Original Research Article

Prevalence of menstrual disorders and self-care practices among female undergraduates in a southwestern tertiary institution, Nigeria

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ABSTRACT

Background: Menstrual health, crucial for women's well-being, often remains obscured by misconceptions, stigma, and limited awareness. This study aimed to assess menstrual disorder prevalence and self-care practices among female undergraduates.
Methods: Using a descriptive cross-sectional design, we surveyed 216 female undergraduates through a structured questionnaire, employing multistage sampling. Data underwent Chi-square and logistic regression analysis (5% CI).
Results: Dysmenorrhea (81.9%), amenorrhea (41.7%), menorrhagia (30.6%), and irregular cycles (30.5%) were predominant menstrual disorders. Self-care was practiced by many during menstruation, including pain medication (50%), heat application (38.9%), and exercise (29.2%). Nonetheless, 59.7% lacked awareness about self-care practices. Age ($p<0.05$, OR=7.07, CI: 0.75–66.90), educational level ($p<0.05$, OR=2.75, CI: 0.76–10.01), knowledge level ($p<0.05$, OR=0.67, CI: 0.22–2.02), and education sponsor ($p<0.05$, OR=3.44, CI: 0.56–21.22) were linked to menstrual disorders, highlighting the need for menstrual hygiene product access.
Conclusions: This study identified high menstrual disorder prevalence and urges awareness and education for proper self-care. Tailored interventions by policymakers, educators and healthcare providers can empower women, enhancing menstrual health outcomes.

Keywords: Menstrual disorders, Self-care practices, Undergraduates, Factors, Prevalence

INTRODUCTION

Menstrual disorders are prevalent gynecologic issues affecting women of childbearing age and serve as indicators of underlying health problems.[1,2] Dysmenorrhea, menorrhagia, and irregular menstrual cycles are prevalent among women of reproductive age, causing physical, behavioural, and emotional changes during menstruation.[3] For instance, amenorrhea, the absence of menstruation, can be primary (occurring before age 15) or secondary (after menarche).[4] Abnormal uterine bleeding encompasses menorrhagia (heavy menstrual bleeding) and metrorrhagia (bleeding between periods).[5] Dysmenorrhea, characterized by severe menstrual cramps, may indicate hormonal, ovarian, or uterine issues.[6,7] Premenstrual syndrome (PMS) comprises various physical and psychological symptoms.[8,9] Several factors influence menstrual patterns, which includes significant weight gain or loss, stress, drug use, excessive alcohol consumption, which interferes with metabolism of estrogen and progesterone in the liver, hormonal imbalance, recent child birth or miscarriage, etc. and are responsible for menstrual problems.[10,11] Therefore, it is crucial to promptly address menstrual disorders to alleviate physical and psychological symptoms and improve women's overall well-being.

Menstrual disorders are a major burden affecting women's health and quality of life, with economic consequences due to healthcare costs.[1,2] African women are significantly affected by menstrual disorders, and 75% of young women globally experience menstrual complications.[12] These issues also impact work, school attendance, academic achievements, and employment prospects.[13,14] Attaining menstrual health goes beyond menstrual product access; it

requires resources for full participation during menstruation, including information, supplies, sanitation facilities, and healthcare services.[15,16] Primary care programs often overlook menstrual complaints, leading to non-medical home remedies.[17] University students frequently experience menstrual disorders, yet many do not seek medical help, resorting to self-medication.[1,14,18,19]

Female undergraduate students face unique challenges related to menstrual health, impacting academic performance and well-being.[3] The university environment is critical for women's personal development, but menstrual disorders and inadequate self-care practices can adversely affect their academic performance and attendance. Understanding prevalence and self-care practices is essential for interventions and support systems.[19,20] The cultural and socio-economic context of the study setting may influence menstrual disorders and self-care practices among female undergraduate students. Findings will contribute to knowledge on menstrual health's impact and inform policies and education programs to address students' needs.[1,21] This study aims to examine the prevalence of menstrual disorders and self-care practices among female undergraduates in a southwestern Nigerian institution.

METHODS

Study design

The study employed a descriptive cross-sectional design to examine the prevalence of menstrual disorders and self-care practices among female undergraduate students at Obafemi Awolowo University, Osun State, Nigeria. This design allowed for the collection of data at a single point in time, providing insights into the current status of menstrual health and practices. The study was conducted between April and May 2023.

Study population

The study focused on female undergraduate students at Obafemi Awolowo University, Ile-Ife, Nigeria. This university, renowned for its academic excellence and diverse student body, provided a suitable environment to explore menstrual health and self-care practices. Female undergraduate students were selected as the target population due to their unique experiences and needs related to menstrual health.

The sample size for the study consisted of 216 female undergraduate students. The size was determined using Cochran's formulae, with 10% non-response rate and probability of making type 1 error of 5%.

$$N = \frac{Z^2 pq}{d^2}$$

Where N=minimum sample size, Z=standard normal deviation set at 1.96 normal interval, p=proportion estimated to be obtained in the target population (prevalence of menstrual disorders was 85% in a similar study conducted in Uganda, q=proportions that does not have the characteristics being investigated (q=1-p) =0.15, and d=degree of accuracy set at 0.05 (precision set at 5% significant).[22] With a non-response rate of 10%, the sample size of 216 participants was calculated and recruited for the study.

Data sampling method

A multistage sampling technique was employed to select participants for the study. Initially, 30% of the total faculties (13 in total) were randomly chosen. From these faculties, one department was randomly selected from each, resulting in a total of four departments. Systematic random sampling was then utilized to select eligible respondents from the chosen departments.

Survey instrument development

A structured questionnaire was developed for data collection, covering socio-demographic details, knowledge of menstrual disorders, prevalence of menstrual disorders, and self-care practices. The questionnaire was created following a review of similar studies, ensuring its alignment with established research methodologies.[22,23]

Data collection

Data collection was conducted using a self-administered questionnaire. Informed consent was obtained from all participants, and they were assured of the confidentiality and anonymity of their responses. Participants' socio-demographic information, knowledge about menstrual disorders, prevalence of menstrual disorders, and self-care practices were all collected using the questionnaire developed based on previous research.

Ethical approval

The study obtained ethical approval from the Institute of Public Health Research and Ethical Body. The reference number for ethical approval was [IPH/OAU/12/2285]. All participants provided informed consent before participating, and measures were implemented to ensure their privacy and confidentiality throughout the study.

Statistical analysis

The collected data were analyzed using IBM statistical package for social science (SPSS) version 25. Descriptive statistics such as frequencies, percentages, and means were employed to analyze socio-demographic data. Pearson Chi-square test and multivariate regression were used to explore associations between variables and test hypotheses. The findings were presented using figures, tables, and charts where applicable. For knowledge assessment, correct responses were scored as 1, incorrect

responses as 0, and negative knowledge items were reverse-scored. Knowledge scores were categorized into poor (<50%), fair (50-59%), good (60-69%), and excellent (>70%) knowledge. Regarding self-care practices, a survey with 12 items featuring 'Yes' and 'No' options was used. The overall mean value (7.08) summarized self-care practices, categorizing scores below the mean as poor practice and scores equal to or above the mean as good practice.

RESULTS

Table 1 shows that the largest proportion of the respondents (62.5%) fell within the age range of 21 to 26 years, with an overall mean age of 22.51±2.1. The age at menarche ranged from 9 to 25 years, with a mean age of 13.26±1.7. Most of the participants identified as Yoruba (62.5%), and the majority practiced Christianity (69.4%). Additionally, 72.2% of the participants were financially supported by their parents, and the majority were in their third year of study (75.8%). Notably, only a small percentage (2.8%) of the respondents had experienced pregnancy before (Table 1). Table 2 shows that a significant majority of the respondents were aware that the average age at which girls begin menstruation (menarche) is 13 years (73.6%) and that it is caused by a physiological process (66.7%). Most of the participants correctly recognized disposable sanitary pads as the ideal absorbent material during menstruation (88.9%). Furthermore, a considerable portion of the respondents knew that the normal menstrual bleeding duration is 5-7 days (70.8%) and the average menstrual cycle length is 28 days (72.2%). However, less than half of the respondents (39.8%) possessed correct and adequate knowledge about menstrual disorders, while the majority (60.2%) demonstrated poor knowledge on this subject. Overall, only 43.1% demonstrated excellent knowledge regarding menstruation and menstrual disorders, while a small proportion (14.8%) showed poor knowledge on the subject (Table 2).

Prevalence of menstrual disorders among respondents

The participants reported experiencing a variety of menstrual disorders, including premenstrual syndrome (87.5%), dysmenorrhea (81.9%), and amenorrhea (41.7%) (Figure 1). The most commonly mentioned premenstrual symptoms were painful breasts on touch and depression/mood changes (59.7%). Difficulty concentrating was reported by only a small percentage of participants (20.8%). Overall, the majority of the respondents (72.2%) have encountered menstrual disorders, while a small minority (27.8%) reported not experiencing any menstrual disorders.

Self-care practices for menstrual health pattern

Table 3 indicates that the majority of the respondents (81.9%) opted for disposable sanitary pads as their menstrual hygiene product of choice. Additionally, during menstruation, 70.8% used only water for genital cleaning, and 87.5% practiced genital hygiene twice or more daily. Moreover, more than half of the participants (66.7%) changed their sanitary materials 1-2 times during menstruation, and an impressive 87.5% appropriately disposed of used menstrual hygiene materials, reflecting responsible waste management practices. A small percentage (19.4%) of the respondents increased their coffee or tea consumption as coping mechanisms for premenstrual symptoms. On the other hand, only 29.2% engaged in regular exercise to alleviate premenstrual symptoms and pain. Half (50.0%) of the respondents used medications as their primary method for pain relief, while 38.9% utilized warm compresses on their abdomen. However, the majority (61.1%) of the respondents reported that menstruation did not affect their school attendance. Overall self-care practices among the respondents indicate that almost two-third (59.7%) had poor self-care practices during menstruation (Table 3).

Table 1: Sociodemographic data of respondents (n=216).

Variables	N	%
Age as at last birthday (mean=21.51±2.05) (years)		
15-20	75	34.7
21-26	135	62.5
27-32	6	2.8
Age at menarche (mean age=13.26±1.73) (years)		
9-16 (early menarche)	198	91.7
17-25 (late menarche)	18	8.3
Ethnicity		
Yoruba	135	62.5
Igbo	36	16.7
Hausa	45	20.8
Religion		
Christianity	86	69.4
Islam	28	22.6
Traditional	10	8.1
Number of pregnancies		
One	6	2.8
None	210	97.2
Education sponsor		
Self	21	9.7
Parents	156	72.2
Guardian	39	18.1
Level of study (level)		
100	39	18.1
200	51	23.6
300	69	32.0
400 or final year	57	26.4
Course of study		
Agricultural economics	79	23.6
Economics	33	27.8
English	58	25.0
Microbiology	46	23.6

Table 2: Knowledge of menstruation and menstrual disorders among respondents (n=216).

Variables	Correct, N (%)	Incorrect, N (%)
The average age at which girls commence menses (menarche) is 13 years	159 (73.6)	57 (26.4)
Menstruation is caused by		
Physiological process	144 (66.7)	72 (33.3)
Pathological process	72 (33.3)	144 (66.7)
A curse from God	0 (0)	216 (100)
Source of menstrual blood		
Uterus	135 (62.5)	81 (37.5)
Vagina	75 (34.7)	141 (65.3)
Abdomen	6 (2.8)	210 (97.2)
Ideal Absorbent material used during menstruation		
Disposable sanitary pads	192 (88.9)	24 (11.1)
Re-usable clothes	15 (6.9)	201 (93.1)
Rag/pieces of clothes	9 (4.2)	207 (95.8)
I know the normal menstrual bleeding duration is 5-7 days	153 (70.8)	63 (29.2)
I know the average menstrual cycle length to be 28 days	156 (72.2)	60 (27.8)
Knowledge of menstrual disorders		
I know that menstrual blood is dirty and impure	117 (54.2)	99 (45.8)
I know menstrual blood is foul- smelling during menstruation	132 (61.1)	84 (38.9)
I know the pain during menstruation does not mean someone is sick	24 (11.1)	192 (88.9)
Amenorrhea is absence of menstrual period which is caused by pregnancy	144 (66.7)	72 (33.3)
Dysmenorrhea often improves with age and following after child birth	93 (43.1)	123 (56.9)
Metrorrhagia/bleeding in between regular periods is abnormal	87 (40.3)	129 (59.7)
Menorrhagia/heavy bleeding is a common cause of anemia leaving you tired and weak	96 (44.4)	120 (55.6)
Symptoms women often experience before menstrual period is termed premenstrual syndrome	48 (22.2)	168 (78.8)
Overall knowledge	**Frequency**	**Percentage**
Poor	32	14.8
Fair	51	23.6
Good	40	18.5
Excellent	93	43.1

Table 3: Self-care practices for menstrual health patterns among respondents (n=216).

Variables	Yes, N (%)	No, N (%)
Sanitary materials used during menstruation		
Disposable sanitary pads	177 (81.9)	39 (18.1)
Disposable piece of rags	21 (9.7)	195 (90.3)
Re-usable sanitary pads	18 (8.3)	198 (91.7)
Genital cleaning materials used during menstruation		
Only water	153 (70.8)	63 (29.2)
Soap and water	54 (25.0)	162 (75.0)
Plain paper	9 (4.2)	207 (95.8)
Washing genitals twice or more times per day	189 (87.5)	27 (12.5)
Taking bathes twice or more per day during menstruation	174 (80.6)	42 (19.4)
Frequency of changing sanitary materials used during menstruation		
Could not change it	9 (4.2)	207 (95.8)
1-2 times	144 (66.7)	72 (19.4)
3 times or more	63 (29.2)	153 (70.8)
Proper disposal of used menstrual hygiene materials	189 (87.5)	27 (12.5)
Consultations because of menstrual problems		
Doctor/Nurse	63 (29.2)	153 (70.8)
Parent	54 (25.0)	162 (75.0)

Variables	Yes, N (%)	No, N (%)
Friend	80 (37.0)	136 (63.0)
None	45 (20.8)	171 (79.2)
Self-care practices for menstrual disorders		
I increase coffee or tea consumption before and during period pain	72 (19.4)	174 (80.6)
I perform exercise to reduce premenstrual symptoms	63 (29.2)	153 (70.8)
Practices to manage period pain and premenstrual symptoms		
Use medications	108 (50.0)	108 (50.0)
Use herbal preparations	9 (4.2)	207 (95.8)
Put warm compresses on your abdomen	84 (38.9)	132 (61.1)
Increase water intake	24 (11.1)	192 (88.9)
Decrease spicy and salty foods	15 (6.9)	201 (93.1)
School attendance		
Affected	84 (38.9)	132 (61.1)
Not affected	132 (61.1)	84 (38.9)
Use of drugs for menstrual disorders		
Self-medication	108 (50.0)	108 (50.0)
Treatment given by parents	39 (18.1)	177 (81.9)
Treatment given by medical personnel	69 (31.9)	147 (68.1)
Overall self-care practices	**Frequency**	**Percentage**
Poor	129	59.7
Good	87	40.3

**Table 4: Influence of knowledge and socio-demographic factors on self-care practices for menstrual health (n=216).**

Variables	Self-care practices N (%)		χ^2	P value	OR	95% CI
	Poor	Good				
Age as at last birthday (years)						
15-20	48 (37.5)	27 (30.7)			RC	RC
21-26	75 (58.6)	60 (68.2)	5.591	0.04*	7.07	0.75-66.90
27-32	5 (3.9)	1 (1.1)			6.55	0.80-53.86
Age at menarche (years)						
9-16 (early)	120 (93.0)	78 (89.7)	0.772	0.38	RC	RC
17-25 (late)	9 (7.0)	9 (10.3)			0.33	0.08-1.34
Ethnicity						
Yoruba	72 (55.8)	63 (72.4)			RC	RC
Igbo	27 (20.9)	18 (20.7)	10.635	0.06	3.65	0.96-13.86
Hausa	30 (23.3)	6 (6.9)			1.20	0.24-5.92
Religion						
Christianity	81 (62.8)	42 (48.3)			RC	RC
Islam	45 (34.9)	45 (51.7)	7.482	0.02*	673235882	.
Traditional	3 (2.3)	0 (0)			129068837	.
Number of pregnancies						
One	123 (95.3)	84 (96.6)	0.188	0.66	RC	RC
None	6 (4.7)	3 (3.4)			1.63	0.25-10.51
Education sponsor						
Self	15 (11.6)	6 (6.9)			RC	RC
Parents	90 (69.8)	66 (75.9)	1.517	0.04*	3.44	0.56-21.22
Guardian	24 (18.6)	15 (17.2)			1.47	0.55-3.90
Level of study						
100 level	36 (27.9)	3 (3.4)			RC	RC
200 level	21 (16.3)	30 (34.5)			0.07	0.01-0.38
300 level	42 (32.6)	27 (31.0)	25.736	<0.001*	2.75	0.76-10.01
400 level final year	30 (23.3)	27 (31.0)			0.53	0.21-1.35
Course of study						

Continued.

Variables	Self-care practices N (%)		χ^2	P value	OR	95% CI
	Poor	Good				
Agric. economics	24 (18.6)	27 (31.0)			RC	RC
Economics	36 (27.9)	24 (27.6)	6.927	0.07	1.35	0.48-3.82
English	39 (30.2)	15 (17.2)			0.41	0.14-1.16
Microbiology	30 (23.3)	21 (24.1)			0.25	0.07-0.93
Level of knowledge of menstrual disorders						
Poor	33 (25.6)	21 (24.1)			RC	RC
Fair	42 (32.6)	15 (17.2)	8.452	0.04*	0.67	0.22-2.02
Good	30 (23.3)	24 (27.6)			0.19	0.06-0.53
Excellent	24 (18.6)	27 (31.0)			0.60	0.23-1.64
Prevalence of menstrual disorders						
Yes	96 (74.4)	60 (69.0)	0.770	0.38	RC	RC
No	33 (25.6)	27 (31.0)			0.94	0.41-2.14

*Significant p<0.05 at 95% confidence interval, RC=reference category, OR=odds rati
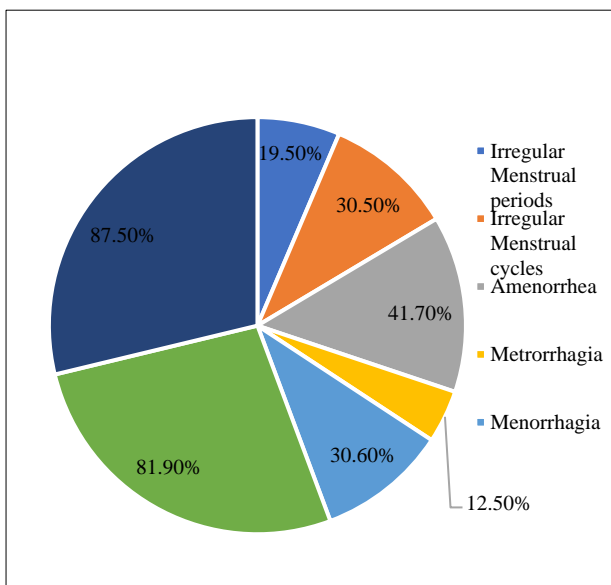
Figure 1: Prevalence of mental disorders among respondents (n=216).

Factors associated with self-care practices for menstrual health pattern

In the Table 4, age demonstrated a notable correlation with self-care practices (p=0.04). Respondents falling within the age group of 21-26 years displayed significantly higher odds of practicing good self-care compared to those aged 15-20 years (OR=7.07, 95% CI: 0.75-66.90). The influence of ethnicity on self-care practices demonstrated a non-significant trend (p=0.06). Specifically, respondents identifying as Igbo displayed higher odds of adopting good self-care practices compared to those of Yoruba ethnicity, yet this finding did not attain statistical significance (OR=3.65, 95% CI: 0.96-13.86).

A significant connection was observed between education sponsorship and self-care practices (p=0.04). Respondents financially supported by their parents were inclined to possess higher odds of adopting good self-care practices relative to those who sponsored themselves, though this

disparity did not reach statistical significance (OR=3.44, 95% CI: 0.56-21.22) (Table 4).

As shown in Table 4, the odds of good self-care practices exhibited a notable increase among students in the 300-level compared to the 100 level (OR=2.75, 95% CI: 0.76-10.01).

On the other hand, odds of good self-care practices in the 400 level did not significantly differ from those in the 100 level (OR=0.53, 95% CI: 0.21-1.35). As knowledge levels advanced, the odds of adopting good self-care practices decreased for respondents with fair knowledge (OR=0.67, 95% CI: 0.22-2.02), good knowledge (OR=0.19, 95% CI: 0.06-0.53), and excellent knowledge (OR=0.60, 95% CI: 0.23-1.64).

DISCUSSION

This study presented an in-depth analysis of menstrual health knowledge, disorders, and self-care practices among female undergraduates. The socio-demographic attributes of respondents shed light on factors that influenced self-care for menstrual patterns, including menstruation and menstrual disorders.

Younger students (18-20 years) exhibited a higher likelihood of reporting disorders due to hormonal adjustments, while higher-level students reported lower disorder rates, suggesting a link between education and awareness. The influence of educational sponsorship underscored socio-economic factors, as financially unsupported students were more vulnerable to disorders and inadequate self-care.

Equitable resource access and support systems were crucial for promoting menstrual health among all female students. A comparison of mean menarche ages across diverse regions of Nigeria revealed intriguing insights, indicating potential regional disparities influenced by population, geography, and culture. Further exploration is required to understand these variations and their implications for menstrual health.

The strong correlation between education sponsorship and self-care practices aligned with existing research on health behaviour determinants. Education consistently emerged as a pivotal factor influencing health-related practices, including self-care behaviors.[9,21,24] This resonated with studies highlighting education's role in fostering health literacy, informed decision-making, and overall health awareness.[25] The association between education sponsorship and self-care practices suggested that financial support significantly influenced a student's ability to engage in effective self-care practices.

The study's insights regarding menstrual knowledge among female undergraduates revealed existing gaps and emphasized the importance of comprehensive menstrual health education. While most respondents were aware of menstruation, this concurred with findings from a study among students in a private university, which reported robust knowledge of menstruation.[7]

However, gaps existed in understanding the biological aspects, such as the menstrual cycle and hormonal fluctuations. It underscored the role of social networks and information availability in shaping students' menstrual knowledge. Comprehensive education encompassing both biological and societal aspects was crucial. Comparisons with prior research highlighted the significant proportion lacking knowledge about menstrual disorders, in line with a systematic review on the epidemiology of menstrual disorders in developing countries.[18,26-28] However, contrary findings existed, emphasizing the need for context-aware educational approaches.[10,19] A notable portion of respondents demonstrated sound knowledge of menstruation, attributed to the study's academic environment fostering interaction, peer discussions, and information access.

The study underscored a considerable prevalence of menstrual disorders, with 72.2% of respondents reporting various forms. The findings aligned with similar investigations conducted among female undergraduates at the University of Ibadan and Lebanese nursing students, which recorded substantial prevalence rates of 90.4% and 80.7%, respectively.[10] However, the prevalence of menstrual disorders in this study surpassed the findings from a study at the University of Uyo, which reported an overall rate of 34.6%.[29] These variations in prevalence could be attributed to differences in study demographics, methodologies, and cultural factors.

Dysmenorrhea, characterized by painful menstrual cramps, emerged as the most prevalent disorder affecting a significant portion of respondents. This mirrored earlier research among secondary school girls in Ibadan, which also identified dysmenorrhea as a leading menstrual concern.[7,30] Most students classified their pain levels as mild to moderate, emphasizing the subjective nature of pain perception. This highlighted the importance of tailored support and management strategies for students experiencing dysmenorrhea. The study also presented prevalence rates for other disorders, underscoring the need for focused attention on menstrual health within university environments. Self-care practices varied among respondents, with 59.7% exhibiting poor practices and 40.3% demonstrating good practices. Common practices included using disposable pads (81.9%) and cleaning with water (70.8%). Notably, many did not seek consultation from healthcare professionals for menstrual-related complaints, indicating gaps in awareness, education, and access to healthcare services.

This trend was consistent regardless of income levels, suggesting the need for comprehensive menstrual health education that empowered individuals to seek professional guidance for persistent issues. A multi-faceted approach was essential, encompassing awareness-building, normalizing healthcare-seeking behavior, and ensuring inclusive healthcare services.[2,26]

Limitations

The study provides valuable insights into prevalent disorders and self-care practices, addressing a significant aspect of women's health. However, limitations include potential self-reporting biases, and restricted generalizability. Medical terms were accompanied with brief definitions within the questionnaire. This helps students unfamiliar with specific terms to comprehend the questions accurately. While highlighting the need for menstrual health awareness, acknowledging these strengths and limitations is vital for a comprehensive interpretation of the study's implications and future research directions.

CONCLUSION

This study sheds light on menstrual health knowledge, disorders, and self-care practices among female undergraduates. It emphasizes the significance of socio-demographic attributes, education sponsorship, and education level in influencing menstrual health experiences and behaviours. The findings highlight knowledge gaps and underscore the importance of comprehensive education to enhance awareness and self-care practices. The study's insights into the prevalence of menstrual disorders and self-care practices provide valuable information for developing targeted interventions and support systems within university environments.

ACKNOWLEDGMENTS

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