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Factors Affecting The Incidence of Anemia in Adolescents in Junior High School 7 Cimahi City

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ABSTRACT

Anemia is a big problem for people's health all around the world, but mainly in underdeveloped nations. Iron deficiency is to blame for 50% to 80% of cases. The goal of this study is to find out what causes anaemia in teenage girls. This study used a mixed approach with a continuous embedded research design. It took place in August 2024 at SMPN 7 Cimahi City, and the sample was all 146 7th grade teenage girls who were recorded by teachers. Univariate (proportion), bivariate (chi square test) and multivariate (logistic regression) analysis, while qualitative with transcription and data reduction. The results of the research stated that there was a relationship between knowledge factors ($p=0.020$), attitudes ($p=0.000$) and eating habits ($p=0.002$) which were significantly related bivariately to the incidence of anemia. In the multifarious study, it was found that attitudes and patterns of eating habits can influence the incidence of anemia in adolescent girls 3-4 times. Qualitative research indicates that adolescents are prone to anaemia due to non-adherence to the administration of iron supplements provided at school and a prevalent consumption of fast food during school hours. everyday existence. This research concludes that a substantial correlation exists between knowledge, attitudes, and eating habits and the prevalence of anaemia in young women.

Keywords : *Anemia, Knowledge, Attitude, Diet.*



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BACKGROUND

Anemia is a major problem in global public health, especially in developing countries. The handling of anemia cases in Indonesia has not been resolved until now, with around 50-80% of anemia caused by iron deficiency (Ministry of Health of the Republic of Indonesia, 2022). The global prevalence rate according to the Ministry of Health in 2022 occurs in adolescents and reproductive age at around 17-18% (Kilmer, 2024). Adolescents play an important role in the development and generation of national development, as a bright future investment, especially for adolescent girls who are more vulnerable to anemia (Aliyah & Krianto, 2023).

The symptoms that often appear in anemia among adolescents include fatigue, tiredness, lethargy, and impact on long-term productivity, such as pregnancy, childbirth, and breastfeeding. As a result of these impacts, adolescent girls may be at greater risk of experiencing low birth weight (LBW) and stunting (Sartika et al., 2021). Therefore, the handling and prevention of anemia in adolescent girls has become one of the focuses of the government. The WHO targets to reduce the incidence of anemia in adolescents by 50% by 2025 (World Health Organization, 2022).

The government has implemented various programs, namely the addition of iron supplements that have been running for the last 3 decades, then iron fortification that has been carried out since 2000, and lastly, food diversification PUGS (Kaur, Agarwal, & Sabharwal, 2022). Several main factors of anemia include low iron intake, low levels of knowledge, irregular eating habits, poor absorption processes from body metabolism, chronic disease infections such as malaria, HIV, cancer, and tuberculosis (Wiciński et al., 2020) (Piskin et al., 2022).

Based on the above, it is necessary for adolescent girls to be responsive in facing problems arising from anemia; it is certainly not enough to only obtain information from outside without getting textbooks or related journals. This will impact knowledge and better attitude changes, so that the incidence of anemia in adolescents can decrease (Kusuma & Kartini, 2021).

Another aspect is eating habits, where the arrangement of food types and nutritional amounts must meet balanced nutrition. Good nutrition can protect oneself from diseases that arise. In addition to dietary mistakes, overeating can also lead to an unbalanced body pattern, which can ultimately cause anemia in a person (Paramastri et al., 2021).

Several research articles mention that there is a relationship or influence of dietary patterns on the incidence of anemia in adolescents, this is proven by Hartati Deri Manila with a significance value of 0.028 p value <0.05 (Manila, 2021). Preliminary studies conducted by the author at SMPN 7 Cimahi, have been randomly data collected and interviews with teachers there, based on the preliminary data this junior high school has



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not been exposed to hemoglobin examinations to detect whether the female students are anemic or not. The female students also do not receive more information about the symptoms of anemia. They do not know whether they are affected by this disease or not. There are many accesses that researchers can take to explore from various aspects including teachers, female students, and the surrounding environmental conditions.

From the problems above, the author is interested in conducting research on the factors of anemia that influence the incidence of anemia in female adolescents at SMPN 7 Cimahi City, The researcher hopes that after this research is completed, the school can continue the program that has been established, so that in the future the female students at SMPN 7 Cimahi City can be prevented from anemia which can have fatal consequences in the long term. Thus, the next generation of this nation can build the dreams and aspirations of the nation's children to compete intellectually on an international level.

OBJECTIVE

To Find Out Factors That Influence the Incidence of Anemia in Adolescents at SMPN 7, Cimahi City.

METHODS

This research design uses a mixed method with a concurrent embedded approach, where quantitative with case control while qualitative uses a phenomenological approach. The research related to anemia was conducted in the period July to August 2024. The population in this study is junior high school female students in grade 7. The sampling technique used is total sampling with a total of 73 cases and 73 control individuals. The inclusion criteria were adolescents girls aged 12-15 years old, and present the research. Exclusion criteria were adolescents who were ill at the time of the study and had a history of chronic illness. Quantitative data collection is divided into 2, namely primary data (using questionnaire instruments and Hb examinations), secondary data obtained from the school regarding the identity of female adolescents. Qualitative data is collected through interviews with selected adolescent participants using purposive sampling. Data analysis for validity and reliability uses Pearson product moment, Cronbach alpha. Bivariate analysis uses chi-square test or Fisher exact test. Multivariate regression. This research has gone through ethical testing and received approval with Number: 197/KEPK/FITKes-Unjani/VII/2024.

RESULTS

In this section, calculations and statistical analyses will be performed based on the research objectives and the data obtained during the research period. The analysis used in this study consists of univariate, bivariate, and multivariate analyses to determine the factors that influence the incidence of anemia in female adolescents with a total sample of the case group (anemia) and



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the control group (non-anemia) each consisting of 73 individuals. The results of the validity and reliability tests indicate validity with a score of 0.3 and >0.7.

1. Quantitative results

Table 1 Characteristics Subject Study

| Characteristics | Total (n=146) | Percentage |
|--------------------|---------------|------------|
| Age | | |
| 12 years old | 9 | 6% |
| 13 years old | 73 | 50% |
| 14 years | 60 | 41% |
| 15 years | 4 | 3% |
| Ethnic group | | |
| Sunda | 134 | 92% |
| Java | 11 | 8% |
| Others (Aceh) | 1 | 1% |
| Parent Education | | |
| SD | 3 | 2% |
| JUNIOR HIGH SCHOOL | 63 | 43% |
| SENIOR HIGH SCHOOL | 70 | 48% |
| S1 | 9 | 6% |
| S2 | 1 | 1% |
| Work | | |
| Doesn't work | 2 | 1% |
| Laborer | 44 | 30% |
| Teacher | 5 | 3% |
| Employee Private | 20 | 14% |
| Self-employed | 30 | 21% |
| Other | 45 | 31% |
| Experience Anemia | | |
| Once | 33 | 23% |
| Never | 113 | 77% |
| Health Counseling | | |
| Once | 97 | 66% |
| Never | 49 | 34% |
| Place Counseling | | |



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| Characteristics | Total (n=146) | Percentage |
|-----------------|---------------|------------|
| Social media | 7 | 5% |
| School | 88 | 60% |
| Never | 49 | 34% |

Based on results recapitulation in Table 1, age majority teenager daughter in research This is 13 years old with percentage of 50% and comes from from ethnic group Sundanese . Parents ' last education most identified is high school/ equivalent as many as 70 people (48%) and have work as workers . As many as 113 female students (77%) have not Once experience anemia and 66% have get counseling health held in schools .

Table 2. Analysis Bivariate Knowledge , Attitudes and Eating Habits with Anemia Occurrence

| Variables | Incident Anemia | | Total | p Value |
|------------------------------|-----------------|------------------|-----------|---------|
| | Anemia (n=73) | No Anemia (n=73) | | |
| Knowledge | | | | |
| Good | 15 (20.5) | 18 (24.7) | 33 (22.6) | 0.020 |
| Enough | 15 (20.5) | 28 (38.4) | 43 (29.5) | |
| Not enough | 43 (58.9) | 27 (37.0) | 70 (47.9) | |
| Attitude | | | | |
| Good | 19 (26.0) | 31 (42.5) | 50 (34.2) | 0.000 |
| Enough | 36 (49.3) | 40 (54.8) | 76 (52.1) | |
| Not enough | 18 (24.7) | 2 (2.7) | 20 (13.7) | |
| Eating Habits Pattern | | | | |
| Good | 22 (30.1) | 36 (49.3) | 58 (39.7) | 0.002 |
| Enough | 10 (13.7) | 17 (23.3) | 27 (18.5) | |
| Not enough | 41 (56.2) | 20 (27.4) | 61 (41.8) | |

Knowledge, attitude and pattern factors habit Eat relate significant in a way bivariate with incident anemia. The most dominant factor is factor attitude, because own mark almost probability 0

Table 3 Analysis Multivariate Factors That Influence Incidence in Adolescent Girls

| Factor | B | SE | Wald | p-Value | OR (95%CI) |
|-----------------------|--------|-------|--------|---------|--------------------|
| Knowledge | -0.386 | 0.230 | 2,816 | 0.093 | 0.68 (0.43 - 1.06) |
| Attitude | -0.922 | 0.297 | 9,660 | 0.002 | 0.40 (0.22 - 0.71) |
| Eating Habits Pattern | -0.642 | 0.204 | 9,873 | 0.002 | 0.53 (0.35 - 0.76) |
| Constant | 3.803 | 0.889 | 18,295 | 0.000 | |



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The factors that influence the incidence of anemia in a multivariate manner are attitudes and patterns. habit Eat .

2. Qualitative Results

Qualitative results obtained data from 4 informants, among them those who experienced anemia. Some informants actually know about anemia and the symptoms it causes are clearly understood. This is implied from one of the informant's statements, "I know the definition of anemia is a lack of blood, with the characteristics of anemia often feeling dizzy, pale skin, and seeing flashes of light."

Then followed by questions regarding attitudes towards consuming iron tablets provided at school, among them "I never took the iron tablet, I forgot because I don't know its benefits." Lastly, about eating habits, "I have a habit of eating fast food, especially instant noodles, I can eat 2 packs of noodles in one meal because the easiest thing to eat in the boarding school is instant noodles."

DISCUSSION

Based on the analysis results, it shows that there is a relationship between knowledge, attitudes, and eating habits with the incidence of anemia in adolescent girls in SMPN 7 Cimahi City with a significant average value of $p > 0.05$. This is in line with research by Yanis et al. that a person's quality is influenced by good health and mindset (Ramadhani & Ulfia, 2022). Knowledge can develop if someone can apply the learning obtained in school or through other sources of information. If the source of knowledge obtained is lacking, then the resulting attitude will be less optimal in the process of preventing anemia (Verma & Baniya, 2022). The higher a person's level of knowledge, the better their health will be.

From several statements of respondents, it is strongly supported by the answers that the average junior high school students 7 Cimahi City know about anemia, the results show that out of 4 respondents, they understand anemia well, but do not yet understand what actions should be taken so that the application can be useful until adulthood. If so, it is also hoped that the attitudes of adolescents in the prevention or treatment of anemia can succeed with a change in positive attitudes (Sa'adah, Pratami, & Jeniawaty, 2022). This is in stark contrast to the statements from informants, that the average provision of iron tablets that should be taken regularly every morning at school is not consumed for various reasons such as forgetting, intentionally not taken, and thrown away, even though the quantitative data results indicate a good and sufficient attitude (Putri & Fauziyah, 2023). This can answer why the incidence of anemia in adolescents has not decreased until now. Some studies only mention that one of these variables tends to have a relationship or not, but do not explore qualitatively. This is fundamental that the researcher has differences from previous studies. Not only knowledge and attitudes but also discusses eating habits.



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Not only knowledge and attitudes, but also discuss about pattern habit Eat obtained significant results. We know that good nutrition for anemia sufferers, namely protein, substances iron and vitamin C. besides That need be noticed factor menstruation moment occurs in adolescents daughter said. Intake malnutrition will to give impact direct to hemoglobin levels in the body adolescents, so that it can cause anemia to occur (Oktafiana , Dwihestie , & Puspitasari , 2023). In the results quantitative mentioned that pattern bad habits good for anemia sufferers, this This supported with statement informant that on average because they No stay with parents, so that they more Lots For No breakfast morning at home. Teenagers This only Eat ready made food serving or fast food, instant noodles and snacks others (Andiarna, 2018). This is what makes intake nutrition that is not Good more and more to aggravate anemia condition in adolescents the

CONCLUSION

There is connection between factor knowledge, attitudes and patterns habit Eat to the incidence of anemia in adolescents, this This reinforced with habit teenagers who don't Be obedient in taking FE tablets as well pattern food that is not nutritious with Good.

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