Original Article

SOCIAL AND DEMOGRAPHIC CHARACTERISTICS OF ACUTE DIARRHEA IN CHILDREN AGED 2-6 YEARS

Arshad Ali Lakho, Ashraf Ali

ABSTRACT

Object: The goal of this study was to see association between socio-demographic characteristics and acute diarrhea in children treated in the outpatient department.

Methodology: This was a case control study, conducted at Outpatient department of Pakistan Institute of Medical Sciences, Islamabad from July 2020 to July 2021. A total of 270 patients were selected for the study, having age between 2-6 years. Among them, 107 were the cases of acute diarrhea while 163 were selected as normal control. A structured questionnaire was prepared for analysis of the data.

Results: Regarding the child's age, mother's employment position, and kacha type of housing, there was a statistically significant correlation between cases (with diarrhea) and controls (without diarrhea) (p<0.001). There was also a statistically significant link between rural living and the absence of diarrhea (p<0.001).

Conclusion: Childhood diarrhea risk factors vary by population, with certain factors being more relevant than others in specific circumstances. Children aged 2-3 years had a higher risk of diarrhea than children aged 4-6 years. Similarly, cases of acute diarrhea in infants have been linked to mothers' employment status and living in a city.

Keywords: Children, acute diarrhea, socio-demographic factors.

Correspondence
Dr. Arshad Ali Lakho
FCPS Pediatircs
Senior Registrar
CDA Hospital Islamabad
Pakistan
Email: arshad.lakho34@yahoo.com

INTRODUCTION

In underdeveloped nations such as Pakistan, diarrhea is a leading cause of child mortality and morbidity.[1]Only five nations account for more than half of these deaths including Pakistan, India, Afghanistan, Ethiopia, and Nigeria.[2]In order to effectively eradicate and prevent child mortality, we must first identify the root cause of illness.

Predisposing factors for childhood diarrhea in Pakistan include poor socioeconomic and sanitary circumstances, contaminated water supplies, a lack of public awareness, and poverty.[3]According to statistics, Pakistani children under the age of five experience roughly 120 million episodes per year on average.[4]It is critical that the most relevant risk factors for diarrhea be identified in communities first through study. The frequently known relationships have been investigated in developed countries, although these associations may differ in other geographical situations.[5]Pakistan has long had a nationwide program of primary health care delivered by Lady Health Workers (LHWs), who deliver basic health services to people's homes. Despite improvements in child health services such as hygiene awareness and immunization schedules, the message has not been properly translated, as evidenced by low recognition.[6]Certain family-

Related demographic characteristics, such as early marriages, uneducated moms, and maternal work, were found to be substantially correlated with diarrhea morbidity. Acute diarrhea is most common in children under the age of six, and especially in babies.[7]In most of the research, boys have a higher rate of diarrhea than girls.[4]It is possible that the gender disparity noticed is due to societal pressures that favor males over females. Mothers are the major caregivers for infants under the age of six, and most studies have found a link between educated mothers and the lack of diarrhea.[8]Policies aimed at reducing diarrhea in children should focus on children whose moms are illiterate or undereducated.[8]Education, on the other hand, does not work in isolation; it interacts with other essential factors and may or may not yield societal advantages, depending on the circumstances.

In most studies, younger mothers complained of diarrhea more frequently than older mothers, which could be explained in part by their experience in childcare. Another reason could be that older mothers tend to have more children and so have greater experience managing diarrhea.[9]Diarrhea in children has also been linked to a low socioeconomic position. Increased household income may aid in the reduction of diarrhea morbidity in toddlers by addressing their dietary needs and providing improved sanitary conditions. In 2016, research conducted in three Peshawar teaching hospitals found that 86.4 percent of households had an income of less than 5000 to 20000 per month, and that their children's nutritional needs were not addressed because of their poor income level. As a result, their immune systems were compromised,

and they were more susceptible to infections, such as diarrhea.[10] The current study was carried out to investigate the socio-demographic characteristics associated with acute diarrhea in children 2-5 years of age in Pakistan, because Pakistan has a high burden of diarrheal illness. Identifying the causes of diarrhea is critical for successful prioritization of child health-promoting programs and policy formulation, as well as resource needs in each location. As a result, the purpose of this study was to determine the socioeconomic risk factors for the occurrence of childhood diarrhea in children aged 2–6 years.

METHODOLOGY

This was a case control study, conducted at Outpatient Department of Pakistan Institute of Medical Sciences, Islamabad. The study was carried out for the period of 6 months (July 2020-July 2021). Children aged 2 to 6 years old were chosen from the Family Outpatient Department who had been proven to have acute diarrhea based on history taking. The study excluded children with chronic diarrhea, any other ailment, or who were very malnourished. Controls were children aged 2 to 6 years old who were found to be healthy and not suffering from acute diarrhea based on their history and signs/ symptoms. They were chosen from the vaccination center. There was also a check to see if the infant had any additional medical or surgical issues. The minimum required sample size (n) 100 for each group was obtained using the WHO sample size calculator, with a 95% confidence level and a 5% margin of error. The test's power was set at 80%, and the odds ratio test value was set at 1. The likelihood of being exposed to a disease is expected to be 0.2754. Data was collected via non-probability sequential sampling. As a result, 270 children were enrolled in the trial, 107 of whom experienced diarrhea and 163 of whom did not, resulting in a 2:1 ratio of diarrheal to non-diarrheal children. Data was gathered from mothers using a standardized questionnaire with semi-closed questions. The questionnaire was divided into two parts: the first dealt with demographic and socioeconomic characteristics, while the second dealt with questions about sanitary practices. In this study, only the first section of the questionnaire was used. The data collection process was taught to two study assistants. The study included two sorts of variables: dependent variables and independent variables. Only acute diarrhea was a dependent variable, but demographic and socioeconomic factors were independent variables in this study. After describing the study's objective and benefits to the participants, their permission was obtained, and participation in the study was completely voluntary. For data entry and analysis, SPSS version 24 was utilized. Continuous data were given descriptive statistics such as means, modes, and standard deviation, whereas categorical data were given frequencies and percentages. The chi-square test was performed to compare attributes between different groups, with a p-value of 0.05 considered significant.

RESULTS

There were 270 children in total, 158 (58.51%) of whom were males and 112 (41.48%) of them were females. The average age of the 270 children in the study was 4.27±1.22 years, whereas the average age of the mothers was 27.45±6.48 years.

Socio demographic parameters of children and mother including age, gender, area of living, education status of mother and living style are summarized in Table 1. Various risk factors were examined between cases and controls, and the statistical and epidemiological significance of differences was established using the chi square test and odds ratios (Table 2) There was a statistically significant link between acute diarrhea and age in children aged 2-3 years, and the risk of acute diarrhea decreased with age. A youngster aged 2-3 years had 15 times the chance of suffering acute diarrhea than a child aged 4-6 years. Working mothers, living in a city, and having a kacha kind of dwelling all had a high significant relationship (p<0.01).There was no link between acute diarrhea and the mother's educational status (p=0.88) or the father's monthly income (p=0.51) (Table 2).

Table 1: Socio-demographic parameters of participants (n=270)		
Parameter	**Frequency (number)**	**Percentage (%)**
Age		
2-3 years	145	53.70
4-6 years	125	46.29
Gender		
Male	158	58.51
Female	112	41.48
Age of Mothers		
≤30 years	177	65.55
>30 years	93	34.44
Area of Living		
Rural	166	61.27
Urban	104	38.51
Education of Mother		
Formal	205	75.92
Not formal	65	24.07
Working Status of Mothers		
Housewife	211	78.14
Working	59	21.85
Monthly Income		
<Rs. 10k	32	11.85
Rs. 10k – 30k	202	74.81
>Rs. 30k	36	13.33
Type of House		
Pakka	191	70.74
Kacha	79	29.25

Table 2: Risk Factors and their Comparison in Acute Diarrhea (n=270)					
Parameter	Diarrhea		p-value	Odds Ratio	95% CI
	Case (n/%)	Control (n/%)			
Age of Child					
2-3 years	95 (65.51%)	50 (34.48%)	<0.001	20.98	11.12 – 43.91
4-6 years	12 (9.6%)	113 (90.4%)			
Gender					
Male	67 (42.40%)	91 (57.59%)	0.15	1.41	0.91 – 2.05
Female	44 (39.28%)	68 (60.71%)			
Education of Mother					
Formal	13 (25%)	39 (75%)	0.62	0.88	0.49-1.59
Not formal	93 (42.66%)	125 (57.33%)			
Working Status of Mother					
Housewife	113 (53.55%)	98 (46.44%)	<0.001	3.11	1.77-5.41
Working	27 (45.76%)	32 (53.23%)			
Monthly Income					
≤30k	105 (44.87%)	129 (55.12%)	0.51	1.09	0.82-1.79
>30k	11 (30.55%)	25 (69.44%)			
Type of Living					
Pakka	78 (40.83%)	113 (59.16%)	<0.001	1.59	1.19-3.12
Kacha	32 (40.50%)	47 (59.49%)			
Setting of Living					
Urban	41 (39.42%)	63 (60.57%)	<0.001	1.78	1.12-2.59
Rural	52 (31.32%)	114 (68.67%)			

DISCUSSION

In present study, risk of diarrhea was higher in children aged 2–3 years compared to children aged 4-6 years, which is confirmed by a study conducted in Tanzania by Mashoto, who found that diarrhea prevalence reduced gradually after the second birthday in children under the age of five. [11] These findings support prior research that indicated that as a child grows older, the risks of being a victim of diarrhea diminish.

The gender of the child was not a statistically significant predictor of childhood diarrhea in our study, which was like the findings of Kijakazi et al. [12] However, some studies have found a link between childhood diarrhea and boys, such as Anteneh et al's study [13], which found that boys were more impacted than their female counterparts. This could be because males who were playing outside were more likely to take up dirt from the ground.

There was no significant link between maternal education and lower diarrhea incidence when it came to mothers' educational status. It is worth mentioning that, in comparison to prior research of similar type, this conclusion was somewhat surprising. 348,706 children from 40 developing countries were included in a multilevel analysis of data from the Demographic and Health Surveys and the World Bank. Lack of maternal education was linked to diarrhea (OR=1.416; 95 percent CI 1.283-1.564), along with other variables. [7] Ghasemi et al. conducted a cross-sectional study in Kashan, Iran, to assess mothers with children under the age of five years' awareness of diarrhea, its prompt care, and the relationship between this knowledge and specific demographic variables. The mothers' knowledge had no statistically significant relationship with their schooling (p-value 0.096). [14] These findings demonstrated that, in terms of projected positive benefits on child health, we cannot rely solely on mother education. Higher levels of maternal education may be required as a precondition for improved child health, and super additive actions may be required.

When parental occupation was compared to childhood diarrhea, a substantial link was seen. Children with working moms had a higher risk of diarrhea than children whose mothers were housewives, according to our research. Children of mothers who were engaged in any outdoor job were almost two times more likely to develop diarrhea than children of mothers who were not working, according to a study collected from the National DHS data utilizing data extraction techniques in Northwest Ethiopia. [15] Working mothers' children were 14 percent more likely than non-working mothers' children to suffer from diarrhea. This research backs up those who argue that a mother's job is harmful to her child's health. Absence of mothers from the home not only disrupts the home's internal system, but it also has negative impacts on children's health when coupled with insufficient socioeconomic support. [16] The current study found a statistically significant relationship between diarrhea and the kind of housing (Kacha or Pakka). Oluranti Epko's study in Nigeria, like ours, found a link between Kacha home and diarrhea in young children (OR = 0.73, 95 percent CI = 0.40-1.19). [17] When comparing dwellings, it was discovered that children in urban areas are more likely to get diarrhea than children in rural areas. Because our water lines are clogged with filth, most Pakistani homes consume bacterially polluted water. Another study was carried out at Mbour over a four-year period. The 24 health facilities accounted for a total of 111,302 child visits. It was discovered that the incidence of diarrheal cases was higher in urban regions than in rural areas (24.4 percent vs. 19.9 percent). [17] Another study conducted in Kenya found that children living in rural regions were less likely than children living in urban areas to have suffered diarrhea. [18] When asked about their monthly income, the majority said they earned between Rs 10,000 and Rs 30,000, and interestingly, no link was found between diarrhea and monthly income of

less than Rs 30,000/- or more. In a study conducted by Kalakheti, diarrhea was found to be less common when the father had a regular or stable work, regardless of whether it paid more or less than Rs.30, 000. [19]

CONCLUSION

Although diarrhea morbidity varies by geographical zone, we were able to emphasize the importance of a few parameters that may be useful in the development of disease control programmed in children.

The age of the child exhibited a substantial relationship with acute diarrhea. Children aged 2-3 years old had a higher risk of getting diarrhea, which decreased as they grew older. Working status of the mother and living in an urban area were also found to be strongly linked with cases when compared to controls. The child's gender and monthly income were the only independent variables that did not have a significant relationship between cases and controls. Surprisingly, maternal education had no significant relationship in our research. These aspects need to be investigated further to eliminate the main cause of diarrhea.

Conflict of interest: None.
Funding Source: None.

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Authors

1. Dr. Arshad Ali Lakho
   FCPS Pediatrics
   Senior Registrar
   CDA Hospital Islamabad
2. Ashraf Ali
   MBBS
   Medical officer
   Health Service Academy, Islamabad

Authors Contribution	
Arshad Ali Lakho	Drafting and methodology, data interpretation
Ashraf Ali	Conception of study design, acquisition, analysis, and interpretation of data.