Assessment of Nurses' knowledge about the (PALM-COEIN) Classification System for Abnormal Uterine Bleeding at Assiut city

Salwa S. Hassan[1], Hamida A. Abed Elhafez[2] & Reda R. Ali[3].

[1]. Nursing Supervisor at the Nursing Department of the Health Directorate in Assiut
[2]. Professor of Maternity & Newborn Health Nursing, Faculty of Nursing, Assiut University Egypt
[3]. Assistant Professor of Maternity & Newborn Health Nursing, Faculty of Nursing, Assiut University Egypt.

Abstract:
Background: Abnormal uterine bleeding (AUB) is one of the most serious problems that face females all over the world not only through their reproductive age but also after menopause. The International Federation of Gynecology and Obstetrics (FIGO) described and published the PALM-COEIN classification, which classify the underlying etiologies of (AUB). **Aim:** This study aims at assessing nurses' knowledge about the (PALM-COEIN) classification system for AUB. **Methods:** Descriptive cross sectional design was used. **Setting:** The hospital for obstetrics, gynecology, and pediatrics in Assiut city. **Samples:** A convenient sample of 100 nurses were involved. **Tools:** The researcher designed a self-administered questionnaire. **Results:** The percentage of nurses who had satisfactory and inadequate understanding of the (PALM-COEIN) categorization system for AUB was approximately 38% and 62%, respectively. There was a statistically significant difference between the investigated nurses' overall knowledge level and educational background. **Conclusion:** Most of the studied nurses had unsatisfactory knowledge about the (PALM-COEIN) classification system for AUB. **Recommendations:** maternity nurses should be encouraged to participate in an educational program regarding the (PALM-COEIN) classification system for AUB in order to enhance their knowledge and nursing care.

Keywords: Abnormal uterine bleeding, Assessment, Nurses' knowledge PALM-COEIN Classification System.

Introduction:

One of the most common gynecological symptoms is AUB, which is menstruation in non-pregnant women of reproductive age that differs from regular menstruation. In non-pregnant women of reproductive age, the prevalence of AUB has been estimated to be between 11 and 15 percent **(Kahveci et al., 2021).** It is the issue that non-pregnant women in the reproductive age range face the most frequently. It significantly affects the health-related quality of life for women. AUB can be brought on by a number of pelvic pathologies, systemic illnesses, or medications **(Chandregowda et al., 2021).**

Many terms, including menorrhagia, metrorrhagia, hypermenorrhagia, menometrorrhagia, polymenorrhea, and dysfunctional uterine hemorrhage, are used to identify the symptoms, signs, and causes of AUB. Menorrhagia, metrorrhagia, and oligomenorrhea have been replaced with the terms heavy menstrual bleeding (HMB), intermenstrual bleeding, and unscheduled bleeding or breakthrough bleeding with the use of hormone medication as part of an update to standardize descriptive terms**(Davis & Sparzak, 2023).**

When comparing clinical therapy outcomes, etiology and AUB can be confusing. As a result, it has been determined that the underlying etiology of AUB requires a conventional, structured, and consistent classification. In order to standardize terminology, care, and diagnosis for AUB, the International Federation of Gynecology and Obstetrics (FIGO) established a revolutionary classification system in 2011. Nine significant categories are changed in accordance with the acronym: Polyp Adenomyosis Leiomyoma tumors and hyperplasia-Coagulopathy Ovulatory ailment Endometrial Surgical not yet categorized **(Munro et al., 2022).**

The International Federation of Gynecology and Obstetrics (FIGO) has recently described and published the PALM-COEIN classification, which classify the underlying etiologies of abnormal uterine bleeding (AUB). **(İlhan Oruç et al., 2019).** The first portion (PALM describes structural issues, (polyp, adenomyosis, leiomyoma, malignancy) the second portion COEIN describes non-structural issues (coagulopathy, ovulatory dysfunction, endometrial disorders, iatrogenic, and not yet classified).**(Davis et al.,2021)**.

Successful management of a case of AUB needs an accurate identification of the cause. The cause of AUB may be so simple as a physiological process but on the other hand, it may be so serious as malignancies. (**Dalia, 2019**) .The PALM-COEIN classification system defines the most common etiologies to facilitate the accurate diagnostic and

effective treatment approaches to abnormal uterine bleeding. (**Marnach et al.,2019**)

The nurse might be the first to discover AUB and should consult with obstetrics and gynecology early. Patients should be informed of all of their options for control of AUB based on etiology. (**Davis, 2022**)

Nurses are essential in overcoming the three barriers that impede women from receiving the right medical care, including the lack of access to the finest care and the lack of awareness and comprehension of the disease among women. Therefore, nurses play a crucial role in raising the women's awareness of the issue and teaching them how to manage symptoms (**Kwame & Petrucka, 2021**).

Because AUB is considered a life-threatening disorder, maternity nurses are the first line of defense against it. They are crucial in the assessment, detection, and treatment of AUB. Additionally, they assist women in communicating their issues, offer encouragement, and a wealth of AUB information to premenopausal women(**Youssif et al., 2022**).

Significance of the study:

Nearly one-third of all women will experience abnormal uterine bleeding at some point in their lives (**Sabre et al., 2021**). Over two-thirds of hysterectomies are performed due to AUB, which is a major source of morbidity and mortality (**Munro et al., 2022**).

The most frequent causes of AUB in Egyptian women are endometrial polyps, endometrial hyperplasia, and leiomyomas, as organic causes make up a large portion of cases (**Komy et al., 2022**). After PALM-COEIN has correctly identified the causes of AUB, patients may be treated medically or surgically depending on the cause, resulting in a higher cure and success rate so patient's morbidity can be minimized by a clear diagnosis and timely care in the early stages (**Iniyaval, 2021**).

Nurses have crucial responsibilities in gynecological care; they act as the patient's advocate during the entire course of her medical treatment. Knowledge is regarded as a valuable instrument for improving performance and ensuring the effectiveness of gynecological care. The most crucial indicator of the best nursing care is patient satisfaction, which is regarded as a service outcome in the field of health care. (**Elbnedari & Shalaby, 2021**).

Nursing adjuvant therapy plays an increasingly important role in clinical practice. Systematic nursing intervention is an important means to improve clinical efficacy and speed up recovery of patients, and has a positive effect on the quality of life. In response to problems that may affect patients with abnormal uterine bleeding. (**Yan & Haiyan 2021**). So, the researcher interested in assessing the level of nurse's

knowledge about the (PALM-COEIN) classification system for AUB to avoid major cases problems and complication.

Aim of the study:

The study aimed to assess the level of nurses' knowledge about the (PALM-COEIN) classification system for AUB.

Research Questions:

What is the level of nurses' knowledge about the (PALM-COEIN) classification system for AUB?

Subjects & Methods:

Four designs (technical, operational, administrative, and statistical design) were used to discuss the topic and methods of the current study.

Technical design:

Research design*:*

This study's goal was attained using a descriptive cross-sectional design.

Setting:

The hospital for obstetrics, gynecology, and pediatrics in Assiut city served as the site of this study. The hospital has three floors and is located in Assiut City. It is supervised by the Ministry of Health's Health Directorate. The residents of Upper Egypt are served by this hospital.

Sample Type: A convenience sample was used.

Sample size: All nurses working at the Obstetrics, Gynecology, and Pediatrics Hospital (100) maternity nurses participated in the study.

Tools of data collection:

Data collection was obtained by using the following parts:

Part 1: (**Personal and job characteristics**) This part included questions about a nurse's age, education, marital status, department, number of years of experience, and training courses done were part of this section.

Part II: (**Knowledge questionnaire**) It has 16 questions to gauge nurses' understanding of the (PALM-COEIN) categorization system for AUB. Seven of the questions dealt with AUB's definition, risk factors, prevalence, etc. And regarding the (PALM-COEIN) classification system (9 questions), such as what the letters P, A, L, and M mean, etc.

Scoring system:

Each question received a score of one point for a correct response and zero points for a wrong one. While the overall knowledge score was computed as follows: knowledge was deemed good if it was 60% or more (10 points or more), and unsatisfactory if it was less than 60% (less than 10 points).

Content Validity:

Three panel experts from the Obstetrics and Gynecological Nursing department, Faculty of Nursing at Assiut University reviewed the study's

instruments to make sure they were measuring the things they were intended to measure. The tools were changed in response to the panel's assessment of item sequencing, content appropriateness, and sentence clarity.

Tools Reliability:

The internal consistency of the tools was confirmed by the researcher using tool reliability. Reliability was assessed by Cranach's alpha test. It was evaluated in the SPSS program using a reliability item that was taken out of the scale. For the structured interviewing questionnaire instrument, a score of 0.78 was reported.

Operational design:

The design included a description of the pilot study, background research, and workflow.

Pilot study:

To assess the validity and reliability of the study tools, the questionnaire was pre-tested on 10% of cases involving 10 nurses. Because there were no significant modifications to the study's components, participants from the pilot study were included.

Field work:

The data collection for the study took place over a period of about 4 months, beginning in early July 2022 and finishing in late October 2022. The steps involved were as follows:

Procedures*:*

- The researcher used text books, journals, and important publications to research the local and worldwide literature that was related to the current study. Experts in obstetrics and gynecology approved the instruments once they were designed based on this literature and a standard scale.
- The official who was given permission to carry out the study.
- The researcher greeted the nurses and gave them an introduction.
- The study's goal, use of the data, and questionnaire anonymity were all explained by the researcher.
- The instrument was translated into Arabic by the researcher and distributed to each nurse.
- The researcher gave the nurses enough time to complete the questionnaire, which covered information about their personal and professional traits.
- Multiple-choice questions about AUB and PALM-COIEN were also posed to the nurses under study, and they were requested to report any issues or queries.
- The completion of the questionnaire took 20 to 25 minutes.

Administrative design:

- Permission was granted by the head of the Obstetrics, Gynecology, and Pediatrics Hospital in

Assiut City, and the college of nursing's ethical committee gave its blessing.
- Verbal consent was obtained from each nurse prior to her contribution in the study; also anonymity and confidentiality are assured.
- The investigation's purpose and the expected outcomes were explained in a straightforward, understandable manner.
- Every nurse who participated in the study had the choice to stop the study at any time.

Ethical considerations:

The Ethical Committee in the Faculty of Nursing has approved the proposed research, there was no risk for study subjects during application of research, the common ethical principles in clinical research has been followed in the study, oral consent was obtained from the pregnant women that were willing to participate in study, after explaining the nature and purpose the study, confidentiality and anonymity were assured. Subjects had the right to refuse to participate in the study and or withdraw from the study without any rational any time and study subjects privacy was considered during collection of data.

Statistical analysis:

Version 26 of the statistical program for the social sciences (SPSS) was used for data entry and analysis. Numbers, percentage means, and the standard deviation of the data were displayed. Using the Chi-square test, relationships between variables were demonstrated. To compare means, t-test was employed. P value is thought to be statistically significant when p 0.05.

Results:

Table (1): Distribution of the studied nurses according to personal and job characteristics (N=100):

Personal and job characteristics	N	%
Age/ years:		
20 >30years	64	**64.0**
30 >40years	13	13.0
40>50years	19	19.0
50 to 60years	4	4.0
Mean±SD	**29.24±5.2**	
Department:		
Outpatient	22	22.0
Inpatient	45	**45.0**
ICU	17	17.0
Operations department	16	16.0
Educational qualification:		
Nursing technician	66	**66.0**
Bachelor of nursing	34	34.0
Years of experience:		
1>5years	54	**54.0**
5>10 years	12	12.0
10 >15years	4	4.0
More than15 years	30	30.0
Mean±SD	**5.62±4.23**	
Had training courses about AUB:		
Yes	zero	**0.0**
No	100	100.0
Heard about PAL M-COIEN system		
Yes	zero	**0.0**
No	100	100.0

Table (2): Distribution of studied nurses according to knowledge about AUB (N=100):

Knowledge about AUB	N	%
Meaning of AUB:		
Abroad term for bleeding during pregnancy	13	13.0
Abroad term that describe irregularities in the menstrual cycle in regularity, duration and volume of flow outside of pregnancy (correct answer)	77	**77.0**
Bleeding during the first trimester	3	3.0
Bleeding during menopause only	7	7.0
Prevalence rate of AUB -----------globally.		
Up to One third of women(correct answer)	37	**37.0**
Half of women	34	34.0
Two third of women	27	27.0
All the women	2	2.0
The risk factors of AUB:		
Weight loss	33	33.0
Null parity(correct answer)	18	**18.0**
Age less than 20 years.	7	7.0
Other	42	42.0
To make good assessment for patient with AUB , the woman should take structured menstrual history as:		
Gravidity number	3	3.0
Amount (pads number - blood clots)	24	24.0
Dysmenorrhea, intermenstrual bleeding and discharge.	1	1.0
B and C (correct answer)	72	**72.0**
The laboratory studies for patients with AUB		
CBC, HCG, Thyroid functions, liver functions and coagulation.	10	10.0
Pap smear and endometrial sampling.	4	4.0
Other	6	6.0
A and B(correct answer)	80	**80.0**

Knowledge about AUB	N	%
Choice of treatment for AUB depends on:-		
Overall acuity and suspected etiology of the bleeding.	34	34.0
Desire for future fertility.	3	3.0
All the above(correct answer)	60	**60.0**
Other	3	3.0
From complications of AUB is		
Hypertension	8	8.0
Obesity	19	19.0
Endometrial cancer (correct answer)	52	**52.0**
Diabetes	21	21.0
One of the nurse's roles in AUB is		
Good communication and Nursing assessment **(correct answer)**	87	**87.0**
Medical examination.	6	6.0
Do surgical operations	2	2.0
Other	5	5.0

Table (3): Distribution of studied nurses according to knowledge about PALM-COEIN system (description of PALM-COEIN (N=100) :

| Knowledge about description of PALM-COEIN		N	%
In PALM-COEIN system (P) describe:	Polyp**(correct answer)**	24	**24.0**
	Polycystic ovary syndrome	31	31.0
	Pelvic inflammatory diseases	35	35.0
	Miscarriage	10	10.0
In PALM-COEIN system (A) describe:	Leiomyoma	40	40.0
	Atrophic endometritis	40	40.0
	Adenomyosis**(correct answer)**	10	**10.0**
	Pelvic inflammatory diseases	10	10.0
In PALM-COEIN system (L) describe:	Leukemia	17	17.0
	Atrophic endometritis	28	28.0
	Adenomyosis	13	13.0
	Leiomyoma **(correct answer)**	42	**42.0**
In PALM-COEINsystem(M) describe:	Malignancy and hyperplasia**(correct answer)**	45	**45.0**
	Menorrhagia	43	43.0
	Miscarriage	6	6.0
	Ovulatory dysfunction	6	6.0
In PALM-COEIN system(C) describe:	leiomyoma	9	9.0
	Clamydia	45	45.0
	Coagulopathy**(correct answer)**	18	**18.0**
	Cervical cancer	28	28.0
In PALM-COEIN system(O) describe:	Polyp	15	15.0
	Ovulatory dysfunction**(correct answer)**	35	**35.0**
	Obesity	48	48.0
	Atrophicendometritis	2	2.0
In PALM-COEINsystem(E) describe:	Endometrial disorders **(correct answer)**	20	**20.0**
	Ectopic pregnancy	57	57.0
	Endocrine disorder	9	9.0
	Menorrhagia	14	14.0
In PALM-COEIN system(I) describe:	Leiomyoma	9	9.0
	Infection	72	72.0
	Iatrogenic**(correct answer)**	12	**12.0**
	Polyp	7	7.0
In PALM-COEIN system(N) describe:	Endometrial disorders	17	17.0
	Non otherwise classified**(correct answer)**	32	**32.0**
	Coagulopathy	34	34.0
	Malignancy and hyperplasia	17	17.0
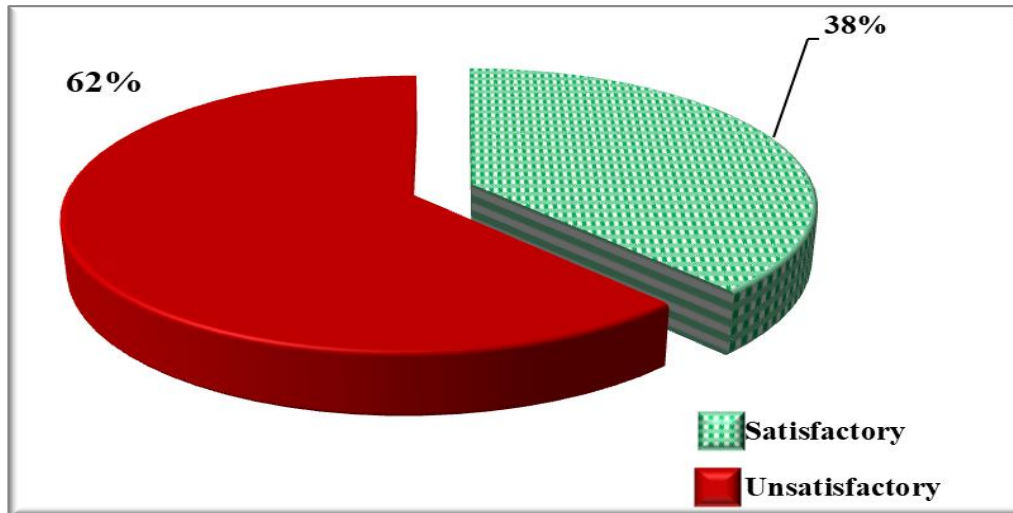
Figure (1): The studied nurses' total knowledge levels about PALM-COEIN classification system for AUB.
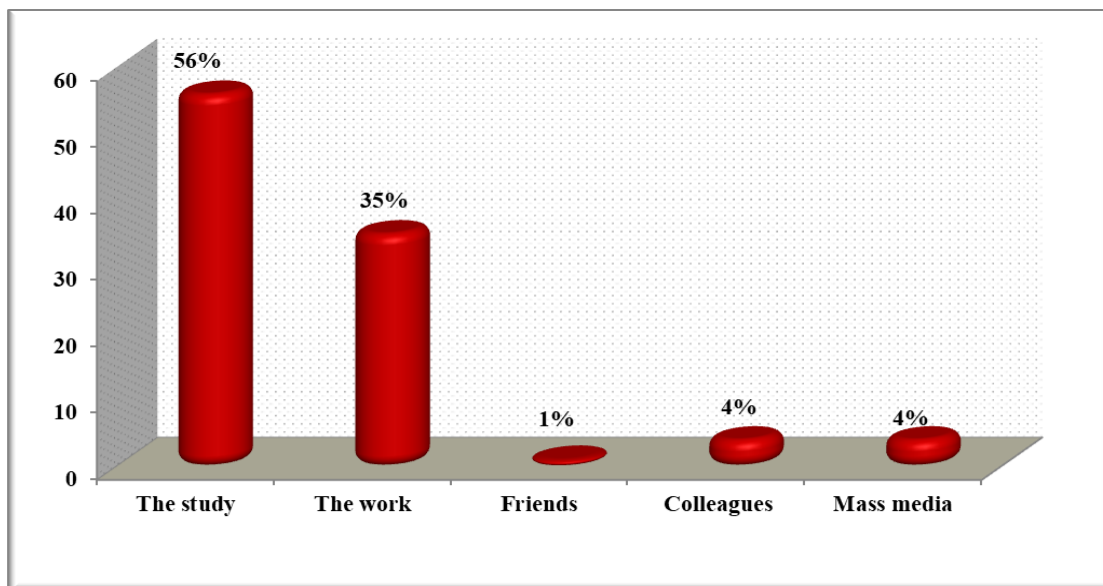

Figure (2): Source of knowledge about AUB and PALM-COEIN system:

Table (4): Relations between total knowledge level and personal characteristics of the studied nurses (N=100):

Personal characteristics	Total knowledge level				P-value
	Satisfactory		Unsatisfactory		
	N(38)	%	N (62)	%	
Age/ years:					
20 >30years	29	76.3	35	56.5	
30 >40years	5	13.2	8	12.9	0.126
40>50years	3	7.9	16	25.8	
50 to 60years	1	2.6	3	4.8	
Educational level					
Nursing technician	20	52.6		74.2	
Baccalaureate of nursing	18	47.4		25.8	**0.027**[*]

([*]) *Statistical significant difference*

Table (5): Relations between total knowledge level and job characteristics of the studied nurses (N=100):

Job characteristics	Total knowledge level				P-value
	Satisfactory		Unsatisfactory		
	N(38)	%	N (62)	%	
Department:-					
- Outpatient	5	13.2	17	27.4	
- Inpatient	21	55.3	24	38.7	0.148
- ICU	8	21.1	9	14.5	
- Operations department	4	10.5	12	19.4	
Years of experience:-					
- 1>5years	24	63.2	30	48.4	
- 5>10 years	7	18.4	5	8.1	**0.028**[*]
- 10 >15years	2	5.3	2	3.2	
- More than15 years	5	13.2	25	40.3	

(*) statistical significant difference

Table (1): Shows that64% of the studied nurses were in age group from 20->30years with **Mean±SD** of 29.24±5.2. Regarding department of work, 45% of them were worked at inpatient department. Regarding educational qualification, 66% of the studied nurses had nursing technician. Concerning years of experience, 54% of them had experience from 1-5years with Mean±SD of 5.62±4.23. Pointed to taken training courses about AUB and heard about PAL M-COIEN system, no one attended courses and heard about PAL M-COIEN system respectively.

Table (2): Illustrates that 77%, 37%, 18% and 72 of the studied nurses, had a correct answer regarding meaning, prevalence, risk factors and good assessment for patient with AUB respectively. About 80%, 60%, 52%, and 87% of them had a correct answer regarding laboratory studies, choice of treatment, complications, and the nurse's roles in AUB respectively.

Table (3): Demonstrates that 24%, 10%, 42%, and 45% of the studied nurses, had a correct answer regarding meaning of PALM-COEIN system (P), (A), (L), and (M) respectively. Also 18%, 35%, 20%, 12 and 32% of the studied nurses, had a correct answer regarding meaning of PALM-COEIN system (C), (O), (E), (I) and (N) respectively

Table (4): Shows that there is a statistically significant relation between total knowledge level and the studied nurses' educational level at P-value<0.05. And there were no statistical significant difference and nurses' age.

Table (5): Reveals that there is a statistically significant relation between the studied nurses 'total knowledge and years of experience at P-value<0.05, and there was no relation between total knowledge and their department.

Figure (1): Shows that 38% and 62% of the studied nurses had satisfactory unsatisfactory level of knowledge about PALM-COEIN classification system for AUB respectively.

Figure (2): Illustrates that 56%, and 35%of the studied nurses gained their information from the study and the work respectively. And 4% of them gained their knowledge from friends and mass media.

Discussion:
Any deviation from normal menstruation or a regular menstrual cycle pattern, such as variations in the regularity, frequency, heaviness, or duration of blood flow, is referred to as AUB. **(Kanagasabai et al., 2023).**In order to ensure that the health status of the women with AUB is improved; nurses must play a multifaceted role and combine their talents with a foundation of specialist knowledge. The nurses could take part in public awareness campaigns, provide widespread health education about DUB, and encourage people to adopt healthy habits **(Theresa, 2020).** So, current study aims to assess the level of nurses' knowledge about the (PALM-COEIN) classification system for AUB.

According to the current study's findings, less than two fifths and more than three fifths of the nurses who were evaluated showed satisfactory and poor knowledge levels about the PALM-COEIN categorization system for AUB, respectively.

The same opinion reported by **(Said et al., 2022),** who used their research in Egypt to assess how systematic nursing interventions affected women with dysfunctional uterine bleeding (DUB), and found that more than three fifths of the studied women had a poor knowledge about DUB, while less than one quarter and more than one tenth of them had a moderate and good knowledge respectively. This similarity may back to applying in similar setting of the same country.

Near to previous findings **(Hamed & Mohamed, 2017),** who conducted a study in Egypt to determine women's profiles, patterns, causes of AUB, and effects on women's lives revealed that more than half of the women in the study had adequate understanding of AUB. This similarity supports the need of enhancing the knowledge of nursing staff regarding AUB and the new PALM COIEN classification that will end in enhancing women's knowledge after that.

Different opinion reported by **(Su et al., 2020),** They conducted research on the knowledge of heavy menstrual bleeding (HMB) and menstrual blood loss (MBL) among the genecology outpatients at Peking University People's Hospital. Their findings showed that less than a tenth of the women in the study had acceptable knowledge of severe HMB. This difference may be back to different setting and different part of menstrual bleeding.

Also **(Said & Mettwaly, 2017),** who conducted a study in Egypt to improve nursing students' knowledge of menstrual disorders through an educational training program found that none of the women they studied had good knowledge of these conditions; this discrepancy may be related to the study's sample size and the fact that they were testing knowledge of all menstrual disorders, not just those specific to AUB.

Because regular menstruation necessitates healthy operation of the hypothalamic-pituitary-ovarian axis, the menstrual cycle is regarded as a crucial indicator **(Zhang et al., 2023).** Women of reproductive age who have AUB, which includes heavy periods, intermittent bleeding, and extended bleeding, frequently receive care from women's health nurse practitioners **(Dehn, 2020).**

In terms of AUB knowledge, the current study shows that, respectively, more than three-quarters, more than one third, less than one fifth, and less than three-quarters of the studied nurses gave the right response to questions about meaning, prevalence, risk factors, and appropriate patient assessment for AUB. Regarding laboratory studies, treatment options, complications, and the nurse's involvement in AUB, the majority, three fifths, more than one half, and the majority of them, respectively, had the right response.

In agreement with previous findings **(Gerema et al., 2022),** who accomplished a study in Jimma Town, Southwest Ethiopia, to determine the knowledge of abnormal uterine bleeding and its associated factors among women of reproductive age, and who found that more than two thirds and slightly more than one fifth of the studied women knew the definition and risk factors of AUB. Additionally, fewer than half of them correctly identified the difficulties of AUB. This agreement explains the necessity to raise nurses'

awareness of AUB, which can be done by regularly providing them with educational material.

On the other side, **(Theresa, 2020),** who used their research to evaluate the women's DUB knowledge. Less than one third, less than one sixth, and less than one quarter of the studied women had accurate knowledge regarding meaning, risk factors, and treatment, according to the study, which was conducted among women in Raichur (Dt), Karnataka, between the ages of 21 and 51. The difference could be attributed to differences in the study sample and environment.

Because of this, the International Federation of Gynecology and Obstetrics (FIGO) named the PALM- COEIN categorization system in 2011 as an enhanced system. The disorders associated with uterine structural anomalies (polyp, adenomyosis, leiomyoma, cancer, and endometrial hyperplasia) are covered by PALM. COEIN refers to the pathologies (ovulatory dysfunction, coagulopathy, endometrial, iatrogenic, and unclassified) that are independent to uterine structural defects. In order to comprehend and determine the causes and contributors to the symptoms, the PALM-COEIN system systematically assesses AUB in females **(Vasava et al., 2021)**

Less than one-quarter, one-tenth, more than two-fifths, and less than one-half of the investigated nurses correctly identified the meaning of the PALM-COEIN system (P), (A), (L), and (M), respectively, according to the current study on nurses' understanding of the PALM-COEIN system. A correct response to the question on the meaning of the PALM-COEIN system (C), (O), (E), (I), and (N) was given by fewer than one fifth, more than one third, one fifth, less than one sixth, and less than one third of the nurses who participated in the study.

The previous findings illustrated that there were weak knowledge regarding PALM-COEIN system that supported by **(Sabre et al., 2021)**, who used their research to describe the distribution of AUB types among the inner-city residents of America who lack access to healthcare. Therefore, it must be improved by offering maternity nurses a continual counselling and training program regarding the PALM-COEIN system.

According to the current study, more than half and more than a third of the nurses who were studied learned about the PALM-COEIN system and AUB through study and work, respectively. And fewer than 10 percent of them learned about things from friends and the media.

Similar finding reported by **(Said & Mettwaly, 2017),** who discovered that, respectively, more than one tenth and less than half of the investigated nursing students learned their material via friends

.This similarity may back to applying on the nursing category.

The real study shows that there is a statistically significant relationship between total knowledge level and educational level of the studied nurses at P-value 0.05, and there is a statistically significant relationship between total knowledge level and years of experience of the studied nurses at P-value 0.05, as indicated by the relationship between total knowledge and personal data. Additionally, there was no statistically significant relationship between nurses' age and their overall knowledge level.

The same finding reported by **(Hooja et al., 2019),**who carried out their research in India to determine the knowledge and attitudes of women with AUB regarding the condition, its cause, risk factors, and treatment options in relation to their education and socioeconomic status, and who subsequently stated that there was a highly statistically significant relationship between total knowledge level and the studied women's educational level at P-value 0.01. Additionally, there was no statistically significant difference between the age, place of residence, and marital status of the women . This agreement shows the vital role to the participants' educational level on improving their knowledge.

Less than one sixth of the nurses in the study had a history of AUB, according to the current study. That was agreed with **(Zhang et al., 2023),** who undertook their research to determine the incidence of AUB patterns and to validate the links between AUB patterns, demography, and medical issues. They found that slightly more than one-sixth of the women they surveyed had a history of AUB. Also **(Karena et al., 2023)** had the same results when they applied their research to examine the causes of AUB in non-gravid women of reproductive age and to assess the usefulness of this classification system in a clinical setting. Other opinion reported by **(Hooja et al., 2019),** who found that one third of the studied women had a history of AUB.

The present study reveals that no one of the studied nurses received any special training courses related to (A U B). The studied nurses' total knowledge score level is 62% un satisfactory these findings may be due to a lack of implementing educational guidelines about AUB in the studied setting. This high lightened that the educational training was highly indicated. These agree with **(Christina et al., 2017)** who stated that physician education is required to better align the expectations of patients and the clinical history-taking of physicians in the context of AUB. and agree with (**Bryan et al., 2020**) Who stated that thereby evidencing residual educational gaps and a need for ongoing education related to abnormal uterine bleeding and intravenous iron supplementation for effective Management's. This agreement may back to the same field of work and lack of training.

The further training and education of nursing professionals can help to alleviate and limit the health complication and increase the standard of care. In this respect, the American Association of faculties of Nursing (AACN), encourages lifelong learning and offers incentives for nurses seeking to advance their education (**AACN, 2014**). Nurses play multi-dimensional role and skills have to be combined with a specialized knowledge help to improve their ability to provide safe and effective quality care for women undergoing (AUB). **Moreove**r, several studies supported that health care providers had an approval role in improving women's health and speed up the recovery.(**Yonis et al.,2018**) **Moreover**, (**Kamillia et al.,2021**). **Moreover** (**Yan & Haiyan, 2021**)

Conclusion:

- Total knowledge score level (62%) unsatisfactory and (38 %) satisfactory of the studied nurses about the (PALM-COEIN) classification system for AUB.
- There is a statistically significant difference between total knowledge level and educational level of the studied nurses at P-value (0.027*)
- There is a statistically significant difference between total knowledge and years of experience of the studied nurses at P-value (0.028*)

Recommendations:

On the basis of the study's findings, the following suggestions are made:

- A training guideline regarding (PALM-COEIN) classification system for abnormal uterine bleeding must be recommended for all maternity nurses working at Obstetrics, Gynecology and pediatrics Hospital to improve the quality of care.
- Further research should be carried out on a large number of nurses to generalize the study findings.
- More study is required to determine the impact of educational initiatives on nurses' knowledge of the PALM-COEIN categorization system for AUB.

References:

- **Chandregowda, C., Reddy, S., Datti, S., & Venkatesh, S. (2021):** Diagnosis of abnormal uterine bleeding using PALM COEIN classification and its management: An institutional experience. Nepal Journal of Obstetrics and Gynaecology, 16(1), 38–42. https://doi.org/10.3126/njog.v16i1.37515
- **Davis E. & Sparzak PB. (2023):** Abnormal Uterine Bleeding. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2023 Jan-

. Available from: https://www.ncbi.nlm.nih.gov/books/NBK532913/

▪ **Dehn, B. (2020):** Abnormal uterine bleeding in reproductive-aged women utilizing the PALM-COEIN system. Women's Healthcare, 4(2), 24–28.

▪ **Elbnedari, H., & Shalaby, N. (2021):** Gynecological Examination Educational Guideline for Maternity Nurses and Its Reflection on Women Satisfactions. Port Said Scientific Journal of Nursing, 8(1), 52–76. https://doi.org/10.21608/pssjn.2021.50083.1063

▪ **Gerema, U., Kene, K., Abera, D., Adugna, T., Nigussie, M., Dereje, D., & Mulugeta, T. (2022):** Abnormal uterine bleeding and associated factors among reproductive age women in Jimma town, Oromia Region, Southwest Ethiopia. Women's Health, 18(4), 1–7. https://doi.org/10.1177/17455057221077577

▪ **Hamed, A., & Mohamed, G. (2017):** Abnormal uterine bleeding and its impact on women life. IOSR Journal of Nursing and Health Science Ver. II, 6(5), 30–37. https://doi.org/10.9790/1959-0605023037

▪ **Hooja, N., Singh, N., PremlataMital, P., Bhargava, S., & Kumawat, A. (2019):** Relationship of education and socio-economic status with knowledge about abnormal uterine bleeding and its risk factors. International Journal of Community Medicine and Public Health, 3(8), 2229–2232. https://doi.org/10.18203/2394-6040.ijcmph20162575

▪ **İlhan Oruç, N., Göksever Çelik, H., Gündüz, N., & Yıldırım, G. (2019):** Evaluation of the Patients with Abnormal Uterine Bleeding Based on PALM-COEIN Classification. Istanbul Medical Journal, 20(5), 477–481. https://doi.org/10.4274/imj.galenos.2019.03780

▪ **Kahveci, B., Budak, M., Ege, S., Obut, M., Bagli, I., Oğlak, S., & Vardar, M. (2021):** PALM-COEIN classification system of FIGO vs the classic terminology in patients with abnormal uterine bleeding. Ginekologia Polska, 92(4), 257–261. https://doi.org/10.5603/GP.a2021.0011

▪ **Kanagasabai, P., Filoche, S., Grainger, R., Henry, C., & Hay-Smith, J. (2023):** Interventions to improve access to care for abnormal uterine bleeding: A systematic scoping review. International Journal of Gynecology and Obstetrics, 160(1), 38–48. https://doi.org/10.1002/ijgo.14224

▪ **Karena, Z., Mehta, A., & Vikani, S. (2023):** PALM-COEIN Classification for Abnormal Uterine Bleeding: A Study of its Practical Applicability and Distribution of Causes. Journal of SAFOG, 14(6), 681–684. https://doi.org/10.5005/jp-journals-10006-2154

▪ **Komy, A., Saeed, A., & Zakaria, A. (2022):** Comparative study between diagnostic value of 3D ultrasound versus hysteroscopic finding in patients with perimenopausal bleeding. Al-Azhar International Medical Journal, 3(10), 85–90. https://doi.org/10.21608/aimj.2022.137057.1933

▪ **Kwame, A., & Petrucka, P. (2021):** A literature-based study of patient-centered care and communication in nurse-patient interactions: barriers, facilitators, and the way forward. BMC Nursing, 20(1), 1–10. https://doi.org/10.1186/s12912-021-00684-2

▪ **Mansoor, H., Salman, M., Asif, N., Mustafa, Z. U., Nawaz, A., Mohsin, J., Arif, B., Sheikh, A., Noor-e-Hira, Shehzadi, N., Hussain, K., & Masood, A. (2020):** Menstrual knowledge and practices of Pakistani girls: A multicenter, cross-sectional study. Heliyon, 6(1), e03157. https://doi.org/10.1016/j.heliyon.2020.e03157

▪ **Munro, M., Balen, A., Cho, S., Critchley, H., Díaz, I., Ferriani, R., Henry, L., Mocanu, E., & van der Spuy, Z. (2022):** The FIGO ovulatory disorders classification system. International Journal of Gynecology and Obstetrics, 159(1), 1–20. https://doi.org/10.1002/ijgo.14331

▪ **Renuka, K., Nandhini, S., Sankar, L., & Malarmathi, M. (2021):** A Study to Assess the Prevalence and Contributing Factors of Abnormal Uterine Bleeding among Women Admitted in MGMCRI from January to December 2019. Pondicherry Journal of Nursing, 14(2), 26–28. https://doi.org/10.5005/jp-journals-10084-13103

▪ **Sabre, A., Serventi, L., Nuritdinova, D., Schiattarella, A., & Sisti, G. (2021):** Abnormal uterine bleeding types according to the palm-coein figo classification in a medically underserved american community. Journal of the Turkish German Gynecology Association, 22(2), 91–96. https://doi.org/10.4274/jtgga.galenos.2021.2020.0228

▪ **Said, A., El-sayed, G., & Hassan, M. (2022):** Application of Systematic Nursing Intervention on Women with Dysfunctional Uterine Bleeding. Egyptian Journal of Nursing and Health Sciences, 3(2), 46–75. https://doi.org/10.21608/ejnhs.2022.271498

▪ **Said, A., & Mettwaly, M. (2017):** Improving Life Style among Nursing Students Regarding Menstrual Disorders through an Educational Training Program. International Journal of Nursing Science, 7(2), 35–43. https://doi.org/10.5923/j.nursing.20170702.01

▪ **Su, S., Yang, X., Su, Q., & Zhao, Y. (2020):** Prevalence and knowledge of heavy menstrual bleeding among gynecology outpatients by scanning

a WeChat QR Code. PLoS ONE, 15(4), 1–11. https://doi.org/10.1371/journal.pone.0229123

▪ **Theresa, L. (2020):** A study to assess the knowledge of women regarding dysfunctional uterine bleeding in selected area of Raichur. Narayana Nursing Journal, 6(1), 36–40.

▪ **Thiyagarajan DK, Basit H, Jeanmonod R. Physiology, Menstrual Cycle. (2022):** In StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2023 Jan–. PMID: 29763196.

▪ **Vasava, V., Airao, B., & Shingala, M. (2021):** Palm-coein classification of abnormal uterine bleeding and clinicohistopathological correlation. International Journal of Reproduction, Contraception, Obstetrics and Gynecology, 10(4), 1587. https://doi.org/10.18203/2320-1770.ijrcog20211141

▪ **Youssif, A., El-haleem, S., & Gomaaabdallah, W. (2022):** Effect of Self-Instructional Module on Women ' s Self-Care Practices regarding Dysfunctional Uterine Bleeding during Premenopause. Egyptian Journal of Health Care, 13(1), 2159–2173.

▪ **Zhang, C., Li, H., Zhang, S., Suharwardy, S., Chaturvedi, U., Fischer-Colbrie, T., Maratta, L., Onnela, J., Coull, B., Hauser, R., Williams, M., Baird, D., Jukic, A., Mahalingaiah, S., & Curry, C. (2023):** Abnormal uterine bleeding patterns determined through menstrual tracking among participants in the Apple Women's Health Study. American Journal of Obstetrics and Gynecology, 228(2), 213.e1-213.e22. https://doi.org/10.1016/j.ajog.2022.10.029