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Prevalence and Health-Seeking Behaviour Regarding Menstrual Disorders Among Non-Medical Undergraduate Students in Mwanza, Tanzania. A Cross-sectional Study

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ABSTRACT

Background: Menstrual disorders are a significant public health issue, particularly among young women in low- and middle-income countries (LMICs). Health-seeking behaviour related to menstrual disorders among female undergraduate students in sub-Saharan Africa remains suboptimal. This study aims to determine the prevalence, awareness, and health-seeking behaviours regarding menstrual disorders among female undergraduate students at non-medical universities.

Methods: This cross-sectional study was conducted between April and May 2022 at two institutions in Mwanza, Tanzania: St Augustine University of Tanzania and the College of Business Education. The study population comprised female undergraduate students aged 18 years or older, who were selected using a combined stratified and convenience sampling approach. Data were collected via a structured, self-administered questionnaire. Descriptive statistics, including frequencies, percentages, medians, and interquartile ranges (IQR), were used to summarise the data.

Results: A total of 573 participants were included in the study, the majority of whom were aged 22 to 25 years (64.1%). The prevalence rates of menstrual disorders were as follows: dysmenorrhoea (73.0%), premenstrual syndrome (54.3%), menorrhagia (44.0%), and amenorrhoea (37.0%). All participants were aware of the common menstrual disorders. The primary sources of information regarding menstrual disorders were interpersonal communication (40.2%) and the Internet (34.2%). Stress was identified as the most commonly perceived contributing factor of menstrual disorders (54.3%), followed by the use of contraceptives (48.6%). Overall, 78.9% of participants reported seeking treatment for their menstrual disorders; the most frequently cited sources of help were pharmaceutical outlets (40.7%), self-care practices (50.7%), and hospitals (30.3%). Most participants sought help for menorrhagia (47.6%) and dysmenorrhea (44.7%). The most commonly utilised treatments included analgesics (46.7%) and hormonal therapies (20.4%).

Conclusion: The findings highlight the considerable burden of menstrual disorders faced by female undergraduate students, with dysmenorrhoea emerging as the most prevalent condition. The study also revealed that a significant proportion of participants sought help for their menstrual disorders, with menorrhagia and dysmenorrhea being the most commonly addressed conditions. Educational programmes should be integrated into university curricula to promote menstrual health literacy.

BACKGROUND

Menstrual disorders represent a significant yet often overlooked public health issue, particularly among young women in low- and middle-income countries (LMICs). The prevalence of menstrual-related absenteeism is notably high, with studies indicating that 15% of women in LMICs experience disruptions in daily activities due to menstrual issues.[1] These disorders, which include dysmenorrhea (painful menstruation), menorrhagia (heavy menstrual bleeding), amenorrhoea (absence of menstruation), and premenstrual syndrome (PMS), can severely impact the physical, emotional, and social well-being of affected individuals.[2] For female students, menstrual disorders can disrupt academic attendance, performance, and overall quality of life, yet they remain underdiagnosed and inadequately managed.[3,4] In sub-Saharan Africa, where cultural stigmas, limited healthcare access, and a lack of awareness further compound the issue, menstrual health is often neglected in public health discourse.[5]

Health-seeking behaviour related to menstrual disorders among female undergraduate students in sub-Saharan Africa remains suboptimal despite the substantial burden of these conditions.[6] Previous studies have shown that many female undergraduate students do not seek professional medical care for menstrual problems due to embarrassment, cultural

stigma, financial limitations, and the perception that menstrual symptoms are a normal part of womanhood.[7] Consequently, many students resort to self-medication, informal consultations with peers or family members, or non-medical coping strategies, which may delay appropriate diagnosis and management of menstrual disorders.[8]

Studies across multiple low-income countries, including Tanzania, revealed that cultural attitudes perpetuate negative perceptions of menstruation, limiting girls' access to information and proper care.[9] Additionally, the lack of comprehensive sexual and reproductive health education in schools and communities contributes to low awareness and understanding of menstrual disorders among female undergraduate students, [10] particularly those in non-medical fields, who may lack the knowledge and resources to recognise and seek help for menstrual health issues, further worsening the problem.[11] Despite the growing recognition of menstrual health as a critical component of gender equity and public health, there is a paucity of data on the prevalence, awareness, and health-seeking behaviours related to menstrual disorders among young women in Tanzania.

This study seeks to address this gap by investigating the prevalence, awareness, and health-seeking behaviour of menstrual disorders among female undergraduate students at non-medical universities in Mwanza, Tanzania. Focusing on non-medical undergraduate students is particularly important because they may have limited exposure to formal reproductive health education and may therefore be less likely to recognise menstrual disorders and seek appropriate healthcare services.

METHODS

Study Design and Area

This study employed a cross-sectional design. The study was carried out at St Augustine University of Tanzania (SAUT) and the College of Business Education (CBE), two non-medical universities in Mwanza, Lake Zone, Tanzania. Mwanza is a large urban area hub in Tanzania with a diversified population, which makes it the perfect place for this study. The selected universities host a large and diverse population of undergraduate students (approximately 13,000 students) from various academic disciplines, making them suitable settings for assessing menstrual health-related experiences among female students. The study was conducted between April and May 2022.

Study Population

The study population consisted of female undergraduate students aged 18 years or older enrolled at CBE and SAUT during the 2022 academic year. The study included female undergraduate students who demonstrated a willingness to provide informed consent. Students with chronic illnesses and irregular menstruation due to medical conditions were excluded.

Sample Size and Sampling Procedures

The sample size was determined using the Kish and Leslie formula, .[12] assuming a 95% confidence level (Z = 1.96) and a margin of error of 5%. As there were no similar studies conducted within East African countries, the prevalence used was based on a previously reported prevalence of menstrual disorders of 77.6% among female undergraduate students in non-medical universities in Nigeria.[13] The minimum required sample size was calculated to be 267 participants. Given that the study was conducted across two universities, a minimum of 267 participants was targeted from each institution to ensure adequate representation. To account for a potential non-response rate of 10%, the sample size was adjusted to 294 students per university. Stratification was performed by programme of study within each university, ensuring proportional representation of students across academic disciplines. Within each stratum, participants were selected using convenience sampling (based on availability during data collection sessions).

Data Collection

Data were collected using a structured, self-administered questionnaire adapted and modified from the validated tools used in previous studies on menstrual health.[14,15] The questionnaire consisted of four sections: (1) demographic information, (2) prevalence of menstrual disorders, (3) awareness of menstrual health, and (4) health-seeking behaviour. The questionnaire was pretested on a small group of students to ensure clarity and reliability.

Data Analysis

Data were analysed using STATA version 15. Descriptive statistics, including frequencies, percentages, medians, and interquartile ranges (IQR), were used to summarise the data. The chi-square test was employed to assess the influence of participant age and age at menarche on the prevalence of menstrual disorders. A p-value of <.05 was considered statistically significant.

Ethical Considerations

This study was approved by the Catholic University of Health and Allied Sciences and Bugando Medical Centre's Joint Ethics and Research Review Committee (IRB approval No: 2256/2022 & 2313/2022). All participants provided verbal and written consent to participate in the study before the questionnaires were administered. During the data collection, personal identifiers such as names and phone numbers of the participants were not recorded to ensure confidentiality. Rather, numbers were assigned for coding purposes.

RESULTS

Demographic Characteristics of Participants

This study included 573 participants. Table 1 presents the socio-demographic characteristics of the participants. The majority were aged 22-25 years (64.1%), with a median age of 23 (IQR: 21 to 24). The age at menarche was predominantly between 10 and 14 years (67.5%) with a median of 14 years (IQR: 13 to 15). Most participants were single (93.5%). Regarding the programme of study, 26.0% were studying law and 25.1% business administration.

Prevalence of Menstrual Disorder

Figure 1 below illustrates the prevalence of various menstrual syndromes among the 573-studied population. Dysmenorrhoea was the most reported condition, with a prevalence of 73.0%. Premenstrual syndrome

(PMS) followed, affecting 54.3% of the participants. Menorrhagia was reported by 44.0% of the individuals, while amenorrhoea had the lowest prevalence at 37.0%.

TABLE 1: Socio-demographic Characteristics of Participants (N=573)

Variables	Frequency (N)	Percentage (%)
Age (yrs)		
18 - 21	164	28.6
22 - 25	367	64.1
26 and above	42	7.3
Median (IQR)	23 (21 - 24)	
Age at menarche (yrs)		
10 - 14	387	67.5
15 - 20	186	32.5
Median (IQR)	14 (13 - 15)	
marital status		
Single	536	93.5
Married	37	6.5
Program of study		
Business administration	144	25.1
Marketing	72	12.6
Law	149	26.0
Education	101	17.6
Accountancy	57	10.0
Procurement	50	8.7

Association of Age and Age at Menarche with Menstrual Disorders

Table 2 presents the influence of participant age and age at menarche on the prevalence of menstrual disorders using the chi-square test. Menorrhagia was more prevalent but not statistically significant in younger age groups (18-21 and 22-25 years) compared to those aged 26 and above (P=.128) and significantly related to earlier age at menarche (10-14 years, P=.001). Amenorrhoea showed a significant relationship with age (P=.027), being more common in the 18 to 21 age group, but no significant relationship with age at menarche (P=.886). Dysmenorrhoea prevalence increased with age, particularly in the 26 and above group (P=.047), though no significant association was found with age at menarche (P =.642). PMS did not show a significant association with age (P=.292) but was significantly more prevalent in those with a later age at menarche (15-20 years, P=.019).

Awareness of Menstrual Disorders

The primary sources of information included interpersonal communication (40.2%), the Internet or mass media (34.2%), and schools (17.9%). Less common sources were seminars (3.8%), personal experience (9.5%), and reading materials (12.4%). Regarding perceived causes of menstrual disorders, stress was the most frequently cited factor (54.3%), followed by contraceptive use (48.6%), family history (28.4%), infections (33.4%), hormonal imbalances (24.5%), eating disorders (18.3%), and excessive exercise (22.9%). (Table 3).

TABLE 2: Influence of Participant Age and Age at Menarche on the Prevalence of Menstrual Disorders (N = 573)

Variables	Menstrual disorder		*P-Value*
	Menorrhagia		
Age (Yrs)	**Yes (n=212)**	**No (n=361)**	
18 - 21	58 (35.4)	106 (64.6)	.128
22 - 25	144 (39.2)	223 (60.8)	
26 and above	10 (23.8)	32 (76.2)	
Age at menarche (Yrs)			
10 - 14	161 (41.6)	226 (58.4)	.001
15 - 20	51 (27.4)	135 (72.6)	
	Amenorrhea		
Age (Yrs)	**Yes (n=252)**	**No (n=321)**	.027
18 - 21	83 (50.6)	81 (49.4)	
22 - 25	157 (42.8)	210 (57.2)	
26 and above	12 (28.6)	30 (71.4)	
Age at menarche (Yrs)			
10 - 14	171 (44.2)	216 (55.8)	.886
15 - 20	81 (43.6)	105 (56.4)	
	Dysmenorrhea		
Age (Yrs)	**Yes (n=418)**	**No (n=155)**	
18 - 21	122 (74.4)	42 (25.6)	.047
22 - 25	259 (70.6)	108 (29.4)	
26 and above	37 (88.1)	5 (11.9)	
Age at menarche (Yrs)			

Continue

TABLE 2: Continued

Variables	Menstrual disorder		*P-Value*
10 - 14	280 (72.4)	107 (27.6)	.642
15 - 20	138 (74.2)	48 (25.8)	
	PMS		
Age (Yrs)	Yes (n=311)	No (n=262)	
18 - 21	92 (56.1)	72 (43.9)	.292
22 - 25	201 (54.8)	166 (45.2)	
26 and above	18 (42.9)	24 (57.1)	
Age at menarche (Yrs)			
10 - 14	197 (50.9)	190 (49.1)	.019
15 - 20	114 (61.3)	72 (38.7)	

FIGURE 1: Prevalence of Menstrual Disorders among Study Participants

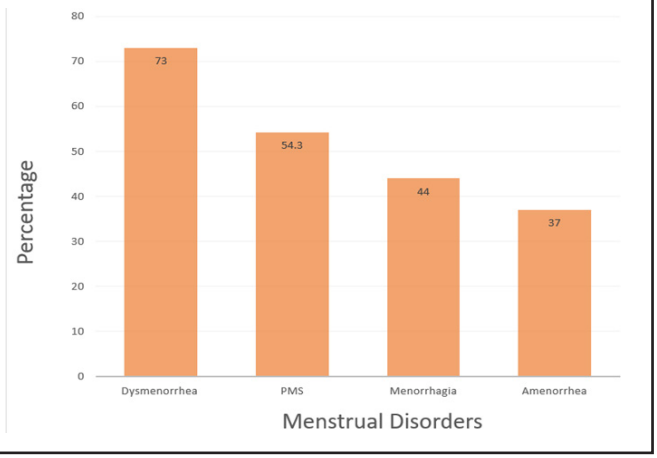

TABLE 3: Awareness of Menstrual Disorders (N=573)

Variable*	Frequency	Percentage
Sources of Information		
Internet (mass media)	196	34.2
School	103	17.9
Interpersonal (family, friends, and peers)	230	40.2
Seminar	22	3.8
Personal experience	54	9.5
Reading	71	12.4
Causes of menstrual disorders		
Family history	163	28.4
Eating disorder	105	18.3
Stress	311	54.3
Contraceptive use	278	48.6
Excessive Exercise	131	22.9
Infections	191	33.4
Hormonal Imbalances	140	24.5

*Multiple responses were allowed.

Health-seeking behaviours of menstrual disorders

Table 4 presents health-seeking behaviours among 573 participants with menstrual disorders, revealing that 78.9% sought help for their conditions. Among those seeking help, the most common disorders addressed were menorrhagia (47.6%) and dysmenorrhea (44.7%), while fewer sought help for amenorrhea (23.0%) and PMS (24.8%). Participants primarily sought assistance from pharmaceutical outlets (40.7%), self-care practices (50.7%), and hospitals (30.3%), with a smaller proportion relying on traditional methods (23.5%). The most common treatments included painkillers (46.7%), hormone drugs (20.4%), and herbal medications (13.9%). Coping methods varied, with rest (38.9%) being the most frequently reported, followed by exercise (17.1%), while some participants reported doing nothing (22.2%).

TABLE 4: Health-Seeking Behaviours of Menstrual Disorders

Variables	Frequency (n)	Percentage (%)
Do you seek help for your menstrual disorders?		
Yes	452	78.9
No	121	21.1
If yes, which one? *		
Menorrhagia (N=212)		
Yes	101	47.6
No	111	52.4
Amenorrhea (N=252)		
Yes	58	23.0
No	194	77.0
Dysmenorrhea (N=418)		
Yes	187	44.7
No	231	55.3
PMS (N=311)		
Yes	77	24.8
No	234	75.2
Where do you receive help? (N=452) **		
Hospital	137	30.3

Continue

TABLE 4: Continued

Variables	Frequency (n)	Percentage (%)
Pharmaceutical outlets	184	40.7
Traditional	106	23.5
Self-care	229	50.7
What type of treatment have you taken? (N=452)		
Treatment taken		
Painkiller	211	46.7
Hormone drug	92	20.4
Herbal medication	63	13.9
Coping methods for menstrual disorders (N= 573)		
Nothing	127	22.2
Exercise	98	17.1
Drinking hot liquid	45	7.8
Rest	223	38.9
Hot bath	24	4.2
Eating a healthy diet	27	4.7
Increase water intake	29	5.1

*Multiple responses were allowed, and percentages are calculated based on relevant subgroups.
**Multiple responses were allowed.

DISCUSSION

This study provides information on the prevalence, knowledge, and health-seeking practices of menstruation problems among female undergraduate students at Tanzania's non-medical universities in Mwanza. Dysmenorrhoea and PMS were the most commonly reported disorders, consistent with previous studies that have reported a high burden of menstrual disorders among undergraduate students in Nigeria, where the prevalence of dysmenorrhoea was 70.8% and amenorrhoea 39.0%.[16] However, the Nigerian study reported a higher prevalence of PMS (72.2%) and a lower prevalence of menorrhagia (20.7%).[16] On the contrary, another study conducted by Ayamolowo among female undergraduates in a southwestern tertiary institution in Nigeria reported higher prevalences of dysmenorrhoea (81.9%), PMS (87.5%), and amenorrhoea (41.7%), while the prevalence of menorrhagia (12.5%) was lower compared to the present study.[14] These variations may be attributed to differences in study populations, cultural factors, or methodological approaches. The high prevalence of dysmenorrhoea and PMS among undergraduate students has significant implications for academic performance and overall quality of life.[17–19] Dysmenorrhoea, characterised by painful menstruation, can lead to absenteeism, reduced concentration, and decreased productivity, ultimately affecting academic outcomes.[4,20] Similarly, PMS, which encompasses a range of physical and emotional symptoms, can impair daily functioning and interpersonal relationships.[21] The high prevalence of menstrual disorders among young women may be linked to physiological, psychological, and lifestyle factors.[22]

The study also highlights the influence of age and age at menarche on the prevalence of menstrual disorders. Although menorrhagia appeared more common in younger age groups, this difference was not statistically significant. However, it was significantly associated with an earlier age at menarche, consistent with findings from a previous study that reported the majority of the adolescents with menorrhagia had their menarche between 12 and 14 years (70.27%); of those with menorrhagia, 27.03% reported onset within 6 months of menarche.[23] This may suggest that hormonal regulation during the early years of menstruation is less stable in individuals with early menarche, potentially leading to heavier menstrual bleeding.[24] Thus, there is a need for early monitoring and intervention for adolescents who experience early menarche, as they may be at higher risk for menorrhagia and its associated complications, such as anaemia and a reduced quality of life.

Amenorrhoea, the absence of menstruation, showed a significant relationship with younger age (18-21 years), suggesting that younger students may be more vulnerable to this condition. This age group appears to be more vulnerable to this condition due to a combination of physiological, psychological, and lifestyle factors.[25,26] The prevalence of dysmenorrhoea, painful menstruation, was reported to increase with age, particularly among those aged 26 and above. This could be due to cumulative exposure to risk factors such as stress or lifestyle changes.[27] Remarkably, PMS was more prevalent among those with a later age at menarche (15-20 years). Women with later menarche may experience delayed maturation of the hypothalamic–pituitary–ovarian axis, which regulates reproductive hormones. This hormonal instability can lead to irregular ovulatory cycles and fluctuating oestrogen and progesterone levels, both of which are strongly implicated in PMS symptoms.[28,29]

Awareness of menstrual disorders was primarily influenced by interpersonal communication, the internet, mass media, and schools. These results are in line with a previous study that reported major sources of information on menstrual disorders were interpersonal communication (34.7%), the internet or mass media (31.4%), and schools (12.8%).[16] Aisyah and Traine revealed that the majority of information sources were print media (36.7%), electronic media (33.3%), and health workers (30.0%).[30] These findings suggest that educational programmes and public health campaigns could be effective in increasing awareness and knowledge about menstrual health.

Stress was the most frequently cited perceived cause of menstrual disorders, followed by contraceptive use and family history. This aligns with existing literature that identifies stress as a significant contributor to menstrual irregularities.[31,32] Contraceptives contain hormones that regulate the menstrual cycle. While they can provide benefits such as cycle regulation and reduced menstrual pain, they can also cause side effects like irregular bleeding or amenorrhoea in some users.[33] Besides genetics, shared environmental factors within families (such as lifestyle, diet, and stressors) may contribute to similar menstrual health outcomes.

The majority of study participants sought help for their menstrual disorders, with menorrhagia and dysmenorrhea being the most commonly addressed conditions. A previous study reported lower rates of the prevalence of

seeking help for menorrhagia (28.0%) and dysmenorrhea (20.2%).[16] These discrepancies between the two studies may be attributed to differences in the sampling frame, access to healthcare services, and prevailing sociocultural norms. However, a significant proportion of participants relied on self-care practices and pharmaceutical outlets rather than formal healthcare settings. These findings are in agreement with a previous study.[34] The use of painkillers as the most common treatment aligns with global trends in managing menstrual pain, but the reliance on traditional methods and herbal medications suggests that cultural practices continue to play a role in menstrual health management. The study on dysmenorrhoea at Kenyatta University, Nairobi, Kenya, reported that the majority (58.6%) of undergraduate students use over-the-counter medication to manage their symptoms. Non-pharmacological coping methods reported by the participants to manage dysmenorrhoea included relaxation 33.5%, heat therapy 27.0%, and exercise, 19.3%.[35]

Menstrual disorders adversely affect students' class attendance, academic performance, and overall well-being. Although many students exhibit health-seeking behavior, they often resort to self-care or informal sources like pharmaceutical outlets, which may lead to inadequate management of their conditions. The findings emphasize the urgent need for integrated menstrual health education within university curricula, especially in non-medical institutions, and reveal gaps in access to appropriate healthcare or trust in formal services. Additionally, the perceived impact of stress and contraceptive use on menstrual health suggests a need for enhanced mental health and reproductive education. It is recommended to incorporate menstrual health education into health promotion programmes, develop peer-led awareness campaigns, train university health staff, promote affordable health services, and encourage further research on intervention strategies to improve academic outcomes related to menstrual disorders.

Strengths and limitations

This study is one of the few to focus on menstrual health among students in non-medical universities in Tanzania, a population that is often overlooked in reproductive health research. With a substantial sample size of 573 participants, the reliability of the findings is significantly enhanced. Furthermore, the use of a stratified sampling technique ensured diverse representation across various academic disciplines. However, this study has some limitations. First, the use of a descriptive cross-sectional design does not allow for the establishment of causal relationships between variables or the assessment of temporal trends. Second, the reliance on self-reported data introduces the possibility of recall bias, as participants may have had difficulty accurately remembering past experiences or events. Third, the sampling approach, which incorporated convenience sampling within strata, may have introduced selection bias and limited the generalisability of the findings beyond the two universities included in the study. Fourth, given the sensitive nature of menstrual health topics, there is a potential for social desirability bias, whereby participants may have underreported or over-reported certain behaviours to align with perceived social expectations. Finally, the study did not include clinical verification of reported menstrual disorders; therefore, the findings are based solely on participants' report and self-assessments.

CONCLUSION

The findings highlight the considerable burden of menstrual disorders faced by female undergraduate students, with dysmenorrhoea emerging as the most prevalent condition. Awareness of these disorders was predominantly influenced by interpersonal communication, the Internet, and mass media. Stress and contraceptive use were the most frequently perceived causes of menstrual disorders. The study also revealed that a significant proportion of participants sought help for their menstrual disorders, with menorrhagia and dysmenorrhea being the most commonly addressed conditions. Educational programmes should be integrated into university curricula to promote menstrual health literacy. Additionally, healthcare services should be made more accessible to students. As this study is limited by its cross-sectional nature, future research should focus on longitudinal studies to evaluate the long-term academic and quality-of-life implications associated with menstrual disorders among female undergraduate students.

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