
The Knowledge Level of Anemia Among Female Students at SD Negeri 1 Cilowa, Kuningan Regency

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Abstract

Anemia is a common nutritional problem that often occurs among school-aged children, especially female students, and can negatively impact growth, concentration, and academic performance. Early knowledge of anemia is essential to support preventive efforts from a young age. This study aimed to describe the knowledge level of anemia among female students at SD Negeri 1 Cilowa, Kuningan Regency. This research used a descriptive quantitative method involving 37 female students selected through total sampling. Data were collected using a validated structured questionnaire consisting of 10 multiple-choice questions covering the definition, causes, symptoms, impacts, and prevention of anemia. The collected data were analyzed descriptively and presented in the form of frequency distributions and percentages. The results showed that most respondents had a good level of knowledge about anemia, with 81.1% categorized as having good knowledge and 18.9% categorized as having moderate knowledge. There were no respondents with low knowledge levels. The average knowledge score achieved by the students was 94.86 out of a maximum score of 100. The conclusion of this study is that most female students at SD Negeri 1 Cilowa have a good level of knowledge about anemia. However, continuous health education is still necessary to ensure that all students have an optimal and comprehensive understanding.

Keywords: *Anemia, Knowledge, Elementary School Students, Health Education, Total Sampling*

INTRODUCTION

Anemia is a global nutritional problem that remains a major public health concern, particularly among children and adolescents (World Health Organization, 2021). Anemia occurs when hemoglobin levels fall below the normal threshold, resulting in reduced oxygen transport in the blood, which can cause fatigue, impaired concentration, decreased immunity, and stunted growth (Notoatmodjo, 2014). According to the Ministry of Health of the Republic of Indonesia (2018), the prevalence of anemia among children aged 5–14 years in Indonesia reached 26.8%, making school-aged children one of the vulnerable groups. The Riskesdas 2018 report also revealed that the prevalence of anemia among adolescent girls in Indonesia had increased significantly from 18.4% in 2013 to 32% in 2018. This indicates a concerning trend that requires serious attention.

Anemia can negatively affect children's learning abilities and academic performance. Children with anemia tend to experience difficulties in concentration, increased fatigue, and decreased productivity (Oktaviani et al., 2021). Studies have shown that low nutritional knowledge is strongly related to the high incidence of anemia among school-aged children (Rahmah et al., 2020). Knowledge is an important factor influencing health behavior, including the consumption of iron-rich foods, which are essential in the prevention of anemia (Rahayu et al., 2020). However, many children, especially in rural areas, still lack sufficient knowledge about anemia and its prevention strategies.

Anemia has been widely studied, particularly among children and adolescents. Research by Oktaviani et al. (2021) demonstrates that school-based education on anemia can significantly enhance students' knowledge about the condition and its prevention. This is in line with findings from Rahmah et al. (2020) and Rahayu et al. (2020), which indicated that better knowledge of anemia is associated with healthier preventive behaviors, such as the consumption of iron-rich foods and the adoption of healthy dietary practices. These previous studies highlight the importance of continuous educational efforts to improve anemia awareness, particularly among elementary school-aged children, who are a

vulnerable group to anemia. Therefore, this study aims to fill the gap in local data regarding the level of anemia knowledge among elementary school students in semi-rural areas such as Cilowa.

In the Kuningan Regency, specific local data regarding the knowledge level of anemia among elementary school students remain limited. SD Negeri 1 Cilowa is a public elementary school located in a semi-rural area where health education programs related to anemia have not been optimally integrated into the learning curriculum. The limited exposure to anemia-related information may contribute to low awareness among female students, increasing their risk of anemia. According to Notoatmodjo (2012), low levels of health literacy in children are often caused by a lack of access to health information from both the school and family environments.

Previous studies, such as those conducted by Nurhayati et al. (2018) and Putri and Fauziyah (2022), demonstrated that low knowledge significantly correlates with the incidence of anemia among adolescents. However, most existing research focuses on middle or high school students in urban areas, while studies specifically targeting elementary school students, particularly in rural settings like Cilowa, are still very limited. This research is essential to provide empirical evidence regarding the level of anemia-related knowledge among female elementary school students in this area.

The problem identified in this study is the lack of detailed local data describing the level of knowledge about anemia among female students at SD Negeri 1 Cilowa, Kuningan Regency. In addition, the risk of low awareness and poor preventive behavior regarding anemia among elementary school girls is a potential concern that needs to be addressed immediately.

The objective of this study is to describe the level of knowledge about anemia among female students at SD Negeri 1 Cilowa, Kuningan Regency. This research is expected to provide scientific evidence that can be used as the basis for planning and implementing more effective school-based health education programs to prevent anemia from an early age.

RESEARCH METHODS

This study used a quantitative descriptive design to describe the knowledge level of anemia among female students at SD Negeri 1 Cilowa, Kuningan Regency. The research was conducted on May 27, 2025, involving 37 female students from grades IV, V, and VI as the total population. Total sampling technique was applied, where all female students were included as respondents.

This study employed a descriptive quantitative design, aimed at describing the level of knowledge about anemia among elementary school students. According to Creswell and Creswell (2018), a descriptive quantitative design is used to describe specific phenomena without testing hypotheses. In this study, a total sampling technique was applied, where all individuals who met the inclusion criteria were included as respondents to ensure a comprehensive representation of the target population (Sugiyono, 2019). This approach is suitable for descriptive research, allowing the researcher to gather a broader understanding of the students' knowledge regarding anemia.

The variables measured in this study were the knowledge level of anemia, which covered several aspects, including the definition, causes, symptoms, impacts, and prevention of anemia. The data were collected using a structured questionnaire that had been validated. The questionnaire consisted of 10 multiple-choice questions, each with one correct answer. The scoring system gave a score of 1 for correct answers and 0 for incorrect answers.

The instruments used in this study were printed questionnaires and documentation sheets. The knowledge level was categorized based on the percentage of correct answers into three groups: low (<60%), moderate (60–79.99%), and good ($\geq 80\%$) according to the classification of Notoatmodjo (2012).

The data were analyzed using descriptive statistical analysis with IBM SPSS software. The analysis included frequency distribution, percentage, mean, median, and standard deviation to describe

the knowledge level of the respondents. No complex statistical models or hypothesis testing were used, as this study focused solely on describing the existing condition.

The entire research process was conducted according to the ethical principles of voluntary participation and confidentiality.

RESULTS AND DISCUSSION

General Overview

SD Negeri 1 Cilowa is one of the public elementary schools located in Cilowa Village, Kramatmulya District, Kuningan Regency, West Java Province. The school is strategically located in an area with adequate access to education, but it still faces challenges related to health awareness among its students. Based on data obtained from the Kuningan Regency Education Office, SD Negeri 1 Cilowa has a total of 193 students, consisting of both male and female students, with 37 female students involved as respondents in this study. The school provides a conducive learning environment and actively participates in basic health education activities; however, health education programs specifically related to anemia have not yet been fully integrated into the daily curriculum.

The socio-economic background of most students' families falls into the lower-middle class category, with parents generally working as farmers, laborers, or informal sector workers. These conditions may influence the students' dietary patterns and nutritional intake, which are important factors in the prevention of anemia. Data from the Kramatmulya Community Health Center show that the Cilowa area has a relatively high prevalence of mild anemia among school-aged children in recent years, indicating that there are still health issues that need to be addressed through continuous health education and periodic health monitoring.

Respondent Profile

The respondents in this study were 37 female students from SD Negeri 1 Cilowa, Kuningan Regency. The majority of respondents were aged between 10 and 12 years and came from grades IV, V, and VI. This age group is at a stage of active growth, where the risk of anemia can increase if knowledge and nutrition are inadequate.

Table 1. Distribution of Respondents by Age

Age (Years)	Frequency	Percentage (%)
10	10	27.0
11	16	43.2
12	10	27.0
13	1	2.7

Source: Primary Data, 2025

The results of the study showed that most respondents were in the age range of 10 to 13 years, which represents the late childhood and early pre-adolescent phase. At this stage, the body's need for iron begins to increase in line with physical growth and cognitive development. This age is also considered a critical period for health education interventions to raise awareness and knowledge about anemia prevention from an early age.

Table 2. Distribution of Respondents by Grade

Grade	Frequency	Percentage (%)
IV	10	27.0
V	17	45.9
VI	10	27.0

Source: Primary Data, 2025

Most of the respondents were from grades IV, V, and VI, which generally have better reading skills and a greater ability to understand basic health materials compared to students in lower grades. This is in line with the opinion of Notoatmodjo (2014), which states that the level of education

influences a person's level of knowledge, where the higher the level of education, the easier it is for individuals to receive and comprehend health information.

Data Description

This study involved 37 respondents, all of whom were female students at SD Negeri 1 Cilowa, Kuningan Regency. All respondents participated in completing the pre-test questionnaire regarding their knowledge level about anemia. Based on the collected data, all respondents successfully completed the questionnaire in full, and there were no missing data. Demographic characteristics such as age and grade level were not detailed in the available file, but all respondents were elementary school students from grades IV to VI, generally within the age range of 9 to 12 years.

Based on the descriptive analysis of knowledge levels, it was found that most respondents demonstrated a good level of knowledge. The distribution of knowledge categories among the students showed that 30 students (81.1%) were categorized as having good knowledge, while 7 students (18.9%) were categorized as having moderate knowledge. There were no respondents in the low knowledge category. These results indicate that, in general, the knowledge level of female students at SD Negeri 1 Cilowa regarding anemia is adequate to very good.

Table 3. Distribution of Anemia Knowledge Levels

Knowledge Level	Frequency	Percentage (%)
Moderate	7	18.9
Good	30	81.1

Source: Primary Data, 2025

Based on Table 3, it is clear that the majority of students already have a good knowledge level. This indicates that exposure to basic information about anemia has been relatively effective among most students. However, there remains a small group that requires additional health education to improve their understanding.

Table 4. Distribution of Knowledge Scores

Score	Frequency	Percentage (%)
70	1	2.7
80	6	16.2
90	4	10.8
100	26	70.3

Source: Primary Data, 2025

In terms of score distribution, the knowledge scores obtained by the respondents ranged from 70 to 100. Most of the respondents, specifically 26 students (70.3%), achieved a perfect score of 100, indicating that the majority of students were able to answer almost all questions correctly. Six students (16.2%) scored 80, four students (10.8%) scored 90, and only one student (2.7%) scored 70. The mean knowledge score was 94.86, with a standard deviation of 8.70, indicating a relatively small variation in responses among the respondents. The median score was 100.00, which means that half of the respondents achieved a perfect score. This suggests that the data distribution tends to cluster in the highest score category.

Table 5. Distribution of Knowledge Scores Among Respondents

Pre Test Score					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	70	1	2.7	2.7	2.7
	80	6	16.2	16.2	18.9
	90	4	10.8	10.8	29.7
	100	26	70.3	70.3	100.0
	Total	37	100.0	100.0	

Source: Primary Data, 2025

The high proportion of students achieving perfect scores demonstrates a strong awareness of the definition, causes, symptoms, impacts, and prevention of anemia. This is likely influenced by prior school-based health education activities and possibly by external sources such as family discussions or community health programs. However, the presence of some students with lower scores indicates the need for continuous and targeted health promotion.

The findings are consistent with research conducted by Oktaviani et al. (2021), which emphasized the importance of anemia education in schools to improve knowledge and early prevention. Similar studies by Rahmah et al. (2020) and Rahayu et al. (2020) also reported that students with higher levels of knowledge tend to adopt better anemia prevention behaviors, such as consuming iron-rich foods and practicing healthy dietary patterns.

Although most students in this study showed good knowledge, the remaining moderate-level group indicates that health messages may not have been fully understood or absorbed by all students. This supports the idea that repeated and interactive health education sessions are needed to achieve more uniform knowledge levels among all students.

The knowledge categories in this study align with the classification proposed by Notoatmodjo (2012), where good knowledge is expected to influence positive health behaviors. Therefore, the results emphasize the importance of strengthening anemia prevention education from an early age, especially in rural elementary schools.

This study provides evidence that the current educational efforts at SD Negeri 1 Cilowa have been relatively effective but should be sustained and expanded to ensure that no students are left behind in acquiring essential health knowledge.

CONCLUSION

Based on the results of the study on the knowledge level of anemia among female students at SD Negeri 1 Cilowa, Kuningan Regency, it can be concluded that most students have a good level of knowledge about anemia. Out of a total of 37 respondents, the majority demonstrated a good understanding, while a smaller proportion showed a moderate level of knowledge. None of the students had a low level of knowledge. The average knowledge score achieved indicates that the variation in knowledge among the respondents is relatively small, with most students showing consistent and adequate understanding.

The findings of this study indicate that, in general, the female students at SD Negeri 1 Cilowa have understood essential information related to anemia, including its definition, causes, symptoms, impacts, and prevention strategies. The excellent scores achieved by most students suggest that the basic health education provided through schools, families, and previous counseling activities has been effective in improving health literacy about anemia at the elementary school level. However, a small number of students still have moderate knowledge levels, which indicates that health education programs need to be continuously reinforced to ensure that all students can achieve optimal and uniform understanding.

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