

PREVALENCE OF ANEMIA ASSOCIATED WITH MENSTRUAL DISORDERS AMONG NURSING STUDENTS IN A PRIVATE NURSING COLLEGE AT KARACHI

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Abstract: *This study aimed to investigate the prevalence of anemia among nursing students at a private college in Karachi and its association with menstrual problems. The institution approved the study and conducted it with the participation of 144 nursing students who provided informed consent. A pretested questionnaire was used to collect data to estimate the risk factors for anemia in nursing students, and hematological examinations were conducted on their blood samples at Jinnah Sindh Medical University Hospital. The data was analyzed using SPSS version 20.0. The results showed that 52.7% of nursing students suffered from anemia. Interviews with the students revealed that 70.1% had a monthly menstrual flow of 5-7 days, 9.5% had a flow of 3-5 days, and 22.9% had a flow of less than three days. The study found that a menstrual flow length of 3-5 days was associated with a higher incidence of anemia ($P < 0.001$ chi-square 14.3). However, the number of sanitary pads used per day was not significant in relation to the prevalence of anemia ($p = 0.512$). In conclusion, menstrual issues were found to be the leading cause of anemia among nursing students. Therefore, raising awareness about this health condition and implementing necessary measures can significantly enhance students' quality of life in educational institutions.*

Keywords: Anemia, Prevalence, Nursing Students, Menstrual Disorders, Private Nursing College

Introduction

Anemia ranks as one of the most prevalent health issues in the globe. In Southeast Asia, anemia affects a considerable 47 percent of women between the ages of 15 and 49 who are of reproductive age (Stevens et al., 2013). In Pakistan, 51% of non-pregnant women are of reproductive age, and over half of the population is anemic (Stevens et al., 2013). Young children, Young people, and women in the reproductive period are typically affected by anemia. According to studies, 41.7%, 47.9%, and 77.0% of reproductive-age women in Pakistan suffer from anemia (Baig-Ansari et al., 2008; Habib et al., 2020; National Nutrition survey report, 2018). The issue is significantly more prevalent in rural areas than in metropolitan regions (National Nutrition survey report, 2018). 32% of all disorders among women in the reproductive age group are related to reproductive health worldwide. From available information, reproductive illness accounts for 12.5% of every reported case (Murray and Lopez, 1996). With iron deficiency anemia, 5%-10% of women have menstrual irregularities (Todd and Caroe, 2007). About 30% of women are thought to report having menorrhagia (Oehler and Rees, 2003). Further investigation has revealed that the subjective diagnosis of menorrhagia is defined as "complaining of heavy cyclical menstrual bleeding occurring over several consecutive cycles" (Obstetricians and Gynaecologists, 1998).

Every menstrual cycle, a total menstrual blood loss (MBL) of 80 ml or more occurs (Hallberg et al., 1966). Abnormal blood loss during menstruation has been connected to

negative consequences for women's physical, emotional, social, and financial well-being. Previous studies have shown that it can appear either by itself or mixed with other symptoms (Sriprasert et al., 2017). However, several studies have found a higher prevalence of anemia in longer menstrual duration. Nonetheless, there are few studies on the association between the frequency of anemia, the length of bleeding, and the number of sanitary pads used.

This research aimed to ascertain the prevalence of anemia and its relationship to menstrual issues in nursing students at a private nursing school in Karachi. Studies on the frequency of anemia and menstruation problems among nursing students are rarely reported. Nursing students are a vital element of the backbone of our healthcare system since they will be the nurses of the future and our foremost healthcare workers. Since nurses are expected to eventually provide nursing care to the community, they must first become aware of their nutritional needs and the prevalence of anemia. They will be able to inform individuals about the high prevalence of anemia and possible solutions to lower it.

Methodology

Cross-sectional research was conducted at the Nursing Institute. The study period was from January 2022 to April 2022. The study population consisted of BS Nursing students at a private nursing college in Karachi between the ages of 20 and 25. Out of 200 students, 144 nursing students participated in the research. The research was carried out

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with permission from the institution, and informed consent was obtained from all participating nursing students.

To collect the information, a pretested tool was used in the form of a questionnaire. The questionnaire aimed to determine the factors that put nursing students at higher risk of anemia. For instance, menstrual length was classified in the questionnaire as <3 Days, 3-5 days, and 5-7 days, while sanitary pad utilization was classified as <3 Pads per day,> three pads per day.

3 ml of venous blood was drawn into an EDTA tube using aseptic procedures to test for anemia. The blood samples were then analyzed by the research and diagnostic laboratory at Jinnah Sindh Medical University Hospital in Karachi. The cut-off Hb value for anemia interpretation was less than 12 g/dl.

The collected data was inserted into Excel sheets and analyzed using the statistical software SPSS Version 20.0. The physiological component for the diagnosis of anemia was linked using cross-tabulation and the chi-square test, producing a p-value.

Before the project started, the concerned institution issued its ethical clearance. The permission letter number is AHS-ION/K-23-940.

The inclusion criteria for the study were nursing students between the ages of 20 to 25. Individuals with a recent diagnosis of malaria were excluded from participation.

Results

Table 1 presents the prevalence of anemia among nursing students, categorizing them into female anemic and non-anemic groups. Out of the total 144 nursing students included in the study, 76 students, constituting 52.7% of the sample, were identified as female anemic. On the other hand, 68 students, making up 47.3% of the total, were classified as non-anemic (Figure 1). The table provides a

straightforward representation of the distribution of anemia status among the nursing student population, indicating that slightly more than half of the students are anemic. This finding raises awareness of the significant proportion of female nursing students affected by anemia, suggesting a potential need for nutritional support, health education, or screening programs to address and mitigate anemia within this demographic. Further investigation into the underlying causes of anemia and its potential impact on the student's health and academic performance could offer valuable insights for tailored intervention strategies.

Table 1 Prevalence of anemia among nursing students

Anemia status	Number of students %
Female anemic	76 (52.7%)
Non-anemic	68 (47.3%)
Total	144(100%)

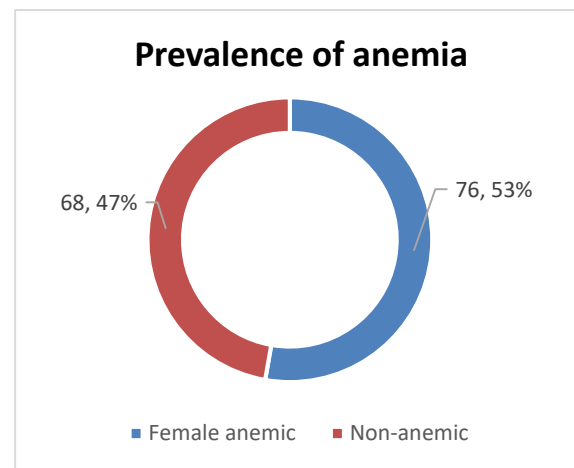


Figure 1: Prevalence of anemia among nursing students

Table. 2. Association of menstrual disorders among nursing students with the prevalence of anemia

Variables	Menstrual Period Duration			X2	P-Value
	Non-Anemic (68)	Anemic(76)	Total(144)		
<3 Days	25(36.8%)	8(10.5%)	33(22.9%)	14.3	0.001
3-5 Days	3(4.4%)	7(9.2%)	10(6.9%)		
5-7 Days	40(58.8%)	61(80.3%)	101(70.1%)		
Quantity Of Sanitary Pad Use/Day					
<3 Pad/Day	39(58.2%)	46(62.2%)	85(60.3%)	1.2	0.5
>3 Pad/Day	28(41.8%)	28(37.8%)	56(39.7%)		

Our study's findings showed that, of the 144 healthy nursing students, a maximum of 101 had a monthly menstrual flow lasting between five and seven days, at least 10 had a flow lasting between three and five days, and only 33 of the patients experienced a menstrual cycle lasting less than three days. There was a correlation between a higher incidence of anemia with the menstrual period's duration, which varied between 5 and 7 days. In addition, anemia risk was higher in individuals who used less than three sanitary pads daily during menstruation than in those who used more than three. No correlation was found between the frequency of clean pad use and a higher risk of anemia.

Discussion

Globally, the proportion of reproductive age 15 to 49 years old who had anemia declined from 31% (95% UI 28–34) to 30% (27–33) between 2000 and 2019 (Stevens et al., 2022). According to the 2018 National Nutrition Survey (NNS) data, around 41.7% of Pakistani women who are of reproductive age are anemic; this figure is more significant in rural regions (44.3%) than in urban areas (40.2%)(National Nutrition survey report, 2018).In the current study, the prevalence of anemia among nursing students is 52.7%, which is high compared to the NNS report 2018. According to research done on nursing students in tertiary care hospitals in India, there was a 56.07% prevalence of anemia (Hadaye et al., 2018). The findings are consistent with studies conducted in Saudi Arabia, where iron deficiency anemia was reported in publications to affect 35.3%, 38.3%, 41.6%, and 43.5% of the population,

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respectively (Al-Jamea et al., 2019; Almallki et al., 2018; AlSheikh, 2018).

Since the WHO classifies a prevalence of more than 40% as a high-magnitude issue (McLean et al., 2009), anemia constitutes a significant public health risk to the studied population. A person's hemoglobin level is used to assess their overall health. Low socioeconomic status women who were not pregnant had a greater prevalence of anemia. Blood loss that occurs with menstruation contributes to it. Mensuration observations are used as a standard measure of reproductive health in women (Toheed, 2017). Further, the majority of findings indicate that menstruation disruption may be the cause of the increased occurrence of anemia in females (Cooke et al., 2017; Toheed, 2017).

Our hypothesis on the relationship between anemia and menstrual disorders, such as menstrual length, establishes significant evidence. We hypothesized that bleeding days longer than five days would have a higher prevalence of anemia than bleeding days less than five days among nursing students.

Our study observed that 70.1% of nursing students of reproductive age had a lengthier menstrual duration between 5-7 days. Comparably, research done in Turkey revealed that reproductive women had a menstrual period that was 69.9% longer than five to seven days (Kocaoz et al., 2019). In a study in Riyadh, Saudi Arabia, menstrual cycles lasting more than seven days were detected in 52.8% of participants (AlFaris et al., 2021).

In accordance with the current study, anemia was more common among nursing students whose periods lasted longer than five days. $p \leq 0.001$, chi square = 14.3. Research conducted in Turkey (Pala and Dundar, 2008), the Gaza Strip (Jalambo et al., 2013), India (Ismail et al., 2017), Southwest Ethiopia (Asres et al., 2014), and Africa (Bernardi et al., 2016) has indicated that a prolonged menstrual cycle and self-reported heavy bleeding among women who are of reproductive age are risk factors for anemia. A few inquiries did not discover any link between the length of the monthly menstrual cycle and the incidence of anemia (Rupali et al., 2015). Furthermore, the number of pads used during menstruation, more than three per day, which indicates the amount of blood lost, was not linked to anemia in our research. Nonetheless, several research identified a relationship between the length of the menstrual cycle and the quantity of sanitary pads used (Siva et al., 2016).

Anemia is influenced by physiological parameters connected to iron intake and requirement. Women have a greater demand for iron due to the length of their menstrual cycle. However, data shows that women avoid iron folic acid tablets (Aggarwal, 1998). Therefore, menstrual problems have an impact on a woman of childbearing age every day.

There is no prior research on the incidence of menstruation problems and their relationship to anemia in nursing students in Karachi, Pakistan. In the study, however, menstrual irregularities were shown to be shared among University students in Jamshoro (BAIG et al.).

Conclusion

Anemia was present in 52.7% of research participants, indicating a substantial frequency. A considerable correlation was found between anemia and menstrual

duration, with most nursing students experiencing menstrual cycles lasting longer than five days. Menstrual problems mostly cause anemia in women of reproductive age. Thus, raising awareness of the health condition and implementing the required solutions as soon as possible can be extremely important in enhancing the quality of life of nursing students. Nurses are probable to ultimately provide nursing care to the public, and they must first become attentive to their own nutritional needs and the prevalence of anemia. Future research addressing these problems, particularly concerning menstrual health, may benefit from our work.

Declarations

Data Availability statement

All data generated or analyzed during the study are included in the manuscript.

Ethics approval and consent to participate

Approved by the department Concerned (AHS-ION/K-23-940).

Consent for publication

Approved

Funding

Not applicable

Conflict of interest

The authors declared absence of conflict of interest.

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