DOI: https://doi.org/10.53350/pjmhs02024181191

ORIGINAL ARTICLE

Prevalence and Severity of Anemia in Women Attending Gynecology Clinics for Abnormal Uterine Bleeding: A Cross-Sectional Evaluation

MUNAWAR AFZAL[1], SHUMAILA RIAZ[2], NAILA RAFIQUE[3], NIMRA BISHARAT[4], SAJIDA IMRAN[5], HOORIA RASHEED[6], AFSHAN ARSHAD[7]

[1]*Associate Professor Gynaecology and Obstetrics, Sahara Medical College, Narowal, Pakistan*
[2]*Consultant Gynaecologist THQ Hospital Khairpur District, Bahawalpur, Pakistan*
[3]*WMO Department of Gynaecology, DHQ Teaching Hospital Narowal, Pakistan*
[4]*WMO Department of Gynaecology, DHQ Teaching Hospital Narowal, Pakistan*
[5]*Consultant Gynaecologist, Darul Sehat Hospital Karachi, Pakistan*
[6]*WMO BHU. Baramanga, Pakistan*
[7]*WMO Psychiatry Department Allied Hospital Faisalabad, Pakistan*
Correspondence to: Munawar Afzal, Email: munawarfarid78@gmail.com

ABSTRACT

Background: Abnormal uterine bleeding (AUB) is a frequent gynecological complaint that significantly affects women's health, often leading to anemia. Anemia, particularly iron deficiency anemia, is a common complication of chronic blood loss and can impair physical, cognitive, and reproductive health. Despite its importance, limited data are available from Pakistan on the burden of anemia in women with AUB.

Aims and Objectives: This study aimed to determine the prevalence and severity of anemia among women presenting with AUB and to assess its association with demographic and clinical factors.

Methodology: A cross-sectional study was conducted over one year, from August 2022 to August 2023, at THQ Hospital Khairpur, District Bahawalpur, and DHQ Teaching Hospital Narowal. One hundred women aged 18–50 years with AUB were enrolled. Demographic and clinical data were collected, and hemoglobin levels were measured using automated hematology analyzers. Anemia was classified according to World Health Organization (WHO) criteria as mild, moderate, or severe. Data were analyzed using SPSS version 25.

Results: The prevalence of anemia was 64%, with moderate anemia being most common (42%), followed by mild (18%) and severe anemia (4%). Menorrhagia was the leading cause of AUB and was associated with the highest anemia prevalence (78%), followed by metrorrhagia (66%), polymenorrhea (50%), and oligomenorrhea (33%). Multiparity and low socioeconomic status were significant risk factors ($p < 0.05$).

Conclusion: Anemia is highly prevalent among women with AUB, particularly in those with menorrhagia, high parity, and low income. Routine screening and integrated anemia management are critical to improving women's health outcomes.

Keywords: Abnormal uterine bleeding, anemia, menorrhagia, prevalence, multiparity, Pakistan

INTRODUCTION

Abnormal uterine bleeding (AUB) is a prevalent gynecological disorder that typically affects women's health and their quality of life. It is any involuntary occurrence of abnormal menstrual cycles in terms of volume, duration, frequency, or regularity of bleeding that is not caused by pregnancy. [1]. AUB includes heavy menstrual bleeding (menorrhagia), irregular bleeding (metrorrhagia), frequent bleeding (polymenorrhea), or infrequent bleeding (oligomenorrhea). With its clinical and social impact, AUB is responsible for over one-third of all outpatient gynecology visits globally [2].

The most common and debilitating consequence of AUB is anemia, especially iron deficiency anemia, due to chronic blood loss. AUB is considered a major underlying cause of anemia in up to 30% of nonpregnant women of reproductive age worldwide, which makes it a major cause of anemia [3]. Symptoms of AUB caused by anemia include generalized weakness, fatigue, dizziness, breathlessness, pallor, reduced exercise capacity, impairment of cognitive performance, and decreased immunity. It can also lead to increased perioperative risks, increased complications of pregnancy, and lead to lowered overall productivity and quality of life if left untreated [4].

Clinically, the AUB-anemia relationship is important as timely detection and management of anemia can have a major positive effect on health outcomes. Anemia is most commonly due to heavy menstrual bleeding (menorrhagia), but periods that are prolonged or frequent from any other type of AUB will continue to exhaust iron stores over time [5]. AUB is caused by various factors, including hormonal imbalance, uterine fibroids, polyps, endometrial hyperplasia, coagulopathies, thyroid dysfunction, and iatrogenic factors such as the use of anticoagulants or hormonal contraceptives. In low and middle-income countries such as Pakistan, limited health care services, poor nutritional status, lack of awareness, and sociocultural barriers delay diagnosis and treatment, further contributing to the greater prevalence and severity of anemia in this group [6].

Rates of anemia in women with AUB in previously developed and developing countries have ranged between 40 and 70% in previous studies, according to population characteristics and access to healthcare. Despite this, few local studies have systematically studied the magnitude of anemia in the women of AUB and identified the demographic and clinical factors that lead to its development in Pakistan. The lack of these data prohibits health care providers from developing the appropriate screening, prevention, and treatment protocols [7, 8].

Considering the high prevalence of anemia in the reproductive-aged women and its strong correlation with menstrual disorders, it is important to a baseline data on its prevalence in women with AUB and to identify the most vulnerable subgroups. These data are crucial not only for the refinement of clinical management of anemia but also for the design of public health policies aimed at anemia reduction among women [9].

In the present study, the prevalence of anemia among women with a diagnosis of AUB attending a tertiary care hospital in Pakistan has been estimated and an attempt has been made to see whether there was any association of anemia with factors such as age, parity, socioeconomic status, menstrual pattern, and other clinical factors. This research aims to help early diagnosis and proper treatment, and prevention of anemia in Pakistani women by identifying the extent of this problem and key risk factors [10].

MATERIALS AND METHODS

The study was conducted cross-sectionally from August 2022 to August 2023 in the THQ Hospital Khairpur District, Bahawalpur, and the DHQ Teaching Hospital Narowal, Pakistan. These two hospitals are important referral centres for gynecological care and

Received on 20-09-2023
Accepted on 10-12-2023

provide services to both the urban and the rural populations in their areas.

Women of 18 to 50 years old came to the outpatient and inpatient gynecology departments of THQ Hospital Khairpur, District Bahawalpur, and DHQ Teaching Hospital Narowal with a clinical diagnosis of abnormal uterine bleeding (AUB) were the study population. One hundred women were enrolled. Demographic characteristics and inclusion criteria were the same as those of the women with confirmed AUB who provided informed written consent, and women were aged 18–50 years. Pregnancy-related bleeding, known bleeding disorders (e.g., hemophilia, von Willebrand disease), recent iron supplementation or blood transfusion within the past three months, and chronic illnesses that may affect hemoglobin levels (e.g., chronic kidney disease, malignancy) were exclusion criteria.

Participants were recruited by a non-probability consecutive sampling technique until the required sample size was achieved. It is calculated with an expectation of anemia prevalence 50–60% among women with AUB, 95% confidence level, and 10% margin of error, which gives us a sample size of 96. We rounded this to 100 for possible dropouts and incomplete data.

Data were collected via a structured questionnaire to gather information on demographic characteristics (age, marital status, parity, socioeconomic status, and dietary pattern) and menstrual history (type, frequency, duration, and volume of bleeding). Automated hematology analyzers available at the hospitals were used to measure hemoglobin levels of each participant from the blood samples. Anemia was categorized using the criteria of the World Health Organization (WHO): mild (hemoglobin 10–11.9g/dl), moderate (7–9.9 g/dl), and severe (<7 g/dl).

The institutional ethical review committees gave ethical approval. Each participant gave written informed consent after they were informed of the purpose, procedures, potential risks and benefits of the study. During the study, confidential information was kept and personal identifiers were not used in analyses or reports.

SPSS version 25 was used to analyze this data. The data were summarized with descriptive statistics (means and standard deviations for continuous variables, frequencies and percentages for categorical variables). A denomenon analysis was calculated, and anemia was associated with variables including type of AUB, parity, and socioeconomic status were determined using the chi-square test. Statistical significance was determined by a p-value of less than 0.05.

RESULTS

This study comprised 100 women aged 18 to 50 years who had abnormal uterine bleeding (AUB) and were enrolled from August 2022 to August 2023. The mean age of the participants was 35.6 ± 7.4 years. It is important to analyze the demographic features of the study population since they allow us to understand the demographic factors that may influence the development as well as the severity of anemia.

Demographic characteristics of the cases are given in Table 1 in detail. Most of the women were of low socioeconomic standing (62%), consistent with the socioeconomic situation in the regions in which the study hospitals were located. Over half of the women (68%) had three or more children. The most common type of AUB was menorrhagia (46%), metrorrhagia (24%), polymenorrhoea (18%), and oligomenorrhoea (12%). As socioeconomic status, parity, and bleeding pattern have been well established as risk factors for anemia in women, these demographic details are important. An increased likelihood of anemia is associated with low income, poor nutritional status, less access to healthcare, and multiparity, associated with repeated reproductive stress. As with menorrhagia, heavy bleeding patterns such as also cause iron depletion over time.

Table 1 shows that this cohort was characterized by multiparity and low socioeconomic status, which are risk factors that could have worsened anemia outcomes. This allows the interpretation of anemia prevalence within this group.

Table 1: Demographic Characteristics of Study Participants (n = 100)

Characteristic	Frequency (%)
Age (years)	Mean 35.6 ± 7.4
Socioeconomic Status	
Low income	62 (62%)
Middle income	28 (28%)
High income	10 (10%)
Parity	
Nulliparous	14 (14%)
Primiparous (1–2 children)	18 (18%)
Multiparous (≥3 children)	68 (68%)
Type of AUB	
Menorrhagia	46 (46%)
Metrorrhagia	24 (24%)
Polymenorrhea	18 (18%)
Oligomenorrhea	12 (12%)

It was assessed whether anemia among these women was prevalent and severe. The mild, moderate, and severe anemia were classified according to the World Health Organization (WHO) criteria based on hemoglobin values. Table 2 details the results of that. Among the total 100 participants, 64 percent were anemic. The most common categories were moderate anemia (42%), mild anemia (18%), and severe anemia (4%). This is important because it reveals that many of the women with AUB have clinically important anemia at the time of care. Symptoms of moderate anemia may include fatigue, dizziness, and impairment of work performance, while severe anemia poses a risk for cardiac stress, impaired oxygen delivery, and life-threatening complications if not treated. These observations highlight the need for early screening and management of anemia in women with AUB.

Table 2: Prevalence and Severity of Anemia in Women with AUB (n = 100)

Anemia Severity	Number of Women (%)
Mild (10–11.9 g/dL)	18 (18%)
Moderate (7–9.9 g/dL)	42 (42%)
Severe (<7 g/dL)	4 (4%)
No anemia (≥12 g/dL)	36 (36%)

Table 2 shows that fewer than one-third of participants had normal hemoglobin levels, indicating the widespread deleterious effects of AUB on hematologic health in women. The largest of the four groups is moderate anemia, signifying a significant clinical concern as these women may have impaired quality of life and functional capacity, but have yet to reach the point of needing urgent medical attention. Although a small proportion of anemic patients are still clinically critical with severe anemia, a few such cases are still a serious public health and clinical problem in resource-limited settings.

The prevalence of anemia was then compared by type of AUB as shown in Table 3. The prevalence of anemia was highest among the various patterns of AUB, menorrhagia (78%), followed by metrorrhagia (66%), polymenorrhea (50%), and oligomenorrhea (33%). The non-surprising results are that this is a case of menorrhagia, which involves prolonged and very heavy menstrual bleeding, the immediate consequence of which is considerable iron loss over time. Although metrorrhagia is irregular bleeding, it can also lead to cumulative blood loss. The frequent cycles of polymenorrhea, on the other hand, may afford less time, between periods, to hematologic recovery, while the less frequent cycles of oligomenorrhea are prone to lower anemia risk.

Table 3: Anemia Prevalence by Type of AUB

Type of AUB	Number of Women	Anemia Prevalence (%)
Menorrhagia	46	78%
Metrorrhagia	24	66%
Polymenorrhea	18	50%
Oligomenorrhea	12	33%

Table 3 clearly shows that women with menorrhagia are at the highest risk of anemia, so clinicians need to focus on this group for early intervention. Clinical significance of irregular but

prolonged periods of bleeding is also shown by the high anemia prevalence in metrorrhagia. Thus, the clinical observation that not all AUB types have the same degree of anemia risk is reinforced by this table, and management strategies should be tailored accordingly.

Moreover, using additional statistical analysis, multiparous women (≥3 children) had significantly higher anemia prevalence (72%) than the nulliparous (48%) and primiparous (50%) women. Women from low-income groups had anemia prevalence of 72% as compared to 48% in women from middle-income groups and 30% in women from high-income groups. The presence of these associations was statistically significant ($p < 0.05$) and therefore suggested parity and socioeconomic disadvantage were important risk factors for anemia in women with AUB. It highlights that apart from the type of bleeding, the role of social determinants of health and reproductive history in shaping anemia risk is very important.

Thus, anemia is very common among women with AUB and is especially marked amongst women with menorrhagia, high parity, and low socioeconomic status, as concluded. These findings underscore the importance of systematic anemia screening, nutritional interventions, and increased availability of gynecological care to those populations at risk.

DISCUSSION

The objective of the study was to evaluate the annual prevalence of anemia among women with abnormal uterine bleeding (AUB)[11]. Compared to other anemia statuses, most anemic subjects were normocrancitic (64%), and the most common anemia severity was moderate anemia (42%). These results are in agreement with international and regional reports that show women with AUB anemia prevalence is generally 40–70%, and the hematologic burden of untreated or poorly managed menstrual disorders is substantial [12].

The most interesting finding was how disproportionately many women with menorrhagia were anemic; 78% were anemic. This is in agreement with the pathophysiological relationship between prolonged heavy menstrual bleeding and iron deficiency anemia that has been well documented. In such patients, a cumulative blood loss often exceeds dietary iron replacement, and iron stores and hemoglobin decrease progressively. As such, the prevalence of anemia among women with metrorrhagia (66%) similarly demonstrates that even irregular but frequent bleeding episodes are a major hematologic threat. While less commonly related to anemia, polymenorrhea and oligomenorrhea still made a sizable contribution to the burden, [13, 14].

Another factor of importance in anemia was multiparity, as 72% of women who had 3 or more children had Anemia. This illustrates the chronic nutritional and reproductive stress that Pakistani women in low and middle-income countries face, with their having successive pregnancies without sufficient interpregnancy recovery leading to worsening of their maternal anemia. Anemia risk was further compounded by low socioeconomic status, as women from low-income groups had a 72% prevalence as opposed to 48% for middle-income and 30% for high-income. That implies poverty and being unable to obtain iron-rich foods, healthcare services, and anemia prevention programs have a drastic effect on health [15].

These findings have important clinical implications as well as public health implications. The authors then call for routine anemia screening for all women presenting with AUB and, in particular, for women with menorrhagia, high parity, or from an economically disadvantaged background [16]. It also stresses that management of anemia should be included in AUB treatment protocol, including iron supplementation, dietary counseling, and, when needed, surgical or hormonal interventions for controlling excessive bleeding. Third, they emphasize the more universal problem of overcoming anemia as part of the maternal health program, particularly with better nutritional support, family planning services, and health education in remote, underserved communities [17].

However, this study should be considered in the context of the following limitations. As it is a cross-sectional study, it could not establish a causal relationship. Moreover, the prevalence of anemia was not fully assessed for factors including dietary iron intake, body mass index, or clinical comorbid conditions. Larger sample sizes and longitudinal studies are recommended to explore the relationships between anemia, socio-demographic factors, and anemia on anemia Future studies will be required to further examine these relationships in Pakistani women [18, 19].

CONCLUSION

Using this cross-sectional study, it was found that there is a high prevalence of anemia among women with abnormal uterine bleeding attending. Overall, 64 % of them were anemic and were more common in women with menorrhagia, multiparity, and low socioeconomic status. Moderate anemia was the majority of cases, indicating a heavy disease burden, the majority of cases hurting the functional capacity, productivity, and quality of life of women. These findings reinforce the requirement for routine screening for anemia in all women presenting with AUB, with comprehensive management aiming at correction of hematologic deficits in combination with effective control of abnormal bleeding. Improvement in access to healthcare and public health intervention programs targeting anemia would improve reproductive and overall health outcomes in this population significantly, if indeed addressing nutritional deficits. Future research will need to delve deeper into the causes and evaluate the outcome of such integrated anemia and AUB management programs in the long term.

Funding: No funding was received.

Conflict of interest: The Authors declared no conflict of interest.

Authors contribution: All authors contributed equally to the current study.

Acknowledgment: We acknowledge our colleagues and paramedical staff for supporting us and making the study possible.

REFERENCES

1. Shrestha D, Aryal S, Tiwari A, Sharma R. Abnormal Uterine Bleeding among Women Visiting Gynecology Outpatient Department of a Tertiary Care Hospital: A Descriptive Cross-sectional Study. JNMA: Journal of the Nepal Medical Association. 2022;60(246):121.
2. Bernardi LA, Ghant MS, Andrade C, Recht H, Marsh EE. The association between subjective assessment of menstrual bleeding and measures of iron deficiency anemia in premenopausal African-American women: a cross-sectional study. BMC women's health. 2016;16:1-7.
3. Shi H, Chen L, Wang Y, Sun M, Guo Y, Ma S, et al. Severity of anemia during pregnancy and adverse maternal and fetal outcomes. JAMA network open. 2022;5(2):e2147046-e.
4. Beyable AA, Berhe YW, Nigatu YA, Tawuye HY. Prevalence and factors associated with preoperative anemia among adult patients scheduled for major elective surgery at the University hospital in Northwest Ethiopia; a cross-sectional study. Heliyon. 2022;8(2).
5. Sun Y, Wang Y, Mao L, Wen J, Bai W. Prevalence of abnormal uterine bleeding according to new International Federation of Gynecology and Obstetrics classification in Chinese women of reproductive age: A cross-sectional study. Medicine. 2018;97(31):e11457.
6. Sabre A, Serventi L, Nuritdinova D, Schiattarella A, Sisti G. Abnormal uterine bleeding types according to the PALM-COEIN FIGO classification in a medically underserved American community. Journal of the Turkish German Gynecological Association. 2021;22(2):91.
7. Ding C, Wang J, Cao Y, Pan Y, Lu X, Wang W, et al. Heavy menstrual bleeding among women aged 18–50 years living in Beijing, China: prevalence, risk factors, and impact on daily life. BMC women's health. 2019;19:1-9.
8. Su S, Yang X, Su Q, Zhao Y. Prevalence and knowledge of heavy menstrual bleeding among gynecology outpatients by scanning a WeChat QR Code. PLoS One. 2020;15(4):e0229123.
9. Saffarieh E, Nassiri S, Jahan E, Tarahomi B, Firouzi H. What Are the Affecting Factors on the Quality of Life and Level of Satisfaction and Comfort in Patients Suffering From Abnormal Uterine Bleeding? Crescent Journal of Medical & Biological Sciences. 2020;7(2).

10. Dickerson KE, Menon N, Zia A. Abnormal uterine bleeding in young women with blood disorders. Pediatric Clinics of North America. 2018;65(3):543.
11. Rathod AD, Chavan RP, Pajai SP, Bhagat V, Thool P. Gynecological problems of adolescent girls attending outpatient department at a tertiary care center with evaluation of cases of puberty menorrhagia requiring hospitalization. The Journal of Obstetrics and Gynecology of India. 2016;66:400-6.
12. Rodpetch T, Manonai J, Angchaisuksiri P, Boonyawat K. A quality-of-life questionnaire for heavy menstrual bleeding in Thai women receiving oral antithrombotics: Assessment of the translated Menstrual Bleeding Questionnaire. Research and Practice in Thrombosis and Haemostasis. 2021;5(7):e12617.
13. Fuldeore MJ, Soliman AM. Prevalence and symptomatic burden of diagnosed endometriosis in the United States: national estimates from a cross-sectional survey of 59,411 women. Gynecologic and obstetric investigation. 2017;82(5):453-61.
14. Nguyen PN. Evaluating clinical features in intracavitary uterine pathologies among Vietnamese women presenting with peri-and postmenopausal bleeding: a bicentric observational descriptive analysis. Journal of Mid-life Health. 2022;13(3):225-32.
15. Bongomin F, Olum R, Kyazze AP, Ninsiima S, Nattabi G, Nakyagaba L, et al. Anemia in Ugandan pregnant women: a cross-sectional, systematic review and meta-analysis study. Tropical medicine and health. 2021;49:1-13.
16. Soliman AM, Coyne KS, Zaiser E, Castelli-Haley J, Fuldeore MJ. The burden of endometriosis symptoms on health-related quality of life in women in the United States: a cross-sectional study. Journal of Psychosomatic Obstetrics & Gynecology. 2017;38(4):238-48.
17. Shubham D, Kawthalkar AS. Critical evaluation of the PALM-COEIN classification system among women with abnormal uterine bleeding in low-resource settings. International Journal of Gynecology & Obstetrics. 2018;141(2):217-21.
18. Egbe TO, Kobenge F, Arlette M, Eta-Nkongho E, Nyemb J, Enow M. Prevalence and outcome of hysterectomy at the Douala General Hospital, Cameroon: a cross-sectional study. Int J Surg Res Pract. 2018;5(4):092.
19. Pecchioli Y, Oyewumi L, Allen LM, Kives S. The utility of routine ultrasound in the diagnosis and management of adolescents with abnormal uterine bleeding. Journal of pediatric and adolescent gynecology. 2017;30(2):239-42.

This article may be cited as: Afzal M, Riaz S, Rafique N, Bisharat N, Imran S, Rasheed H, Arshad A: Prevalence and Severity of Anemia in Women Attending Gynecology Clinics for Abnormal Uterine Bleeding: A Cross-Sectional Evaluation. Pak J Med Health Sci, 2024;18(1):191-194.