Prevalence and Risk Factors of Dysmenorrhea among Female Undergraduates in Lagos State University

*Waliu Babatunde Ogunbamowo, Bidemi Bilkis Lafiaji-Okuneye, Lateefat Abiodun Ligali, Daniel Oluwatobi Ashon

****Department of Human Kinetics, Sports and Health Education, Faculty of Education, Lagos State University, Ojo, Nigeria
**Corresponding author: Email: *waliu.ogunbamowo@lasu.edu.ng

Abstract

This study investigated the prevalence and potential risk factors associated with dysmenorrhea among female undergraduates in Lagos State University. A Descriptive survey design was conducted, involving simple random selection of 300 female students from five faculties and 60 students were purposively selected from each faculty. Participants were interviewed using a structured questionnaire, addressing menstrual pain, lifestyle factors such as smoking and alcohol consumption and health behaviors. Statistical analyses, including Chi-square tests, were employed to assess associations between dysmenorrhea and various variables. The findings revealed a notable prevalence of dysmenorrhea among the study population, with 72.33% of participants reporting menstrual pain and a chi-square value of 117.23. Further analysis highlights the significant impact of alcohol consumption and irregular menstrual cycles on the occurrence of dysmenorrhea, both identified as crucial risk factors. Specifically, students who reported regular alcohol consumption with 90.33% and a chi-square value of 109.88 were more likely to experience dysmenorrhea compared to their non-drinking counterparts. Additionally, individuals with irregular menstrual cycles with 90% and a chi-square value of 214.12 exhibited higher likelihood of experiencing dysmenorrhea. However, smoking did not emerge as a significant risk factor for dysmenorrhea in this study. The analysis demonstrated no significant difference in the prevalence of dysmenorrhea between smokers and non-smokers, suggesting that smoking may not play a substantial role in the manifestation of menstrual pain among the surveyed undergraduate students. In conclusion, this study sheds light on the prevalence and risk factors associated with dysmenorrhea among female undergraduate students of Lagos State University. The results underscore the importance of addressing alcohol consumption and irregular menstrual cycles in the management and prevention of dysmenorrhea, providing valuable insights for healthcare professionals, educators, and policymakers aiming to improve the reproductive health of young women in academic settings.

Keywords: Prevalence, Dysmenorrhea, Risk factors, Menstrual circle

Introduction

Dysmenorrhea also called painful periods, or menstrual cramps are a recurrent, crampy pain that occurs during the menstruation. Dysmenorrhea, commonly known as menstrual pain, is a prevalent issue affecting a significant number of female undergraduate students (Osayande & Mehulic, 2014). Dysmenorrhea is a widespread menstrual disorder characterized by pain and discomfort during menstruation. Studies indicate that a substantial proportion of female undergraduate students experience dysmenorrhea, with prevalence rates varying across different cultures and regions. The severity of symptoms can range from mild discomfort to debilitating pain, impacting academic performance and

overall quality of life. During menstruation, most females experience certain distress and pain (Kaur et al., 2015).

Dysmenorrhea is reported to be among the most common gynecological disorder worldwide. It is one of the most worrisome gynecological morbidities in women of reproductive age regardless of age, nationality, and economic status (Mamah et al, 2020). Based on pathophysiology, there are 2 types of dysmenorrhea: It can be either primary without visible pelvic pathology, or secondary with an identifiable pelvic disorder (Osayande & Mehulic, 2014; Dutta, 2014). Primary dysmenorrheal (PD) refers to painful menses without any underlying abnormality and occurs before or during menstruation. It is observed only in ovulatory cycles, frequently emerging within 6 to 12 months after menarche with no pathology or organic basis whereas secondary dysmenorrhea is a menstrual pain associated with underlying pathology and its onset might be years after menarche (Kaur et al., 2015). Secondary dysmenorrhea is caused by several identifiable pathological conditions, such as endometriosis, adenomyosis, leiomyomas, and pelvic inflammatory disease (Osayande & Mehulic, 2014). As many as 90% of adolescent females and above 50% of menstruating women worldwide report suffering from it, with 10–20% of them describing their hurt as severe and distressing (Berkley, 2013).

The reported prevalence of PD varies widely because of different definitions and assessment methods, ranging from 24% to 92% (Tomás-Rodríguez et al., 2017; Zhang, 2016). Meanwhile, a range of physical and environmental risk factors for PD have been reported, including earlier age at menarche, heavier menstrual flow, family history of dysmenorrhea, smoking, alcohol consumption, higher body mass index (BMI), and other social factors (Iacovides et al., 2015; De Sanctis et al., 2015; Ju et al., 2014). Nevertheless, conflicting results often exist between studies (Ju et al., 2014; Hashim et al., 2020; Rafique & Al-Sheikh 2018).

Several factors contribute to the prevalence of dysmenorrhea among female undergraduate students. Understanding these risk factors is crucial for implementing effective preventive measures and providing appropriate support. The risk factors of dysmenorrhea among female undergraduate students have been extensively studied in recent literature. Factors associated with dysmenorrhea include a positive family history, age, stress, age at menarche, obesity, irregular cycle, long cycle, heavy bleeding, skipping breakfast, eating snacks, smoking, and alcohol use (Abubakar et al., 2020). Additionally, dysmenorrhea has been found to have a direct adverse impact on the quality of life, affecting social lives and academic performance due to issues such as absenteeism and inability to participate in physical activities (Li et al., 2023).

Furthermore, dysmenorrhea has been shown to impact academic performance, with studies reporting difficulty in studying and loss of concentration in class (Mesele et al., 2022). The prevalence of dysmenorrhea among female undergraduate students is high, with studies reporting prevalence rates ranging from 56.4% to 80.1% (Hashim et al., 2020). Moreover, dysmenorrhea has been found to interfere with academic activities and overall quality of life (Alahakoon & Wickramarathne, 2021; Abreu-Sánchez *et al.*, 2020). In addition to these risk factors, lifestyle factors such as alcohol consumption have also been investigated in relation to dysmenorrhea risk among female college students (Yang et al., 2020). Furthermore, dietary habits have been associated with dysmenorrhea risk, with one study finding that female college students who rarely took breakfast had a higher risk of primary dysmenorrhea (Fitrianingsih & Santanu, 2021).

The impact of dysmenorrhea on college absenteeism has also been studied, with findings indicating that a significant proportion of students with dysmenorrhea frequently miss college and classes (Yesuf et al., 2018; Syed & Rao, 2020).

Cigarette smoking has been reported in literature as one of the modifiable risk factors for dysmenorrhea. Although women who smoke reported a range of more adverse reproductive outcomes than their non-smoking counterparts, the relationship between smoking and dysmenorrhea is still heterogeneous (Fernandez-Martinez et al., 2018). The prevalence of dysmenorrhea and hypertension has been attributed to numerous risk factors, such as population growth, aging, and behavioral factors, including poor nutrition, the disadvantages of drinking alcohol, cigarette smoking, physical inactivity,

overweight, and being exposed to ongoing stress (Ogunbamowo & Oladipupo, 2019). That is, some studies found that smokers were more likely to experience dysmenorrhea than non-smokers, whereas other studies reported that smokers were less likely to experience dysmenorrhea than non- smokers, and another study showed that smoking had no effect on dysmenorrhea. In addition, three studies (two conducted in Turkey and one conducted in Japan) did not find an association between smoking and dysmenorrhea among women (Seven et al., 2014).

Some studies found that a positive relationship between dysmenorrhea and drinking consumption. One study found that Dysmenorrhea, heavy menstrual flow, and premenstrual discomfort increased with drinking level and were particularly strongly associated with reported consumption of 6 or more drinks a day at least once a week. Another study has reported that one dose of alcohol affected the serum concentrations of all opregnanolone throughout the menstrual cycle, which might affect the occurrence of severe premenstrual syndrome and dysmenorrhea. However, there is no a significant relationship between alcohol use and dysmenorrhea (Midilli et al., 2015; Sznajder et al., 2014). The association between alcohol and dysmenorrhea remains a controversial issue. Therefore, it is necessary to evaluate whether and to what extent alcohol consumption is related to dysmenorrhea. Moreover, it has been reported that the age of menarche was significantly associated with dysmenorrhea among high-school students in Kuwait (Al- Matouq et al., 2019). Also, age at menarche (AAM) younger than 12 years was associated with risk factors of primary dysmenorrhea (Hu et al., 2020). Unfortunately, only a few studies have estimated the relationship between alcohol consumption, dysmenorrhea, and age at menarche.

Purpose of the Study

The study examined the prevalence and risk factors of dysmenorrhea among female undergraduates in Lagos State University. Specifically, the study:
1) assessed prevalence of dysmenorrhea among female undergraduates in Lagos State University.
2) examined smoking as risk factor for dysmenorrhea among female undergraduates in Lagos State University.
3) examined alcohol consumption as risk factor for dysmenorrhea among female undergraduates in Lagos State University.

Research Questions

The following research questions were answered for this study.

1) What is the prevalence of dysmenorrhea among female undergraduates in Lagos State University?
2) Will smoking be a risk factor of dysmenorrhea among female undergraduates in Lagos State University?
3) Will alcohol consumption be a risk factor of dysmenorrheal among female undergraduates in Lagos State University?

Research Hypotheses
The following null research hypotheses were postulated for the study:
1) There is no significant prevalence of dysmenorrhea and its risk factors among female undergraduates in Lagos State University.
2) Smoking is not a significant risk factor of dysmenorrhea among female undergraduates in Lagos State University.
3) Alcohol consumption is not a significant risk factor of dysmenorrhea among female undergraduates in Lagos State University.

Methods and Materials

Research Design

Descriptive survey research design was adopted, because it allows for the collection of data on a large number of participants in a relatively short period of time. In addition, it is an appropriate design for studies that aims to examine the prevalence and risk factors of dysmenorrhea among female undergraduates at Lagos State University (LASU) which is the main objective of this study.

Area of the Study

The study was conducted in Lagos State University in Ojo Local Government Area, Lagos. They are 8 faculties/schools in the main campus of Lagos State University which comprises of faculty of education, faculty of social science, school of transport, faculty management science, faculty of law, faculty science, faculty of arts and school of communication,

Population of the Study

The population of this study comprises of all female undergraduates in Lagos State University were selected from all the different departments and faculties/schools across the main campus of the institution.

Sample and Sampling Technique

A sample size of 300 students was selected. The multistage sampling technique was used to select the respondents. Simple random sampling technique was used for selection of five (5) faculties/schools out of eight (8) faculties/schools in the main campus were selected, such as faculty of education, faculty of social science, school of transport, faculty of science and school of communication. Purposive sampling technique was used in selecting the three hundred (300) female undergraduates from the five (5) faculties/schools, with sixty (60) students from each of the five faculties/schools.

Instrument for Data Collection

The research instrument used for this study was a self-developed questionnaire titled Prevalence and Risk Factor of Dysmenorrhea Questionnaire (PRFDQ). The questionnaire was divided into two sections: A and B. Section A contained demographic data of respondents, while section B consisted of items testing the stated hypotheses. The questionnaire will adopt a four-point modified Likert scale ranging from Strongly Agree (SA), Agree (A), Disagree (D), and Strongly Disagree (SD). The content, construct and face validity of the questionnaire was ascertained in the Department of Human Kinetics, Sports and Health Education by a panel of three experts for content, construct and criterion related validity to ensure a thoroughness which indicates that the instrument measures what it is intended to measure in relation to research questions and hypotheses.

The test-retest method of reliability was adopted. This requires the researcher to administer ten copies of the validated instruments to ten respondents in the faculty of Arts in Lagos State University to determine the reliability of the instrument. The reliability of the

instrument was tested using the Chronbach's alpha technique with r-value of 0.76.

Method of Data Collection

The copies of the questionnaire ~~was~~ were administered by the researcher personally with the help of two trained research assistants to the respondents in various selected faculties physically by adopting an on-spot technique where all questionnaires given are retrieved immediately. A total of three hundred (300) questionnaires were distributed to female undergraduates in Lagos State University with sixty (60) respondents from each of the selected faculties. Daily review meeting was held at the beginning and end of each day with the research assistants.

Data Analysis Technique

Data collected was analyzed using descriptive statistic of frequency counts and percentage while inferential statistics of Chi-square was used to analyze all stated hypotheses The Statistical Package for Social Sciences (SPSS version 23) was used for analyzing the data collected.

Results

Table:1   Chi-Square   result   on   Prevalence   of   Dysmenorrhea   Among   Female Undergraduates of Lagos State University

RESPONSES	FRQ	%	DF	LS	Cal X^2	P value	RMK
SA	129	43.0					
A	88	29.33					
D	43	14.33	12	0.05	117.23	0.000	Sig
SD	40	13.34					
TOTAL	300	100.0					

Table 1 reveals the data collected from the respondents on hypothesis one. It shows that 43.0% of the respondents strongly agreed while 29.33% respondents agreed, 14.33% respondents disagreed, and 13.34% respondents strongly disagreed to the items. However, it further reveals a calculated X^2 value of 117.23 which is statistically not significant at p= 0.000<0.05 at 12^0 of freedom, hence the rejection of the null hypothesis. It therefore implies that there was significant prevalence of dysmenorrhea among female undergraduates in Lagos State University.

Table 2: Chi-Square result on smoking as risk factor of dysmenorrhea among female undergraduates in Lagos State University.

RESPONSES	FRQ	%	DF	LS	Cal X^2	P value	RMK
SA	9	3.0					
A	93	31.0					
D	196	65.33	12	0.05	176.83	0.061	Sig
SD	2	0.7					
TOTAL	300	100.0					

Table 3 reveals the data collected from the respondents on hypothesis two. It shows that 3.0% of the respondents strongly agreed while 31.0% respondents agreed, 65.33% respondents disagreed, and 2.0% respondents strongly disagreed to the items. However, it further reveals a calculated X^2 value of 176.83 which is statistically not significant at p= 0.061>0.05 at 12^0 of freedom, hence the acceptance of the null hypothesis. It therefore implies that smoking was not a significant risk factor of dysmenorrhea among female undergraduates in Lagos State University.

Table 3: Chi-Square result on alcohol consumption as risk factor of dysmenorrhea among female undergraduates in Lagos State University

RESPONSES	FRQ	%	DF	LS	Cal X²	P value	RMK
SA	217	72.33					
A	54	18.0					
D	7	2.33	12	0.05	109.88	0.000	Sig
SD	22	7.34					
TOTAL	300	100.0					

Table 3 reveals the data collected from the respondents on hypothesis three. It shows that 72.33% of the respondents strongly agreed while 18.0% respondents agreed, 2.33% respondents disagreed and 7.34% respondents strongly disagreed to the items. However, it further reveals a calculated X^2 value of 109.88 which is statistically significant at p= 0.000<0.05 at 12^0 of freedom, hence the rejection of the null hypothesis. It therefore implies that alcohol consumption will be a significant risk factor of dysmenorrhea among female undergraduates in Lagos State University.

Discussion

Hypothesis one which stated that there is no significant prevalence of dysmenorrhea among female undergraduates of Lagos State University was rejected, indicating that there was significant prevalence of dysmenorrhea among female undergraduates in Lagos State University. This finding is in agreement with Azagew et al., (2020) who similarly conducted a study in Ethiopia and reported a prevalence of 64.7% among female students. This finding also corroborates with a study in Ghana which found a high prevalence of dysmenorrhea among female university students, negatively affecting their daily activities (Ameade et al., 2018). This result is also in tandem with Fernández Martínez et al., (2019) who reported a study in Spain and found a high prevalence of dysmenorrhea (76.5%) among university students. These findings indicate a consistent pattern of high prevalence of dysmenorrhea among female undergraduate students across different countries. Moreover, the impact of dysmenorrhea on academic performance has been highlighted in several studies. A study in Eastern Ethiopia found that dysmenorrhea had a high impact on academic performance among undergraduate female students (Mesele et al., 2022). Similarly, a study in Nigeria revealed a significant contribution of dysmenorrhea to school absenteeism among undergraduate students (Ezebialu et al., 2021). Additionally, a study in Pakistan reported a high prevalence of dysmenorrhea and its impact on academic performance among undergraduate students (Abid et al., 2020). These findings

underscore the adverse effects of dysmenorrhea on the academic endeavors of female undergraduates.

Hypothesis two states that smoking is not a significant risk factor of dysmenorrhea among female undergraduates in Lagos State University was accepted, indicating that smoking was not a significant risk factor of dysmenorrhea among female undergraduates in Lagos State University. This finding is in agreement with a study reported by Fernández-Martínez et al. (2018) who reported no significant differences for establishing tobacco smoking as a risk factor for dysmenorrhea. Furthermore, a study by Wong & Khoo (2009) found no association between the severity of dysmenorrhea and cigarette smoking. However, conflicting findings have also been reported. A study by Al-Husban et al., (2022) found that the relative risk of dysmenorrhea was increased by smoking. Additionally, a study by Mesele et al. (2022) identified smoking as one of the associated factors with dysmenorrhea. These studies suggest a potential link between smoking and dysmenorrhea among female undergraduate students. For example, a study by Ju et al. (2013) found inconclusive evidence for modifiable factors such as cigarette smoking as a risk factor for dysmenorrhea. These findings indicate a lack of consensus regarding the role of smoking as a significant risk factor for dysmenorrhea among female undergraduate students.

Hypothesis three states that alcohol consumption will not be a significant risk factor of dysmenorrhea among female undergraduates in Lagos State University was rejected, indicating that alcohol consumption will be a significant risk factor of dysmenorrhea among female undergraduates in Lagos State University. This finding is in agreement with the study by Yang et al., (2020) who found that participants with alcohol consumption at least once a week were more likely to have dysmenorrhea, indicating a potential association between alcohol consumption and dysmenorrhea. Furthermore, a study by Onieva-Zafra et al., (2020) concluded that alcohol consumption influences menstrual pain, suggesting a potential link between alcohol consumption and dysmenorrhea. Additionally, a study by Hernanto & Polim (2022) found that alcohol consumption history poses a great risk in increasing the intensity of dysmenorrhea, further supporting the potential association between alcohol consumption and dysmenorrhea. However, it is important to note that some studies have reported inconsistent or inconclusive findings regarding the association between alcohol consumption and dysmenorrhea. For example, a study by Hahn et al., (2013) found inconsistent associations between high alcohol consumption and menstrual patterns. Similarly, a study by Midilli et al., (2015) mentioned alcohol consumption as a factor potentially affecting dysmenorrhea, but did not provide conclusive evidence of its association.

Conclusion

Based on the findings of this study, it was concluded that: there was significant prevalence of dysmenorrhea among female undergraduates of Lagos State University. Smoking was not a significant risk factor of dysmenorrhea among female undergraduates in Lagos State University. Alcohol consumption was a significant risk factor of dysmenorrhea among female undergraduates in Lagos State University.

Recommendations

Based on the conclusion of this study, it was recommended that;:

1) Health educators should implement health promotion and screening programs to raise awareness about dysmenorrhea, its risk factors, and management strategies among female undergraduates.

2) The government should introduce stress management courses to help students cope with the emotional and psychological impact of dysmenorrhea, which has been reported as a significant outcome of the condition.

3) The government should incorporate menstrual health education into the curriculum to address irregular menstrual cycles and their potential impact on dysmenorrhea.

4) Female undergraduates should understand the basics of dysmenorrhea, including its types (primary and secondary), causes, and symptoms. This knowledge will help them better manage and address on their own situation.

5) They should keep track of their menstrual cycles and note the severity and duration of their menstrual pain. This information can help them identify patterns and potential triggers.

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