

## Information exposure, anemia perceptions, and parental roles in iron consumption compliance among adolescent girls

Retno Heru Setyorini<sup>1</sup>, Agus Susanto<sup>2</sup>, Era Revika<sup>3</sup>

<sup>1</sup>Sekolah Tinggi Ilmu Kesehatan Bethesda Yakkum, Yogyakarta, Indonesia  
Jalan Johar Nurhadi No. 6, Kotabaru, Gondokusuman, Yogyakarta, Indonesia

<sup>2</sup>Politeknik Indonusa Surakarta, Jawa Tengah, Indonesia  
Jalan KH Samanhudi No.31, Bumi, Kecamatan Laweyan, Kota Surakarta, Jawa Tengah, Indonesia

<sup>3</sup>Sekolah Tinggi Ilmu Kesehatan Akbidyo Yogyakarta, Indonesia  
Jalan Parangtritis KM.6, Sewon, Panggunharjo, Bantul, Yogyakarta, Indonesia

\*Corresponding author : [agussus@yahoo.com](mailto:agussus@yahoo.com)

---

### ABSTRACT

**Background:** Iron deficiency anemia remains a common public health problem among adolescent girls, negatively impacting physical development, cognitive performance, and productivity. Although iron supplementation programs have been widely implemented, compliance with iron tablet consumption is still suboptimal.

**Objective:** This study aims to identify factors associated with compliance with iron consumption among adolescent girls, including knowledge of anemia symptoms, exposure to information about anemia, exposure to information about iron tablets, adolescent girls' perceptions of the impact of anemia on pregnancy and childbirth, acceptance of iron tablets, and parental awareness of the iron tablet program, and parental support for adolescent girls.

**Methods:** This study is a cross-sectional survey study conducted from June to August 2024 in Bantul Regency, Special Region of Yogyakarta, involving 384 adolescent girls selected using stratified random sampling. Data were collected through a structured questionnaire and analyzed using the chi-square test and logistic regression.

**Results:** Bivariate analysis showed a significant association between adherence and acceptance of iron consumption ( $p = 0.000$ ), parental awareness ( $p = 0.020$ ), perception of the impact of anemia ( $p = 0.014$ ), exposure to information about anemia ( $p = 0.040$ ), and iron tablets ( $p = 0.029$ ). Logistic regression revealed that the main predictors of adherence included acceptance of iron supplements (OR = 3.911; 95% CI: 1.938–8.218), parental awareness (OR = 1.925; 95% CI: 1.068–3.471), perception of the impact of anemia (OR = 1.742; 95% CI: 1.138–2.669), and exposure to information about iron tablets (OR = 1.633; 95% CI: 1.062–2.510).

**Conclusion:** Although exposure to information was not statistically significant in multivariate analysis, it showed a positive trend. These findings highlight the importance of increasing adolescent acceptance, improving perception of the consequences of anemia, and increasing parental involvement to support iron supplementation adherence.

**KEYWORD:** *adolescents; compliance; exposure to information; iron supplements; parents' role*

*Article info : Received June 09, 2025; 1<sup>st</sup> revision Desember 12, 2025; 2<sup>nd</sup> revision January 14, 2026; accepted February 09 , 2026; available online February 17, 2026; published March 31, 2026*

---

## **INTRODUCTION**

Anemia is a serious global public health issue, particularly affecting young children, pregnant and postpartum women, as well as adolescent girls and women of reproductive age. Global data indicate that approximately 40% of children aged 6–59 months, 37% of pregnant women, and 30% of women aged 15–49 years are affected by anemia (1). Low- and lower-middle-income countries bear the greatest burden, especially among populations living in rural areas, from low-income households, and with no formal education (2). In 2019, anemia accounted for the loss of approximately 50 million years of healthy life (disability-adjusted life years), with the leading causes including dietary iron deficiency, thalassemia and sickle cell trait, and malaria (3).

Adolescent girls represent one of the most vulnerable groups with a high prevalence of anemia, primarily due to iron deficiency (4). Anemia in this population contributes to reduced concentration, diminished academic performance, and decreased productivity, while also increasing the risk of complications during pregnancy and childbirth in later life (5). If left unaddressed during adolescence,

anemia can lead to long-term health consequences and pose significant challenges to the development of a healthy, intelligent, and productive future generation (6).

In Indonesia, the prevalence of anemia among adolescent girls is also notably high. The 2023 Indonesia Health Survey indicated that anemia remains a persistent issue among females aged 15–24 years, posing a moderate to severe public health concern (7). To mitigate this, the Ministry of Health of the Republic of Indonesia introduced a nationwide intervention through the Weekly Iron Supplementation Program for adolescent girls in schools. This initiative aims to reduce anemia by increasing hemoglobin levels through regular iron supplementation (8). Nevertheless, the program's success hinges on adolescents' compliance with iron tablet consumption (9).

Various studies have indicated that despite the wide distribution of iron supplements, adherence among adolescent girls remains low (10,11). Factors contributing to this low adherence include inadequate knowledge, lack of awareness about the health impacts of anemia, negative perceptions of potential side

effects, and insufficient support from families and schools. Moreover, uneven exposure to relevant information and communication strategies that fail to align with adolescents' characteristics further hinder compliance. Thus, there is a critical need for a deeper understanding of the behavioral determinants associated with iron supplement intake.

This issue is also evident locally, particularly in the Bantul District, Special Region of Yogyakarta. The Bantul District Health Office reported that, based on hemoglobin (Hb) examinations conducted in 2022 on 700 adolescent girls, 29% were anemic, amounting to 203 individuals (12). This condition indicates that, despite the implementation of school-based iron supplementation programs, compliance and behavior change remain major challenges. The main causes of low compliance include a lack of understanding among adolescents about the importance of regularly consuming iron supplements, as well as limited awareness of the long-term health impacts of anemia (13,14). Additionally, social factors such as peer influence and the busy schedules of adolescents also act as barriers to program implementation (15). Lack of family involvement, particularly parental involvement, also contributes to low adherence. Research shows that adolescents who lack parental support in the form of reminders, monitoring, or providing understanding tend to have lower motivation to consume iron tablets regularly.

A study in India found that health education for parents was directly associated with increased adolescent adherence to IFA consumption (16). In addition, qualitative research reports that the effectiveness of family support is greatly influenced by the quality of interpersonal relationships and trust between adolescents and parents, so that a lack of this interaction can further reduce compliance (17). The gap between program coverage and achieved health outcomes highlights the need to reassess the current communication strategy, particularly in how health messages are delivered, understood, and accepted by the target population (10).

In the field of health communication, the effectiveness of promotional programs is not solely determined by service availability but also by the extent to which individuals receive, process, and respond to health-related information (18). The Health Belief Model (HBM) serves as a relevant theoretical framework to explain how individual perceptions of susceptibility, severity, benefits, barriers, cues to action, and self-efficacy influence health-related behaviors (19,20). In the context of iron supplement adherence, variables such as information exposure, perception of anemia, and acceptance of iron tablets become central to shaping behavioral outcomes.

Information exposure refers to the degree to which individuals access, attend to, and process information related to health issues (18,21). In the digital era,

adolescents are exposed to a wide array of information sources, including mass media, social media, teachers, healthcare providers, and family members (22). The diversity and fragmentation of these communication channels require adaptive strategies that tailor health messages to adolescents' preferences and media habits (23). Meanwhile, adolescents' perceptions of anemia's consequences and their acceptance of iron supplements influence their motivation and decision-making regarding adherence. Previous studies have primarily emphasized knowledge and attitudes as key predictors of iron tablet consumption behavior. However, few have integrated communication variables, such as information exposure with psychosocial constructs like perception and acceptance comprehensively, particularly in semi-urban areas like Bantul. Therefore, there is a growing need to adopt a multidimensional analytical approach that merges behavioral and communicative aspects in understanding compliance behavior.

This study specifically aims to examine the extent of exposure to information on anemia and iron supplementation among adolescent girls in Bantul and its association with compliance with iron consumption. Within a health promotion framework, information exposure influences how messages are received and understood, shaping adolescents' perceptions of the importance and consequences of anemia. In addition, this

study analyzes adolescents' perceptions of the health impacts of anemia and examines the role of parents, specifically parental awareness of iron supplement intake activities, as interpersonal factors associated with adolescents' compliance with iron consumption. The findings are expected to inform the development of more targeted and contextually appropriate school-based anemia prevention and health communication strategies.

## **MATERIALS AND METHODS**

This study is a quantitative study with a cross-sectional design using a survey method to analyze the effect of information exposure, perceptions of iron supplements, and acceptance of anemia prevention programs on compliance with iron supplement consumption in adolescent girls. This design allows data collection at one time to describe the relationship between the variables studied (24). The study took place in Bantul Regency between June and August 2024. The population in this study was female adolescents aged 16 to 18 years who were enrolled in senior high schools (SMA/SMK) in Bantul Regency, Yogyakarta. A sample of 384 respondents was selected using a simple random sampling technique.

Data were collected using a structured questionnaire. The instrument consisted of several parts: seven items assessing knowledge of anemia symptoms; four items assessing adolescents'

perceptions of the impact of anemia; seven items regarding sources of information about iron tablets; seven items regarding information about anemia; four items measuring acceptance of iron supplementation; six items on parental roles and four items assessing compliance with iron tablet consumption. A five-point Likert scale was used, with response options ranging from 1 (strongly disagree) to 5 (strongly agree). For positive items, the scores ranged from 1 (strongly disagree) to 5 (strongly agree), while for negative items, the scores were reversed. Instrument validity was assessed using the Pearson product–moment correlation test on a pilot sample of 30 respondents, with a significance level of  $p < 0.05$ , showing that all items demonstrated statistically significant item–total correlations and correlation coefficients exceeding the r-table value (0.361). Reliability testing using Cronbach's alpha revealed strong internal consistency across all constructs, with all alpha coefficients exceeding 0.70, confirming that the instrument was valid, reliable, and suitable for use in this study.

Data collection was carried out by distributing the questionnaires to the selected respondents in schools. The respondents completed the questionnaires within a specified period. Afterward, the data were checked for completeness and validity before analysis. Data analysis began with descriptive analysis to provide an overview of the respondents'

characteristics and the distribution of the variables. Bivariate analysis was conducted using the chi-square test to determine the association between information exposure, perception, and acceptance with adherence to iron supplement intake. Furthermore, logistic regression analysis was used to assess the influence of the independent variables (information exposure, perception, and acceptance) on the dependent variable, which is adherence to iron supplement intake. This study received ethical approval from the Research Ethics Committee of Universitas Aisyiyah Yogyakarta with approval number 3759/KEP-UNISA/VI/2024, issued on June 21, 2024.

## RESULTS AND DISCUSSION

The data collection involved 384 respondents with demographic characteristics including age, history of anemia, parental education and occupation, family type, and number of family members (**Table 1**), as well as variables related to iron supplement intake compliance, such as information exposure, perception, and acceptance (**Table 2 and 3**).

**Table 1. Frequency distribution of respondent characteristics (n=384)**

Variable	Frequency	Percentage (%)
Age		
16 years	122	31.8
17 years	253	65.9
18 years	9	2.3
Anemia History		
Had anemia	60	15.6

Never had anemia	324	84.4
Father's Education		
Elementary School	60	15.6
Junior High School	80	20.8
Senior High School	184	47.9
Higher Education	60	15.6
Mother's Education		
Elementary School	58	15.1
Junior High School	69	18
Senior High School	197	51.6
Higher Education	60	15.7
Father's Occupation		
Farmer	37	9.6
Trader	36	9.4
Private Employee	94	24.5
Civil Servant	25	6.5
Other	184	47.9
Not Working	8	2.1
Mother's Occupation		
Farmer	8	2.1
Trader	50	13
Private Employee	39	10.2
Civil Servant	19	4.9
Other	137	35.7
Not Working	131	34.1
Family Type		
Nuclear Family	272	70.8
Extended Family	112	29.2
Number of Family Members		
≤ 4	227	59.1
> 4	157	40.9

Source: Primary Data 2024

The demographic characteristics of the 384 adolescent female respondents revealed that the majority were 17 years old (65.9%), while the smallest age group was 18 years old (2.3%). Most respondents had no history of anemia (84.4%), and the highest level of parental education was senior high school for both fathers (47.9%) and mothers (51.6%). Regarding occupation, the largest proportion of fathers were categorized as "Others" (47.9%), while the smallest group was those unemployed (2.1%). Similarly, for mothers, the "Others" category accounted for the highest proportion (35.7%), and the fewest worked as farmers (2.1%). Most respondents came from nuclear families (70.8%), with the majority having four or fewer family members (59.1%).

The results **Table 2** of the bivariate analysis between independent variables and iron tablet consumption compliance are presented in **Table 2**. Five variables showed statistically significant associations ( $p < 0.05$ ). The strongest association was observed in the variable acceptance of iron supplementation, where 177 compliant adolescents did not object to consuming the tablets, compared to only 11 in the reluctant group ( $p = 0.000$ ).

Parental awareness of iron tablet consumption also showed a significant effect, with 161 compliant respondents coming from families where parents were aware of their child's supplementation activities ( $p = 0.020$ ). Furthermore,

**Table 2. Bivariate analysis of factors associated with compliance with iron supplement intake**

Variable	Category	Iron Supplement Compliance		df	p-Value
		No	Yes		
Exposure To Information About Anemia	Low	102	70	1	0.040*
	High	94	118		
Exposure To Information About Iron Tablets	Low	100	75	1	0.029*
	High	96	113		
Parental Awareness of Iron Tablet Intake Activity	Unaware	45	21	1	0.020*
	Aware	151	161		
Acceptance of Iron Supplementation	Low	38	11	1	0.000*
	High	158	177		
Perceived Impact of Anemia	Low	100	68	1	0.014*
	High	96	120		
Knowledge of Anemia Symptoms	High	5	6	1	0,707
	Low	192	182		
Parental Support	High	190	110	1	0,106
	Low	86	98		

\* Statistically significant at  $p < 0.05$

perceived impact of anemia ( $p = 0.011$ ), exposure to anemia-related information ( $p = 0.040$ ), and exposure to iron tablet information ( $p = 0.029$ ) were also significantly associated with compliance. Variables such as age, education, family structure, and occupation did not show statistically significant relationships.

The multivariate logistic regression model, as shown in **Table 3**, identified three significant predictors of compliance with iron tablet consumption. The acceptance of iron tablets emerged as the strongest predictor, whereby adolescents who reported no objection to taking the tablets were nearly four times more likely to comply (AOR =

**Table 3. Logistic regression analysis of factors affecting compliance with iron supplements in the first modeling**

Predictor Variable	p-Value	Adjusted OR	95% (CI)
Information Exposure on Anemia	0.889	1.036	0.627 – 1.714
Information Exposure on Iron Supplementation	0.067	1.602	0.967 – 2.655
Parental Awareness of Iron Supplement Intake Activities	0.031*	1.918	1.061 – 3.466
Acceptance of Iron Supplementation Among Adolescents	0.000*	3.976	1.927 – 8.203
Perceived Impact of Anemia	0.011*	1.742	1.137 – 2.668

\* Statistically significant at  $p < 0.05$

3.976; 95% CI: 1.927–8.203;  $p = 0.000$ ). Parental awareness also significantly contributed (AOR = 1.918; 95% CI: 1.061–3.466;  $p = 0.031$ ), indicating that adolescents with engaged parents were almost twice as likely to adhere to iron supplementation. Furthermore, the perceived impact of anemia was

significantly associated with higher compliance (AOR = 1.742; 95% CI: 1.137–2.668;  $p = 0.011$ ).

Although exposure to general information regarding anemia and iron tablets was significant in the bivariate analysis, these variables did not retain significance in the multivariate model.

**Table 4. Logistic regression analysis of factors affecting compliance with iron supplements in the second modeling**

Predictor Variable	p-Value	Adjusted OR	95% (CI)
Acceptance of Iron Supplementation Among Adolescents	0.000*	3.991	1.927 – 8.218
Parental Awareness of Iron Supplement Intake Activities	0.029*	1.925	1.068 – 3.471
Perceived Impact of Anemia	0.011*	1.742	1.138 – 2.669
Information Exposure on Iron Supplementation	0.026*	1.633	1.062 – 2.510

\* Statistically significant at  $p < 0.05$

The multivariate logistic regression model in the second model as shown in **Table 4**, showed that acceptance of iron tablets still emerged as the strongest predictor, with adolescents who reported no objection to taking the tablets being almost four times more likely to be adherent (AOR = 3.991; 95% CI: 1.927–8.218;  $p = 0.000$ ). Parental awareness also contributed significantly (AOR = 1.925; 95% CI: 1.068–3.471;  $p = 0.029$ ). Perceived impact of anemia was significantly associated with higher adherence (AOR = 1.742; 95% CI: 1.138–2.669;  $p = 0.011$ ). Although exposure to general information about iron tablets was not significant in the first modeling analysis, in the second modeling it emerged as a significant predictor (AOR = 1.633; 95% CI: 1.062–2.510;  $p = 0.026$ ).

The demographic characteristics of the respondents indicate that most adolescent girls were in middle adolescence, a crucial developmental stage where cognitive capacity begins to mature and health behaviors are shaped. At this age, adolescents are more likely to understand and internalize health information, which can influence their compliance with recommended health behaviors such as iron supplementation. This finding aligns with previous studies indicating that middle adolescence is a key period for interventions targeting nutritional anemia, particularly due to the rapid growth and increased iron demands during this phase (25,26). Moreover, the predominance of mothers with only primary-level education may reflect limited health literacy at the

household level, a factor that has been consistently associated with reduced effectiveness of health promotion efforts in low-resource settings (27,28).

In terms of parental occupation, the majority of fathers were engaged in informal employment sectors. This socio-economic background may indirectly influence adolescent health behaviors through limited access to nutritional resources and lower prioritization of preventive health measures. Previous literature suggests that the employment and education of parents can shape household health norms and attitudes, thereby impacting adolescent decision-making related to iron tablet consumption (29,30). Interpreting the statistical data, these findings highlight the need for health communication strategies that are sensitive to socio-cultural and economic family contexts. School-based health promotion programs would benefit from integrating parental involvement, especially in communities with lower educational attainment and economic stability.

As shown in Table 2, bivariate analysis revealed significant associations between compliance with iron supplementation and several psychosocial and informational variables. Notably, adolescent girls who did not feel burdened by iron tablet consumption were more likely to adhere to the supplementation regimen. This aligns with prior studies suggesting that the acceptability and perceived side

effects of iron tablets significantly influence adherence behavior (31). Additionally, parental awareness of their daughters' consumption behavior was significantly associated with higher compliance. This reflects the importance of family engagement, particularly parental monitoring, in adolescent health behavior, as highlighted by previous health communication research (32,33).

Furthermore, exposure to information, both regarding anemia and iron supplementation, was also positively associated with compliance, although the relationship was stronger for specific information about the iron tablets themselves. Adolescents who received more targeted information about iron supplementation were more likely to consume the tablets regularly. This supports existing evidence that health-specific messages, when communicated, are more effective than general health knowledge in driving behavior change (34,35). These findings emphasize the need for school-based and media-based health promotion strategies that focus on message clarity, cultural relevance, and consistent parental involvement to increase iron tablet compliance among adolescent girls. These findings highlight the complex interplay of cognitive, emotional, and social dimensions in shaping adolescent health behavior. Acceptance of the tablets, as a reflection of subjective experience and individual preferences, acted as a strong determinant

of consumption decisions. Within this framework, factors such as taste perception, concerns about side effects, and perceived necessity of supplementation bear strategic implications for the design of health promotion messages. This aligns with the Health Belief Model constructs of perceived benefits and perceived barriers, which emphasize the psychological evaluation of health actions (35).

Parental involvement reinforces the importance of interpersonal communication within the household as a key factor in health-related behavior. Social Cognitive Theory explains that adolescent behavior is shaped not only by personal information processing but also by social environments (36,37). These environments influence behavior through observation, support, and reinforcement. Parents act as facilitators of access to iron tablets and as communicators who shape norms and positive perceptions of health interventions (38,39).

The perceived impact of anemia suggests that adolescents with a deeper understanding of the consequences of anemia are more likely to comply with iron supplementation. This supports the Health Belief Model's concept of perceived severity, which posits that individuals are more inclined to adopt preventive behavior when a condition is perceived as having serious consequences (40,41). Therefore, educational strategies should emphasize not only the prevalence of anemia but also

its functional consequences, such as fatigue, reduced academic performance, and long-term reproductive health risks. The nonsignificant role of general anemia information in the multivariate model underscores the need to refine health messaging. While general awareness may initially trigger concern, it appears insufficient to sustain behavior change unless paired with specific and actionable guidance. This finding corroborates prior research indicating that tailored and audience-specific messages lead to more effective behavioral outcomes than generic health education (42,43). Communication approaches that are interactive, technology-based, and digitally accessible, such as health apps or social media platforms, are particularly suitable for reaching adolescent audiences (44,45).

The results of the multivariate logistic regression analysis showed that the variable of exposure to information about iron tablets, which was previously insignificant in the first model, became significant in the second. This change indicates a complex dynamic between exposure to information and other factors in influencing adolescent compliance with iron supplementation. In this case, the influence of information becomes clearer when included with variables such as acceptance of tablets, perception of anemia risk, and parental awareness. The information received by adolescents does not only act as passive knowledge, but also acts as

cues to action or behavioral triggers, especially when supported by other environmental and psychosocial factors. This is in accordance with the Health Belief Model (HBM) theoretical framework, which states that an individual's decision to carry out health behaviors is influenced by perceptions of benefits, perceptions of threats, and cues to action (46). Previous research supports these findings. Exposure to information combined with family support and risk perception significantly increased adolescent compliance with iron supplementation (47). Thus, intervention strategies to improve compliance with iron consumption should not only focus on providing information but also consider approaches that are interactive, fun, and supported by a positive social environment.

Strengths of this study lie in its integration of behavioral theory with empirical analysis, as well as its use of a multivariate model that enables the identification of independent predictors. By utilizing a representative sample and employing rigorous analytical techniques, this study provides evidence-based insights into the design of effective health communication strategies, particularly for adolescent populations. Limitations include the reliance on self-reported data, which may be subject to social desirability and recall biases. Additionally, the cross-sectional study design limits causal inference between predictors and compliance behavior. Contextual variables

such as school norms, peer influence, or structural barriers were also not incorporated into the current model. Future research is recommended to adopt longitudinal approaches that better capture causal pathways and long-term behavioral patterns. Furthermore, future studies should explore digital communication strategies, such as peer-led social media campaigns and mobile health interventions that incorporate interactivity and gamification. Investigating the mediating roles of risk perception, self-efficacy, and social support in predicting compliance behavior could also provide a more comprehensive understanding of the mechanisms influencing adolescent health behavior.

## **CONCLUSION AND RECOMMENDATION**

The findings from this study underscore the critical factors influencing adolescent compliance with iron supplementation. Exposure to information about iron supplements, parental knowledge and involvement, as well as adolescents' perceptions of the impact of anemia, are pivotal in determining adherence. Specifically, the study revealed that adolescents who had higher awareness of anemia and iron supplementation, along with those who received strong parental support, were more likely to comply with the supplementation regimen. This is consistent with the principles of the Health Belief Model, which highlights how perceived susceptibility, severity, and benefits

influence health behavior. Based on these findings, it is recommended that health promotion programs target both adolescents and their parents to enhance understanding and perceived value of iron supplementation. Interventions should emphasize the health risks of anemia, the benefits of supplementation, and create accessible channels for information dissemination. Moreover, the role of parental influence should be integrated into programs to ensure that families are actively involved in supporting adolescents' adherence to the regimen.

## REFERENCES

1. WHO. Anaemia [Internet]. 2025 [cited 2025 May 2]. Available from: <https://www.who.int/news-room/fact-sheets/detail/anaemia>
2. Nadiyah N, Sitoayu L, Dewanti LP. Remaja putri pedesaan di indonesia berisiko anemia dua kali lebih tinggi. *Gizi Indonesia*. 2022;45(1):35–46. <https://doi.org/10.36457/gizindo.v45i1.614>
3. Global Health Metrics. Anemia - Level 1 impairment. *Lancet*. 2019.
4. Behera MsG, Balakrishnamony DrB. Iron deficiency anemia among adolescent girls – a review. *The Genesis*. 2021 Sep 15;8(3):105–8.
5. Sonawane S V., Todkar SS, Mulaje S. Prevalence of anemia and factors affecting anemia among adolescent girls under field practice area of rural health training centre of western Maharashtra. *International Journal of Community Medicine and Public Health*. 2024;12(1):226–30. <https://doi.org/10.18203/2394-6040.IJCMPh20244023>
6. Kumari R, Lenka AK, Kumar S, Lodhi M. Prevalence of anaemia among adolescent girls: a community-based study in Delhi, India. *Journal of Advanced Scientific Research*. 2023; 14(10): 5–12. <https://doi.org/10.55218/JASR.2023141002>.
7. BKPK Kemenkes RI. *Survei Kesehatan Indonesias 2023 dalam Angka*. Jakarta; 2023.
8. Helmyati S, Syarifa CA, Rizana NA, Sitorus NL, Pratiwi D. Acceptance of Iron Supplementation Program among Adolescent Girls in Indonesia: A Literature Review. *Amerta Nutrition*. 2023;7(3SP): 50–61. <https://doi.org/10.20473/amnt.v7i3SP.2023.50-61>
9. Sudarti F, Bahriyah F, Putri M. The Relationship Between Consumption of Blood Supplemental Tablets to the Incidence of Anemia in Adolescent Women. *INCH: Journal of Infant and Child Healthcare*. 2023 Jul 21;2(1): 40–4. <https://doi.org/10.36929/inch.v2i1.694>
10. Daba DD, Bidu KT, Heyi SK, Garoma D, Assegu YB. Compliance with weekly iron folic acid supplementation and associated factors among secondary school adolescent girls, in Jimma Arjo District, West Ethiopia, 2022: A mixed

- method cross-sectional Study. *World Journal of Biology Pharmacy and Health Sciences*. 2024;20(1):394–408. <https://doi.org/10.30574/wjbphs.2024.20.1.0800>
11. Silitonga HTH, Salim LA, Nurmala I, Wartiningih M. Compliance of Iron Supplementation and Determinants among Adolescent Girls: A Systematic Review. *Iranian Journal of Public Health*. 2023 Jan 1;52(1):37–48. <https://doi.org/10.18502/IJPH.V52I1.11664>
  12. Pramono AY. Ratusan Remaja Putri di Bantul Menderita Anemia [Internet]. *Harian Jogja*. 2023 [cited 2025 May 6]. Available from: <https://jogjapolitan.harianjogja.com/read/2023/03/04/511/128146/ratusan-remaja-putri-di-bantul-menderita-anemia>
  13. Silitonga HTH, Salim LA, Nurmala I, Hargono R, Purwandini S. Knowledge, attitude, intention, and program implementation of iron supplementation among adolescent girls in Sidoarjo, Indonesia. *Journal of Public Health in Africa*. 2023;14(S2). <https://doi.org/10.4081/JPHIA.2023.2548>
  14. Isnaini YS, Pihahay PJ, Bahra, Mintaningtyas SI, Simanjuntak MK, Fabanjo IJ. Knowledge, attitude, practice and compliance to weekly iron supplementation among female public junior high school students in West Papua. *Public Health of Indonesia*. 2024 Dec 25;10(4):38–48. <https://doi.org/10.36685/phi.v10i4.858>
  15. Biswas B, Gautam A, Jahnavi G, Gupta P, Varshney S. Barriers, Facilitators of Iron and Folic Acid Supplementation, and Deworming Program among School-Going Adolescents of Deoghar, Jharkhand, India: A Mixed-Methods Study. *Korean Journal Family Medicine*. 2024;2–10. <https://doi.org/10.4082/kjfm.23.0100>
  16. Y. NM, Kandasamy S, J. ER, Subbiah P, Davidson PD, Gopal M, et al. Adherence to weekly iron folic acid supplementation and associated factors among adolescent girls - A mixed-method study. *Journal of Family Medicine and Primary Care*. 2024;13(6):2416–24. [https://doi.org/10.4103/jfmpc.jfmpc\\_1526\\_23](https://doi.org/10.4103/jfmpc.jfmpc_1526_23).
  17. Silitonga HTH, Salim LA, Nurmala I, Hargono R, Notobroto HB, Hartini N, et al. The role of social support and interpersonal trust to improve compliance of iron supplementation amongst adolescent girls: A qualitative approach. *The Nigerian Postgraduate Medical Journal*. 2023;30(1):75–80. [https://doi.org/10.4103/npmj.npmj\\_277\\_22](https://doi.org/10.4103/npmj.npmj_277_22)
  18. Chen X, Hay JL, Waters EA, Kiviniemi MT, Biddle C, Schofield E, et al. Health Literacy and Use and Trust in Health Information. *Journal of Health Communication*. 2018;23(8):724. <https://doi.org/10.1080/10810730.2018>

- .1511658
19. Alyafei A, Easton-Carr R. The Health Belief Model of Behavior Change. StatPearls. 2024; Treasure Island (FL): StatPearls Publishing.
  20. Green EC, Murphy E. Health Belief Model. The Wiley Blackwell Encyclopedia of Health, Illness, Behavior, and Society. 2014;766–9.
  21. Kington RS, Arnesen S, Chou WYS, Curry SJ, Lazer D, Villarruel AM. Clinical Practice Guidelines We Can Trust. Clinical Practice Guidelines We Can Trust. 2021.
  22. Institute of Medicine, National Research Council Committee on the Science of Adolescence. The Science of Adolescent Risk-Taking: Workshop Report. Washington, D.C.: National Academies Press (US); 2011.
  23. Lewis CC, Taba M, Allen TB, Caldwell PHY, Skinner SR, Kang M, et al. Developing an Educational Resource Aimed at Improving Adolescent Digital Health Literacy: Using Co-Design as Research Methodology. Journal of Medical Internet Research. 2024;26:e49453–e49453. <https://doi.org/10.2196/49453>
  24. Creswell JW. Research Design: Qualitative, Quantitative, and Mixed Methods Approach. United States of America Library: SAGE Publication, Inc; 2013.
  25. Viner RM, Allen NB, Patton GC. Puberty, Developmental Processes, and Health Interventions. In: Disease Control Priorities, Third Edition (Volume 8): Child and Adolescent Health and Development. Washington D.C.: The International Bank for Reconstruction and Development / The World Bank; 2017. p. 107–18.
  26. Bonnie RJ, Backes EP. The Promise of Adolescence: Realizing Opportunity for All Youth. The Promise of Adolescence. Washington, DC: The National Academies Press.; 2019.
  27. De Buhr E, Tannen A. Parental health literacy and health knowledge, behaviours and outcomes in children: A cross-sectional survey. BMC Public Health. 2020;20(1):1–9. <https://doi.org/10.1186/s12889-020-08881-5>
  28. Van Zyl C, Badenhorst M, Hanekom S, Heine M. Unravelling 'low-resource settings': a systematic scoping review with qualitative content analysis. BMJ Global Health. 2021;6(6):5190. <https://doi.org/10.1136/bmjgh-2021-005190>
  29. Kuntz B, Waldhauer J, Zeiher J, Finger JD, Lampert T. Socioeconomic differences in the health behaviour of children and adolescents in Germany. Results of the cross-sectional KiGGS Wave 2 study. Journal of Health Monitoring. 2018;3(2). <https://doi.org/10.25646/5609>
  30. Marttila-Tornio K, Männikkö N, Ruotsalainen H, Miettunen J, Kääriäinen M. Lower parental

- socioeconomic status in childhood and adolescence predicts unhealthy health behaviour patterns in adolescence in Northern Finland. *Scandinavian Journal of Caring Sciences*. 2021; 35(3):742–52. <https://doi.org/10.1111/SCS.12888>
31. Masfufah M, Kandarina I, Padmawati RS. Penerimaan remaja putri terhadap tablet tambah darah di Kota Yogyakarta. *Jurnal Gizi Klinik Indonesia*. 2022; 18(3):145. <https://doi.org/10.22146/IJCN.37031>
  32. Sineke J, Pascoa ME, Saud F, Ranti IN, Paruntu OL. Factors Related to Compliance with the Consumption of Iron Tablets in Adolescent Females. *IOSR Journal of Nursing and health Science*. 2024;13(5):35–40. <https://doi.org/10.9790/1959-1305063540>
  33. Feriyanti A, atus Sintya Deviatin N, Nurmala I, Widati S, Raditya Atmaka D, Kesehatan P, et al. Determinant of Adherence to iron supplementation in Adolescent Girl in Spesific Intervention for Stunting Prevention: Systematic Review. *Media Gizi Indonesia*. 2022;17(1SP):90–6. <https://doi.org/10.20473/MGI.V17I1SP.90-96>
  34. Raihani AD, Utami RP, Sari RA. The Effectiveness of Educational Media on Knowledge, Dietary Patterns and Compliance with Iron Supplement Consumption in Anemic Adolescent Girls. *Journal of Health and Nutrition Research*. 2024; 3(1):53–61. <https://doi.org/10.56303/JHNRESEARCH.V3I1.197>
  35. Handayani D, Sumiati S, Risnawati R, Meihartati T. The Effect of Anemia Education Videos on Compliance Take Blood Booster Tablets. *JKM (Jurnal Kebidanan Malahayati)*. 2024;10(6):597–606. <https://doi.org/10.33024/JKM.V10I6.14503>
  36. Hertz U. A cognitive approach to learning, monitoring, and shifting social norms. *Current Opinion in Psychology*. 2024;60: <https://doi.org/101917–101917>.
  37. Lajnef K. The effect of social media influencers on teenagers Behavior: an empirical study using cognitive map technique. *Current Psychology*. 2023; 42(22): 19364–77. <https://doi.org/10.1007/s12144-023-04273-1>
  38. Velazquez E, Garthe RC, Barinas J, Rodriguez M, Loggins J. Parental practices and adolescent health. *Encyclopedia of Child and Adolescent Health, First Edition*. 2023;2:635–46. <https://doi.org/10.1016/B978-0-12-818872-9.00092-3>
  39. Sedlander E, Long MW, Bingenheimer JB, Rimal RN. Examining intentions to take iron supplements to inform a behavioral intervention: The Reduction in Anemia through Normative Innovations (RANI) project. *PLoS One*. 2021;16(5):e0249646. <https://doi.org/10.1371/JOURNAL.PONE.0249646>
  40. Jyotish SK, Shokandha S, Milton A.

- Prevalence of Anemia, Knowledge, Attitude and Compliance Related to Weekly Iron Folic Acid Supplementation Programme among the Adolescents in Selected School of South East Delhi. *International Journal of Advanced Research in Science, Communication and Technology*. 2023;404–21. <https://doi.org/10.48175/IJARSCT-12469>
41. Baharzadeh K, Marashi T, Saki A, Zare A, Araban M. Using of health belief model to promote preventive behaviors against iron deficiency anemia among pregnant women. *Journal of Research & Health*. 2016;
  42. Diamond-Smith N, Holton AE, Francis S, Bernard D. Addressing anemia among women in India-an informed intervention using Facebook Ad Manager. *Mhealth*. 2020;6:39–39. <https://doi.org/10.21037/MHEALTH-19-237A>
  43. Huang HY. Message Tailoring. *The International Encyclopedia of Health Communication*. 2022;1–7. <https://doi.org/10.1002/9781119678816.IEHC0762>
  44. Mancone S, Corrado S, Tosti B, Spica G, Diotaiuti P. Integrating digital and interactive approaches in adolescent health literacy: a comprehensive review. *Frontiers in Public Health*. 2024;12:1387874. <https://doi.org/10.3389/F PUBH.2024.1387874/XML/NLM>
  45. Freeman JL, Caldwell PHY, Scott KM. How Adolescents Trust Health Information on Social Media: A Systematic Review. *Academic Pediatrics*. 2023; 23(4): 703–19. <https://doi.org/10.1016/J.ACAP.2022.12.011>
  46. Glanz K RBVK. *Health Behavior Theory, Research and Practice*. 5th ed. United States of America: Jossey-Bass; 2015.
  47. Hamid NS, Ansariadi, Amiruddin R, Noor NN, Birawida AB, Stang. Anemia prevention measures in female students in the Islamic Boarding School of Al-Junaidiyah Biru, Indonesia. *Journal of Education and Health Promotion*. 2024; 13:480. [https://doi.org/10.4103/jehp.jehp\\_150\\_24](https://doi.org/10.4103/jehp.jehp_150_24).