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The Prevalence And Risk Factors For Diarrhea In Young Children Under The Age Of Five In A Slum Area Near A Tertiary Care Hospital In Maharashtra, India.

Vivek Deshpande[1], Suresh Waydande[2], Abhijeet Shinde[3]*, Sushruta Kumar[4], Sunil Natha Mhaske[5], and Anshul Srivastava[6].

[1]Associate Professor, Department of Paediatrics, DVVPF's Medical College, Ahmednagar, Maharashtra, India.
[2]Professor & Head, Department of Paediatrics, DVVPF's Medical College, Ahmednagar, Maharashtra, India.
[3]Assistant Professor, Department of Paediatrics, DVVPF's Medical College, Ahmednagar, Maharashtra, India.
[4]Assistant Professor, Department of Paediatrics, DVVPF's Medical College, Ahmednagar, Maharashtra, India.
[5]Professor & Dean, Department of Paediatrics, DVVPF's Medical College, Ahmednagar, Maharashtra, India.
[6]Junior Resident, Department of Paediatrics, DVVPF's Medical College, Ahmednagar, Maharashtra, India.

ABSTRACT

To determine the prevalence and risk factors for diarrhea in children under the age of five. A population-based analytical cross-sectional study on the incidence of diarrhea and feeding patterns, nutrition, and immunization was carried out in the slums close to a tertiary care medical center. Diarrhea affected 28.5% of the population overall, with 54.5% of males and 45.4% of females. Children from 7 to 12 months had 38.6% occurrences of diarrhea, but as they aged, the prevalence of diarrhea rapidly reduced. Infants who were nursed for less than six months experienced a 35% increase in diarrhea and children who were exclusively breastfed a 20.33 % increase. The prevalence of diarrhea was 21.8% in fully immunized children and 33.3% in partially immunized children. The frequency of diarrhea was 23% in children who were bottle-fed. Diarrheal illness risk was 19.80% in healthy participants and 27.45% in underweight children. The current study identified a high prevalence of diarrhea in children under the age of 5 years on focused on the demographic features, feeding practices, immunization practices, and nutritional status as risk factors of diarrhea.

Keywords: Diarrhea, slum area, feeding practices, immunization practices

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Corresponding author

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INTRODUCTION

Diarrhea remains one of the most significant childhood diseases in both industrialized and developing nations, despite the fact that medical research has achieved enormous progress in the previous few decades in reducing the global rate of child death from diarrhea [1, 2]. Around 1.5 million children die from diarrhea annually, which is one of the world's top causes of death among children [3, 4]. Consistent episodes of diarrhea result in both short-term and long-term negative health effects, such as malnutrition, linear growth stunting, and poor neurodevelopment [5]. Childhood diarrhea has been linked to poor mother education, not breastfeeding, age 24 months, and inadequate water, sanitation, and hygiene (WASH) practices [6, 7]. 2687 young children under the age of five who lived in urban slums were examined as part of the National Family Health Survey (NFH), which was conducted in 2005–2006. According to the findings, during the two weeks before to the study, 8.3% of children under the age of five living in slums had diarrhea. Diarrhea affected 14.6% of babies overall, compared to 12% of children between 12 and 23 months [8]. Lack of maternal education, breastfeeding for less than a year, a lack of exclusive breastfeeding, roundworm infestation, nutritional status, immunization status, nearsightedness, female sex, literacy, overcrowding, personal hygiene, garbage disposal, water source, and restroom facilities are risk factors associated with the occurrence of diarrhea [9, 10]. Even though diarrhea is a leading cause of death in children, most of these deaths can be prevented by addressing the disparities in intervention coverage [11]. There is no common strategy that can prevent childhood diarrhea, however, as risk factors can differ between and even within different nations [12, 13]. Additionally, analyzing subnational variations in risk variables for diarrheal mortality at the national level can obscure subnational differences and offer scant information for policymaking [14].

The population of low-resource countries is diverse, including members of all castes, creeds, and faiths, with a wide range of lifestyles. Additionally, dietary habits, vaccination status, and feeding methods are significant risk factors for pediatric diarrhea. Because of this, the purpose of the current study was to determine the prevalence and risk factors of diarrhea in kids under the age of five.

METHODOLOGY

A population-based analytical cross-sectional study of young children under the age of five was conducted in a slum neighborhood near a tertiary care medical facility. A sample size of 154 was achieved after a comprehensive count of children under the age of five. An interview schedule was created at the institute with help from the professors as the data collection instrument. Each participant was given a detailed questionnaire that asked about their socio-demographic traits, socio-economic status (SES), and many health-related factors.

Inclusion criteria

Children under the age of five living close to the tertiary care hospital in a nearby slum.

Exclusion criteria

Persistent diarrhea for more than 2 weeks duration.

Caregivers/ Parents who did not signed the informed written consent

Data Collection

The institutional ethical committee granted the required consent. The people who responded to the survey were the kids' guardians or caretakers. As a result, the study's goal was conveyed to all of the caregivers, and complete anonymity was guaranteed. Prior to the trial, written informed consents were obtained from each caregiver. If they wished, individuals might have chosen not to take part in the study's data collecting.

The primary researcher conducted house-to-house visits in the homes of the caregivers who had come to our medical center complaining of diarrhea in order to gather data utilizing the interview technique. A total of 154 children under the age of 5 were interviewed over the course of the survey, which involved 7-8 children on average every day. After that, information on socio-demographics,

economics, feeding customs, and baby and child morbidity was gathered using a pre-made, pre-tested, semi-structured questionnaire. Using a modified Kuppuswamy scale and the price index for 2012 [15], the family's socioeconomic status was assessed.

On the basis of information from the kid's careers, the ages of the child's siblings, the birth certificate, the mother's and child's child protection card, other available medical records, etc., every attempt was taken to determine the child's actual age. The Indian Academy of Pediatrics' growth chart was used to plot the nutritional condition and provide a grade based on the projected weight for age. The children were weighed barefoot and in minimal clothing on a bathroom scale that was calibrated for weighing people. When the youngster was unable to stand, the caregiver's weight was subtracted from the child's weight in order to round the weight to the closest 500 g.

Statistical analysis

MS-Excel spreadsheets were used to record and analyze the acquired data. The statistical analysis was carried out with the aid of GraphPad InStat3. The epidemiological variables in this study were analyzed using percentages and Chi-square testing.

RESULTS

Children under the age of five who were from a diverse group in terms of caste, employment, and income made up the study population. The study included a total of 48% male and 51.9% female children under the age of 5.

The majority of research participants (28.5%) were under 1 year of age, and the age groups with the highest prevalence of diarrhea were 7 to 12 months (38.6%), followed by 13 to 24 months (25%).

Diarrhea was reported to be prevalent in the population overall at 28.5%. In the study population, men (54.5%) had more diarrhea than women (45.4%) did. The frequency of diarrhea significantly decreased as the kids aged.

In our study, scheduled castes and scheduled tribes accounted for 96.2% of instances. According to the modified Kuppuswamy scale, the majority of families belonged to upper-lower socioeconomic classes. 20.3% of infants who were exclusively breastfed and 35% of infants who had been breastfed for less than six months experienced diarrhea.

Children who were bottle-fed had a diarrhoea prevalence of 23% compared to 20% for children who were not. Both fully and partially immunized children experienced a prevalence of diarrhea of 21.8% and 33.3%, respectively. To determine the risk for diarrhea in connection to immunization status, children with completed primary immunization status were compared to children who had only had partial immunization. In healthy children, the risk of diarrhea was 19.8%, whereas in malnourished children, it was 27.4%.

Table 1: Distribution of diarrhoea among the study participants

Age in month	Male, n (%)			Female			Total n(%)	Overall diarrhea, n(%
	Diarrhoea present	Diarrhoea absent	Total %	Diarrhoea present	Diarrhoea absent	Total %		
0-6	2(28.5%)	5(71.4%)	7(9.4%)	3(33.3%)	6(66.6%)	9(11.2%)	16 (10.3)	5(11.3)
7-12	8(61.5%)	5(38.4%)	13(17.5%)	9 (60%)	6(40%)	15(18.7%)	28 (18.1)	17(38.6
13-24	6(35.2%)	11(64.7%)	17(22.9%)	5(26.3%)	14(73.6%)	19(23.7%)	37(24)	11(25)
25-36	4(40%)	6(60%)	10(13.5%)	1(12.5%)	7(87.5%)	8(10%)	18(11.6)	5(11.3)
37-48	2(11.7%)	15(88.2%)	17(22.9%)	1(5%)	19(95%)	20(25%)	37(24)	3(6.8)
49-59	2(20%)	8(80%)	10(13.5%)	1(11.1%)	8(88.8%)	9(11.2%)	19(12.3)	3(6.8)
Total	24(32.4)	50(67.5%)	74 (100)	20(25%)	60(75%)	80(100)	154(100)	44(100)

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Table 2: Correlates of diarrhoea among the study participants

Correlates	Diarrhoea presentation%	Diarrhoea absent, n%	Total	Odds ratio	Statistical analysis
Breast feeding (n=138)					
Less than 6 months	7	13	20	1.8	$\chi2 = 0.64$, df = 1, P = 0.4237
For 6 months	24	94	118		
Bottle feeding (n=153)					
Yes	6	18	24	1.27	$\chi2 = 0.04$, df = 1, P = 0.8415
No	28	101	129		
Immunization status (n=154)					
Partially immunized	4	8	12	1.53	$\chi2 = 0.04$, df = 1, P = 0.8415
Completely immunized	31	111	142		
Nutritional status(n=152)					
Underweight	14	37	51	1.53	$\chi2 = 0.74$, df = 1, P = 0.3897
Normal	20	81	101		

DISCUSSION

We determined a number of socio-demographic, immunization, and nutritional risk factors and discovered a significant prevalence of diarrhea in children under the age of five. Diarrhea was reported to be prevalent in the population overall at 28.5%. The majority of diarrhea cases among children were in the 7–12 month age range. As people get older, diarrhea was less common. A study by Tiwari et al [16], found that, comparable to our study, children under the age of 5 had a slightly higher incidence of acute diarrhea (27.3%). According to a study conducted in South India, children aged 7 to 12 months have a much higher prevalence of severe diarrhea (40.7%) than children in other age groups.

This may be due to the introduction of weaning meals at this age, as well as the child's increased exposure to environmental conditions when they begin to crawl and walk. The age range from 13 to 24 months was discovered to be the next most vulnerable. Due to the defense provided by nursing, the prevalence of diarrhea was determined to be only 17% in the age range 0-6 months. Following 6 to 11 months, the risk of diarrhea starts to decline; this is likely because the kids start to develop pathogen immunity after frequent exposure [18]. In our study population, males (54.5%) had more diarrhea than females (45.4%). These results contradict a research by Stanley et al [17]. that found that females are more affected. In NFHS-1, NFHS-2, and NFHS-3 [19-21], there was no difference in the prevalence of diarrhea between the sexes. 20.33% of infants who were exclusively breastfed and 31.57% of infants who had been breastfed for less than six months both had diarrhea. Diarrhea was more common in children who were bottle-fed (26.08%) than breast-fed (21.70%). When breastfeeding is terminated at 6 months, the likelihood of developing diarrhea increases by 19% and the likelihood of developing an acute respiratory infection increases by 25% [22]. Due to the milk contamination that occurs when babies are fed from bottles, diarrhea is more common. Bivariate analysis [23] revealed a significant association between bottle feeding and increased diarrheal morbidity. It was discovered that weaned infants' diarrhea risk is double that of mixed-fed infants' between the ages of 0 and 11 months, and that mixed-fed infants likely to have a higher risk of diarrhea than fully breastfed infants. In essence, there are genuine health concerns associated with mixed feeding, especially for infants younger than 7 months and for those weaned before 6 months of age [24]. In our study, children who received all recommended vaccinations had a prevalence of diarrhea of 21.83%, compared to children who received just partial vaccinations, which was statistically insignificant at 33.3%. Children who were just partially immunized had a higher chance of developing diarrhea [odds ratio (OR) 1.53] than children who were fully immunized. This is a result of immunization's protective effects, particularly with regard to immunization against measles. In the study population, 88.9% of the kids had received all their recommended vaccinations. According to our study, undernourished children had a 27.45% higher risk of diarrhea than healthy individuals, who had a 19.80% risk. Children who were malnourished were 14.4 times more likely to experience acute diarrhea than healthy kids. One of the main risk factors for mortality in children

is their low nutritional state. According to a study conducted in Bangladesh, hospitalized children with acute malnutrition and diarrhea are at an increased risk of dying. The main causes of death among the very underweight children with diarrhea in this study were found to be hypothermia, clinical septicemia, and bronchopneumonia [25].

CONCLUSION

The current study found that children under the age of five had a significant prevalence of diarrhea. and highlighted a number of sociodemographic, dietary, and environmental risk variables that may be altered by effective public education.

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