

Investigating the Prevalence and Impacts of Dysmenorrhea on Daily Activities among Undergraduate Students in Weaver Street, Paynesville

James D. Sinnatwah,^{1*} Forkpah Pewee¹, Emmanuel T. Glasco²

¹Straz-Sinje Public Health Program, University of Liberia, Sinje, Liberia

²Department of Public Health, University of Liberia, Fendall, Liberia

Abstract

One of the most common health conditions worldwide, and even in young women, is dysmenorrhea, or painful menstruation. The objectives of this study were to establish the level of how widespread dysmenorrhea is (prevalence) and its impacts on undergraduate female students in Weaver Street, Paynesville. The cross-sectional design was used on 383 Weaver Street student residents to carry out the study. Data was gathered to evaluate the prevalence of dysmenorrhea, its effect on daily activities, and its accompanying signs and coping strategies, such as self-treatment and hospital visits. Statistical analysis was carried out using descriptive statistics and the Chi-square test for determining correlations. About 75.46% of the sample reported moderate to severely bad discomfort (26.9% moderate, 22.7% bad, and 25.8% very bad), indicating significant prevalence of dysmenorrhea. The severity of dysmenorrhea and its impact on daily activities were statistically significantly related ($\chi^2=9.46$, $df=3$, $p=0.024$). The proportion who reported an effect was 59.6% for mild dysmenorrhea, but declined for moderate (46.6%) and severe (37.9%) before rising again for very severe cases (53.5%). Approximately 49% of the students reported self-medicating, and 46% visited the hospital. Restlessness (38%) and mood change (38%) were prevalent concomitant symptoms. Dysmenorrhea is a medical condition that interferes with daily life in female undergraduate residents in Paynesville. There is a need for focused health interventions and improved support systems at schools and the various communities due to the high incidence of dysmenorrhea, its interference with daily activities, and widespread use of self-medication.

Keywords: Dysmenorrhea, Daily Activities, Impacts of Dysmenorrhea, Prevalence of Dysmenorrhea, Severity of Dysmenorrhea.

Background and Rationale

Menstruation is a natural aspect of a biological woman's reproductive cycle and may entail some level of discomfort or soreness. Generally, this soreness does not hinder women from engaging in their day-to-day activities. Despite this, many experience much more severe pain known as dysmenorrhea or painful menstruation. This condition is one of the most frequent reasons adolescents and women consult gynecologists, with almost 90% of women who have the potential to conceive being affected [8, 10].

Dysmenorrhea refers to painful menstrual cramps that occur during a woman's period. It is usually classified into two major types [7]. The first one is Primary Dysmenorrhea (PD), the most common form that implies there is no particular problem or disease in the pelvic region associated with the pain (Kho & Shields, 2020). It typically begins in the adolescence, within a year or two of their first menstruation [13, 18, 19]. The second type is Secondary Dysmenorrhea (SD), which means the discomfort arises from a real pathological

condition in the pelvis, such as endometriosis or fibroids.

For some women, dysmenorrhea both before and during their cycles may evoke potent cramps in the lower belly. Pain can also occur with other distressing symptoms like headaches, dizziness, diarrhea, abdominal distension, nausea, vomiting, back pain, each limb pain, and deep body aches [1, 2, 5, 10, 19]. In fact, over 80% of women report experiencing some form of dysmenorrhea, confirming it is the most common gynecological disorder in the world [20].

Like many conditions pain can differ from person to person—dysmenorrhea can be a mild ache or pain to the point of incapacitation. Some women may also exhibit associated symptoms such as headaches, nausea, vomiting, diarrhea, fatigue (severe tiredness) and dizziness. This paper reports about physical ailments, but emotional suffering, particularly that which arises from missing school or work leads to considerable impact on a woman's life. This restriction predisposes women to a lower participation in their daily activities, which leads to a decreased overall wellbeing [9, 19].

Dysmenorrhea, or painful periods, is a widespread problem that affects women all over the world. Depending on where the study was done and how dysmenorrhea was defined and quantified, research indicates that between 50% and 90% of women may experience its effects [8, 11, 15, 17, 20]. This indicates that over half of all women, regardless of age, go through difficult times. The actual figures differ significantly between nations; Japan has a lower rate (15.8%), but the United States (85.0%), Australia (88.0%), Nigeria (83.1%), Ethiopia (85.1%), and India (79.7%) all have far greater rates [27].

Specifically in Africa, the rates of Primary Dysmenorrhea (painful periods without an underlying medical cause) also show a wide range, from about 51.1% to as high as 88.1% in Sub-Saharan Africa [11, 12, 17]. For

example, studies have shown rates as high as 92.96% in Egypt and around 82.9% among university students in Iran, while Sweden reported 61% among young women [20].

The widespread presence of dysmenorrhea has a significant impact on public health. It's a major reason why women and girls miss school and work, which can lead to higher healthcare costs and reduce overall productivity. It also greatly lowers the daily quality of life for those affected [8, 21]. Despite how common and impactful it is, many studies reveal that women often don't seek medical help or professional advice for their dysmenorrhea, and they might not even know about other effective therapies [8, 17].

In Liberia, especially in busy city areas like Paynesville, young women, particularly those who are university students living away from their families, often deal with unique difficulties when trying to manage their period pain (dysmenorrhea). These challenges can come from the stress of their studies, not having a lot of money, and possibly not having enough help or support from others. Because of this, our study focuses on understanding how period pain actually affects the daily activities of undergraduate young women living in Weaver Street, Paynesville.

Research Method

Study Design

The study employed a descriptive cross-sectional design to investigate the prevalence and effects of dysmenorrhea among undergraduate students living in Weaver Street, Paynesville. For this study, the researchers used a probability-based stratified random sampling method. Female undergraduate residents were divided into different subgroups, such as academic status in college/university and age group (between 12-44). Furthermore, participants were randomly selected from each group (strata) of female undergraduate residents for survey from the Weaver Street community in Paynesville. The inclusion

criteria were undergraduate female residents aged 18-25 years, who have experienced menarche, and who provided informed consent. The exclusion criteria are women who are 45 and above in age, pregnant individuals, or those unwilling to participate. The study population consisted of all female undergraduate residents living in the Weaver Street community from January to May 2025. This defined period ensured that every eligible participant had an equal opportunity to be included in the study.

Sample Size

The research focused on 383 female undergraduate residents who experienced dysmenorrhea during their monthly periods while engaged in their academic activities. Since the total population size was unknown, the sample size was calculated using the standard formula for an infinite population: $n = Z^2 * P (1-P) / E^2$. To determine the sample size for the survey, the study assumed a population proportion/percentage picking a response (P) of 50% (0.5), used a standard normal deviation at 95% (1.96) confidence level, and applied a 1% (0.01) margin of error. This approach yielded a sample size of 383 participants for the survey.

Data Collection Procedure and Instrument

Informed consent forms were filled out by each participant at the beginning of the survey. After obtaining informed consent, data was collected using a self-administered, predesigned, and pretested questionnaire. Participants completed the questionnaire within 15–20 minutes, and responses were collected immediately. The questionnaire gathered information on menstrual cycle patterns and details of dysmenorrhea (defined as menstrual pain significant enough to disrupt daily activities). It also assessed the impact of dysmenorrhea on various daily activities. The data collected were then processed and prepared for analysis.

Data Analysis

The data collected from the study were cleaned, processed, and analyzed using Microsoft Excel (Version 2016) and Jamovi (Version 2.6) [22, 23, 26]. Each record obtained from the survey was verified, and the results of the analysis were presented in tables and charts to provide a clear and organized explanation.

Results

Socio-Demographic Characteristics

Table 1. Frequencies of Education

Education	Counts	% of Total	Cumulative %
Year 1	104	27.2%	27.2%
Year 2	100	26.1%	53.3%
Year 3	100	26.1%	79.4%
Year 4	79	20.6%	100.0%

Table 1 displays the distribution of the 383 undergraduate residents by academic status. Freshmen students made up the biggest percentage of participants (27.2%, n=104).

Senior students made up the smallest group (20.6%, n=79) in the survey, while sophomore and junior students were nearly equally represented (26.1%, n=100 each).

Table 2. Frequencies of Age

Age	Counts	% of Total	Cumulative %
25	38	9.9%	9.9%
24	33	8.6%	18.5%
23	41	10.7%	29.2%
22	39	10.2%	39.4%
21	57	14.9%	54.3%
20	36	9.4%	63.7%
19	46	12.0%	75.7%
18	40	10.4%	86.2%
17	53	13.8%	100.0%

Table 2 displays the age distribution of the 383 undergraduate residents participating in the study. 21-year-olds made up the biggest percentage of responders (14.9%, n=57), closely followed by 17-year-olds (13.8%,

n=53). While the proportions of the other age groups were varied but generally balanced, the age group with the lowest representation in the sample was 24 years old (8.6%, n=33).

Table 3. Descriptive Statistics

	Dysmenorrhea severity	Self-medication	Hospital visit	Daily activities impact	Brest changes	Mood swings	Restlessness
N	383	383	383	383	383	383	383
Missing	0	0	0	0	0	0	0
Mean	2.50	1.51	1.54	1.50	1.65	1.62	1.62
Median	2	2	2	2	2	2	2
Standard deviation	1.12	0.501	0.499	0.501	0.477	0.487	0.485
Minimum	1	1	1	1	1	1	1
Maximum	4	2	2	2	2	2	2

With the average being 2.50 and the median being 2 on the 1-4 scale, Table 3's figures of severity of dysmenorrhea indicate that the average reported level of pain for the condition is moderate and that the majority of students suffer menstrual pain to a degree higher than that of mere discomfort. The responses range from mild to very severe, as evidenced by the spread of 1.12 standard deviation across the severity scores.

Related Effects and Symptoms (Binary Variables)

From the table, it shows that the mean value for impacts on daily life is (Mean = 1.50). This middle mean indicates that half of the

respondents stated that dysmenorrhea impacts their day-to-day life.

For the self-medication factor, it shows that the mean value is (Mean = 1.51), which indicates that 49% of students, or slightly less than half, admitted to self-medicating. For the hospital visit, the table shows that the mean value is (Mean = 1.54), and this indicates that roughly 46% of the participants reported having visited the hospital because they experienced dysmenorrhea.

For the mood swings symptom, the mean value is (Mean = 1.62), and this shows that about 38% of the students reported that their dysmenorrhea caused them to experience mood swings. For the restlessness symptom, it

is evident that the mean value is (Mean = 1.62), which implies that roughly 38% of students indicated feeling restless, similar to mood changes. Among all of is the them, breast changes symptom has a mean value of (Mean

= 1.65). It is the most rare symptom, with roughly 35% of the respondents indicating that they had breast changes.

Prevalence of Dysmenorrhea

Table 4. Frequencies of dysmenorrhea severity

Dysmenorrhea severity	Counts	% of Total	Cumulative %
1-Mild	94	24.5%	24.5%
2-Moderate	103	26.9%	51.4%
3-Severe	87	22.7%	74.2%
4-Very severe	99	25.8%	100.0%

Table 4 illustrates the frequencies of dysmenorrhea severity, which was surveyed among 383 undergraduate residents. From the study, it can be seen that majority of the students experienced moderate to very severe pain during their menstrual period. In particular, there is a prevalence of 75.46% students who experienced moderate to very severe dysmenorrhea as reflected through the calculation of the number of respondents with

moderate, severe, and very severe pain (103 + 87 + 99 = 289 respondents) to the total number of samples (383). A closer look of distribution of severity, 94 students, or 24.5%, experience mild dysmenorrhea. The overwhelming majority of impacted students do belong to higher severity categories, however: a substantial 25.8% (n=99) report very severe pain, 22.7% (n=87) report severe pain, and 26.9% (n=103) report moderate pain.

Table 5. Contingency Table between Daily Activities Impact and Dysmenorrhea Severity

Daily activities impact		Dysmenorrhea Severity				Total
		1	2	3	4	
1	Observed	56	48	33	53	190
	% within column	59.6%	46.6%	37.9%	53.5%	49.6%
2	Observed	38	55	54	46	193
	% within column	40.4%	53.4%	62.1%	46.5%	50.4%
Total	Observed	94	103	87	99	383
	% within column	100.0%	100.0%	100.0%	100.0%	100.0%

Table 6. Chi Square Test

χ^2 Tests			
	Value	df	p
χ^2	9.46	3	0.024
N	383		

Table 7. Paired Samples Contingency Table for Self-medication and Hospital Visit

Self-medication		Hospital visit		Total
		2	1	
1	Observed	102	85	187
	% within row	54.5%	45.5%	100.0%
2	Observed	105	91	196
	% within row	53.6%	46.4%	100.0%
Total	Observed	207	176	383
	% within row	54.0%	46.0%	100.0%

According to this Table 7, the percentage of respondents who visited the hospital is strikingly similar for those who self-medicate (45.5%) and those who do not (46.4%). These numbers imply that self-medication practices do not appear to be a reliable indicator of whether or not a person will seek professional medical advice.

Discussion

According to this study, a significant portion of female undergraduate residents suffer from dysmenorrhea, also referred to as painful periods. In particular, over 75.46% of the students who participated in the study said they had dysmenorrhea. The results show that painful menstruation is a common and widespread health concern among young women, which is why this high number is not unusual. The prevalence in this study is in line with what researchers are seeing globally and in other recent studies from African countries [2, 4, 10, 11, 14, 17, 20].

In addition to being typical, the findings show that menstruation pain is more than just a minor annoyance for many students. Rather, it is frequently a debilitating disorder, which means that it is severe enough to cause major disruptions to their everyday life. For example, a significant proportion of people with dysmenorrhea reported moderate pain (about 26.9%), and a similarly significant proportion reported severe pain (approximately 22.7%). For a sizable student body, this degree of intensity is consistent with earlier research findings [4, 10].

The study discovered that dysmenorrhea severely restricts students' ability to engage in their everyday activities, in addition to the pain itself. During their periods, several people reported mood fluctuations, difficulty sleeping (restlessness), and withdrawal from social activities. This supports findings from other studies by demonstrating that the illness affects more than just physical discomfort; it also has a significant impact on their general happiness, mental health, and capacity to interact with friends and perform daily duties [1].

The analysis shows that a significant number of the students used over-the-counter painkillers to self-medicate as a way of dealing with the pain they experience during their menstrual period. Approximately 48.4% of the students in this study reported that they self-medicate when they have dysmenorrhea. According to a study by Sarrat, Karn, and Singh (2022), 42% of students used self-medication to ease the discomfort of their dysmenorrhea [24, 25].

The results of the Chi Square inferential statistics in Table 6 indicate a significant correlation between dysmenorrhea and its impact on day-to-day activities. Given that the p-value of 0.024 is below the chosen significance level (0.05), there is statistically significant evidence to support the conclusion that there is an significant association between dysmenorrhea and its effects on daily activities. This is consistent with earlier research works done [3, 16]. According to Table 5, every individual who reported extremely severe pain

(53.5%) also reported that dysmenorrhea had a greater influence on their day-to-day activities, which is followed by those who experienced moderate pain (46.6%).

The association between the severity of dysmenorrhea and how it affects female undergraduate students' everyday activities is shown in Table 5. 40.4% (n=38) of people with mild dysmenorrhea said it affected their day-to-day activities. For those with moderate dysmenorrhea, this percentage rises to 53.4% (n=55), and for those with severe dysmenorrhea, it peaks at 62.1% (n=54). This suggests a distinct pattern: a growing proportion of students encounter disruptions to their daily routines as the severity of their dysmenorrhea pain increases from mild to severe. An intriguing finding, nevertheless, is that the proportion of those with quite severe dysmenorrhea who say it affects their everyday activities falls marginally to 46.5% (n=46). According to the table, respondents who reported moderate (53.4%) to severe (62.1%) pain said that their daily activities were unaffected by dysmenorrhea, whereas those who reported very severe pain (46.5%) said that their daily activities were disrupted.

Conclusion

In Weaver Street, Paynesville, dysmenorrhea is very common and has a major negative influence on undergraduate residents' everyday activities. The results highlight how urgently supportive environments, better access to efficient management options, and raised awareness are

needed in both academic settings and the larger community. In conclusion, the study highlights a high prevalence of dysmenorrhea among the student population in Weaver Street, with a substantial number experiencing moderate to very severe pain. Critically, the findings demonstrate a significant link between the severity of this pain and its disruptive effects on undergraduate female students' daily lives.

Ethical Consideration

Before beginning the data collection, the research participants were formally asked in writing for their consent. Following an explanation of the study's purpose, the undergraduate female students provided their consent indicating their agreement to participate. Every suitable ethical guideline outlined in the Helsinki Declaration was adhered to and respected.

Conflict of Interest

The authors declare that they have no competing interests.

Authors' Contribution

Researchers James D. Sinnatwah, Jr. and Emmanuel T. Glasco developed the survey tool and carried out the survey in Weaver Street. Both of them encoded the raw data into MS Excel. The data was analyzed and interpreted by Researcher Forkpah Pewee in Jamovi Version 2.6. The three researchers contributed to the discussion and the overall quality of the manuscript.

References

[1]. Adib-Rad, H., Kheirkha, F., Faramarzi, M., Omidvar, S., Basirat, Z., & Haji Ahmadi, M., 2022, Primary dysmenorrhea associated with psychological distress in medical sciences students in the North of Iran: A cross-sectional study. *International Journal of Fertility and Sterility*, 16(3), 224–229.

[2]. Alsaleem, M. A., 2018, Dysmenorrhea, associated symptoms, and management among students at King Khalid University, Saudi Arabia: An exploratory study. *Journal of Family Medicine and Primary Care*, 7(4), 769–774.

[3]. Al-Asadi, J. N., & Qader, R., 2013, Dysmenorrhea and its impact on daily activities among secondary school students in Basra,

Iraq. *Journal of the Faculty of Medicine Baghdad*, 55(4), 85-94.

[4]. Amisi, J., Chege, M. W., Atieno, S. M., Akunga, N. G., Hosea, F., & Khol, H., 2025, Prevalence, severity, and impact of dysmenorrhea on the wellbeing of female university students in Kenya: A cross-sectional study. *World Journal of Pharmaceutical Research*, 14(3).

[5]. Amin, S. M., El-Sayed, M. M., El-Monshed, A. H., El-Sayed, M. S., & El-Khouly, M., 2024, The hidden link: Dysmenorrhea, emotion regulation, and attitudes toward marriage in female nursing students. *BMC Nursing*, 23, 721.

[6]. Armour, M., Parry, K., Al-Dabbas, M., Curry, C., MacMillan, H., & Smith, C. A., 2019, The prevalence and academic impact of dysmenorrhea in 21,573 young women: A systematic review and meta-analysis. *Journal of Women's Health*, 28(8), 1161–1171.

[7]. Azagew, A. W., Kassie, D. G., & Walle, T. A., 2020, Prevalence of primary dysmenorrhea, its intensity, impact and associated factors among female students' at Gondar town preparatory school, Northwest Ethiopia. *BMC Women's Health*, 20(1), 5.

[8]. Fernández-Martínez, E., Onieva-Zafra, M. D., & Parra-Fernández, M. L., 2018, Lifestyle and prevalence of dysmenorrhea among Spanish female university students. *PLoS ONE*, 13(8):e0201894.

[9]. Francavilla, V., Francavilla, S., & Sciacchitano, G., 2023, Dysmenorrhea: Epidemiology, causes and current state of the art for treatment. *Clinical and Experimental Obstetrics & Gynecology*, 50(12), 274.

[10]. Ghandour, R., Hammoudeh, W., Stigum, H., Giacaman, R., Fjeld, H., & Holmboe-Ottesen, G., 2024, The hidden burden of dysmenorrhea among adolescent girls in Palestine refugee camps: A focus on well-being and academic performance. *BMC Public Health*, 24, 726.

[11]. Gindaba, G. D., Degu, G., & Fekadu, A., 2025, Management practices of primary dysmenorrhea among female high school students in Nekemte town, East Wallaga Zone, Western Oromia, Ethiopia: A cross-sectional study. *BMC Women's Health*, 25(1), 1-12.

[12]. Gindaba, G. D., Wonde, F., Degu, G., & Fekadu, A., 2025, Primary dysmenorrhea and its associated factors among female high school students in Nekemte town, East Wallaga Zone, Western Oromia, Ethiopia: A cross-sectional study. *Frontiers in Reproductive Health*, 6, 1451551.

[13]. Itani, R., El-Darzi, H., Al-Haddad, R., & Chamseddine, A., 2022, Primary dysmenorrhea: Pathophysiology, diagnosis, and treatment updates. *Korean Journal of Family Medicine*, 43(2), 101–108.

[14]. Katib, F., Aljabali, M., Kaka, M. A., & Alharbi, A. A., 2024, Prevalence of primary dysmenorrhea and its effect on the quality of life among female students at Umm Al-Qura University. *Cureus*, 16(10), e69784.

[15]. Kho, K. A., & Shields, J. K., 2020, Diagnosis and management of primary dysmenorrhea. *JAMA*, 323(3), 268–269.

[16]. Leon-Larios, F., Silva-Reus, I., Puente Martínez, M. J., et al., 2024, Influence of menstrual pain and symptoms on activities of daily living and work absenteeism: a cross-sectional study. *Reprod Health* 21, 25.

[17]. Mammo, D., Alemayehu, M., & Ambaw, F., 2022, Prevalence of primary dysmenorrhea, its intensity and associated factors among female students at high schools of Wolaita Zone, Southern Ethiopia: Cross-sectional study design. *International Journal of Women's Health*, 14, 1569–1577.

[18]. Mizgier, M., Zielinska, A., Zaborowicz, D., Zuchora, K., & Strzelecka, K., 2025, Risk factors of primary dysmenorrhea in female adolescent basketball players related to dietary, hormonal, and immuno-metabolic factors and disordered eating attitudes. *Nutrients*, 17(1), 1-18.

[19]. Nagy, H., Carlson, K., & Khan, M. A. B., 2023, Dysmenorrhea. In StatPearls. StatPearls Publishing.

[20]. Namukanga, E. N., Zulu, J. M., Munakampe, M. N., Ngosa, D. M., Shumba, S., & Jacobs, C., 2024, Prevalence of primary dysmenorrhea and its associated risk factors among adolescent girls in selected schools of Lusaka District,

Zambia. *Journal of Community Health Research*, 13(1), 243–255.

[21]. Nurfitri, N., Sriyanah, N., & Amaliah, A. R., 2022, The intensity of dysmenorrhea in high school students. *International Journal of Health Sciences*, 6(S4), 453-459.

[22]. R Core Team. 2024, *R: A language and environment for statistical computing* (Version 4.4) [Computer software]. *R Foundation for Statistical Computing*. <https://cran.r-project.org>

[23]. Revelle, W., 2023, *psych*: Procedures for psychological, psychometric, and personality research [R package]. *R Foundation for Statistical Computing*. <https://cran.r-project.org/package=psych>

[24]. Sarraf, D. P., Karn, B. K., & Singh, S., 2022, Pattern of self-medication in primary dysmenorrhea among nursing students at a nursing college in

Eastern Nepal. *Nepal Journal of Health Sciences*, 2(2), 1–8.

[25]. Shrestha, R., Bhandari, M. S., Shrestha, S. S., Shrestha, J. T. M., & Shrestha, U., 2022, Self-medication in Primary Dysmenorrhea among Undergraduate Students in a Medical College: A descriptive cross-sectional study. *JNMA Journal of Nepal Medical Association*, 60(256), 1011–1015. <https://doi.org/10.31729/jnma.7816>

[26]. The jamovi project. 2024, *jamovi* (Version 2.6) [Computer software]. Retrieved from <https://www.jamovi.org>

[27]. Wuni, I. A., Duadas, B., Asiedu, J., Aloliga, N. A., & Agbeko, K. N., 2023, Prevalence, management, and impact of dysmenorrhea on the lives of nurse and midwife trainees in Northern Ghana. *Obstetrics and Gynecology International*, 2023.