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ORIGINAL ARTICLE

Exploring the Relationship between Dysmenorrhea and Mental Health Disorders in Young Women

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ABSTRACT

Background: *Dysmenorrhea, or painful menstruation, is a common gynecological condition among young women that can significantly affect their physical and psychological health. Emerging evidence suggests a potential link between dysmenorrhea and mental health disorders, yet limited data exist in the Bangladeshi context.* ***Objective:*** *To explore the relationship between dysmenorrhea and symptoms of depression, anxiety, and stress among young women attending outdoor in 250 Beded Sadar Hospital, Sirajganj.* ***Methods & Methods:*** *A cross-sectional study was conducted among 224 female respondents aged 16–24 years using a structured questionnaire. Dysmenorrhea severity was assessed using a Visual Analog Scale (VAS), and mental health status was evaluated using the Depression, Anxiety, and Stress Scale (DASS-21). Data were analyzed using SPSS version 25 with descriptive statistics and chi-square tests to assess associations.* ***Results:*** *The prevalence of dysmenorrhea was 91.5%, with 45.9% reporting moderate and 33.7% reporting severe pain. Among participants with moderate-to-severe dysmenorrhea, 62.4% had symptoms of depression, 71.3% had anxiety, and 59.6% reported stress. Statistically significant associations were found between dysmenorrhea severity and all three mental health domains ($p < 0.05$).* ***Conclusion:*** *The study reveals a strong association between dysmenorrhea and mental health disorders among young women. These findings highlight the need for integrated health strategies focusing on both menstrual and psychological well-being. Early screening, mental health counseling, and improved menstrual health education are essential to reduce the burden of dysmenorrhea-related mental health issues.*

Keywords: *Dysmenorrhea, Depression, Anxiety, Stress, Mental Health, Young Women, Bangladesh*

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INTRODUCTION

Dysmenorrhea, characterized by painful menstrual cramps originating in the lower abdomen, is one of the most common gynecological complaints among adolescent and young adult women. It is broadly classified into primary dysmenorrhea, which occurs in the absence of any underlying pelvic pathology, and secondary dysmenorrhea, which results from identifiable gynecological conditions such as endometriosis or pelvic inflammatory disease[1]. Globally, the prevalence of primary dysmenorrhea among young women ranges from 50% to 90%, with varying degrees of severity impacting daily activities, school performance, and overall quality of life[2,3].

Emerging evidence suggests that dysmenorrhea may have significant associations with mental health disorders such as depression, anxiety, and stress-related conditions. The chronic pain and physical discomfort experienced during menstruation may act as stressors that contribute to emotional distress. Conversely, pre-existing psychological conditions may amplify the perception of menstrual pain, creating a bidirectional relationship[4,5]. A study among university students in Iran reported that those with moderate-to-severe dysmenorrhea had significantly higher levels of anxiety and depression compared to those with mild or no dysmenorrhea[6]. Similarly, research from Western populations has shown that dysmenorrhea is a strong predictor of elevated depressive and anxiety symptoms among adolescents[7].

Furthermore, the neurobiological mechanisms linking pain and mood disorders involve overlapping pathways, including dysregulation of the hypothalamic-pituitary-adrenal (HPA)

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axis, central sensitization, and altered serotonin and prostaglandin levels[8]. This interaction underscores the need for an integrated approach to managing menstrual pain and mental well-being, especially in young women during their formative years.

Despite the clinical and psychosocial burden, the relationship between dysmenorrhea and mental health disorders remains underexplored in many low- and middle-income countries, including Bangladesh. Young women often normalize menstrual pain or face social stigma, leading to delayed diagnosis and inadequate management of both physical and psychological symptoms[9]. Understanding this relationship is essential for developing holistic health interventions that address both physical and mental aspects of women's reproductive health. This study aims to explore the relationship between dysmenorrhea and mental health disorders among young women, thereby providing evidence for the need for integrated health services and early intervention strategies.

METHODS & MATERIALS

A descriptive cross-sectional study was conducted from January to December 2024 among young women aged 16 to 24 years at outdoor patients attending outdoor in 250 Beded Sadar Hospital, Sirajganj to explore the association between dysmenorrhea and mental health disorders, specifically depression, anxiety, and stress. A total of 224 participants were selected through convenience sampling. Eligible participants were menstruating females, while those with known psychiatric disorders, chronic illnesses, or using hormonal therapy or antidepressants were excluded. Data were collected using a structured, self-administered questionnaire comprising three sections: sociodemographic information (age, marital status, occupation, education level) BMI, menstrual history (duration of menstruation, menstrual cycle length, duration of dysmenorrhea pain), dysmenorrhea severity, and impact on daily life; Mental health assessment using the Depression Anxiety Stress Scales-21 (DASS-21), a validated tool measuring symptoms of depression, anxiety, and stress. The severity of dysmenorrhea was rated using a Numeric Rating Scale (NRS) from 0 (no pain) to 10 (worst pain imaginable), categorized as mild (1–3), moderate (4–6), and severe (7–10). Data were analyzed using SPSS version 26. Descriptive statistics such as mean, standard deviation, frequencies, and percentages were calculated, and chi-square tests were applied to determine associations between dysmenorrhea severity and mental health variables, with a significance level set at $p<0.05$.

RESULTS

Sociodemographic Characteristics of Participants

A total of 224 young women aged 16 to 24 years participated in the study (Table I). The mean age was 20.4 ± 2.1 years. Most were unmarried (83.5%) and students (84.8%), with a small percentage being housewives (9.8%) or others (5.4%). In terms of education, the majority had completed higher secondary (42.9%) or undergraduate education (31.3%).

Table – I: Sociodemographic Characteristics of Participants (*n*=224)

Variable	Frequency (n)	Percentage (%)
Age Group (years)		
16–18	54	24.1%
19–21	98	43.8%
22–24	72	32.1%
Marital Status		
Unmarried	187	83.5%
Married	37	16.5%
Occupation		
Student	190	84.8%
Housewife	22	9.8%
Others	12	5.4%
Educational Level		
Primary	10	4.5%
Secondary	48	21.4%
Higher Secondary	96	42.9%
Undergraduate	70	31.3%

Body Mass Index (BMI)

The majority of participants (63.4%) had a normal BMI, while 16.1% were underweight. A combined 20.6% were overweight or obese, which may have implications for menstrual health and dysmenorrhea severity (Table II).

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Table – II: Body Mass Index (BMI) Distribution of Participants (*n*=224)

BMI Category (kg/m^2)	Frequency (n)	Percentage (%)
Underweight (<18.5)	36	16.1%
Normal (18.5–24.9)	142	63.4%
Overweight (25.0–29.9)	38	17.0%
Obese (≥30.0)	8	3.6%
Total	224	100%

Menstrual History

Duration of Menstruation:

The majority of participants (66.1%) reported menstruation lasting 4–5 days, which is considered within the normal range. A smaller proportion had shorter cycles lasting 2–3 days (12.5%), while 21.4% experienced longer bleeding durations of 6 days or more, which may indicate heavier menstrual flow or prolonged periods in a notable subset.

Menstrual Cycle Length:

Most participants (83.5%) reported having regular menstrual cycles (21–35 days), reflecting a generally healthy reproductive pattern. However, 16.5% had irregular cycles, which could be indicative of hormonal imbalances, stress, or underlying gynecological conditions.

Duration of Dysmenorrhea Pain:

A majority (60.7%) experienced dysmenorrhea pain lasting 2–3 days, suggesting that menstrual pain is often sustained over multiple days in this population. About 17.9% had pain for 1 day, and 21.4% suffered from pain that lasted more than 3 days, which is clinically significant and may negatively impact daily functioning and quality of life (Table III).

Table – III: Menstrual History of Participants (*n*=224)

Variable	Category	Frequency (n)	Percentage (%)
Duration of Menstruation	2–3 days	28	12.5%
	4–5 days	148	66.1%
	≥6 days	48	21.4%
Menstrual Cycle Length	Irregular	37	16.5%
	Regular (21–35 days)	187	83.5%
Duration of Dysmenorrhea Pain	1 day	40	17.9%
	2–3 days	136	60.7%
	More than 3 days	48	21.4%

Prevalence and Severity of Dysmenorrhea

A high prevalence of dysmenorrhea (91.5%) was observed (Table IV). Among those affected, two-thirds experienced moderate to severe pain. Among those with dysmenorrhea: 20.5% experienced mild pain (pain score 1–3), 45.9% reported moderate pain (pain score 4–6), 33.7% suffered from severe pain (pain score 7–10). The relatively high percentage of participants reporting severe pain (33.7%) underscores the clinical and public health importance of addressing this condition.

Table – IV: Prevalence and Severity of Dysmenorrhea (*n*=224)

Dysmenorrhea Status	Frequency (n)	Percentage (%)
Dysmenorrhea Present	205	91.5%
Dysmenorrhea Absent	19	8.5%
Severity of Dysmenorrhea (n=205*)*		
Mild (1–3)	42	20.5%
Moderate (4–6)	94	45.9%
Severe (7–10)	69	33.7%

Prevalence of Depression, Anxiety, and Stress

Symptoms of depression, anxiety, and stress were prevalent in the study population (Figure 1). More than half (54.5%) of the respondents exhibited some level of depressive symptoms, suggesting that depression is a moderate concern among the population. Anxiety is the most prevalent mental health issue among the three, followed by depression, and then stress. 60.3% of participants had some form of anxiety, with nearly 42% reporting moderate to severe levels. While the majority are stress-free, 48.2% experienced stress to varying degrees, with about 30% facing moderate to severe stress levels. This makes stress a significant but relatively less common concern compared to anxiety.

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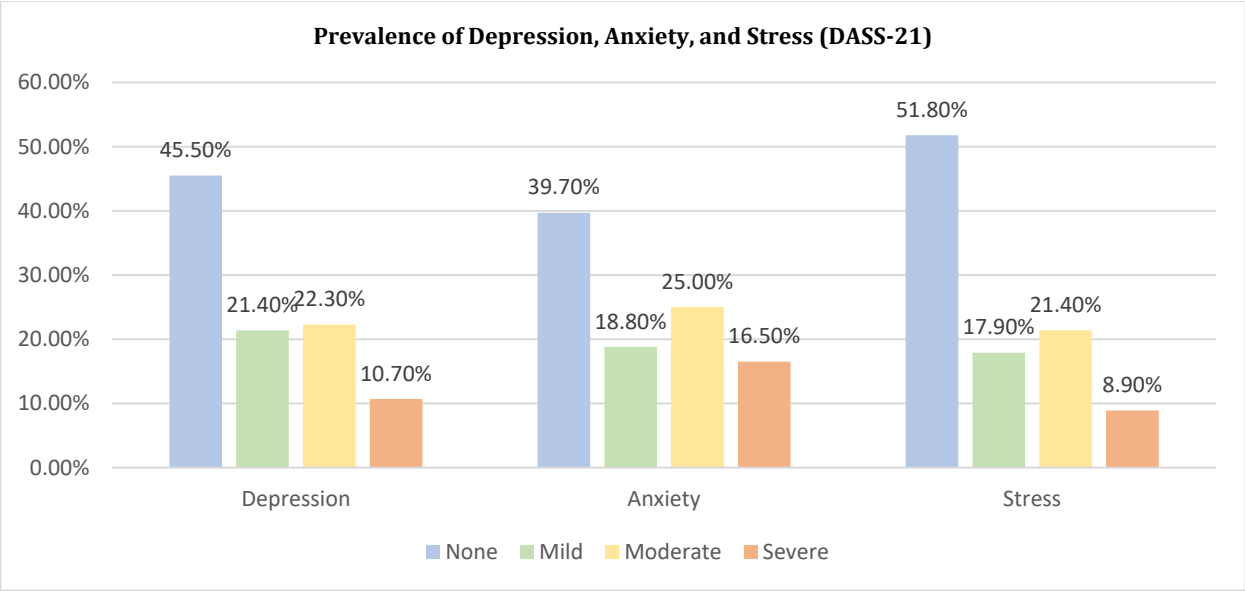

Figure – 1: Prevalence of Depression, Anxiety, and Stress (DASS-21) (*n*=224)

Association Between Dysmenorrhea Severity and Mental Health Symptoms

The table V shows a clear positive association between the severity of dysmenorrhea and the prevalence of depression, anxiety, and stress symptoms among participants. As the severity of dysmenorrhea increases from mild to severe, the proportion of individuals experiencing psychological distress also increases substantially.

Depression

28.6% of those with mild dysmenorrhea reported depression. The percentage rises to 52.1% in moderate cases and 76.8% in severe cases, p-value < 0.001, indicating a strong and statistically significant association.

Anxiety

Anxiety was reported by 33.3% of those with mild dysmenorrhea, 60.6% with moderate, and 81.2% with severe dysmenorrhea. There is a steep increase in anxiety prevalence with increasing dysmenorrhea severity which reflects that anxiety associated with intense menstrual pain (p-value < 0.001).

Stress

Stress levels followed a similar trend: 26.2% in mild, 46.8% in moderate, and 72.5% in severe cases. Like depression and anxiety, stress symptoms become more common as dysmenorrhea severity increases, suggesting an overall mental health burden. Statistical significance: p-value = 0.001, confirming a statistically significant relationship.

Table – V: Association Between Dysmenorrhea Severity and Mental Health Symptoms (*n*=205)

Dysmenorrhea Severity	Depression Present (%)	Anxiety Present (%)	Stress Present (%)
Mild (n=42)	28.6%	33.3%	26.2%
Moderate (n=94)	52.1%	60.6%	46.8%
Severe (n=69)	76.8%	81.2%	72.5%
p-value	<0.001*	<0.001*	0.001*

**p < 0.05*

Impact of Dysmenorrhea on Daily Activities by Pain Severity

The table VI demonstrates Dysmenorrhea had a notable impact on the daily functioning of young women. Those with severe pain were much more likely to miss work or classes and avoid social interactions.

Table – VI: Impact of Dysmenorrhea on Daily Activities by Pain Severity (*n*=205)

Dysmenorrhea Severity	Missed Work/Classes (%)	Avoided Social Activities (%)
Mild (n=42)	21.4%	23.8%
Moderate (n=94)	48.9%	52.1%
Severe (n=69)	76.8%	79.7%
p-value	<0.001*	<0.001*

**p < 0.05*

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Missed Work/Classes

Among participants with mild dysmenorrhea, 21.4% reported missing work or classes. This figure jumps to 48.9% for those with moderate pain, and further to 76.8% for those with severe pain. p-value < 0.001, indicating a strong and statistically significant association.

Avoided Social Activities

23.8% of those with mild dysmenorrhea avoided social activities. This increased to 52.1% in moderate cases and 79.7% in severe cases. As pain severity increases, individuals are more likely to socially withdraw. p-value < 0.001, confirming a strong association.

DISCUSSION

This study revealed a high prevalence of dysmenorrhea (91.5%) among young women aged 16 to 24, with a significant proportion (33.7%) reporting severe pain. The findings are consistent with global data indicating that dysmenorrhea affects a substantial percentage of menstruating females, particularly adolescents and young adults[10,11]. The intensity and duration of menstrual pain observed in this study are clinically significant and carry implications not only for physical well-being but also for psychological health and quality of life.

A critical finding of this research is the significant association between dysmenorrhea severity and the prevalence of depression, anxiety, and stress**.** Participants with severe dysmenorrhea reported markedly higher rates of mental health symptoms, with 76.8% experiencing depression, 81.2% anxiety, and 72.5% stress. This aligns with previous findings where menstrual pain was linked to elevated psychological distress in women[12,13]. Dysmenorrhea may contribute to these symptoms through mechanisms such as chronic inflammation, hormonal fluctuations, and sleep disturbances, all of which are implicated in mood disorders[14].

Furthermore, the mental health burden identified in this study, particularly the high rates of anxiety (60.3%) and depression (54.5%)**,** is consistent with other research among university-aged women, indicating that menstruation-related distress can extend beyond physical discomfort[15,16]. The cyclical nature of dysmenorrhea may exacerbate psychological symptoms over time, especially in those with pre-existing vulnerabilities. Moreover, young women who experience frequent and intense menstrual pain might develop anticipatory anxiety and social withdrawal, contributing to chronic stress and functional impairment[17].

The impact of dysmenorrhea on daily functioning is particularly noteworthy. Women with severe pain were significantly more likely to miss work or classes (76.8%) and avoid social activities (79.7%). This mirrors studies from both high- and low-income countries where dysmenorrhea was found to hinder academic performance, reduce physical activity, and negatively affect interpersonal relationships[18,19]. The associated absenteeism and reduced social engagement may further compound mental health problems, creating a feedback loop of pain, isolation, and emotional distress.

Interestingly, even those with moderate pain reported substantial psychological symptoms and functional impairment, suggesting that interventions should not only target severe cases. Early screening and management strategies, including education, pain management, and mental health support, should be integrated into adolescent and youth healthcare services. The high prevalence of irregular menstrual cycles (16.5%) and longer duration of bleeding (21.4% with ≥6 days) could be contributing factors to both the physical and psychological burden. Irregular menstruation is known to correlate with hormonal imbalances and has been associated with greater emotional instability[20].

Although the cross-sectional nature of this study limits causal inference, the strength and consistency of the associations underscore the need for multidisciplinary approaches in addressing dysmenorrhea. Mental health should be recognized as a critical component of menstrual health, especially in young women undergoing significant physiological and psychosocial changes.

LIMITATIONS

The study is based on self-reported data, which may be subject to recall and reporting bias. The sample was limited to a specific age group and geographic location, which may affect generalizability. Moreover, clinical evaluations for psychological disorders and gynecological conditions were not performed, which might have provided more objective data.

CONCLUSION

This study demonstrates a high prevalence of dysmenorrhea among young women, with a significant portion experiencing moderate to severe pain. There is a clear and statistically significant association between the severity of dysmenorrhea and symptoms of depression, anxiety, and stress. Furthermore, dysmenorrhea negatively affects academic and social functioning, particularly among those with severe symptoms.

These findings emphasize the need for integrated menstrual and mental health interventions targeting young women in educational and healthcare settings. Raising awareness, improving pain management, and providing psychological support could improve both physical and mental well-being in this vulnerable population.

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