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Dysmenorrhea Impact and Coping Strategies Among Nursing Students at Usmanu Danfodiyo University, Sokoto: A Cross-Sectional Survey

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Abstract

Background: Dysmenorrhea, affecting 43% to 90% of women of childbearing age worldwide, is the most prevalent gynaecological disorder. The study aimed to assess the psychological effects of dysmenorrhea and the coping mechanisms employed by nursing students at Usmanu Danfodiyo University, Sokoto. **Materials and Methods:** This study employed a descriptive, cross-sectional survey design. A well-structured and validated questionnaire was used to collect data from the participants. The questionnaire was distributed to 107 participants and retrieved within a week.

Results: The findings imply that 51.4% of the respondents fall within the 21-25 age group. Similarly, 76.6% of the respondents have a symptom related to dysmenorrhea when asked. A higher percentage of respondents experienced moderate pain, as depicted, but 74.8% had never asked a doctor. Psychological disorders associated with dysmenorrhea: mood swings 85(79.4%), sleeping disturbances 65(60.8%), decreased concentration 64 (59.9%), irritability 67 (62.6%) and stress 77 (71.8%). It was found that dysmenorrhoea affects social activities, with the highest percentage being unable to follow up with friends and family (57.9%). Overall, 59.8% reported changing their social plans, while 45.8% have altogether avoided such situations. Specifically for management strategies, 51.4% of the respondents did not get any benefit from exercises, and 64.6% got benefit from relaxation therapy. Two-thirds (66.4%) of recruited patients reported that they found herbal remedies and dietary restrictions ineffective, while three-fifths (62.6%) claimed counselling was unhelpful.

Conclusion: Dysmenorrhea is a largely unrecognised and undertreated condition with considerable psychological consequences.

Keywords: psychological effect, prevalence, cope, dysmenorrhea

Introduction

Dysmenorrhea, a common gynaecological condition affecting women of childbearing age, is characterised by menstrual pain primarily experienced as pelvic cramps that may radiate to the lower back, inner thighs, and legs. In addition to pain, symptoms such as fatigue, mood swings, headaches, nausea, and vomiting often accompany dysmenorrhea, typically emerging within the initial days of menstruation (1, 2). This condition and its symptoms significantly impair mental health and quality of life, leading to issues such as anxiety and depression (3). Dysmenorrhea is classified into two types: primary, which occurs without any underlying pathological condition and usually begins within the first two years after menarche (4), and secondary, which is associated with conditions like endometriosis, fibroids, or pelvic inflammatory diseases (2).

Globally, dysmenorrhea prevalence varies widely, with estimates ranging from 43% to 90%, and 30% to 40% of women experiencing moderate to severe forms (5). In Turkey, about 55% of adolescents and young adults report dysmenorrhea, while in Lebanon, prevalence ranges from 38.1% to 89.6% across different age groups and occupations (2,6). In Nigeria, where dysmenorrhea is often underreported, a study in the eastern region found a prevalence of approximately 51% among adolescents (7).

The pathophysiology of dysmenorrhea is linked to increased prostaglandin secretion in the endometrium, leading to heightened uterine contractions and reduced blood supply to uterine muscles, which amplifies pain sensitivity (2). Contributing factors include age, body mass index, smoking, alcohol use, family history, early menarche, heavy menstrual bleeding, and nulliparity (8). The condition often improves after the first childbirth and can be alleviated by dietary modifications such as a low-fat, high-vegetable diet (9).

Dysmenorrhea impacts not only physical health, with symptoms like headaches, fatigue, and gastrointestinal disturbances, but also psychological and social well-being. It can lead to decreased productivity, impaired academic performance, and neurotic disorders such as depression and anxiety (10-12). The stigma surrounding menstruation often results in minimal social support for those affected (5,13).

Treatment typically involves non-steroidal anti-inflammatory drugs (NSAIDs), which are effective but may cause gastrointestinal or neurological side effects. Acetaminophen is also used, though NSAIDs are generally more effective (14). Hormonal contraceptives, such as combined oral contraceptives (COCs), are another option, reducing dysmenorrhea symptoms by suppressing ovulation and prostaglandin production (2).

In addition to pharmacological treatments, many women turn to non-pharmacological methods, including physical exercise, rest, hot patches, dietary changes, and diversional therapies, which can be effective either alone or in combination with medication (15,16). Despite the high prevalence and impact, current management strategies for dysmenorrhea remain largely ineffective, with treatments showing limited success in alleviating symptoms and addressing the psychological consequences (6).

Research has shown that dysmenorrhea severely disrupts academic performance and mental well-being, with affected students experiencing significant absenteeism and psychological distress (8,12). Notably, a systematic review reported that approximately 40.9% of young women face negative academic impacts and about 20.1% experience school absenteeism due to dysmenorrhea (1). The interaction between dysmenorrhea and psychological effects is bidirectional, exacerbating both conditions and complicating effective management (12). While extensive studies have explored dysmenorrhea's prevalence, risk factors, and management, research on coping mechanisms for its psychological effects remains limited. This study aims to fill this gap by assessing the psychological impact of dysmenorrhea among female students at Usmanu Danfodiyo University and investigating the coping strategies they employ, to enhance treatment efficacy and overall quality of life.

This study aims at assessing the prevalence, effects of dysmenorrhea among Nursing students, and coping mechanisms in the event of dysmenorrhea.

Materials and Methods

Research Design

A descriptive cross-sectional survey was employed to investigate the prevalence, psychological, and social effects of dysmenorrhea among female nursing students at Usmanu Danfodiyo University, Sokoto.

Setting and Population

The study was conducted within the Nursing Department of Usmanu Danfodiyo University, which is part of the College of Health Sciences. This department, established in 2012, is located adjacent to the Institute of Child Health and the School of Health Information Management. It comprises 284 students, including 138 males and 146 females. The research focused on the 146 female nursing students enrolled in the department.

Sample and Sampling Technique

A sample of 107 female students was determined using the Taro Yamane formula, n=N/1+N(e2), where:

n = required sample size

N = population size

e = level of precision (margin of error), expressed as a decimal.

With a margin of error set at 0.05. The sample size calculation was as follows: n = 146/ 1+ (146(0.05) ^2)

n = 107.

A stratified random sampling technique was employed, with the population divided into groups based on academic level (100-500 level). The sample was allocated proportionally to each level:

- 100 level: 29

- 200 level: 20

- 300 level: 19

- 400 level: 21

- 500 level: 18

Instrument for Data Collection

Data was collected using a validated, structured questionnaire, divided into four sections:

1. Demographic and clinical profile

2. Psychological effects of dysmenorrhea (assessed via a 5-point Likert scale)

3. Social effects of dysmenorrhea (assessed via a 5-point Likert scale)

4. Coping mechanisms (open-ended responses)

Validity and Reliability of the Instrument

The questionnaire's validity was ensured through alignment with study objectives. Two experts (a PhD and MSc holder) in maternal and child health nursing reviewed the questionnaire and provided feedback. Their comments were used to improve the adequacy and clarity of the items in sections 2 and 3. Additionally, feedback from a pilot study helped in improving the understandability of the instrument. The reliability was tested through a pilot study involving 11 participants, which achieved a Cronbach's Alpha of 0.7, indicating acceptable internal consistency. The Cronbach's Alpha of 0.7 achieved in the pilot study represents the lower threshold of acceptability in social science research.

Method of Data Collection

Approval was obtained from the Head of the Nursing Department prior to administering the questionnaires. Participants were provided with a clear explanation of the study, and consent was obtained. Data was collected using a semi-structured self-administered e-questionnaire.

Ethical Consideration

An introductory letter was obtained from the department head, consent was secured from the participants, and ethical principles, such as confidentiality and autonomy, were upheld throughout the study.

Data Analysis

Data analysis involved the use of descriptive statistics and frequency tables for quantitative data, as well as text analysis for qualitative responses**.**

RESULTS

Socio-demographic and Prevalence of Dysmenorrhea

Results in Table 1 show that a higher percentage of respondents (51.4%) fall within the age range of 21 to 25. The results also show that 29 (27.1%) of the students are in year 1, 20 (18.7%) in year 2, 19 (17.8%) in year 3, 21 (19.6%) in year 4, and 18 (16.8%) in year 5. The results on the prevalence of dysmenorrhea indicated that 76% of the respondents have symptoms related to dysmenorrhea; 88% of the respondents have not been diagnosed with medical conditions related to dysmenorrhea. A significant number of the respondents (45.8%) experienced mild dysmenorrhea pain, 45.8% experienced moderate pain, and 24.3% experienced severe pain. The results revealed that 74.8% of respondents have never sought medical treatment or advice.

TABLE 1: Socio-demographic, Clinical profile and Prevalence of Dysmenorrhea of Respondents

Variable	**Frequency**	**Percentage (%)**
Age		
18-20	32	29.9%
21-25	55	51.4%
26-30	18	16.8%
Above 30	2	1.9%
The year of Study		
Year 1	29	27.1%
Year 2	20	18.2%
Year 3	19	17.8%
Year4	21	19.6%
Year 5	18	16.8%
Prevalence of dysmenorrhea	**YES**	**NO**
	Frequency (percent)	**Frequency (percent)**
Had symptoms related to dysmenorrhea	82 (76.60%)	25 (23.40%)
Diagnosed medial conditions related to dysmenorrhea	12 (11.20%)	95 (88.80%)
Sought medical advice or treatment for dysmenorrhea	27 (25.2%)	80 (74.8%)

Psychological and Social Effects of Dysmenorrhea

The results in Table 2 describe the psychological and social effects of dysmenorrhoea. The responses “Occasionally”, “Frequently” and “Always” were summed up and any value greater than 50% was considered an effect. Results suggest that more than 50% of the respondents did not report experiencing anxiety 60 (56%), and depression 70 (64.6%), while majority of the respondents experienced mood swing 85 (79.4%), stress 77 (71.8%), sleep disturbances 65 (60.7%), irritability 67 (62.6%) and decreased concentration 64 (59.9%). Results on the social effects of dysmenorrhoea suggested that the majority of the respondents (62, 61.8%) reported dysmenorrhea does affect participation in social activities; are comfortable discussing their dysmenorrhea experiences with friends and family openly (81, 75.9%); and do adjust their social plans due to discomfort of dysmenorrhea (64, 59.8%). Similarly, for the majority of respondents, dysmenorrhea has no impact on their relationships with peers and family, 66 (63.5%), and a slightly above average number of respondents do not avoid social situations due to concerns about dysmenorrhea symptoms, 58 (54.2%).

Table 2: Psychological and Social Effects of Dysmenorrhea

Psychological Effects	Never	Rarely	Occasionally	Frequently	Always
Anxiety	38 (35.5%)	22 (20.5%)	36 (33.6%)	7 (6.5%)	4 (3.7%)
Depression	46 (42.2%)	24 (22.4%)	27 (25.2%)	5 (4.7%)	5 (4.6%)
Irritability	23 (21.4%)	17 (15.8%)	31 (29.0%)	21 (19.6%)	15 (14.0%)
Stress	18 (16.8%)	12 (11.2%)	44 (41.1%)	18 (16.7%)	15 (14.0%)
Decreased concentration	23 (21.5%)	20 (18.7%)	32 (30%)	23 (21.5%)	9 (8.4%)
Mood swings	13 (12.1%)	9 (8.4%)	33 (30.8%)	21 (19.6%)	31 (29.0%)
Sleeping disturbances	29 (27.1%)	13 (12.1%)	31 (29%)	17 (15.9%)	17 (15.9%)
Social Effects					
Disruption of social activities	19 (17.8%)	26 (24.3%)	36 (33.6%)	24 (22.4%)	2 (1.9%)
Discomfort discussing with peers/family	13 (12.1%)	13 (12.1%)	36 (3.6%)	33 (30.8%)	12 (11.2%)
Affects adjustment of social plans	22 (20.6%)	21 (19.6%)	44 (41.1%)	16 (15.0%)	4 (3.7%)
Interrupts relationship with peers and family	28 926.2%)	38 (35.5%)	30 (28.0%)	9 (8.4%)	2 (1.9%)
Avoided social events due to dysmenorrhoea	22 (20.6%)	36 (33.6%)	30 (28.0%)	14 (13.1%)	5 (4.7%)

Coping Mechanisms of Dysmenorrhea

Table 3 shows the coping strategies used in dysmenorrhoea. The responses “effective”, very effective”, and highly effective were summed up to describe an effective coping mechanism. Accordingly, the majority of the respondents reported that relaxation 79 (64.6%), over-the-counter drugs 65 (60.7%) were effective but physical activity 55(51.4%), herbal remedies or dietary modifications 67 (62.6%), seeking social support 70 (65.4%), professional help were less effective 64 (59.7%) in coping with dysmenorrhoea.

Table 3: Coping mechanisms of dysmenorrhea

Coping mechanisms	Not effective	Somewhat effective	Effective	Very effective	Highly effective
Physical activity	20 (18.7%)	35 (32.7%)	32 (29.9%)	12 (11.2%)	8 (7.5%)
Relaxation technique	13 (12.1%)	25 (23.4%)	42 (39.2%)	17 (15.9%)	10 (9.3%)
Over- the- counter pain reliever	14 (13.0%)	28 (26.1%)	38 (35.5%)	16 (15%)	11 (10.2%)
Herbal remedies or dietary modification	38 (35.5%)	29 (27.1%)	31 (29%)	7 (6.5%)	2 (1.9%)
Seeking social supports (e.g., talking with friends or families).	37 (34.6%)	33 (30.8%)	27 (25.2%)	8 (7.5%)	2 (1.9%)
Professional help e.g., counselling, therapy	36 (33.6%)	28 (26.1%)	29 (27.1%)	10 (9.3%)	4 (3.7%)

DISCUSSION

The majority of respondents reported experiencing symptoms of dysmenorrhea, although most had not been formally diagnosed with a related medical condition. This finding is consistent with those of Mohamad Bakro et al. (17), who reported a 73.2% prevalence of dysmenorrhea among Malaysian women, and Wuni et al. (18), who found a 66.7% prevalence among nurse and midwife trainees in Northern Ghana. Additionally, many participants had not sought medical advice or treatment, which aligns with Chen et al. (19), who suggested that regional variations in dysmenorrhea prevalence can be attributed to differences in healthcare-seeking behaviours. The age distribution of respondents, predominantly between 21 and 25 years, mirrors the findings of Mohamad Bakro et al. (17), who reported that all participants were aged 18-25 years.

Slightly more than half of the respondents did not experience anxiety or depression, which is in line with Verma and Baniya (20), who reported 29.25% and 37.11% prevalence of depression and anxiety, respectively, among teenage females with dysmenorrhea. However, a significant proportion experienced irritability and decreased concentration, corroborating findings from Karout et al. (2) and Hashim et al. (21). While Verma & Baniya (20) reported 38.99% of their sample had disrupted sleep, our study found a majority of respondents had disturbed sleep patterns, aligning with Katwal et al. (22) who reported 67% experiencing stress.

More than half of the respondents indicated that dysmenorrhea affected their social activities, aligning with Kabukcu et al. (8), who found that 49.8% of adolescents reported similar impacts. This contrasts with Hashim et al. (21), who observed no significant impact on the social lives of female medical students. Our study also diverges from Allyn et al. (13), who suggested a stigma surrounding the discussion of menstrual issues. In our findings, 75.3% of respondents felt comfortable discussing dysmenorrhea openly with peers and family, and most did not report negative impacts on their relationships.

Respondents reported that physical activity was only slightly effective, contrary to Kirmizigil et al. (23), who found that exercise significantly alleviates dysmenorrhea symptoms. This discrepancy may be due to cultural or lifestyle factors. Similarly, while Unnisa et al. (16) found counselling highly effective, half of our participants reported otherwise, potentially due to a lower incidence of seeking medical advice. Herbal remedies were largely deemed ineffective by our respondents, which contrasts with Samba et al. (24) who reported high effectiveness of such treatments. Over-the-counter drugs were considered effective by the majority, a finding supported by Allyn et al. (13). Other coping methods, such as hot patches and diversional activities, were in line with Acheampong et al. (25), who noted that ignoring pain and self-medication were common coping strategies.

In summary, the findings reveal a high prevalence of dysmenorrhea with varied psychological and social impacts. Coping mechanisms show mixed effectiveness, influenced by personal, cultural, and lifestyle factors.

Limitations of the study

One limitation of this study is the small sample size (11 patients) used for reliability testing. The small sample size in the pilot study may have implications for the achieved Cronbach's Alpha of 0.7, which is considered the lower threshold of acceptability in social science research. This could affect the interpretation of the findings.

Conclusion

This study shows that the majority of the respondents experiencing dysmenorrhea do experience psychological disorders, and beyond relaxations and over-the-counter medications there have not been effective ways of managing these disorders, as the majority of the coping mechanisms have not been effective in managing the dysmenorrhea symptoms. There is a need for health education of the public on proper support to individuals experiencing dysmenorrhea and to avoid stigmatisation.

Proper counselling should be given to individuals experiencing dysmenorrhea.

Non-pharmaceutical management of dysmenorrhea should be put in place for the treatment of dysmenorrhea.

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