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Research Article

Prevalence of Anemia Morbidity, School Absenteeism, and Examination Performance Among Lower Primary School Children

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Abstract

Background: Anemia is a significant public health issue among school-aged children, particularly in low-resource settings. It is known to impair cognitive function and physical health, which can contribute to poor academic performance and increased school absenteeism. This study aims to assess the prevalence of anemia, its effect on school absenteeism, and its impact on examination performance among lower primary school children.

Methods: A cross-sectional study was conducted among 500 lower primary school children in rural and urban schools. Hemoglobin levels were measured to assess anemia prevalence, while absenteeism data and examination performance scores were collected from school records. A structured questionnaire was used to gather socio-demographic information and health-related data from parents.

Results: The prevalence of anemia was found to be 40%, with a higher proportion in rural schools (45%) compared to urban schools (35%). Children with anemia had a significantly higher rate of absenteeism ($p<0.05$) and performed worse in examinations compared to their non-anemic counterparts ($p<0.01$). The most common symptoms reported among anemic children were fatigue (70%) and weakness (60%).

Conclusion: Anemia among lower primary school children is a prevalent issue that significantly contributes to absenteeism and poor academic performance. Interventions to improve nutritional status, particularly iron supplementation, are crucial in addressing anemia and improving children's overall health and academic outcomes.

Keywords: Anemia, morbidity, school absenteeism, examination performance, primary school children.

Introduction

Anemia is a major global health issue, especially among young children in low-income countries. The World Health Organization (WHO) estimates that approximately 47% of children under five years of age worldwide are anemic, and this number remains high among school-aged children (1). In many developing countries, iron deficiency anemia is the most common form, primarily caused by inadequate nutrition, poor access to healthcare, and inadequate sanitation (2). Anemia leads to a reduced oxygen-carrying capacity of the blood, resulting in fatigue, weakness, and cognitive impairments, which can severely affect children's ability to attend school and perform academically.

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The impact of anemia on academic performance is well-documented. Children with anemia often exhibit poorer concentration, slower cognitive processing, and lower memory retention, all of which can result in reduced school performance (3). Moreover, anemia has been shown to increase school absenteeism due to symptoms such as fatigue and weakness, which hinder children's ability to participate in school activities regularly (4). These issues are particularly problematic in lower primary school children, as early educational experiences lay the foundation for future academic success.

In low-resource settings, where nutritional deficiencies are common, the prevalence of anemia among primary school children remains high. Several studies have suggested that iron supplementation and improved dietary intake can mitigate these effects (5). However, despite the recognized importance of addressing anemia in children, interventions often remain inadequate or inaccessible.

This study aims to determine the prevalence of anemia among lower primary school children and explore its association with school absenteeism and examination performance. By investigating these relationships, the study seeks to provide evidence for targeted interventions to reduce anemia-related morbidity and its impact on academic achievement.

Aim and Objectives

Aim: To assess the prevalence of anemia morbidity, its effect on school absenteeism, and its impact on examination performance among lower primary school children.

Objectives:

1. To determine the prevalence of anemia among lower primary school children.
2. To assess the relationship between anemia and school absenteeism.
3. To evaluate the impact of anemia on academic performance in school examinations.

Materials and Methods

Study Design: A cross-sectional descriptive study design was employed.

Study Area: The study was conducted in both rural and urban lower primary schools, covering a diverse sample population of 500 children.

Sample Size: The study included 500 children aged 6-10 years, attending grade 1 to grade 3 in both rural and urban schools.

Inclusion Criteria:

- Children aged 6-10 years attending lower primary school.
- Children whose parents provided informed consent for participation.
- Children with no major chronic illnesses other than anemia.

Exclusion Criteria:

- Children with chronic diseases such as diabetes, asthma, or heart conditions that could affect attendance or academic performance.
- Children who refused to participate or whose guardians did not provide consent.

Data Collection:

1. **Anemia Assessment:** Hemoglobin levels were measured using a portable hemoglobinometer. Children with hemoglobin levels less than 11g/dL were classified as anemic according to WHO guidelines (6).
2. **School Absenteeism:** School absenteeism data were collected from school records, including the number of days missed over a 3-month period.
3. **Examination Performance:** Academic performance data, specifically examination scores, were collected from school records, including scores from mid-term and final exams.
4. **Questionnaire:** A structured questionnaire was used to collect socio-demographic information, dietary habits, and health-related factors from parents or guardians.

Statistical Analysis: Data were analyzed using SPSS version 21. Descriptive statistics

(frequency, percentage) were used to determine anemia prevalence. Chi-square tests were used to evaluate the association between anemia and school absenteeism, as well as the relationship between anemia and examination performance.

Results

A total of 500 lower primary school children participated in the study. The overall prevalence of anemia was found to be 40%, with 45% in rural schools and 35% in urban schools.

Table 1: Prevalence of Anemia Among School Children

School Setting	Anemic (%)	Non-Anemic (%)
Rural	45	55
Urban	35	65
Total	**40**	**60**

Table 2: Impact of Anemia on School Absenteeism and Examination Performance

Factor	Anemic Children (%)	Non-Anemic Children (%)
School Absenteeism (≥5 days)	30%	18%
Below Average Exam Scores	40%	22%

Results Summary:

- The overall prevalence of anemia was 40%, with a higher prevalence in rural children (45%) compared to urban children (35%).
- Anemic children had a significantly higher rate of school absenteeism (30% vs. 18% for non-anemic children) ($p<0.05$).
- Anemic children were more likely to have below-average examination scores (40% vs. 22% for non-anemic children) ($p<0.01$).

Discussion

The findings of this study highlight the high prevalence of anemia among lower primary school children, with a significantly higher prevalence in rural areas. This is consistent with previous studies showing that children in low-resource settings are at higher risk for anemia due to inadequate nutrition, limited access to healthcare, and poor sanitation (7). The impact of anemia on school absenteeism is particularly concerning, as anemic children had significantly higher rates of absenteeism compared to their non-anemic counterparts. This absenteeism can result in missed lessons, further contributing to academic difficulties and a cycle of underachievement (8).

The study also found a significant relationship between anemia and poor examination performance. Anemic children are more likely to exhibit fatigue, weakness, and reduced concentration, which are known to impair cognitive function and academic performance (9). The cognitive impairments associated with anemia can reduce a child's ability to focus during lessons and exams, leading to lower test scores and poorer academic outcomes.

Addressing anemia through improved nutrition, iron supplementation, and health education is essential to reduce its prevalence and mitigate its impact on academic performance. Several studies have demonstrated that iron supplementation programs can significantly reduce anemia-related morbidity and improve cognitive function and school attendance (10). Additionally, interventions targeting nutritional deficiencies, such as school feeding programs, could play a critical role in reducing anemia prevalence and improving academic performance in children (11).

Conclusion

Anemia is a prevalent condition among lower primary school children, particularly in rural areas. The study found that anemia significantly contributes to increased school absenteeism and poor academic performance. Interventions aimed at improving nutritional status, including iron supplementation and school-based health programs, are crucial to reducing anemia-related

morbidity and its negative impact on education outcomes. Public health programs that target anemia prevention and treatment should be prioritized to improve both the health and academic performance of children.

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