INDIVIDUAL AND ENVIRONMENTAL FACTORS ASSOCIATED WITH ANEMIA KNOWLEDGE AMONG ADOLESCENT GIRLS IN BANDUNG CITY AND REGENCY

Sitti Muhsona Lovia Sousan[1], Tuti Surtimanah[2*], Sri Komalaningsih[3], Metha Dwi Tamara[4]

[1,2,3,4] Bachelor of Public Health Program, Dharma Husada College of Health Sciences, Terusan Jakarta 75 Street, Bandung,
Corresponding author email address: tutisurtimanah@stikesdhb.ac.id; 08122001525

ABSTRACT

Anemia among adolescent girls remains a public health problem that affects growth, cognitive development, and productivity. Adequate knowledge about anemia is essential for effective prevention. This study aimed to analyze the association between individual and environmental characteristics and anemia knowledge among adolescent girls in Bandung City and Bandung Regency. A quantitative cross-sectional study was conducted using secondary data from the Hi-Bestie Project 2, involving 1,102 adolescent girls from senior and vocational high schools. Bivariate analysis was performed using the Chi-square test, followed by multivariate logistic regression analysis. The results showed that family support, school support, and school location were significantly associated with anemia knowledge ($p < 0.05$), while age and grade level were not. Family support emerged as the most influential factor, with adolescents receiving low family support being less likely to have good anemia knowledge (AOR = 0.26; 95% CI: 0.14–0.50). These findings indicate that environmental factors, particularly family and school support, play a crucial role in shaping adolescents' knowledge of anemia. Therefore, anemia prevention programs should actively engage families and schools to strengthen health education efforts among adolescent girls.

Keywords: *Anemia, Knowledge, Adolescent Girls, Family Support, School Support*

INTRODUCTION

Anemia remains a significant public health problem among adolescents in Indonesia. The 2023 Indonesian Health Survey reported that 15.5% of adolescents aged 15–24 years were anemic, with a higher prevalence among adolescent girls compared to boys (18% vs. 14.4%), highlighting adolescent girls as a high-risk group (Badan Kebijakan Pembangunan Kesehatan Kemenkes RI, 2023).

Anemia occurs when hemoglobin levels fall below the normal threshold (<12 g/dL), resulting in impaired oxygen transport and disruption of metabolic functions (Kementerian Kesehatan RI, 2018). Among adolescents, anemia is commonly caused by inadequate iron intake, menstrual blood loss, helminth infections, and deficiencies of vitamin B12 and folic acid. International evidence confirms that poor dietary intake, parasitic infections, and menstruation are major contributors to iron deficiency anemia in low- and middle-income settings (Ocktariyana, Rostika Flora, Maria Eka Yuliastuti, Zulkarnain, 2024). Globally, anemia predominantly affects women and adolescent girls due to increased iron requirements and vulnerability to iron depletion, olso attributable to non-communicable diseases (Kalsum et al., 2025; Yu et al., 2025).

Low levels of knowledge regarding anemia and its prevention are recognized as important contributors to the high prevalence of anemia among adolescents. Limited awareness of anemia and iron supplementation is often associated with restricted access to accurate health information (Tuti Surtimanah, 2023, 2025).

Evidence from a meta-analysis indicates that inadequate anemia knowledge is significantly associated with a higher risk of anemia among adolescent girls, emphasizing the importance of health education interventions (Kalsum et al., 2025).

The Iron Supplementation Program

(ISP) is a key national strategy for anemia prevention; however, its implementation remains suboptimal. Although program coverage has reached 25.2%, only 16.7% of adolescent girls consume the recommended 52 iron tablets annually. Low adherence has been linked to insufficient school supervision and limited understanding of the benefits of iron supplementation, as well as inadequate family and school support for healthy behaviors (Musniati & Fitria, 2022; Setiawan et al., 2022).

Adolescence is a critical developmental period characterized by increased iron requirements due to rapid growth and menstruation. Inadequate iron intake during this stage may lead to iron deficiency anemia, which often goes undetected because its symptoms are mild and nonspecific, such as fatigue and dizziness (Noor Kusnadi, 2021). Persistently low hemoglobin levels can impair oxygen delivery, resulting in pallor and palpitations, and increasing the risk of cardiovascular dysfunction. The long-term consequences of anemia include reduced learning concentration, poorer academic performance, impaired mental development, and adverse reproductive health outcomes (Thoha & Subiakto, 2023).

Knowledge of anemia plays a crucial role in shaping adolescent girls' health-related behaviors. However, this knowledge is unevenly distributed and influenced by factors such as age, educational attainment, and access to health information (Munir, R., Sari, A., & Hidayat, 2022). Adolescents who receive information from trusted sources—such as teachers, health professionals, or school-based educational programs—tend to have better knowledge of anemia and its prevention (Indraswari & Shaluhiyah, 2022). Adequate knowledge, in turn, promotes preventive behaviors, including the

consumption of nutritious foods and sufficient iron intake.

This study is guided by Social Cognitive Theory (SCT), which emphasizes the dynamic interaction among personal factors, behavior, and environmental influences in shaping health knowledge and actions. Recent reviews demonstrate that SCT remains a relevant framework for health promotion research, highlighting the roles of self-efficacy and observational learning in influencing health outcomes *(Egele et al., 2025; Islam et al., 2023).*

Accordingly, this study aims to analyze the relationship between individual and environmental characteristics and anemia knowledge among adolescent girls in Bandung City and Bandung Regency. The findings are expected to inform the development of more effective and context-specific health promotion strategies targeting anemia prevention in this population.

METHOD

This study employed a quantitative analytical observational approach with a cross-sectional design. Secondary data were obtained from the Hi-Bestie Project 2, which involved female students from senior high schools and vocational high schools in Bandung City and Bandung Regency. The study population consisted of adolescent girls aged 15–18 years enrolled in five schools, with a total of 1,102 respondents. Inclusion criteria were female students in grades 10–12, while respondents with incomplete data were excluded. A total sampling technique was applied, in which all eligible respondents were included without randomization.

The independent variables comprised individual characteristics (age and grade level) and environmental factors (school location, family support, and school support). The dependent variable was anemia knowledge, which encompassed understanding of anemia, its causes, symptoms, and

prevention.

Data were collected using a structured multiple-choice questionnaire developed for the Hi-Bestie Project 2. The anemia knowledge instrument consisted of 10 items and demonstrated good internal consistency (Cronbach's alpha = 0.827), with all items showing acceptable corrected item–total correlations (>0.40); therefore, all items were retained for analysis. Family support and school support were each measured using two items. Given the limited number of indicators, both family and school support were treated as observed predictor variables in the analysis.

Data processing included validation, data cleaning, recoding, and tabulation. Knowledge scores were calculated by summing correct responses across the 10 items, with each correct answer scored as 1, yielding a total score range of 0–10. As the knowledge score distribution was non-normal, the median score (10) was used as the cut-off point. Knowledge was categorized as good if the score was equal to 10 and insufficient if the score was less than 10. Similarly, due to non-normal distributions of the composite support scores (family support: mean = 1.94, median = 2; school support: mean = 1.88, median = 2), median values were used to classify support as good (score = 2) or poor (score < 2).

Bivariate analysis was performed using the chi-square test to assess associations between independent variables and anemia knowledge. Variables with a p-value <0.25 in the bivariate analysis were subsequently included in the multivariate analysis using logistic regression. All statistical analyses were conducted with a significance level of 0.05.

Results are presented as frequency distributions and cross-tabulations illustrating relationships between variables. This study adhered to ethical research principles, including anonymity and confidentiality of respondent data, and received ethical

approval from the Dharma Husada Health Research Ethics Committee (No. 539/KEPK/SDHB/B/VIII/2025).

The study was conducted from May to August 2025, covering the stages of preparation, data processing, analysis, and final reporting.

RESULTS AND DISCUSSION

The following tables show the research results.

Table 1. Characteristics of respondents, family and school support, and anemia knowledge (n = 1.102)

Variable	Mean	Med	SD	Min – Max	Category		
					Jenis	f	%
Age (years)	16.13	16.00	0.84	15.00 – 18.00	<16 (0)	265	24.0
					≥ 16 (1)	837	76.0
Grade level	-	-	-	-	X (0)	367	33.3
					XI (1)	360	32.7
					XII (2)	375	34.0
School location	-	-	-	-	Kota(0)	551	50.0
					Kab(1)	551	50.0
Family support	1.94	2,00	0.01	0.00 – 2.00	Poor(0)	65	5.9
					Good(1)	1,037	94.1
School support	1.88	2,00	0.28	0.00 – 2.00	Poor(0)	93	8.4
					Good(1)	1,009	91.6
Anemia Knowledge	9.20	10.00	1.69	0.00 – 10.00	Insuffi cient (0)	381	34.6
					Good(1)	721	65.4

Based on Table 1, most respondents were aged ≥16 years (76%), with a mean age of 16.13 ± 0.84 years. The distribution of respondents across grade levels (grades X, XI, and XII) was relatively balanced. School location was evenly distributed between Bandung City and Regency, each accounting for 50% of the respondents.

Regarding environmental characteristics, the majority of adolescents reported good family support (94.1%) and good school support (91.6%) related to anemia prevention. These findings indicate that both family and school environments generally provided favorable conditions for supporting healthy behaviors among adolescent

girls.

In terms of anemia knowledge, the mean knowledge score was 9.20 ± 1.69 out of a maximum score of 10. Based on the median cut-off (median=10), 65.4% of respondents were classified as having good anemia knowledge, while 34.6% were categorized

as having insufficient knowledge.

Although nearly two-thirds of respondents (65.4%) achieved the maximum score, more than one-third (34.6%) still demonstrated insufficient knowledge, indicating persistent gaps in understanding. Lower proportions of correct responses were observed for items related to general symptoms of anemia (88.1%), causes of pallor (88.7%), and the consequences of untreated anemia (88.8%). These findings are comparable to a previous study, which reported that 72.1% of respondents had good anemia knowledge (Dita Putri Rahayu & Eska Dwi Prajayanti, 2024).

Overall, Table 1 demonstrates that despite generally favorable family and school support in both Bandung City and Regency, gaps in anemia knowledge remain evident. These descriptive results provide a foundation for further analysis of the associations between individual characteristics, environmental factors, and anemia knowledge among adolescent girls.

Table 2. Association between individual and environmental characteristics and anemia knowledge among adolescent girls (n = 1,102)

Var. Independent	Category	Var. Dependent (anemia knowledge)			X^2	p-value	OR (95% CI)	
		Insufficient (<10)	Good (10)	Total			OR	Lower - Upper
Age (years)	< 16 years	79 (29.8%)	186 (70.2%)	265 (100%)	3.49	0.072	0.75	0.56 – 1.01
	≥ 16 years	302 (36.0%)	535 (64%)	837 (100%)				

Grade level	X	125 (34.1%)	242 (65.9%)	367 (100%)	2.77	0.250	-	-
	XI	136 (37.8%)	224 (62.2%)	360 (100%)				
	XII	120 (32.0%)	255 (68.0%)	375 (100%)				
School location	City	257 (46.6%)	294 (53.4%)	551 (100%)	69.89	0.000	3.01	2.32 - 3.91
	Regency	124 (22.5%)	427 (77.5%)	551 (100%)				
Family support	Poor	50 (76.9%)	15 (23.1%)	65 (100%)	52.79	0.000	7.11	3.94 - 12.85
	Good	331 (31.9%)	706 (68.1%)	1.037 (100%)				
School support	Poor	63 (67.7%)	30 (32.3%)	93 (100%)	47.81	0.000	4.56	2.90 - 7.19
	Good	318 (31.5%)	691 (68.5%)	1.009 (100%)				

The chi-square analysis presented in Table 2 indicates that three variables were significantly associated with anemia knowledge among adolescent girls. School location showed a significant association with anemia knowledge ($p < 0.001$; OR = 3.01; 95% CI: 2.32–3.91), indicating that adolescents attending schools in Bandung City were approximately three times more likely to have insufficient anemia knowledge compared to those attending schools in Bandung Regency.

Family support was also significantly associated with anemia knowledge ($p < 0.001$; OR = 7.11; 95% CI: 3.94–12.85). Adolescents who reported good family support were about seven times more likely to have good anemia knowledge than those reporting poor family support.

Similarly, school support was significantly related to anemia knowledge ($p < 0.001$; OR = 4.56; 95% CI: 2.90–7.19), suggesting that adolescents who received good school support were more than four times more likely to have good knowledge compared to those with poor school support.

In contrast, individual characteristics, including age ($p = 0.072$) and grade level ($p = 0.250$), were not significantly associated with anemia knowledge.

Table 3. Logistic Regression Analysis of Factors Associated with Anemia Knowledge among Adolescent Girls (n = 1,102)

Independent Variable	B	S.E.	Wald	p-value	Exp(B)	95% CI for Exp(B)
School location (city vs regency)	-1.013	0.137	55.100	<0.001	0.36	0.28 – 0.47
Family support (poor vs good)	-1.346	0.331	16.557	<0.001	0.26	0.14 – 0.50
School support (poor vs good)	-1.101	0.259	18.086	<0.001	0.33	0.20 – 0.55
Constant	1.361	0.106	164.890	<0.001	3.89	—

Cox & Snell $R^2 = 0.110$; Nagelkerke $R^2 = 0.152$; Hosmer–Lemeshow test: $\chi^2(1) = 1.489$, $p = 0.222$; Classification accuracy = 70.4%

Multiple logistic regression analysis using the forward stepwise conditional method was conducted to identify factors independently associated with anemia knowledge among adolescent girls. The final model included school location, family support, and school support, all of which remained significantly associated with anemia knowledge ($p < 0.001$).

The Nagelkerke R^2 value of 0.152 indicates that approximately 15.2% of the variance in anemia knowledge was explained by the variables included in the model. The Hosmer–Lemeshow goodness-of-fit test showed a non-significant result ($\chi^2 = 1.489$; $p = 0.222$), suggesting that the model adequately fit the observed data. The overall classification accuracy of the model was 70.4%, indicating a moderate predictive performance.

After adjustment for other variables, family support, school support, and

school location remained significantly associated with anemia knowledge. Adolescents with poor family support had significantly lower odds of having good anemia knowledge compared to those with good family support (AOR = 0.26; 95% CI: 0.14–0.50). Similarly, adolescents with poor school support had lower odds of having good anemia knowledge than those receiving good school support (AOR = 0.33; 95% CI: 0.20–0.55).

In terms of school location, adolescents attending schools in Bandung City had lower odds of having good anemia knowledge compared to those attending schools in Bandung Regency (AOR = 0.36; 95% CI: 0.28–0.47). These results indicate that environmental factors, particularly family and school support as well as school location, play an important role in shaping anemia knowledge among adolescent girls, although a substantial proportion of the variance remains unexplained.

This study aimed to analyze factors associated with adolescent girls' knowledge about anemia, focusing on individual and environmental characteristics. The findings indicate that school location, family support, and school support were significantly associated with anemia knowledge. Multivariate analysis confirmed that all three variables remained statistically significant ($p < 0.001$). The logistic regression model demonstrated a classification accuracy of 70.4%, with a Nagelkerke R^2 value of 0.152, suggesting that environmental factors play an important role in explaining variations in anemia knowledge among adolescent girls. These findings are consistent with global evidence indicating that anemia knowledge among adolescents is shaped not only by individual attributes but also by broader social and environmental contexts (Yewodiaw et al., 2025).

A significant association was observed between school location and anemia knowledge. Adolescents attending schools in Bandung City

had lower odds of having good anemia knowledge compared to those attending schools in Bandung Regency. This finding suggests the presence of contextual differences in the distribution of health knowledge across geographic settings. Similar associations between geographic location and anemia knowledge among adolescent girls have been reported in previous studies (Astuti N, Wibowo A, 2020; Winny Kirana Hasanah, 2023) highlighting that regional and socioeconomic contexts may influence disparities in nutritional literacy. International studies also suggest that differences in exposure to targeted school-based health programs and community outreach activities may contribute to uneven knowledge distribution between urban and non-urban settings (Putri Sulistian et al., 2025). Family support emerged as the strongest factor associated with anemia knowledge in this study. Adolescents with poor family support had significantly lower odds of having good anemia knowledge compared to those with good family support (AOR = 0.26). Family support may include parental attention to nutritious food intake, reminders to consume iron tablets, and open communication regarding anemia prevention (Setyowati, N.D. Riyanti, E. Indraswari, 2017; Siti H, Lestari I, 2021). Previous studies have demonstrated that strong family involvement contributes to improved understanding of anemia and greater motivation to adopt preventive behaviors (Siti H, Lestari I, 2021; Wulandari R, Putri D, 2023). At the global level, evidence from recent meta-analyses indicates that inadequate knowledge about anemia is significantly associated with a higher risk of anemia among adolescent girls, emphasizing the importance of family-supported health education as a protective factor (Kalsum et al., 2025).

These findings are consistent with Social Cognitive Theory, which emphasizes the role of the social

environment—particularly family members—as sources of observational learning and reinforcement that strengthen adolescents' knowledge and self-efficacy related to health behaviors. Recent applications of Social Cognitive Theory in health promotion research further support the notion that family-based reinforcement enhances adolescents' capacity to internalize health information and translate knowledge into preventive action (Egele et al., 2025; Islam et al., 2023). Therefore, anemia prevention efforts should involve not only adolescents but also their families.

School support was also significantly associated with anemia knowledge. Adolescents with poor school support had lower odds of having good knowledge compared to those receiving good school support (AOR = 0.33). Schools represent a strategic setting for health promotion through structured educational activities, counseling, and monitoring of iron tablet consumption. Teacher support, availability of educational media, and school-based health programs have been shown to improve adolescents' knowledge and adherence to anemia prevention behaviors (Fitriani N, 2022; Nurfadillah L, Rahayu M, 2020; Nurjanah & Azinar, 2023). International evidence further confirms that school-based health education interventions are effective in improving adolescent health literacy, particularly when supported by consistent monitoring and reinforcement (Putri Sulistian et al., 2025).

Overall, the results of this study align with Social Cognitive Theory, which posits that health-related knowledge and behaviors are shaped through interactions between individual factors and the social environment (Islam et al., 2023). Family and school environments function as important sources of reinforcement and role modeling that support adolescents' understanding of anemia prevention.

Strengthening these environmental supports may enhance adolescents' confidence and capacity to adopt healthy behaviors. Globally, improved health literacy has been shown to enable adolescents to make informed dietary choices and adhere more consistently to iron supplementation recommendations (Sari et al., 2025).

From a program and policy perspective, these findings support the development of health promotion strategies that emphasize environmental engagement. Cross-sector collaboration involving schools, community health centers, and families is essential to strengthen anemia prevention efforts among adolescents (Kementerian Kesehatan Republik Indonesia, 2024; Kementerian Pendidikan, Kebudayaan, 2023). Schools, in particular, can serve as entry points for structured and sustainable health education interventions targeting adolescent girls, in line with WHO recommendations on adolescent nutrition and anemia prevention (WHO. Adolescent Health and Nutrition, 2019). International guidance also highlights the importance of integrating school-based nutrition education with family involvement to maximize program effectiveness (Putri Sulistian et al., 2025).

Several limitations should be considered when interpreting these findings. The cross-sectional design limits causal inference between environmental factors and anemia knowledge. The use of secondary data restricted the inclusion of additional variables such as nutritional status, iron tablet consumption patterns, and exposure to health information media. The measurement of family and school support relied on a limited number of items and may not have captured the full complexity of social support. Differences in contextual mechanisms between school locations were also not explored in depth. Despite these limitations, this

study provides valuable empirical evidence highlighting the importance of environmental factors in shaping anemia knowledge among adolescent girls and offers practical insights for strengthening anemia prevention efforts at the implementation level.

CONCLUSION

This study indicates that environmental factors are more influential than individual characteristics in shaping anemia knowledge among adolescent girls in Bandung City and Bandung Regency. School location, family support, and school support were significantly associated with anemia knowledge, while age and grade level showed no significant association. Adolescent girls attending schools in Bandung City and those receiving lower levels of family and school support were less likely to have good anemia knowledge, highlighting the importance of social and educational contexts in adolescent health literacy.

These findings suggest that efforts to improve anemia knowledge should prioritize strengthening school-based health education and increasing family involvement in anemia prevention. Collaboration between schools and health services is essential to ensure consistent and effective health promotion across different school locations. Future studies are recommended to examine additional determinants, such as nutritional status, iron intake patterns, and exposure to health information, to further support the development of effective anemia prevention strategies for adolescent girls.

ACKNOWLEDGEMENTS

The authors would like to thank the Head of Dharma Husada Health College, the Head of the Bachelor of Public Health Study Program, and the Hi-Bestie Project 2 Coordinator for their support and permission to use the study data.

REFERENCE

Astuti N, Wibowo A, H. T. (2020). Faktor yang Berhubungan dengan Pengetahuan dan Perilaku Pencegahan Anemia pada Remaja Sekolah Menengah. *Jurnal Gizi Indonesia (The Indonesian Journal of Nutrition)*, *8*(1), 45–54.

Badan Kebijakan Pembangunan Kesehatan Kemenkes RI. (2023). Survei Kesehatan Indonesia. In *Kementerian Kesehatan RI*. https://www.badankebijakan.kemkes.go.id/hasil-ski-2023/

Egele, V. S., Klopp, E., & Stark, R. (2025). How Valid Is Bandura's Social Cognitive Theory to Explain Physical Activity Behavior? *European Journal of Investigation in Health, Psychology and Education*, *15*(2). https://doi.org/10.3390/ejihpe15020020

Fitriani N, N. Y. (2022). Dukungan Sekolah dan Kepatuhan Konsumsi Tablet Tambah Darah Pada Remaja Putri SMA di Yogyakarta. *Jurnal Promkes Indonesia*, *11*(1), 25–34.

Indraswari, R., & Shaluhiyah, Z. (2022). Analisis karakteristik remaja terhadap perilaku-perilaku berisiko kesehatan. *Higeia Journal of Public Health Research and Development*, *6*(2), 144–151.

Islam, K. F., Awal, A., Mazumder, H., Munni, U. R., Majumder, K., Afroz, K., Tabassum, M. N., & Hossain, M. M. (2023). Social cognitive theory-based health promotion in primary care practice: A scoping review. *Heliyon*, *9* (4), e14889. https://doi.org/10.1016/j.heliyon.2023.e14889

Kalsum, U., Diastanti, Y., & Guspianto, G. (2025). Meta Analysis: Prevalence and Effect of Knowledge on Anemia in Adolescent Girls. *Riset Informasi Kesehatan*, *14*(3), 366–373. https://doi.org/10.30644/rik.v14i3.1014

Kementerian Kesehatan Republik Indonesia. (2024). *Strategi Pencegahan Anemia pada Remaja Putri*.

Kementerian Kesehatan RI. (2018). Pedoman Pencegahan dan Penanggulangan Anemia Pada Remaja Putri dan Wanita Usia Subur. In *Kementerian Kesehatan RI*.

Kementerian Pendidikan, Kebudayaan, R. dan T. (2023). *Panduan Implementasi UKS sebagai Upaya Kesehatan Sekolah Berkelanjutan*.

Munir, R., Sari, A., & Hidayat, D. F. (2022). Pendidikan Kesehatan : Pengetahuan Remaja Tentang Anemia. *Jurnal Pemberdayaan Dan Pendidikan Kesehatan (JPPK)*, *1*(02), 83–93. https://doi.org/https://doi.org/10.34305/jppk.v1i02.432

Musniati, N., & Fitria, F. (2022). Gambaran Pengetahuan Dan Sikap Tentang Anemia Pada Remaja Puteri. *Journal of Health Research Science*, *2*(02), 76–83. https://doi.org/10.34305/jhrs.v2i02.573

Noor Kusnadi, F. (2021). Hubungan Tingkat Pengetahuan Tentang Anemia dengan Kejadian Anemia Pada Remaja Putri. *Jurnal Medika Hutama*, *03*(01), 1293–1298.

Nurfadillah L, Rahayu M, A. D. (2020). Hubungan Dukungan Sekolah dan Keluarga dengan Literasi Gizi Remaja. *Media Gizi Mikro Indonesia*, *12*(2), 78–87.

Nurjanah, A., & Azinar, M. (2023). Kepatuhan Konsumsi Tablet Tambah Darah Remaja Putri pada Sekolah Percontohan Kesehatan Reproduksi dan Seksualitas. *HIGEIA (Journal of Public Health Research and Development)*, *7*(2), 244–254. https://doi.org/10.15294/higeia.v7i2.64227

Ocktariyana, Rostika Flora, Maria Eka Yuliastuti, Zulkarnain, A. L. (2024). Risk Factors for Iron Deficiency Anemia among Adolescence in Developing Countrie: Study Literature Review. *Indonesian Journal of Global Health Research*, *6*(3), 1343–1354. https://doi.org/https://doi.org/10.372

87/ijghr.v6i3.3163

Putri Sulistian, S., Pratiwi Putri, B., Galih Rahmadana, A., & Ahmad, I. (2025). Improving Health Literacy on Anemia Prevention Among Female Adolescents Through School-Based Interventions. *Jurnal Abdita Naturafarm*, *2*(2), 54–61. https://doi.org/10.70392/jan.v2i2.5461

Sari, A. N., Sulaeman, E. S., & Widiyanti, E. (2025). The Role of Health Literacy in Preventing Adolescent Anemia. *BIO Web of Conferences*, *193*, 1–6. https://doi.org/10.1051/bioconf/202519300017

Setiawan, H., Nurani Asmara, A., Zharfa Asmarani, A., Desry, & Mega Tresna Pamungkas, D. (2022). Upaya Peningkatan Pengetahuan tentang Anemia pada Remaja. *Kolaborasi Jurnal Pengabdian Masyarakat*, *2*(4), 367–373. https://doi.org/10.56359/kolaborasi.v2i4.93

Setyowati, N.D. Riyanti, E. Indraswari, R. (2017). Factors Related to Adolescent Principle 's Behavior in Anemia Prevention In The Working Area of Puskesmas Ngempak Simongan. *Jurnal Kesehatan Masyarakat*, *5*(5), 1042–1053.

Siti H, Lestari I, D. N. (2021). The Effect of Family Involvement on Adolescent Girls' Adherence to Iron Supplementation. *Kesmas: Jurnal Kesehatan Masyarakat Nasional*, *24*(01). https://doi.org/https://doi.org/10.36295/asro.2021.24198

Thoha, T., & Subiakto, T. (2023). Anemia Pada Remaja Putri Di Sekolah Menengah Kejuruan Kesehatan Bina Prestasi Tangerang. *Jurnal Medikes (Media Informasi Kesehatan)*, *10*(1), 123–130. https://doi.org/10.36743/medikes.v10i1.337

Tuti Surtimanah. (2023). Determinan Gejala Anemia pada Remaja Putri. *Media Publikasi Promosi Kesehatan Indonesia (MPPKI)*, *6*(6), 1179–1186. https://doi.org/10.56338/mppki.v6i6.3449

Tuti Surtimanah, Irfan. N. S. (2025). Determinan Perilaku Minum Tablet Tambah Darah Pada Remaja Putri Menurut Health Belief Model : Studi Kualitatif. *Perilaku Dan Promosi Kesehatan: Indonesian Journal of Health Promotion and Behavior*, *7*(1). https://doi.org/10.47034/ppk.v7i1.1087

WHO. Adolescent Health and Nutrition. (2019). *Global Guidelines for Iron Supplementation in Adolescents.*

Winny Kirana Hasanah. (2023). Hubungan Wilayah Tempat Tinggal Dengan Pengetahuan Anemia Pada Remaja Putri di Indonesia. *Mahesa: Malahayati Health Student Journal*, *3*, 679–690.

Wulandari R, Putri D, F. S. (2023). Family Support and Knowledge About Anemia Among Adolescent Girls: A Cross-Sectional Study. *Journal of Health Promotion and Behav*, *8*(3), 210–218.

Yewodiaw, T. K., Alemayehu, M. A., & Teshome, D. F. (2025). Anemia status and associated factors among adolescent girls under weekly iron and folic acid supplementation (WIFAS) and non-WIFAS programs in public schools in Janamora district, Northwest Ethiopia 2023; a comparative cross-sectional study. *BMC Nutrition*, *11*(1), 1–13. https://doi.org/10.1186/s40795-025-01033-1

Yu, D., Ni, Y., Chen, K., Xu, H., Huang, X., & He, Y. (2025). Global burden of anemia attributable to non-communicable diseases: GBD 2021 analysis and projections. *Frontiers in Nutrition*, *12*(August), 1–12. https://doi.org/10.3389/fnut.2025.1557986