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FACTORS ASSOCIATED WITH THE INCIDENCE OF ANEMIA AMONG BRIDES-TO-BE IN THE WORKING AREA OF THE HEALTH DEPARTMENT OF PESAWARAN DISTRICT, INDONESIA

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ABSTRACT

Anemia remains a significant global public health issue, particularly among women of reproductive age, including brides-to-be. Addressing anemia in this population is crucial for improving maternal health outcomes and reducing health risks during pregnancy and childbirth. Objective: To identify factors associated with the incidence of anemia among brides-to-be in the working area of the Health Department of Pesawaran District in 2025. A quantitative study with a cross-sectional design was conducted involving 78 brides-to-be selected through proportional random sampling. Data were collected using structured questionnaires and analyzed using univariate, bivariate, and multivariate statistical methods. The study found significant associations between anemia and menstrual duration ($p = 0.001$), nutritional status ($p = 0.016$), compliance with iron tablet consumption ($p = 0.004$), physical activity ($p = 0.021$), and history of acute infectious disease ($p = 0.001$). The most dominant factor was the history of acute infectious disease, with an odds ratio (OR) of 7.763 ($p = 0.004$), indicating that participants with a history of acute infections were nearly 8 times more likely to experience anemia. There is a significant relationship between anemia and several factors, including menstrual duration, nutritional status, iron tablet compliance, physical activity, and history of acute infections. The history of acute infectious disease is the most dominant factor. It is recommended to integrate pre-marital health screenings with religious affairs offices to enhance early detection and prevention of anemia among brides-to-be.

Keywords: anemia; acute infection; brides-to-be; iron supplement adherence; menstrual duration; nutritional status

INTRODUCTION

Anemia is a global public health concern, especially among women of reproductive age, due to increased iron needs from menstruation, pregnancy, and childbirth. According to the World Health Organization (2021), approximately 30% of women aged 15–49 years suffer from anemia globally. Iron deficiency remains the most common cause of anemia, leading to reduced work productivity, cognitive impairment, increased maternal mortality, and adverse pregnancy outcomes. In Southeast Asia, anemia prevalence is notably high, and in Indonesia, it reaches 39.5% among women aged 15–24 years (Riskesdas, 2018), many of whom are preparing for marriage and future pregnancies. Brides-to-be represent a strategic target for anemia prevention efforts because their nutritional and health status can directly influence future maternal and fetal health. In Pesawaran District, Lampung Province, Indonesia, there has been an increasing trend of anemia among prospective brides, with 198 cases reported in 2023 and 234 in 2024 (Dinkes Pesawaran, 2024). Factors such as prolonged menstruation, inadequate nutritional status, low compliance with iron supplementation, sedentary lifestyle, and a history of infectious diseases like malaria may contribute to the rising cases of anemia in this population. However, there has been limited research focusing specifically on this vulnerable group.

This study aims to analyze the determinants of anemia among brides-to-be in the working area of the Pesawaran District Health Office. By identifying key risk factors, the findings are expected to support targeted interventions such as pre-marital counseling, health education, and anemia screening integrated with local health services and religious affairs offices. Understanding the health status of brides-to-be is essential for improving reproductive health outcomes and reducing the burden of maternal anemia in Indonesia.

METHODS

This was a cross-sectional quantitative study conducted in the working area of the Health Department of Pesawaran District between March and April 2025. The study population included all registered brides-to-be in the district (N = 97). A sample of 78 participants was selected using proportional random sampling. A validated structured questionnaire was used to assess: Menstrual history, nutritional status (via BMI), compliance with iron tablet consumption, physical activity level, knowledge of anemia, history of acute infectious diseases.

Data were analyzed using: Univariate analysis to describe variable distributions, Bivariate analysis using Chi-Square tests, Multivariate logistic regression to identify dominant factors. Ethical clearance was obtained from the Health Research Ethics Committee, and informed consent was acquired from all respondents.

RESULTS AND DISCUSSION

This study involved 78 brides-to-be residing in the working area of the Pesawaran District Health Office. The demographic profile revealed that the majority of respondents (53.8%) were between 19–24 years old, followed by 33.3% aged 25–30 years, and 12.8% aged over 30 years. Most participants had completed high school education (61.5%), while 25.6% had a diploma or university-level education, and 12.8% had only junior high school education. Additionally, 51.3% of respondents were unemployed, while 48.7% reported some form of employment.

Anemia status was determined using hemoglobin (Hb) measurements. The findings showed that 30 respondents (38.5%) were categorized as anemic, with 24 experiencing mild anemia and 6 having moderate anemia. The remaining 61.5% of respondents had normal hemoglobin levels. This high prevalence reflects a serious public health concern among women preparing for marriage in the region. Out of 78 respondents, the majority were aged 19–24 years (53.8%), had senior high school education (61.5%), and were unemployed (51.3%). The anemia prevalence among respondents was 38.5%.

significant factors ($p < 0.05$): menstrual duration**:** women with prolonged menstruation (>7 days) were more likely to be anemic (p=0.001). nutritional status: underweight individuals (bmi <18.5) had higher anemia prevalence (p=0.016**).** iron tablet adherence: inconsistent adherence (<90% consumption) was associated with anemia (p=0.004). physical activity: inactive women had a higher anemia rate (p=0.021). history of acute infections: those who had recent infections (e.g., malaria, dengue) had a significantly higher risk (p=0.001, or=7.763).

Non-Significant Factor: Nutritional Knowledge**:** No statistically significant correlation with anemia status (p=1.001). Physical activity levels were also assessed, and results showed that 66.7% of the respondents had low levels of physical activity, as measured by the Global Physical Activity

Questionnaire (GPAQ). This was reinforced by lifestyle observations and self-reported sedentary behavior. Nutritional knowledge was categorized into three levels: good (28.2%), moderate (35.9%), and poor (35.9%). Despite a fair proportion having moderate-to-good knowledge, this was not always reflected in behavior or outcomes.

Bivariate analysis revealed statistically significant relationships between anemia and several factors. Menstrual duration ($p = 0.001$), nutritional status ($p = 0.016$), iron tablet adherence ($p = 0.004$), physical activity ($p = 0.021$), and a history of acute infections ($p = 0.001$) all showed significant associations with the incidence of anemia. However, nutritional knowledge ($p = 1.001$) showed no significant correlation, suggesting a disconnect between awareness and behavior or physiological outcomes. Multivariate logistic regression identified history of acute infectious diseases as the most dominant factor influencing anemia among brides-to-be. Respondents with a recent history of infection were over 7 times more likely to be anemic compared to those without (OR = 7.763, $p = 0.004$). These findings underscore the multifactorial nature of anemia and highlight the need for integrated interventions that address not only nutritional and reproductive health, but also infection prevention and lifestyle improvement in this population.

This study affirms that anemia in brides-to-be is multifactorial. Prolonged menstruation and poor nutritional status deplete iron reserves, as supported by studies from Suhariyati (2020) and Mastuti (2023). Infrequent or improper intake of iron supplements also undermines prevention efforts (Marwati, 2020; Kemenkes, 2015). Low physical activity correlates with reduced hemoglobin levels, echoing Podungge (2022) and Gultom et al. (2020). Interestingly, while knowledge about nutrition is crucial, this study found no statistical association, suggesting that knowledge alone may not translate into behavior change, in line with Utami & Puspita (2020). The strong association with acute infections, notably malaria, aligns with findings from Haldar et al. (2019), where infections interfere with erythropoiesis and promote hemolysis.

CONCLUSIONS

This study concludes that prolonged menstruation, poor nutritional status, low adherence to iron tablets, lack of physical activity, and recent infections are significant factors associated with anemia in brides-to-be. The most influential factor was a history of acute infections. Public health interventions should integrate anemia screening with pre-marital counseling programs and focus on preventing infections and promoting healthy lifestyles.

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