7% used hand pumps, whereas only 0.9% consumed store-bought water as their major source of drinking water¹⁵.

CONCLUSION

Frequency of diarrhea among children under five years of age was 59% in Peshawar. Diarrhea is more common in younger children i.e.; less than 2 years of age. Illiteracy, low household income, bottle feeding, hand washing especially after attending toilet, joint family system and poor immunization status were the key risk factors.

RECOMMENDATIONS

On the basis of results of this study, the following recommendations can be made to reduce the burden of disease in the community.

1. Effective diarrheal control program would help in reduction of diarrhea.
2. Health education about the awareness of risk factors for diarrhea would help in reducing diarrhea morbidity.
3. Improve immunization status among children especially less than 2 years of age.
4. Promotion of breast feeding would also help in prevention of diarrhea.
5. Provision of safe drinking water is another key effort that would help in reducing the diarrhea.

REFERENCES

1. Patel P.K, Mercy J, Shenoy J and Ashwini B. Factors associated with acute diarrhea in children in Al-Dhahira region, Oman: A hospital based study: WHO/EMRO. *Eastern Mediterranean Health Journal*. 2008; 14 (3): 571-578.
2. UNICEF/Health/acute diarrhea still a major cause of child death. 2012
3. Child Health. Demographic and health survey 2012-2013, Pakistan; 2013: 147
4. Gul R, Tariq M, Zeb A, Safeer M, Prevalence of diarrhoea and use of oral rehydration salt in children of rural and urban areas of Peshawar, *JPMI*. 2011; 25 (01): 40-43
5. Infectious diseases. Basis of pediatrics. 8th edition, Pakistan; 2014: 191
6. Vafae A , Moradi A , Khabazkhoob M, case control study of acute diarrhea in children, *JRHS*. 2008; 8 (1): 25-32
7. Yilgwan CS, Okolo SN. prevalence of diarrhea and risk factors in jos university teaching hospital., Nigeria., *Ann Afr Med* 2012; 11: 217 -21
8. Ruxin Jan. Magic bullet: The history of oral rehydration therapy. *Med Hist* 1994;38:363 - 97. [PUBMED]
9. Boschi Pinto C, Lanata C and Black R. 'The Global Burden of Childhood Diarrhea', In: Ehiri, J.E & Martin (editors), *International Maternal and Child Health*, 2009
10. Kakulu R K. Diarrhea among under fiveyears of age children and household water treatment and safe storage factors in mkuranga district, Tanzania, *Muhimbili University of Health and Allied Sciences*, 2012: 38-42.
11. Khattak T A, Ali S, Safdar S, Aslam M S. Frequency of rotavirus infection in children with acute diarrhea, *Pakistan armed force medical journal* March 2011; 61(1).
12. Khan MH, Shah S H, Sarwar G, Anwar S, Bashir G, Gul N, Begum J. Factors affecting the frequency of infantile diarrhea, *Gomal Journal of Medical Sciences* 2004; 2(1): 6-8.
13. Luby SP, Agboatwalla M, Painter J, Altaf A, Billhimer WL, Hoekstra RM. Effect of intensive hand washing promotion on childhood diarrhea in high -risk communities in Pakista n: a randomized controlled trial, *JAMA* 2004 ;291 (21): 2547-54.
14. *Weekly Epidemiological Record*,2008; 91(21):2547-54.
15. Kakakhel ZM1, Ibrar S, Khan WA, Bibi H, Zamir SA, Khan SS, Khan S, Khan S, Tariq W, Tahir MH, Iqbal S. Assessment of frequency of diarrhoea in relation to drinking water among residents of Nurpur Shahan, Pakistan, *J Pak Med Assoc* 2011 Sep;61(9):934 -7



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