https://doi.org/10.29309/TPMJ/2024.31.03.7603

The Professional Medical Journal
www.theprofesional.com
2024, Volume, 31 Issue, 03

ORIGINAL ARTICLE

Anemia and its associated factors in children aged 2-5 years in slum area of Multan.

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Article Citation: Arshad U, Ijaz B, Adil K. Anemia and its associated factors in children aged 2-5 years in slum area of Multan. Professional Med J 2024; 31(03):452-456. https://doi.org/10.29309/TPMJ/2024.31.03.7603

ABSTRACT… Objective: To determine the prevalence of anemia among children aged 2-5 years in slum area of Multan and also to detect the associated factors of this condition. **Study Design:** Descriptive Cross Sectional Study. **Setting:** Slum Area (Jahangirabad) of Multan. **Period:** February 2023 to March 2023. **Methods:** A total of 369 children of 2-5 years of age, not suffering from psycho-motor retardation, hormonal disorders, chronic debilitating diseases, congenital heart diseases, or acute severe illnesses were included in study using non-probability convenient sampling technique. Information was taken by using a pretested questionnaire. **Results:** The mean age was 3.5 and SD ±2.2. The prevalence of anemia was 55.83% (n=369). About 51.46% of anemic children had mild anemia. There was no gender variation in occurrence of anemia (p = 0.52). There was significant association between mother's education, occupation and anemia respectively (p = 0.01, 0.00). **Conclusion:** Anemia is a growing health issue in our new generation and government and health professional should manage this issue.

Key words: Anemia, Associated Factors, Children, Slum Area.

INTRODUCTION

A disorder known as anemia occurs when the body does not produce enough healthy red blood cells.[1] For children between the ages of six months and six years, the hemoglobin level is below 11 g/dl in this case. Because hemoglobin is necessary to deliver oxygen, a deficiency in red blood cells or hemoglobin might reduce the blood's ability to transfer oxygen to different tissues. Anemia due to a lack of iron is highly common in our community.

We refer to anemia as a phenomenon brought on by hunger rather than a disease. This issue is made worse by infections like hookworm and malaria in children. This syndrome is common in developing countries due to hygienic conditions that negatively impact people's economy and well-being.[2] It causes children's mental health issues in addition to developmental difficulties. Approximately 2 billion people worldwide suffer from anemia[3], of whom 42% are younger than 5 years old.[4]

The notable incidence of this health issue in youngsters in poor nations like Pakistan is 43.2%.[5] All age groups are impacted by this syndrome, regardless of gender or religious affiliation.

In order to gather information regarding anemia in children and develop appropriate strategies to address this issue, a survey was conducted. The purpose of this study was to ascertain the prevalence of anemia in children between the ages of two and five as well as to identify risk factors for the illness.

METHODS

In February and March of 2023, a descriptive cross-sectional study was conducted in Multan's Jahangirabad slum neighborhood, with institutional and ethical approval (IRB-2023, No-2544). Using a non-probability convenient sampling technique, 369 children between the ages of 2 and 5 who did not have psycho-motor retardation, hormonal problems, chronic debilitating diseases, congenital heart diseases, or

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Article received on: 27/05/2023
Accepted for publication: 16/12/2023

acute severe illnesses were included in the study. The study excluded children who were younger than two years old and older than five years old. Researchers obtained informed permission from research participants. The necessary demographic data was gathered through the use of a structured questionnaire. Hemoglobin levels were estimated using blood samples that were obtained. Anemia was classified as light if the hemoglobin level was between 10.0 and 10.9 g/dl, as moderate if it was between 7.0 and 9.9 g/dl, and extremely severe if it was less than 7.0 g/dl. The Statistical Package for the Social Sciences (IBM SPSS version 20.0) was used to examine the data. There was stratification based on mother education, occupation, age, and gender. Applying the post-stratification chi square test, significance was determined by considering $p \leq 0.05$.

RESULTS

The study population consisted of 369 individuals, with a mean age of 3.5 and SD ±2.2. Of these, 155 (42%) were female and 214 (58%) were male. The majority of the kids (43.36%) belonged to the 2-3 year age group. Thirty-six (82.93%) moms were employed as housewives, and about 201 (54.47%) were illiterate. 40.9% of families earn between 20,000 and 50,000 rupees. Of the children, 60 (16.26%) had begun weaning before the age of six months. Of the children that took iron syrups, just forty-five (12.19%) had taken iron supplements. The stool analysis revealed that worm infestations affected 58 youngsters, or 15.72 percent of the total.

Anemia was seen in 206 people overall (55.83%). Table-II shows that 106 (51.46%) of the anemic under-five children had mild anemia, 68 (33%) had moderate anemia, and 32 (15.54%) had severe anemia. The prevalence of anemia did not differ in males and females (55.61% vs. 56.13%; p= 0.52). The age group of two to three years old has the highest frequency of any age group (68.75%). Children of illiterate mothers had a high frequency of anemia (60.2%) (p=0.01). The mother's work and the prevalence of anemia in children were significantly correlated (p=0.00).

Gender	male	214	58%
	female	155	42%
Child age	2 - 3 years	160	43.3%
	>3 – 4 years	112	30.35%
	>4 – 5 years	97	26.28%
Mother's education	Illiterate	201	54.47%
	primary	103	27.92%
	Secondary & above	65	17.61%
Mother's occupation	House wife	306	82.93%
	employee	63	17.07%
Family income	< 20000 Rs	117	31.71%
	20000 – 50000 Rs	162	43.90%
	>50000 Rs	90	24.39%
weaning	< 6 months of age	60	16.26%
	>6 months of age	309	83.74%
Parasitic infestation	Positive	58	15.72%
	negative	311	84.28%
Iron supplementation	yes	45	12.19%
	no	324	87.81%

Table-I. Socio-economic variables of children and their mothers. N= 369

Anemia by Grading	Frequency	Percentage
Mild	106	51.46 %
moderate	68	33 %
severe	32	15.54 %

Table-II. Distribution of anemia by severity among anemic children. (N= 206)

Variables		Anemia		P-Value
		No	Yes	
Gender	Male	95 (44.39%)	119 (55.61%)	0.52
	Female	68 (43.87%)	87 (56.13%)	
Age	2 – 3 years	50 (31.25%)	110 (68.75%)	0.01
	>3 – 4 years	72 (64.29%)	40 (35.71%)	
	>4 – 5 years	41 (42.27%)	56 (57.73%)	
Mother's education	illiterate	80 (39.8%)	121 (60.2%)	0.01
	primary	53 (51.46%)	50 (48.54%)	
	≥ secondary	30 (46.15%)	35 (53.85%)	
Mother's occupation	House-wife	89 (47.59%)	98 (52.41%)	0.00
	Employed	74 (40.66%)	108 (59.34%)	

Table-III. Prevalence of anemia in children with respect to different variables

DISCUSSION

Globally, nutritional anemia is prevalent, with developing nations having the greatest rate. The most prevalent micronutrient deficit is iron insufficiency. Along with other tests, hemoglobin, an iron-rich protein found in red blood cells, is an important hematological factor used to determine anemia.[6] The frequency of anemia in children between the ages of two and five in Multan's Jahangirabad slum neighborhood was found by our study. Anemia prevalence was found to be 55.83% in our study. Studies conducted in the Gambia (59.0%)[7] have yielded similar results; however, the prevalence in our study was lower than that of studies conducted in Africa (70.9%)[8] and India (67.1%).[9] These fluctuations in anemia incidence can be attributed to a variety of causes, including nutritional, behavioral, sociocultural, behavioral, and economic ones. Anemia in the 2–5 age groups is primarily caused by poor food and infections. Although most diets contain enough iron, very little of it is really absorbed. Anemia results from this. The highest percentage of children in this study (51.46%) had mild anemia, which was in line with research from Asian nations.[10] Nonetheless, a large number of research carried out in Pakistan revealed a significant prevalence of mild anemia.[11,12] The highest rates of childhood anemia have been seen worldwide in South East Asia and Africa.

Worm infestation was widespread and the majority of the children in our study came from low-income households, suggesting a possible link between a clean environment and anemia. Habib et al. also observed a connection between the home environment and anemia.[13] The same results were observed in Northwest Ethiopia, where dietary practices and parasite infestation were linked to anemia.[14] A person's formative years are incredibly important. This age group can be at risk of fatal iron deficiency.[15] According to a study done in Tanzania, there was no discernible difference in the prevalence of anemia in male and female children in this investigation.[16] These results were implausible given the numerous Pakistani research.[17]

Anemia is a condition that can be prevented and treated. Education is crucial in this regard. Anemia is a glaring sign of poverty and malnutrition in any community. Additionally, low hemoglobin levels in mothers during pregnancy and nursing may be the cause of the increased risk of anemia in children. This is another element that contributes to childhood anemia. The three main strategies for addressing this issue are birth control, immunizations, and proper cleanliness. The prevalence of anemia in children can be highlighted using data from several research conducted in Pakistan. Given the catastrophe of childhood anemia, it is imperative that our government act, particularly with broad implications. Unfortunately, we in Pakistan don't even give a damn about these kinds of things, and we don't really take the development and execution of nutrition programs seriously. However, now is the moment when we must prioritize resolving our internal problems in order to protect the health of the future generations. This study had some limitation like short duration of our study, poor cooperation of participants in answering question. Instead of all that, our research may be helpful for policy makers in combating this issue.

CONCLUSION

In our area, childhood anemia is becoming a more significant public health concern. Because of this, the health authorities ought to prioritize addressing this issue by enlisting the help of locals to educate the families.

CONFLICT OF INTEREST

The authors declare no conflict of interest.

SOURCE OF FUNDING

This research received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors.

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2	Bushra Ijaz	Concept, Design, Responsibility for content of article.	
3	Kamran Adil	Conception, Design, Data collection.	