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Causes and Implications of Dysmenorrhea Among Female Undergraduates at the University of Ilorin, Kwara State, Nigeria

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Abstract
Dysmenorrhea is a difficult or painful menstruation, in which majority of women experience some degree of cramping. This study examined the causes and implications of dysmenorrhea among female undergraduates in University of Ilorin, Nigeria. The study inspected if, overweight is a cause of dysmenorrhea and anxiety is an implication of dysmenorrhea among female undergraduates. The study population comprised female undergraduates (12, 016). A multistage sampling technique consisting of stratified, proportionate, and accidental sampling was used to select (288) respondents. A validated and reliable questionnaire was used for data collection. A correlation coefficient of 0.76r was obtained through split-half method using Cronbach Alpha. The demographic data was analyzed using descriptive statistics, while inferential statistics were used to analyze the null hypotheses. The findings revealed that overweight is a cause of dysmenorrhea with the cal. x^2 value of 67.73 > the critical value of 21.03 at df 12 @ 0.05 alpha, and anxiety is an implication of dysmenorrhea with the cal. x^2 value of 27.59 > the critical value of 21.03 at df 12 @ 0.05 alpha level. The study concluded that the management should organize regular seminars, health talks, and counsel about weight and mental health maintenance to cope with dysmenorrhea.

Keywords: Menstrual cycle; Adolescents; Dysmenorrhea; Anxiety; Overweight; Nigeria

1. Introduction

Menstruation is a normal physiological process that continues throughout women childbearing years accompanied by a range of aches and discomforts. The menstrual cycle is the main indicator of reproductive and endocrine wellbeing and any abnormalities – disrupted cycles, heavy flow, and intense premenstrual pain – might indicate a lack thereof. One of such conditions is dysmenorrhea, the condition defined by painful menstruation and that greatly affects the general and reproductive health of lots of women (Shandily et al., 2024).

Dysmenorrhea usually develops at adolescence and becomes more common in the teenage years (De Sanctis et al., 2016). It is a primary reason for school absenteeism and poor quality of lives of female students reported as absenteeism 25-49% (Agarwal & Agarwal, 2010). In spite of the prevalence, many adolescents suffer menstrual pain silently believing it to be normal part of a menstrual cycle and delaying or refusing consultation with medical doctor. As cramping or pain in the lower abdomen when menstruation persists, dysmenorrhea maybe accompanied by dizziness, fatigue, nausea, vomiting,

diarrhea, backache and headaches (Gutman et al., 2022). Although not a major medical concern, it severely affects physical, mental and social wellbeing, frequently disrupting normal daily life and scholastic pursuits.

The intensity of dysmenorrhea is diverse – from mild to a crippling pain inhibiting the activities of girls for several days – three to four-day – monthly. Symptoms tend to appear one or two days before menstruation, reach its maximum within the first day (24 hours) and eventually diminish over the course of the following days (Itani et al., 2022). Still, a significant number of adolescents, particularly the new menarches, may not get immediate pain because often the illness progresses several years after menarche (Grover et al., 2019). Research has shown that afflicted adolescents often ignore medical advice, preferring to use over the counter medicines or ineffective remedies, frequently because of cultural beliefs that endow pain with a normal menstrual experience (Izzo et al., 1991; Jaafarpour et al., 2015). Fear of side effects, fertility, and stigma scare them away from attending professionals. Education and counseling, particularly, by family physicians and school staff, is thus crucial in directing appropriate management of menstrual pain.

Although there are two classes of dysmenorrhea, primary (unrelated to any organic disease) and secondary (caused by underlying conditions), the disease is considered secondary dysmenorrhea only when the pain is facilitated by underlying diseases or conditions. Diagnostic criteria for it are characterized by the appearance of pelvic pain within 6–12 hours of menstruation; duration between 6–72 hours, typically, with associated systemic symptoms such as nausea and diarrhea

(Harel & gynecology, 2006). The name of the condition, from Greek, it is translated as “difficult monthly flow”, which comes from the periodic and recurring character of this condition (Wong et al., 2009). Its precise mechanism is unknown though, whereas it has been revealed as one of the main causes that there is enhanced development of prostaglandins from the uterus- they stimulate contractions and shedding of the uterus lining (Chandel et al., 2024). Factors other than those include heredity, early menarche, high body mass index (BMI), smoking, pelvic infections, psychological distress, and use of intrauterine devices (Sai et al., 2024).

Through apart from physical symptom, dysmenorrhea may lead to dangerous psychological and social effects like anxiety, depression, poor concentration, lowered consumption in academics and extracurricular activities (Titilayo et al., 2009). It is therefore considered a public health problem of great concern in adolescent girls and not just fertility but quality of life (Harlow et al., 1996). With all the assorted factors that lead to dysmenorrhea, two major variants, overweight and anxiety have come out as great ones. Overweight that is often assessed by BMI has been associated with a range of reproductive health complication including dysmenorrhea, resulting from hormonal imbalances and heightened inflammation (Svidinskaya et al., 2022). Anxiety which is a common psychological disorder among young adults is found to make the feeling and effects of pain worse thus, aggravating menstrual discomfort (Gagua et al., 2013; Sahin et al., 2018). It is important to understand the interaction of the physical and psychological factors in tackling dysmenorrhea in an overall way. Given that this study was conducted to find the causes and consequences of dysmenorrhea among university undergraduates, women specifically, at University of Ilorin, paying a particular attention to an expanding weight and anxiety. This study was aimed at investigating overweight as a contributory factor to dysmenorrhea and anxiety, as an implication; among female undergraduates of the University of Ilorin, Nigeria. Knowledge of such associations is important to enhancing health education and clinical care in addition to well-being among this population.

1.1. Research Question

To direct this study, the following Research Questions were asked: Are dysmenorrhea a contributory factor to overweight in female undergraduates at the University of Ilorin? and Does anxiety have an implication to female undergraduates at the University of Ilorin?

1.2. Hypothesis

The following null research hypotheses were tested:

- Overweight will not significantly be the cause of dysmenorrhea among female undergraduates in University of Ilorin.
- Anxiety will not significantly be the cause of dysmenorrhea among female undergraduates in University of Ilorin.

2. Methodology

2.1. Research Design

This research used descriptive survey design research in which data were systematically collected and analyzed to describe the current states. The design was considered appropriate; it facilitates the explicit demonstration of characteristics, behavior, and condition of a particular population – here female undergraduates of the University of Ilorin.

2.2. Population and Sampling Technique

The pool for this study consisted of all female undergraduate students of the University of Ilorin- Ilorin in Nigeria. In girls- (SA, 2017), the total of undergraduate adolescent girls at the time of study was 12,016. The sampling technique undertaken was multi staged.

- Stage One (Stratified Sampling): Five (5) faculties were sampled using stratified setting where faculties were viewed as strata. Systematic random sampling of every third faculty was used; five were therefore selected.
- Stage Two (Proportionate Sampling): A proportional sample of 10% for female undergraduates was taken from each selected faculty-(92 from Education, 48 from Life Sciences, 89 from Agriculture, 34 from Social Sciences, and 25 from Physical Sciences); a total of 288 respond
- Stage Three (Accidental Sampling): The final selection of respondents was conducted using the accidental sampling (convenience), through which the researcher conducted the questionnaire to willing participants at the researcher's convenience at the assigned time.

2.3. Research Instrument

A structured questionnaire developed by the researcher has been used in data collection. The instrument was developed from a review of relevant literature and consisted of two parts.

- Section A: Collected demographic information.
- Section B: Measured consciousness regarding the causes and effect of dysmenorrhea among female undergraduates.

Responses to section B are recorded on a four-point Likert scale. Strongly Agree (4 points), Agree (3 points), Disagree (2 points), Strongly Disagree (1 point). Likert scale permits the respondents to convey how they agree or disagree with each item regarding the degree of intensity.

2.4. Validity and Reliability

In order to obtain content and face validity, the questionnaire was examined by three experts in the Department of Health Promotion and Environmental Health Education at the University of Ilorin. Drawing from the supervisor's recommendation and participants feedback, appropriate changes were made.

Determination of reliability for the instrument was done using the method of split-half. 20 respondents (outside the study area - secondary schools in Ilorin South Local Government Area) were administered the questionnaire. Each participant was seen 2 weeks apart, then responses were correlated using the Pearson Product Moment Correlation (PPMC) method, to give a reliability coefficient of r = 0.76, implying an acceptable level of reliability.

2.5. Ethical Considerations

No one's rights, dignity, and privacy were violated. The participation was voluntary and privacy of collected data attained. The researcher and the trained assistants were ethical in the administration.

2.6. Data Collection and Analysis

Distribution and collection of these questionnaires were carried out by the researcher using two trained research assistants. Completed questionnaires were sorted, coded and entered into data analysis. Demographic statistics were analyzed using descriptive statistics (frequency counts and percentages). The research questions were answered through the use of percentile analysis. SPSS version 23.0 was used to do chi-square (χ^2) tests at a 0.05 level of significance in order to test the null hypotheses.

3. Results

3.1. Hypotheses Testing

Two null hypotheses were tested for this study.

3.1.1. Hypothesis One

Overweight will not significantly be the cause of dysmenorrhea among female undergraduates in University of Ilorin, Ilorin, Nigeria.

From the analysis of responses concerning the association between overweight and dysmenorrhea among female undergraduates in the University of Ilorin strong relationship between responses corroborating statements on the relation between overweight and menstrual pain was determined. More specifically, 41.7% strongly agreed and 30.2% agreed that female adolescents having a BMI between 25-30 are more prone to menstrual pain; 19.8% disagreed and 8.3% strongly disagreed. In relation to overweight and the negative reproductive health outcomes, 39.9% would strongly agree and 47.2% would agree while 11.5% disagreed and only 1.4% strongly disagreed. Similarly, when asked if one is overweight if it is a risk factor for painful menstruation, 29.2% strongly agreed whereas 32.3% agreed, 27.8% disagreed whereas 10.7% strongly disagreed. The chi-square test statistic of this statement obtained value of 67.73 which is greater than critical value of 21.03 at freedom 12 thus H_0 is rejected indicating a statistically significant association between dysmenorrhea and overweight. Also 35.1% and 37.5% of respondents strongly agreed and agreed that overweight is very much a key driver to health loss in Nigeria, 20.8% disagreed and 6.6% strongly disagreed. Finally, 27.8% strongly agreed; and 39.6% agreed that almost half of female adolescents suffer abnormal BMI that causes menstrual pain prevalence, whereas 25.0% and 7.6% disagreed and strongly disagreed, correspondingly (**Error! Reference source not found.**). All these findings collectively strengthen the strong relationship that exists between dysmenorrhea and overweight in this studied population.

Table 1. Chi-square analysis showing the characteristics of overweight as a cause of dysmenorrhea P<0.05 alpha level.

SN	Statement	SAF%	AF%	DF%	SDF%	Row Total	Cal X2	Df	Crit. Value	Decision
1	Female adolescents that fall within the Body Mass Index (BMI) of 25 to 30 are susceptible to menstrual pain	120 (41.7)	87 (30.2)	57 (19.8)	24 (8.3)	288 (100)				
2	Overweight has been associated with multiple adverse reproductive health outcomes	115 (39.9)	136 (47.2)	33 (11.5)	4 (1.4)	288 (100)				
3	Being overweight is a risk factor for experiencing painful menstruation	84 (29.2)	93 (32.3)	80 (27.8)	31 (10.7)	288 (100)	67.73	12	21.03	H0 Rejected
4	Overweight is one of the leading contributors to health loss in Nigeria	101 (35.1)	108 (37.5)	60 (20.8)	19 (6.6)	288 (100)				
5	Half of the female adolescents had abnormal BMI which make menstrual pain to be prevalent	80 (27.8)	114 (39.6)	72 (25.0)	22 (7.6)	288 (100)				
	Column Total	500 (34.7)	538 (37.4)	302 (21.0)	100 (6.9)	1440 (100)				

3.1.2. Hypothesis Two:

Anxiety will not significantly be an implication of dysmenorrhea among female undergraduates in University of Ilorin, Ilorin, Nigeria.

From the findings of the study, there was strong association between dysmenorrhea and anxiety in female undergraduates, in the University of Ilorin. Most respondents strongly (45.8%) agreed (38.9%) that menstrual pain may greatly impact the mental health and social life of an individual whereas, 11.1% of them disagreed and 4.2% strongly disagreed. In addition, 36.1% strongly agreed while 48.3% agreed that

anxiety is the most common psychiatric disorder that co- exists with pain and a lower disagreeing proportion of 12.5% and 3.1% strongly disagreeing. When asked whether anxiety improves the impact of menstrual pain on the subjects' social and occupational functions and minimizes the chances of responding to medical treatment, 41.7% strongly agreed, 38.5% agreed, 17.4% disagreed whereas 2.4% strongly disagreed. The chi-square test for this item has calculated 27.59, which is higher than the critical value (21.03) at 12 degrees of freedom thus rejecting (H_0) and indicating a significantly statistically relationship between anxiety and implications of dysmenorrhea. In addition, 37.2% cast their strong agreement and 39.6% agreed that emotional and behavioral problems make painful menstruation likely, while 16.1% disagreed and 7.3% strongly disagreed. Likewise, 39.2% strongly agreed and 37.8% agreed that the chance of menstrual pains is increased in persons with increased levels of anxiety (**Error! Not a valid bookmark self-reference.**). These results confirm the important role of anxiety in this phenomenon among undergraduate women.

Table 2. Chi-square analysis shows the characteristics of anxiety as an implication of dysmenorrhea P<0.05 alpha level.

SN	Statement	SAF%	AF%	DF%	SDF%	Row Total	Cal X2	Df	Crit. Value	Decision
1	Menstrual pain can affect the mental health and social life of an individual	132 (45.8)	112 (38.9)	32 (11.1)	12 (4.2)	288 (100)				
2	Anxiety is the most common psychiatric disorder associated with pain	104 (36.1)	139 (48.3)	36 (12.5)	9 (3.1)	288 (100)				
3	Anxiety enhances the effect of menstrual pain on social and Occupational functionality and decreases the likelihood of response to medical therapy	120 (41.7)	111 (38.5)	50 (17.4)	7 (2.4)	288 (100)	27.59	12	21.03	H0 Rejected
4	Emotional and behavioral problems increase the risk of painful menstruation	107 (37.2)	114 (39.6)	46 (16.1)	21 (7.3)	288 (100)				

5	The likelihood of menstrual pain was shown to be higher among cases with higher levels of anxiety	113 (39.2)	109 (37.8)	45 (15.7)	21 (7.3)	288 (100)				
	Column Total	**576 (40.0)**	**585 (40.6)**	**209 (14.5)**	**70 (4.9)**	**1440 (100)**				

4. Discussion

Responding to the research question one majority of respondents stated that overweight is a major cause of dysmenorrhea amongst female undergraduates in the University of Ilorin, Ilorin, Nigeria. Hypothesis one was therefore rejected, to indicate that overweight does play a very important role in this population with regard to dysmenorrhea. This finding is in line with previous studies which highlights different factors as causes of dysmenorrhea. These are heredity, ovarian cysts, fibroids, Pelvic Inflammatory Disease (PID), the use of intrauterine devices (IUDs), excess levels of prostaglandins, younger age, high body mass index (BMI), smoking, early menarche, long menstrual flow, pelvic infections, psychological disturbance, and genetic influence (Rani et al., 2024; Sherazi & Bukhari, 2018). In the same way, Ozerdogan (2009) observed that the dysmenorrhea is a usual reason for sickness and absence from classes and work among women students, frequently caused by heredity and overweight, etc.

Moreover, for research question two, majority of the respondents agreed that; anxiety was a major implication of dysmenorrhea among female undergraduates in the University of Ilorin. Consequently, hypothesis two was also not supported – indicating that anxiety is a significant outcome of dysmenorrhea in this group. Previous studies supported our work who noted that dysmenorrhea has negative effects on school performance with problems of decreased concentration, school absenteeism, anxiety, depression, and limited sports participation (Derseh et al., 2017; Femi-Agboola et al., 2017; Hailemeskel et al., 2016). It was discovered that dysmenorrhea negatively influences the social as well as the academic life of an open student (Fernández-Martínez et al., 2020). Similarly, Mishra (2014) reported that anxiety increases the effects of menstrual pain on social and occupational functioning as well as it decreases prospects for positive response to medical treatment (Alonso & Coe, 2001; Jones et al., 2014). Such results are also supported by the findings of Harada (2013), who notes that disorders of menstruation are a serious health problem in adolescent girls and that not only future fertility is at stake but the health of the mind and the quality of life (Kadir et al., 2010). This study highlights the significance of maintaining a healthy weight and mental well-being as sensitive and supportive measures for managing dysmenorrhea. Our results emphasize the necessity of implementing institution-specific interventions within university health systems to ensure a comprehensive approach to addressing dysmenorrhea in the student population.

5. Conclusion

The causes and implication on dysmenorrhea among female undergraduates at the University of Ilorin particularly overweight and anxiety were examined in this study. As evidenced by the findings, overweight is a major causative factor of dysmenorrhea since many respondents related high BMI to elevated menstrual discomfort. In addition, anxiety also emerged as a major implication of dysmenorrhea, with negative impacts on such students' social, academic and emotional well-being. The results affirm extant

literature on menstrual pain emphasizing the relationship between both physiological and psychological factors thereof, indicating the complexity of interrelation between physical health and mental health among female adolescents.

While all, the research emphasizes the need of creating awareness concerning the healthy lifestyle practices like weight management and mental health support as perceptive and supportive techniques for dealing with dysmenorrhea. It also indicates the need for institution specific interventions in this regard within University health systems for purposes of holistic management of the issues. Future study can delve more into the roles of other contributing factors including genetics, nutrition and stress management in dysmenorrhea commonness and intensity.

References

1. Agarwal, A. K., & Agarwal, A. J. I. j. o. c. m. (2010). A study of dysmenorrhea during menstruation in adolescent girls. 35(1), 159-164.
2. Alonso, C., & Coe, C. L. J. H. P. (2001). Disruptions of social relationships accentuate the association between emotional distress and menstrual pain in young women. 20(6), 411.
3. Chandel, S., Das, S., Ojha, S., & Pandey, M. (2024). Hormonal imbalances and genetic factors in menstrual cycle irregularities (Women's Health: A Comprehensive Guide to Common Health Issues in Women (pp. 101-128). Bentham Science Publishers.
4. De Sanctis, V., Soliman, A. T., Elsedfy, H., Soliman, N. A., Elalaily, R., & El Kholy, M. J. A. B. M. A. P. (2016). Dysmenorrhea in adolescents and young adults: a review in different countries. 87(3), 233.
5. Derseh, B., Afessa, N., Temesgen, M., Semayat, Y., Kassaye, M., Sieru, S., & Ketsela, K. J. J. o. W. s. H. C. (2017). Prevalence of dysmenorrhea and its effects on school performance: a cross-sectional study. 6(2), 361.
6. Femi-Agboola, D. M., Sekoni, O. O., & Goodman, O. O. J. N. M. J. (2017). Dysmenorrhea and its effects on school absenteeism and school activities among adolescents in selected secondary schools in Ibadan, Nigeria. 58(4), 143-148.
7. Fernández-Martínez, E., Abreu-Sánchez, A., Velarde-García, J. F., Iglesias-López, M. T., Pérez-Corrales, J., Palacios-Ceña, D. J. I. J. o. E. R., & Health, P. (2020). Living with restrictions. The perspective of nursing students with primary dysmenorrhea. 17(22), 8527.
8. Gagua, T., Tkeshelashvili, B., Gagua, D., Mchedlishvili, N. J. J. o. p., & gynecology, a. (2013). Assessment of anxiety and depression in adolescents with primary dysmenorrhea: a case-control study. 26(6), 350-354.
9. Grover, S. R. J. B. P., Endocrinology, R. C., & Metabolism. (2019). Gynaecology problems in puberty. 33(3), 101286.
10. Gutman, G., Nunez, A. T., Fisher, M. J. C. P. i. P., & Care, A. H. (2022). Dysmenorrhea in adolescents. 52(5), 101186.
11. Hailemeskel, S., Demissie, A., & Assefa, N. J. I. j. o. w. s. h. (2016). Primary dysmenorrhea magnitude, associated risk factors, and its effect on academic performance: evidence from female university students in Ethiopia. 489-496.
12. Harel, Z. J. J. o. p., & gynecology, a. (2006). Dysmenorrhea in adolescents and young adults: etiology and management. 19(6), 363-371.

13. Harlow, S. D., Park, M. J. B. A. I. J. O. O., & Gynaecology. (1996). A longitudinal study of risk factors for the occurrence, duration and severity of menstrual cramps in a cohort of college women. 103(11), 1134-1142.
14. Itani, R., Soubra, L., Karout, S., Rahme, D., Karout, L., & Khojah, H. M. J. K. j. o. f. m. (2022). Primary dysmenorrhea: pathophysiology, diagnosis, and treatment updates. 43(2), 101.
15. Izzo, A., Labriola, D. J. C., obstetrics, e., & gynecology. (1991). Dysmenorrhoea and sports activities in adolescents. 18(2), 109-116.
16. Jaafarpour, M., Hatefi, M., Najafi, F., Khajavikhan, J., & Khani, A. J. I. R. C. M. J. (2015). The effect of cinnamon on menstrual bleeding and systemic symptoms with primary dysmenorrhea. 17(4), e27032.
17. Jones, M., Hockey, R., Mishra, G. D., & Dobson, A. J. B. M. R. M. (2014). Visualising and modelling changes in categorical variables in longitudinal studies. 14, 1-8.
18. Kadir, R., Edlund, M., & Von Mackensen, S. J. H. (2010). The impact of menstrual disorders on quality of life in women with inherited bleeding disorders. 16(5), 832-839.
19. Rani, V. I., Dash, B., Lal, M. N., Bagchi, S., Aruna, V., & Prabha, K. S. J. U. M. (2024). Dysmenorrhea and recent treatment options in adolescents and young adults. 43(3), 349-362.
20. Sahin, N., Kasap, B., Kirli, U., Yeniceri, N., & Topal, Y. J. R. h. (2018). Assessment of anxiety-depression levels and perceptions of quality of life in adolescents with dysmenorrhea. 15, 1-7.
21. Sai, B., Mahaparale, S. J. I. J. A., & Vol, P. B. (2024). Review on various disorders of the female reproductive system. 39(3), 1547-1556.
22. Shandily, S., Singh, A., & Mathur, N. (2024). Menstrual Cycle and Common Menstrual Problems (Women's Health: A Comprehensive Guide to Common Health Issues in Women (pp. 44-73). Bentham Science Publishers.
23. Sherazi, M. H., & Bukhari, U. J. T. O. S. C. E. R. (2018). Common Gynecology and Obstetric Symptoms for the Objective Structured. 323.
24. Svidinskaya, E. A., Ageev, M. B., Paleeva, N. V., Mukhaeva, V. A., Sosnova, E. A. J. V. S. A. o. O., & Gynecology. (2022). Menstrual dysfunction in adolescent girls who are overweight: a literature review. 9(2), 93-102.
25. Titilayo, A., Agunbiade, O., Banjo, O., & Lawani, A. J. T. j. o. h. r. (2009). Menstrual discomfort and its influence on daily academic activities and psychosocial relationship among undergraduate female students in Nigeria. 11(4).
26. Wong, C. L., Farquhar, C., Roberts, H., & Proctor, M. J. C. d. o. s. r. (2009). Oral contraceptive pill as treatment for primary dysmenorrhoea. (2).