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# Prevalence, Severity and Quality-of-Life Impact of Dysmenorrhea among Non-Medical Undergraduates in Sana'a City, Yemen

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## ABSTRACT

**Background:** Dysmenorrhea commonly affects young women and can substantially impair quality of life (QoL), but evidence from Yemen is limited. This study assessed the prevalence, symptoms, impact on QoL, and coping methods of dysmenorrhea among undergraduates enrolled in non-medical colleges in Sana'a City, Yemen.

**Methods:** A descriptive cross-sectional study was conducted among 371 conveniently sampled students enrolled at the University of Science and Technology in Sana'a during the academic year 2023–2024. A structured questionnaire was used to collect data on sociodemographic characteristics, menstrual history, dysmenorrhea, pain severity, QoL impact, and coping methods. Data were summarized using descriptive statistics.

**Results:** Dysmenorrhea was prevalent among 89.5% (332/371) of non-medical undergraduates, and most of these students reported experiencing severe pain (49.7%) and reported pain that began before menstruation and continued during menses (39.8%). Among students with dysmenorrhea, lower back pain was the most frequently reported complaint (91.3%), followed by fatigue (89.5%), loss of appetite (85.5%), and abdominal pain (84.9%). The vast majority of non-medical undergraduates with dysmenorrhea reported being unable to perform daily activities effectively (99.1%), followed by those feeling depressed and needing to cry (96.9%) and those feeling irritable with excessive emotions (92.4%). The majority of participants reported taking rest only to cope with dysmenorrhea (89.7%), followed by using a warm water bottle (62%) and drinking plenty of hot liquids (60.8%). The use of self-administered medications was reported by 45.2% of students, while 8.4% reported seeking medical consultation and 14.1% reported practicing light exercise.

**Conclusion:** Dysmenorrhea is common among non-medical undergraduates in Sana'a and often severe, with substantial effects on daily activities, psychosocial well-being, and academic performance. Nevertheless, most students rely on self-management and non-pharmacological treatments, with only a minority seeking medical consultation. Therefore, educational programs and interventions to address dysmenorrhea among university students are recommended.

**Keywords:** Dysmenorrhea ▪ Menstruation ▪ Prevalence ▪ Severity ▪ Quality of life ▪ Non-medical undergraduates ▪ Yemen

## 1. Introduction

Dysmenorrhea is defined as a cramping lower abdominal pain before or during menstruation and is a common gynecologic complaint among women of reproductive age.[1,2] It is divided into two distinct types: primary dysmenorrhea, which refers to painful menstruation occurring without any underlying or-



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ganic disease and is common among adolescents, and secondary dysmenorrhea, which involves painful menstruation that is associated with pelvic pathology.[3–5] Primary dysmenorrhea is characterized by elevated prostaglandin production in the endometrium, causing excessive uterine hypercontractility that leads to ischemia and pain receptor stimulation, resulting in menstrual cramps and other symptoms.[6] It impairs quality of life (QoL) by substantially disrupting daily activities, affecting mental and physical well-being, and causing psychological distress.[2,7,8] Secondary dysmenorrhea is caused by underlying gynecologic conditions such as endometriosis, uterine fibroids, or pelvic inflammatory disease.[5,9,10] Secondary dysmenorrhea must be distinguished from primary dysmenorrhea to ensure appropriate targeted treatment.[11]

Diagnosis of dysmenorrhea involves a medical history and physical examination, with transvaginal ultrasound for secondary causes like endometriosis.[5] It often requires advanced imaging or laparoscopy, particularly when symptoms are severe, atypical, or unresponsive to initial treatment.[5,12,13] Severity assessment of menstrual pain using numeric scales, such as the visual analogue scale (VAS), is part of the diagnostic criteria.[14] The management of dysmenorrhea primarily involves nonsteroidal anti-inflammatory drugs (NSAIDs) and hormonal contraceptives, with treatment varying between primary and secondary dysmenorrhea.[15,16] If symptoms do not improve within six months of NSAIDs and hormonal treatments, laparoscopy for underlying conditions like endometriosis is recommended.[15] For secondary dysmenorrhea, management focuses on treating the underlying pathological condition, such as endometriosis.[5]

Based on a recent systematic review and meta-analysis of 336 studies in 70 countries, the global dysmenorrhea prevalence was estimated at 71.3% for primary and 35% for secondary, with high heterogeneity across countries.[17] This study found a particularly high prevalence in Central America (89.6%) and Sri Lanka (97.7%), and higher rates were observed among adults (73.3%) and university populations (78.4%).[17] In Arab countries, dysmenorrhea prevalence also shows variation. For instance, in Saudi Arabia, dysmenorrhea was prevalent among 60.9%, 80.1%, 83.7%, 88%, and 93.3% of students in Jeddah, Riyadh, Makkah, Jouf, and Najran, respectively,[7,18–20] and the prevalence among women of reproductive age in Saudi Arabia ranged from 87% to 95.3%.[21,22] Dysmenorrhea is also prevalent in Egypt, affecting 55.3–94.6% of students and working women across multiple studies.[23-29] High prevalence of dysmenorrhea was also reported among Palestinian adolescent refugee camp dwellers (96%),[30] adolescents in Dubai, UAE (94.7%),[31] high-school students in Muscat, Oman (94%),[32] high-school students in Kuwait (85.6%),[33] university students in Palestine (85.1%),[34] and young adults in Jordan (55.8%).[35]

Dysmenorrhea is associated with multiple factors, including family history, earlier age at menarche, longer menstrual flow, irregular menstrual cycle, lack of physical exercise, smoking, stress, low body mass index, breakfast skipping, short sleep duration, and late bedtime.[36–43] Dysmenorrhea impairs QoL across multiple domains, affecting physical, psychological, and social functioning. Several studies reveal its impact on women's QoL and daily functioning work productivity, and healthcare utilization.[7,20,35,42]

Maintaining academic performance during menstruation is a challenge for students because of its impact on attendance and concentration during study.[18,44,45] Across multiple studies, only a small percentage of women seek medical advice or treatment for menstrual symptoms, with the majority relying on self-medication or traditional remedies.[46–48] Among women who seek medical treat-



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ment for dysmenorrhea, most tend to take analgesics to relieve the pain.[49]

Dysmenorrhea has been found to be highly prevalent among university students in Hadhramout, affecting 84.7% of them.[50] It markedly impaired the daily physical activity and academic performance of 91.2% of these students, while only 16% sought medical consultation, and the majority relied on self-management (61.2%) or non-pharmacological and traditional remedies (43.6%).[50] In Yemen, there is a lack of studies on dysmenorrhea among university students, particularly in Sana'a City. Therefore, this study aimed to determine the prevalence, symptoms, severity, impact on quality of life (QoL), and coping strategies of dysmenorrhea among undergraduates enrolled in non-medical colleges in Sana'a City, Yemen.

## 2. Methods

### 2.1. Study design, population and setting

A descriptive, cross-sectional study was conducted among female undergraduates from different non-medical colleges of the University of Science and Technology, Sana'a, during the academic year 2023–2024. Eligible participants included all undergraduates enrolled in the colleges of Administrative Sciences, Humanities, Engineering, and Computing and Information Technology. However, amenorrheic, pregnant, postpartum (≤6 weeks), or lactating undergraduates, as well as medical undergraduates, were excluded.

### 2.2. Sample size and sampling method

Based on an expected prevalence of 85% for dysmenorrhea among university students[50] and a population size of 2,186 students in the four studied colleges, a sample size of 327 was calculated using OpenEpi (www.openepi.com) at a confidence level of 95% and a marginal error of 5%. To account for anticipated non-response, the sample size was then increased by 10%, yielding 364 participants. However, 374 questionnaires were distributed to consenting students. Convenience sampling was used to recruit students until the required sample size was obtained. This sampling approach was adopted to enhance participation among undergraduates in this sensitive health-related topic within a conservative cultural context.

### 2.3. Data collection and analysis

Data were collected using a structured, self-administered questionnaire developed by the researchers after reviewing the relevant literature. The questionnaire was reviewed by experts in gynecology and obstetrics and community medicine from the Faculty of Medicine and Health Sciences, University of Science and Technology, Sana'a. Based on their feedback, the final version of the questionnaire was prepared. The collected data included sociodemographic characteristics, menstrual history, dysmenorrhea presence, timing and symptoms, pain severity using VAS,[51] QoL impact, and coping methods used for dysmenorrhea. The IBM SPSS Statistics software, version 25 (IBM Corp., Armonk, NY, USA), was used for the descriptive analysis of questionnaire data.

## 3. Results

### 3.1. Response rate

Questionnaires were distributed to 374 undergraduates; of which, 371 were completed and analyzed, resulting in a response rate of 99.2%.

### 3.2. Sociodemographic and lifestyle characteristics

The mean age of participants was 21.1 ± 2.3, with the majority of participants aged between 21 and 24 years (46.6%). Most participants were enrolled from the College of Administrative Sciences (34.5%), followed by those from the colleges of Computing and Information Technology (29.9%). Students were near-



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ly distributed evenly across academic levels. Most students were single (85.4%) and Yemeni nationals (94.3%), non-smokers (72.5%) and non-khat chewers (82.1%). Occasional physical exercise was reported by more than half of the students (55%), while only 7% reported regular exercise (Table 1).

Table 1: Sociodemographic and lifestyle characteristics of participating non-medical undergraduates

| Characteristics | *n* (%) |
|---|---|
| **Age** (years) | |
| Mean ± SD: 21.1 ± 2.3 | |
| <20 | 161 (**43.4**) |
| 21–24 | 173 (**46.6**) |
| 25–28 | 27 (**7.3**) |
| >29 | 10 (**2.7**) |
| **Faculty** | |
| Administrative Sciences | 128 (**34.5**) |
| Computing and Information Technology | 111 (**29.9**) |
| Humanities | 72 (**19.4**) |
| Engineering | 60 (**16.2**) |
| **Academic level** | |
| First | 88 (**23.7**) |
| Second | 103 (**27.8**) |
| Third | 89 (**24.0**) |
| Fourth | 91 (**24.5**) |
| **Marital status** | |
| Single | 317 (**85.4**) |
| Married | 44 (**11.9**) |
| Divorced/widowed | 10 (**2.7**) |
| **Nationality** | |
| Yemeni | 350 (**94.3**) |
| Non-Yemeni | 21 (**5.7**) |
| **Smoking status** | |
| Yes | 102 (**27.5**) |
| No | 269 (**72.5**) |
| **Chewing khat**[a] | |
| Yes | 66 (**17.9**) |
| No | 303 (**82.1**) |
| **Physical exercise** | |
| Always | 26 (**7.0**) |
| Sometimes | 204 (**55.0**) |
| Never | 141 (**38.0**) |

* The total number of undergraduates included in the study was 371. [a] two missing cases.

### 3.3. Menstrual cycle characteristics

Regarding the menstrual cycle characteristics, the mean age at menarche was 13.5±1.5 years. The majority of students reported menarche at 11–15 years of age (89.2%), while 8.6% reported menarche at ≥16 years and 2.2% at ≤10 years. Nearly two-thirds (63.6%) reported a regular menstrual cycle, and an inter-cycle interval of 21–35 days (61.6%). The majority of participants reported a duration of menses of 4–7 days (80.6%), followed by 8–11 days (14%). However, 3% and 2.4% reported menstruation lasting ≤3 days and ≥12 days, respectively. More than half of the students reported a moderate amount of menstrual bleeding (53.2%), while 41.9% reported light bleeding and only 4.9% experienced heavy menstrual bleeding. A positive family history of menstrual pain was reported by the majority of participants (84.9%), as shown in Table 2.

Table 2: Menstrual cycle characteristics of non-medical undergraduates enrolled at UST, Sana'a, Yemen (2023–2024)*

| Characteristics | *n* (%) |
|---|---|
| **Age at menarche** (years)[a] | |
| Mean ± SD: 13.5±1.5 | |
| ≤10 | 8 (**2.2**) |
| 11–15 | 330 (**89.2**) |
| ≥16 | 32 (**8.6**) |
| **Regularity of menstrual cycle** | |
| Regular | 236 (**63.6**) |
| Irregular | 135 (**36.4**) |
| **Inter-cycle interval** (days)[a] | |
| <21 | 111 (**30.0**) |
| 21–35 | 228 (**61.6**) |
| >35 | 31 (**8.4**) |
| **Duration of menses** (days) | |
| ≤3 | 11 (**3.0**) |
| 4–7 | 299 (**80.6**) |
| 8–11 | 52 (**14.0**) |
| ≥12 | 9 (**2.4**) |
| **Bleeding amount**[a] | |
| Light (<3 sanitary pads/day) | 155 (**41.9**) |
| Moderate (3–4 sanitary pads/day) | 197 (**53.2**) |
| Heavy (>4 sanitary pads/day) | 18 (**4.9**) |
| **Family history of menstrual pain**[a] | |
| Yes | 314 (**84.9**) |
| No | 56 (**15.1**) |

* The total number of undergraduates included in the study was 371. UST, University of Science and Technology. [a] one missing case.

### 3.4. Prevalence, severity and timing of dysmenorrhea

Dysmenorrhea was prevalent among 89.5% (332/371) of participants. As assessed by the VAS, most undergraduates with dysmenorrhea reported experiencing severe pain (49.7%), followed by those having moderate pain (35.2%) and mild pain (15.1%). Regarding the timing of menstrual pain, most students reported



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pain that began before menstruation and continued during menses (39.8%), followed by pain occurring during the first two days of menstruation (35.2%) and within 1–3 days before menstruation (15.7%), while 9.3% reported experiencing pain starting with the onset of menstruation and continuing for more than two days (Table 3).

Table 3: Prevalence, severity and timing of dysmenorrhea among non-medical undergraduates enrolled at UST, Sana'a, Yemen (2023–2024)*

| Characteristics | *n* (%) |
|---|---|
| **Dysmenorrhea** | |
| Yes | 332 (**89.5**) |
| No | 39 (**10.5**) |
| **Severity of pain** (assessed using VAS)[a] | |
| Mild (2–4) | 50 (**15.1**) |
| Moderate (5–7) | 117 (**35.2**) |
| Severe (8–10) | 165 (**49.7**) |
| **Timing of menstrual pain**[a] | |
| 1–3 days before menstruation | 52 (**15.7**) |
| Before menstruation and continuing during menses | 132 (**39.8**) |
| First two days of menstruation | 117 (**35.2**) |
| From the onset and lasting >2 days | 31 (**9.3**) |

* The total number of undergraduates included in the study was 371. UST, University of Science and Technology; VAS, visual analogue scale. [a] Calculated for 332 cases reporting dysmenorrhea.

### 3.5. Self-reported symptoms among students with dysmenorrhea

Among the 332 undergraduates with dysmenorrhea, lower back pain was the most frequently reported complaint (91.3%), followed by fatigue (89.5%), loss of appetite (85.5%), abdominal pain (84.9%), nausea (77.7%), bloating (65.1%), disturbed sleep (65.4%), headache (63.9%), and dizziness (56.9%). Less than half reported diarrhea (41.6%) and vomiting (31%), while difficulty in urination was reported by 19.6% of students. In contrast, 4.5% of the participants reported other symptoms, including sleepiness, sadness, crying, anger, anxiety, overthinking, and depression (Table 4).

Table 4: Self-reported symptoms associated with dysmenorrhea among non-medical undergraduates enrolled at UST, Sana'a, Yemen (2023–2024)*

| Self-reported symptoms | *n* (%) |
|---|---|
| Lower back pain | 303 (**91.3**) |
| Fatigue | 297 (**89.5**) |
| Loss of appetite | 284 (**85.5**) |
| Abdominal pain | 282 (**84.9**) |
| Nausea | 258 (**77.7**) |
| Sleep disturbance | 217 (**65.4**) |
| Bloating | 216 (**65.1**) |
| Headache | 212 (**63.9**) |
| Dizziness | 189 (**56.9**) |
| Diarrhea | 138 (**41.6**) |
| Vomiting | 103 (**31.0**) |
| Difficulty in urination | 65 (**19.6**) |
| Other symptoms[a] | 15 (**4.5**) |

*The total number of undergraduates with dysmenorrhea was 332. UST, University of Science and Technology. [a] These included sleepiness, anxiety, sadness, crying spells, irritability, overthinking, and depression.

### 3.6. Impact of dysmenorrhea on quality of life

The vast majority of undergraduates with dysmenorrhea reported being unable to perform daily activities (99.1%), followed by those feeling depressed and needing to cry (96.9%) and those feeling irritable with excessive emotions (92.4%). The inability to study and perform college-related assignments and having negative relationships with others were each reported by 87% of participants. Additionally, 85.8% reported difficulty concentrating during lectures, and 79.8% reported being unable to perform daily exercise (79.8%). In contrast, about half of students with dysmenorrhea reported college absenteeism (49.6%), as shown in Table 5.

Table 5: Self-reported symptoms associated with dysmenorrhea among non-medical undergraduates enrolled at UST, Sana'a, Yemen (2023–2024)*

| Impact on QoL | *n* (%) |
|---|---|
| Inability to perform daily activities effectively | 329 (**99.1**) |
| Feeling depressed and needing to cry | 322 (**96.9**) |
| Feeling irritable with excessive emotions | 307 (**92.4**) |
| Inability to perform college-related assignments | 289 (**87.0**) |
| Having negative relationships with others | 289 (**87.0**) |
| Difficulty concentrating during lectures | 285 (**85.8**) |
| Inability to perform daily exercise | 265 (**79.8**) |
| College absenteeism | 165 (**49.6**) |

*The total number of undergraduates with dysmenorrhea was 332. UST, University of Science and Technology; QoL, quality of life.



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### 3.7. Coping strategies used by undergraduates with dysmenorrhea

The majority of undergraduates with dysmenorrhea reported taking rest only (89.7%). Non-pharmacological methods included the use of a warm water bottle by 62% of undergraduates and drinking plenty of hot liquids by 60.8% of them. The use of self-administered medications was reported by 45.2% of undergraduates, while 8.4% reported seeking medical consultation and 14.1% reported practicing light exercise (Table 6).

Table 6: Coping strategies used by non-medical undergraduates with dysmenorrhea at UST, Sana'a, Yemen (2023–2024)*

| Coping strategy | *n* (%) |
|---|---|
| Rest only | 298 (**89.7**) |
| Use of a warm water bottle | 206 (**62.0**) |
| Drinking plenty of hot liquids | 202 (**60.8**) |
| Use of self-administered medications | 150 (**45.2**) |
| Medical consultation | 28 (**8.4**) |
| Light physical exercise | 47 (**14.1**) |

*The total number of undergraduates with dysmenorrhea was 332. UST, University of Science and Technology.

## 4. Discussion

Dysmenorrhea is one of the most frequent gynecologic disorders among adolescent girls and women of reproductive age, negatively affecting their QoL. The current study revealed that dysmenorrhea is prevalent among 89.5% of non-medical undergraduates in Sana'a City, indicating that menstrual pain is a very common health problem in this group. This finding is consistent with a prevalence of 84.7% among medical and non-medical students at Hadhramout University in Al-Mukalla City, southeast of Yemen,[50] suggesting that dysmenorrhea is a widespread and persistent reproductive health concern among undergraduates in Yemen, irrespective of geographic location or academic field. However, the prevalence among undergraduates in the present study exceeds the estimated global prevalence of 71.3% and 35% for primary and secondary dysmenorrhea, respectively.[17]

The prevalence found in the present study falls within the upper range of previously documented estimates in other countries in the region and elsewhere. For instance, studies from Saudi Arabia have demonstrated marked variability across regions, with dysmenorrhea prevalence among students ranging from 60.9% in Jeddah to as high as 93.3% in Najran, and prevalence among women of reproductive age reaching 87–95.3%.[7,18–20] Similarly high prevalence has been reported in Egypt, where dysmenorrhea affects between 55.3% and 94.6% of students and working women across multiple studies.[23–29] Comparable rates have also been documented in other countries, including among Palestinian adolescent refugee camp dwellers (96%),[30] adolescents in Dubai, UAE (94.7%),[31] high-school students in Muscat, Oman (94%),[32] pharmacy students in Nigeria (~88%),[45] high-school students in Kuwait (85.6%),[33] and university students in Palestine (85.1%).[34]However, lower rates were reported among young adults and students in several other countries, including Lebanon (80.6%),[52] Hong Kong (80%),[46] Spain (74.8%),[49] Ethiopia(71.7%),[42] Saudi Arabia(70.6%),[53] India (70.2%),[47] Jordan (55.8%),[35] and China (41.7%).[40]These findings indicate that a high burden of dysmenorrhea in university settings is not unique to Yemen. However, the higher prevalence observed in Sana'a reflects a broader regional pattern that is likely influenced by common sociocultural, lifestyle, and reproductive health factors. Differences among studies may be attributed to a number of factors, including the age group studied, perception of pain and its reporting, and the prevailing cultural and social norms. In the context of Yemen, the high prevalence of dysmenorrhea could be attributed to factors such as academic pressure, the prolonged exposure to war conditions, the worsening economic conditions, and the lifestyle and dietary habits.



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A particularly important observation is the high proportion of severe pain in the current study (49.7%). This level is comparable to that (45.5%) reported among high-school girls with dysmenorrhea in Mukalla, Hadhramout,[54] and among university students with dysmenorrhea in Saudi Arabia.[55] Clinically, pain that clusters around the onset of bleeding is often compatible with primary dysmenorrhea,[9] but timing alone cannot exclude secondary dysmenorrhea. Severe dysmenorrhea is associated with increased endometrial prostaglandin production, leading to uterine hypercontractility and ischemia that contribute to pain.[6] In contrast, the proportion of severe pain in the present study exceeds the levels of severe pain among students with dysmenorrhea in several other Arab countries. For instance, severe menstrual pain was reported by 25.1% of university students in Ras Al Khaimah, UAE,[44] 27–38.6% of medical students in Saudi Arabia,[18,20,53] 28% of university students in Egypt,[28] 30.8% of high school students in Kuwait,[33] and 34.6% of university students in Lebanon.[52] On the other hand, 38.3% of Spanish university students with dysmenorrhea reported having a severe pain.[49]

Such variability most likely reflects methodological heterogeneity in pain assessment tools, differences in age distribution and educational level, sociocultural factors influencing pain reporting, and stress exposure. Chronic stress, undernutrition, and limited healthcare access in conflict-affected settings, like Yemen, could play a role in the high proportion of students with severe menstrual pain. The large proportion of undergraduates reporting severe dysmenorrhea in the present study is concerning and warrants further clinical evaluation to exclude secondary causes.

Regarding the timing of menstrual pain, the most common pattern among undergraduates in the present study was pain that began before menstruation and continued during menses (39.8%), followed by pain in the first two days of menstruation (35.2%). This distribution is broadly comparable to Yemeni data from Hadhramout, where many students reported pain either on the first day of menstrual flow or before onset,[50] supporting the notion that early-cycle pain is typical in student populations. Likewise, 44.2% of Lebanese university students reported premenstrual pain before days of menses, and 55.8% at and during the menstruation onset.[52] In contrast, in Beni-Suef, 18.7% of university students complained of pain before the onset of menstruation.[28] These variations may reflect differences in study design, recall patterns among students, perceptions of symptom onset, or underlying hormonal mechanisms influencing the temporal presentation of dysmenorrhea across populations.

The symptom profile observed among undergraduates in the present study was dominated by lower back pain and fatigue in approximately 90% of those with dysmenorrhea, followed by various gastrointestinal symptoms, disturbed sleep, headache, and dizziness. This finding is consistent with previous studies in other countries,[22,23,31,49,52] where dysmenorrhea has been shown to present with both somatic and psychological manifestations rather than isolated uterine pain. The very high frequency of lower back pain and fatigue in this study suggests that undergraduates experience dysmenorrhea as a whole-body condition rather than isolated pelvic pain, which can amplify emotional distress. Lower back pain in dysmenorrhea may result from prostaglandin-induced uterine hypercontractility with lumbosacral pain and myofascial involvement.[6,56,57] On the other hand, the high proportion of gastrointestinal symptoms could be attributed to the stimulation of smooth muscle activity in the gastrointestinal tract by elevated prostaglandins.[58]



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The present study revealed a substantial negative impact of dysmenorrhea on multiple domains of the QoL among non-medical undergraduates in Sana'a. Almost all students reported an inability to perform daily activities effectively or exercise on a daily basis, accompanied by high levels of psychological disturbances, including emotional distress, feeling depressed, needing to cry, and irritability. This finding supports evidence that dysmenorrhea substantially disrupts physical, psychological and social well-being.[59,60] The burden observed in the present study is not isolated but reflects a broader national pattern of unmet menstrual health needs among university undergraduates. For instance, 90.4% and 86% of university students in Hadhramout reported adverse effects of dysmenorrhea on their daily physical activities and psychosocial condition, respectively.[50] These findings also align with those reported among university students in Saudi Arabia, where more than half reported limited daily activity,[18] and dysmenorrhea severity was found to be significantly correlated with depressive symptoms.[55]

In the present study, the majority of undergraduates with dysmenorrhea reported having trouble focusing during lectures, and nearly half reported absenteeism from college. This finding indicates a substantial academic burden in this population. In addition, menstrual pain impairs not only physical functioning but also cognitive engagement and academic productivity. Likewise, in Hadhramout, nearly 90% of university students reported struggling to focus or study, and about 50% reported missing college classes.[50] These patterns are consistent with those reported from the region. For instance, more than half of university students in Jeddah, Saudi Arabia, reported reduced concentration, and about one-third reported college absenteeism.[18] In the UAE, more than half of university students with dysmenorrhea reported difficulty concentrating, missing academic sessions, and inability to study, complete assignments or concentrate during exams.[44] About one-third of Palestinian university students reported college absenteeism during days of menstrual pain.[34] Beyond the region, dysmenorrhea among university students in Hong Kong was linked to changes in regular physical activity (60%) and a decreased capacity for concentration and/or disruption of study (75%).[46] On the other hand, Nigerian pharmacy students with dysmenorrhea reported a decline in physical activity (94.3%), reduced concentration during lectures (88.4%), decreased study time (82.9%), absenteeism from classes (52.7%), and poor examination performance (24.5%).[45] The consistent pattern of reduced concentration and absenteeism highlights the importance of dysmenorrhea as an educational issue that requires organized university-level support and access to pain management strategies among undergraduates.

This study demonstrated that a substantial proportion of non-medical undergraduates rely on non-pharmacological treatments to cope with menstrual pain. The majority of coping strategies reported by the students were home-based, where most reported relying on rest, using a warm water bottle and drinking hot liquids, while less than half reported using self-administered medications, and a few practiced light exercise. Despite the high frequency of severe menstrual pain and the heavy burden of dysmenorrhea, only 8.4% of students reported seeking medical consultation. In line with this finding, a small proportion of university students with dysmenorrhea in Hadhramout reported using drugs either after consulting a doctor or without (24%), while less than half reported the use of traditional and non-pharmacological treatments, and 22.8% reported using nothing at all.[50] In Mukalla, 42.2% of high-school girls


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reported the use of drugs for menstrual pain.[54] The low consultation rate among students could be attributed to several factors, including normalization of menstrual pain, low expectations of healthcare for menstrual pain, financial barriers, preference for self-medication, and availability of over-the-counter drugs. In comparison to the present study, 23% of university students with dysmenorrhea in Abha, Saudi Arabia, reported consulting a doctor for their menstrual pain, 68.5% using analgesics to relieve pain, and 69.1% using herbal medicine or home remedies.[53]

The study fills an important evidence gap in Yemen, particularly among university undergraduates not majoring in medical disciplines in Sana'a City. It provides initial insights into the prevalence, severity, and academic and psychosocial effects of dysmenorrhea in a conflict-affected setting, along with the pattern of coping mechanisms predominant among undergraduates. Furthermore, the use of VAS to measure the intensity of menstrual pain, the reasonable sample size, and the high response rate reduce non-response bias and increase the practical relevance of the findings. Yet, it is important to acknowledge a number of limitations. First, the study's cross-sectional design makes it impossible to draw conclusions about causality, and the use of a convenience sample of non-medical undergraduates from a single private university limits the generalizability of findings to other academic institutions and regions in the country. Second, the study was descriptive in design, as it was conducted as an exploratory investigation of dysmenorrhea in an educational setting where no prior documented evidence existed. Given the lack of published data on dysmenorrhea among university students in Sana'a, the primary objective was to characterize the magnitude and patterns of the condition in this population rather than to examine causal relationships or predictors. Therefore, it is recommended that future analytical studies be conducted to identify the predictors of severe pain or lower QoL. Third, the reliance on self-reported data might introduce recall, reporting and social desirability biases, and no clinical evaluation was performed to differentiate primary from secondary dysmenorrhea. Fourth, no standardized scales were used in this descriptive study to evaluate psychological and QoL impacts. Despite these drawbacks, the study provides valuable baseline evidence highlighting dysmenorrhea as a highly prevalent and functionally disabling condition among university undergraduates in Sana'a.

## 5. Conclusion

Dysmenorrhea among non-medical undergraduates in Sana'a is highly prevalent, frequently accompanied by severe menstrual pain. It is linked to substantial disruptions to daily functioning, psychosocial well-being, and academic duties. However, professional care-seeking remains uncommon among undergraduates with dysmenorrhea, and coping depends largely on home-based non-pharmacological options. Therefore, it is recommended to regularly implement university-level interventions, including menstrual health education and accessible referral pathways for those with severe or persistent symptoms. Future analytical, large-scale studies are warranted to identify the predictors of dysmenorrhea and assess its impact on undergraduates' QoL.

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## Ethical approval

The study proposal was reviewed and approved by the Research Ethics Committee of the University of Science and Technology in Sana'a, Yemen (Ethical clearance No.: 1447/0095/UREC/UST). Additionally, written informed con-



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sent was obtained from all participating undergraduates after explaining the study aim and nature. The anonymity of participants and the confidentiality of data were assured throughout the study.

## Conflict of interest

The authors declare no conflict of interest associated with this article.

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## References

1. Harada T. Dysmenorrhea and endometriosis in young women. Yonago Acta Med. 2013;56(4):81–4. PubMed ● Google Scholar
2. MacGregor B, Allaire C, Bedaiwy MA, Yong PJ, Bougie O. Disease burden of dysmenorrhea: impact on life course potential. Int J Womens Health. 2023;15:499–509. DOI ● PubMed ● Google Scholar
3. Jones AE. Managing the pain of primary and secondary dysmenorrhoea. Nurs Times. 2004;100(10):40–3. PubMed ● Google Scholar
4. Harel Z. Dysmenorrhea in adolescents and young adults: etiology and management. J Pediatr Adolesc Gynecol. 2006;19(6):363–71. DOI ● PubMed ● Google Scholar
5. Osayande AS, Mehulic S. Diagnosis and initial management of dysmenorrhea. Am Fam Physician. 2014;89(5):341–6. PubMed ● Google Scholar
6. Ferries-Rowe E, Corey E, Archer JS. Primary dysmenorrhea: diagnosis and therapy. Obstet Gynecol. 2020;136(5):1047–58. DOI ● PubMed ● Google Scholar
7. Katib Y, Almehmadi M, Alhajaji F, Alqorashi S, Almajnooni F, Alshinawi MA, et al. Prevalence of primary dysmenorrhea and its effect on the quality of life among female students at Umm Al-Qura University. Cureus. 2024;16(10):e72136. DOI ● PubMed ● Google Scholar
8. Del Prado R, García-Arrabé M, González-de-la-Flor Á, De La Plaza San Frutos M, Almazán Polo J, Guérineau F, et al. Exploration of the relationship between primary dysmenorrhea, pain perception, and menstruation-related quality of life in young women: a cross-sectional observational study. Front Glob Womens Health. 2025;6:1521276. DOI ● PubMed ● Google Scholar
9. Dawood MY. Dysmenorrhea. Clin Obstet Gynecol. 1990;33(1):168–78. DOI ● PubMed ●
10. Gutman G, Nunez AT, Fisher M. Dysmenorrhea in adolescents. Curr Probl Pediatr Adolesc Health Care. 2022;52(5):101186. DOI ● PubMed ● Google Scholar
11. Polaneczky MM, Slap GB. Menstrual disorders in the adolescent: dysmenorrhea and dysfunctional uterine bleeding. Pediatr Rev. 1992;13(3):83–7. DOI ● PubMed ● Google Scholar
12. French L. Dysmenorrhea. Am Fam Physician. 2005;71(2):285–91. PubMed ● Google Scholar
13. Rohan P, Common M, Ryan J, Mulholland D, O'Shea A. Multimodality imaging findings in secondary dysmenorrhea. Clin Radiol. 2025;86:106927. DOI ● PubMed ● Google Scholar
14. Larroy C. Comparing visual-analog and numeric scales for assessing menstrual pain. Behav Med. 2002;27(4):179–81. DOI ● PubMed ● Google Scholar
15. Harel Z. Dysmenorrhea in adolescents and young adults: an update on pharmacological treatments and management strategies. Expert Opin Pharmacother. 2012;13(15):2157–70. DOI ● PubMed ● Google Scholar
16. Kirsch E, Rahman S, Kerolus K, Hasan R, Kowalska DB, Desai A, et al. Dysmenorrhea, a narrative review of therapeutic options. J Pain Res. 2024;17:2657–66. DOI ● PubMed ● Google Scholar
17. de Arruda GT, Barbosa-Silva J, Driusso P, Pathmanathan C, Armijo-Olivo S, Avila MA. Worldwide prevalence of dysmenorrhea: a systematic review and meta-analysis across 70 countries. Pain. 2026;167(1):41–55. DOI ● PubMed ● Google Scholar
18. Ibrahim NK, AlGhamdi MS, Al-Shaibani AN, AlAmri FA, Alharbi HA, Al-Jadani AK et al. Dysmenorrhea among female medical students in King Abdulaziz University: prevalence, predictors and outcome. Pak J Med Sci. 2015;31(6):1312–7. DOI ● PubMed ● Google Scholar
19. Abdel-Salam DM, Alnuman RW, Alrwuaili RM, Alrwuaili GA, Alrwuaili EM. Epidemiological aspects of dysmenorrhea among female students at Jouf University, Saudi Arabia. Middle East Fertil Soc J. 2018;23(4):435–9. DOI ● Google Scholar
20. Hashim RT, Alkhalifah SS, Alsalman AA, Alfaris DM, Alhussaini MA, Qasim RS, et al. Prevalence of primary dysmenorrhea and its effect on the quality of life amongst female medical students at King Saud University, Riyadh, Saudi Arabia. A cross-sectional study. Saudi Med J. 2020;41(3):283–9. DOI ● PubMed ● Google Scholar
21. Bakhsh H, Algenaimi E, Aldhuwayhi R, AboWadaan M. Prevalence of dysmenorrhea among reproductive age group in Saudi Women. BMC Womens Health. 2022;22(1):78. DOI ● PubMed ● Google Scholar
22. Jareebi MA, Almraysi SA, Otayf DAH, Alneel GA, Zughaibi AH, Mobarki SJ, et al. Dysmenorrhea among women living in Saudi Arabia: prevalence, determinants, and impact. Life (Basel). 2025;15(1):108. DOI ● PubMed ● Google Scholar
23. El-Gilany AH, Badawi K, El-Fedawy S. Epidemiology of dysmenorrhoea among adolescent students in Mansoura, Egypt. East Mediterr Health J. 2005;11(1–2):155–63. PubMed ● Google Scholar
24. Muhammad YY, Nossier SA, El-Dawaiaty AA. Prevalence and characteristics of chronic pelvic pain among women in Alexandria, Egypt. J Egypt Public Health Assoc. 2011;86(1–2):33–8. DOI ● PubMed ● Google Scholar
25. Nooh AM, Abdul-Hady A, El-Attar N. Nature and prevalence of menstrual disorders among teenage female students at Zagazig University, Zagazig, Egypt. J Pediatr Adolesc Gynecol. 2016;29(2):137–42. DOI ● PubMed ● Google Scholar
26. Osman HA, El-Houfey AA. Prevalence of dysmenorrhea and its impact on quality of life among nursing students at Assuit University, Egypt. Int J Nurs Didactics. 2016;6(2):23–9. Google Scholar



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27. Kamel DM, Tantawy SA, Abdelsamea GA. Experience of dysmenorrhea among a group of physical therapy students from Cairo University: an exploratory study. J Pain Res. 2017;10:1079–85. DOI ● PubMed ● Google Scholar
28. Shehata N, Arafa A, El Wahed H, Fahim AS, Hussein GK. Epidemiology of dysmenorrhea among university students in Egypt. Int J Womens Health Wellness. 2018;4:073. DOI ● Google Scholar
29. Arafa AE, Khamis Y, Hassan HE, Saber NM, Abbas AM. Epidemiology of dysmenorrhea among workers in Upper Egypt; a cross sectional study. Middle East Fertil Soc J. 2018;23(1):44–47. DOI ● Google Scholar
30. Ghandour R, Hammoudeh W, Stigum H, Giacaman R, Fjeld H, Holmboe-Ottesen G. Menstrual characteristics and dysmenorrhea among Palestinian adolescent refugee camp dwellers in the West Bank and Jordan: a cross-sectional study. Arch Public Health. 2023;81(1):47. DOI ● PubMed ● Google Scholar
31. Al Mulla A, Lotfi G, Khamis AH. Prevalence of dysmenorrhea among female adolescents in Dubai: a cross-sectional study. Open J Obstet Gynecol. 2022;12(8):686–705. Google Scholar
32. Al-Kindi R, Al-Bulushi A. Prevalence and impact of dysmenorrhoea among Omani high school students. Sultan Qaboos Univ Med J. 2011;11(4):485–91. DOI ● PubMed ● Google Scholar
33. Al-Matouq S, Al–Mutairi H, Al-Mutairi O, Abdulaziz F, Al-Basri D, Al-Enzi M, et al. Dysmenorrhea among high-school students and its associated factors in Kuwait. BMC Pediatr. 2019;19(1):80. DOI ● PubMed ● Google Scholar
34. Abu Helwa HA, Mitaeb AA, Al-Hamshri S, Sweileh WM. Prevalence of dysmenorrhea and predictors of its pain intensity among Palestinian female university students. BMC Womens Health. 2018;18(1):18. DOI ● PubMed ● Google Scholar
35. Al-Jefout M, Seham AF, Jameel H, Randa AQ, Ola AM, Oday AM, et al. Dysmenorrhea: prevalence and impact on quality of life among young adult Jordanian females. J Pediatr Adolesc Gynecol. 2015;28(3):173–85. DOI ● PubMed ● Google Scholar
36. Ju H, Jones M, Mishra G. The prevalence and risk factors of dysmenorrhea. Epidemiol Rev. 2014;36:104–13. DOI ● PubMed ● Google Scholar
37. Pejčić A, Janković S. Risk factors for dysmenorrhea among young adult female university students. Ann Ist Super Sanita. 2016;52(1):98–103. DOI ● PubMed ● Google Scholar
38. Vilšinskaitė DS, Vaidokaitė G, Mačys Ž, Bumbulienė Ž. The risk factors of dysmenorrhea in young women. Wiad Lek. 2019;72(6):1170–4. DOI ● PubMed ● Google Scholar
39. Barcikowska Z, Wójcik-Bilkiewicz K, Sobierajska-Rek A, Grzybowska ME, Wąż P, Zorena K. Dysmenorrhea and associated factors among Polish women: a cross-sectional study. Pain Res Manag. 2020;2020:6161536. DOI ● PubMed ● Google Scholar
40. Hu Z, Tang L, Chen L, Kaminga AC, Xu H. Prevalence and risk factors associated with primary dysmenorrhea among Chinese female university students: a cross-sectional study. J Pediatr Adolesc Gynecol. 2020;33(1):15–22. DOI ● PubMed ● Google Scholar
41. Mitsuhashi R, Sawai A, Kiyohara K, Shiraki H, Nakata Y. Factors associated with the prevalence and severity of menstrual-related symptoms: a systematic review and meta-analysis. Int J Environ Res Public Health. 2022;20(1):569. DOI ● PubMed ● Google Scholar
42. Molla A, Duko B, Girma B, Madoro D, Nigussie J, Belayneh Z, et al. Prevalence of dysmenorrhea and associated factors among students in Ethiopia: a systematic review and meta-analysis. Womens Health (Lond). 2022;18:17455057221079443. DOI ● PubMed ● Google Scholar
43. Wang L, Yan Y, Qiu H, Xu D, Zhu J, Liu J, et al. Prevalence and risk factors of primary dysmenorrhea in students: a meta-analysis. Value Health. 2022;25(10):1678–84. DOI ● PubMed ● Google Scholar
44. Mahwish N, Dube R, Kar SS, Santhosh M, Kidwai A, Kenneth JM. Prevalence and impact of dysmenorrhea on the academic performance of students at medical and health sciences university. New Emirates Med J. 2024;5(1):e0250006882288695. DOI ● Google Scholar
45. Onyehalu JC, Isah A, Ugochukwu EJ, Nwachuya CA, Aniefuna CV, Ugwu DO, et al. Impact of dysmenorrhea on participation in academic activities by female undergraduate pharmacy students in Nigerian universities: a nationwide cross-sectional assessment. Malawi Med J. 2025;37(3):136–44. DOI ● PubMed ● Google Scholar
46. Chia CF, Lai JH, Cheung PK, Kwong LT, Lau FP, Leung KH, et al. Dysmenorrhoea among Hong Kong university students: prevalence, impact, and management. Hong Kong Med J. 2013;19(3):222–8. DOI ● PubMed ● Google Scholar
47. Omidvar S, Bakouei F, Amiri FN, Begum K. Primary dysmenorrhea and menstrual symptoms in Indian female students: prevalence, impact and management. Glob J Health Sci. 2016;8(8):53632. DOI ● PubMed ● Google Scholar
48. Hasford K, Amponsah SK, Yawson A. Dysmenorrhea among University of Ghana medical and dental students: prevalence and management options. Postgrad Med J Ghana. 2023;12(1):2–7. DOI ● Google Scholar
49. Fernández-Martínez E, Onieva-Zafra MD, Parra-Fernández ML. Lifestyle and prevalence of dysmenorrhea among Spanish female university students. PLoS One. 2018;13(8):e0201894. DOI ● PubMed ● Google Scholar
50. Sayad AS, Balafair AS. Prevalence, impact and management practice of dysmenorrhea among female students of Hadhramout University. Hadhramout Univ J Nat Appl Sci. 2019;16(2):151–7. Google Scholar
51. Huskisson EC. Measurement of pain. Lancet. 1974;2(7889):1127–31. DOI ● PubMed ● Google Scholar
52. Karout S, Soubra L, Rahme D, Karout L, Khojah HMJ, Itani R. Prevalence, risk factors, and management practices of primary dysmenorrhea among young females. BMC Womens Health. 2021;21(1):392. DOI ● PubMed ● Google Scholar
53. Alsaleem MA. Dysmenorrhea, associated symptoms, and management among students at King Khalid University, Saudi Arabia: an exploratory study. J Family Med Prim Care. 2018;7(4):769–74. DOI ● PubMed ● Google Scholar
54. Al-Saqqaf MK, Mustafa SA. Prevalence of primary dysmenorrhea in high school girls in Mukalla city, Yemen. Assiut Med J. 2006;30(3):1–8. Google Scholar



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55. Alateeq D, Binsuwaidan L, Alazwari L, Algarni M, Al Hussain M, Alzahrani R, et al. Dysmenorrhea and depressive symptoms among female university students: a descriptive study from Saudi Arabia. Egypt J Neurol Psychiatr Neurosurg. 2022;58(1):106. DOI ● PubMed ● Google Scholar
56. Grgić V. Dysmenorrhea induced by lumbosacral spine disorders. Pathogenesis, diagnosis and therapy with special emphasis on spinal manipulative therapy. Lijec Vjesn. 2009;131(9-10):275-9. PubMed ● Google Scholar
57. Yacubovich Y, Cohen N, Tene L, Kalichman L. The prevalence of primary dysmenorrhea among students and its association with musculoskeletal and myofascial pain. J Bodyw Mov Ther. 2019;23(4):785-91. DOI ● PubMed ● Google Scholar
58. Robert A. Prostaglandins: effects on the gastrointestinal tract. Clin Physiol Biochem. 1984;2(2-3):61-9. PubMed ● Google Scholar
59. Rogers SK, Ahamadeen N, Chen CX, Mosher CE, Stewart JC, Rand KL. Dysmenorrhea and psychological distress: a meta-analysis. Arch Womens Ment Health. 2023;26(6):719-35. DOI ● PubMed ● Google Scholar
60. Drejza M, Rylewicz K, Majcherek E, Barwińska J, Łopiński G, Mizgier M, et al. Dysmenorrhea in Polish adolescent girls: impact on physical, mental, and social well-being-Results from POLKA 18 Study. J Clin Med. 2024;13(20):6286. DOI ● PubMed ● Google Scholar

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