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ORIGINAL RESEARCH

Assessment of Dysmenorrhea and it's associated factors among females of District Meerut

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ABSTRACT

Aim: The study aims to assess the prevalence of dysmenorrhea and its associated factors among females in District Meerut. It explores demographic, menstrual, pain-related, lifestyle, and medical history factors contributing to dysmenorrhea severity, with the goal of identifying potential interventions for better menstrual health management.

Materials and Methods: A cross-sectional study was conducted at a tertiary care hospital in Meerut, including 110 female participants aged 15–45 years. Participants were selected using simple random, stratified, or convenience sampling. A structured questionnaire was used to collect data on demographic details, menstrual history, pain characteristics, lifestyle factors, and medical history. Data were analyzed using SPSS 25.0, employing descriptive statistics, chi-square tests, and logistic regression to assess associations between dysmenorrhea and various factors. A p-value of <0.05 was considered statistically significant.

Results: The study found that 75.45% of participants experienced dysmenorrhea, with 50.00% reporting moderate pain and 20.00% experiencing severe pain. Menstrual irregularity was present in 30.00% of participants. Common associated symptoms included headache (27.27%), nausea (23.64%), vomiting (19.09%), and fatigue (18.18%). Lifestyle factors such as physical activity (77.27%), diet (66.36% balanced), stress (64.00% moderate to high), smoking (49.09%), and alcohol consumption (55.45%) were examined for their impact on dysmenorrhea severity. A history of gynecological conditions (56.96%) and family history of dysmenorrhea (58.13%) were also noted as contributing factors.

Conclusion: Dysmenorrhea is a prevalent condition among females, significantly affecting their daily lives and well-being. Hormonal imbalances, menstrual irregularities, lifestyle habits, and genetic predisposition contribute to its severity. Increased awareness, lifestyle modifications, and medical interventions are necessary to improve dysmenorrhea management. Future studies should focus on developing targeted public health strategies to enhance menstrual health and quality of life.

Keywords: Dysmenorrhea, menstrual pain, lifest **Keywords:** Menopause, Quality of Life, Menopausal Symptoms, Urban

Introduction

Dysmenorrhea, commonly known as menstrual pain, is one of the most prevalent gynecological disorders affecting females of reproductive age. It is characterized by painful cramps in the lower abdomen, typically occurring before or during menstruation. The condition is often classified into two types: primary dysmenorrhea and secondary dysmenorrhea. Primary dysmenorrhea occurs in the absence of any underlying pelvic pathology, while secondary dysmenorrhea is associated with medical conditions such as endometriosis, fibroids, or pelvic inflammatory disease. The intensity of menstrual pain varies widely among women, ranging from mild discomfort to severe, debilitating pain that significantly interferes with daily activities, work, and academic performance.Dysmenorrhea is a major public health concern, as it affects a large proportion of the female population worldwide. It has been reported as one of the leading causes of absenteeism from school and work, reducing overall productivity and quality of life. Despite its high prevalence,

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dysmenorrhea is often underreported and undertreated due to the perception that menstrual pain is a normal part of a woman's reproductive health. Many females do not seek medical help, either due to lack of awareness, cultural taboos, or limited access to healthcare services. As a result, many suffer in silence, enduring pain that could be managed effectively with proper medical intervention and lifestyle modifications.[1]The severity and occurrence of dysmenorrhea are influenced by several factors, including age, genetics, hormonal fluctuations, lifestyle habits, and psychological well-being. Adolescents and young women are more commonly affected by primary dysmenorrhea, as hormonal levels fluctuate significantly during the early years of menstruation. Family history also plays a role, as daughters of women with severe dysmenorrhea are more likely to experience similar menstrual pain patterns. Additionally, certain lifestyle factors such as diet, physical activity, smoking, alcohol consumption, and stress levels have been linked to the intensity of menstrual pain. Sedentary lifestyles and poor dietary habits can exacerbate inflammation and hormonal imbalances, leading to more severe symptoms.One of the major factors contributing to dysmenorrhea is hormonal imbalance, particularly the excessive production of prostaglandins. Prostaglandins are hormone-like substances that regulate uterine contractions and inflammation during menstruation. Higher levels of prostaglandins lead to stronger uterine contractions, reduced blood flow to the uterus, and increased pain. This explains why anti-inflammatory medications, such as nonsteroidal anti-inflammatory drugs (NSAIDs), are often recommended as the first line of treatment for dysmenorrhea.[2] Menstrual cycle irregularities have also been linked to dysmenorrhea. Women who experience irregular or prolonged menstrual cycles are more likely to suffer from severe menstrual cramps. This could be due to underlying hormonal imbalances or reproductive disorders such as polycystic ovary syndrome (PCOS). Additionally, gynecological conditions such as endometriosis and uterine fibroids are major contributors to secondary dysmenorrhea. In these cases, the pain is often more severe, lasts longer, and may not be relieved by conventional pain medications.The psychological impact of dysmenorrhea is another important consideration. Women experiencing chronic menstrual pain often report higher levels of stress, anxiety, and depression. Pain can negatively affect mood, sleep quality, and overall well-being, creating a cycle of emotional distress and worsening symptoms. Stress, in particular, has been shown to increase the severity of dysmenorrhea by influencing hormonal balance and pain perception. Women with high stress levels often experience more intense and prolonged menstrual pain, making it essential to consider psychological interventions in dysmenorrhea management.[3] Lifestyle and behavioral factors significantly contribute to the experience of dysmenorrhea. Physical activity has been found to alleviate menstrual pain by improving blood circulation, reducing stress, and balancing hormone levels. Women who engage in regular exercise tend to report milder symptoms compared to those with sedentary lifestyles. Additionally, dietary factors play a crucial role in menstrual health. A diet rich in anti-inflammatory foods, such as fruits, vegetables, and omega-3 fatty acids, can help reduce the severity of dysmenorrhea. On the other hand, high intake of caffeine, processed foods, and excessive sugar may worsen menstrual pain by increasing inflammation and hormonal imbalances.Smoking and alcohol consumption have also been linked to increased dysmenorrhea severity. Smoking reduces oxygen supply to the uterus and increases prostaglandin production, leading to more intense cramps. Similarly, alcohol consumption can interfere with hormonal regulation, potentially aggravating menstrual pain. These lifestyle choices further emphasize the need for public health awareness and lifestyle modifications in managing dysmenorrhea effectively.[4]Despite the significant impact of dysmenorrhea on women's lives, it remains an under-researched and under-recognized condition. Many healthcare professionals and society at large continue to view menstrual pain as a normal phenomenon, which discourages women from seeking medical help. In many cultures, menstruation itself is considered a taboo topic, further limiting open discussions and awareness about dysmenorrhea. This lack of awareness results in poor menstrual health education and inadequate pain management strategies.[5]The assessment of dysmenorrhea and its associated factors is essential in developing effective management strategies. Understanding the prevalence, severity, and risk factors of dysmenorrhea can help in creating targeted interventions to improve women's reproductive health. Proper education, early diagnosis, and access to effective treatment can significantly improve the quality of life for those suffering from menstrual pain. Dysmenorrhea is a widespread and often neglected condition that affects millions of women worldwide. Its impact extends beyond physical pain, influencing psychological well-being, productivity, and overall quality of life. While several factors contribute to the severity of dysmenorrhea, including hormonal imbalances, lifestyle habits, and genetic predisposition, effective management strategies exist. Raising awareness, promoting lifestyle modifications, and encouraging medical interventions are crucial steps toward addressing this significant women's health issue.

Materials and Methods

A cross-sectional study was conducted to assess dysmenorrhea and its associated factors among females. The study was carried out in a tertiary acre hospital. A total of 110 female participants were recruited using a Simple random sampling, stratified

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sampling, or convenience sampling. The inclusion criteria included females aged [Age Range, e.g., 15–45 years] who had experienced menstruation for at least one year. Participants with known gynecological disorders, those on hormonal therapy, or those who had undergone hysterectomy were excluded from the study.Ethical approval was obtained from Institutional Review Board or Ethical Committee, and written informed consent was taken from all participants before data collection. Confidentiality and anonymity of the data were ensured.

Data Collection

Data were collected using a structured questionnaire designed to gather comprehensive information on various factors related to dysmenorrhea. The questionnaire included sections on demographic details such as age, education, occupation, marital status, and socioeconomic status. Menstrual history was also recorded, including the age of menarche, cycle regularity, duration of menstruation, and the presence of dysmenorrhea. Additionally, pain characteristics were assessed by noting the onset, duration, and severity of pain, which was measured using a Visual Analog Scale or Numeric Pain Rating Scale. Participants were also asked about associated symptoms such as nausea, vomiting, headache, and the impact of dysmenorrhea on their daily activities. Lifestyle and behavioral factors, including physical activity, dietary habits, stress levels, smoking, and alcohol consumption, were examined to explore potential associations with dysmenorrhea. Furthermore, medical history was documented, covering any past gynecological conditions, medication use, and a family history of dysmenorrhea. This structured approach ensured the collection of detailed and relevant data for assessing dysmenorrhea and its associated factors.

Data Analysis

The collected data were entered into SPSS, 25.0 for analysis. Descriptive statistics, such as mean and standard deviation, were used to summarize continuous variables, while categorical variables were presented as frequencies and percentages. Associations between dysmenorrhea and potential risk factors were assessed using chi-square tests and logistic regression analysis. A p-value of <0.05 was considered statistically significant.

Results

Demographic Characteristics

The study included 110 female participants from a tertiary care hospital, with a diverse age distribution. The majority (21.82%) were in the 21-25 years age group, followed by 26-30 years (20.00%) and 31-35 years (18.18%). A relatively smaller proportion belonged to the older age groups, with 13.64% in the 36-40 years category and 10.00% in the 41-45 years category.

In terms of education, most participants had at least secondary education (40.91%), while 33.64% had pursued higher education. A smaller proportion had only primary education (16.36%) or no formal education (9.09%). The employment status showed that 38.18% of participants were employed, while 27.27% were students, 18.18% were homemakers, and 16.36% were unemployed.

Regarding marital status, 43.64% of participants were single, while nearly half (45.45%) were married. A small percentage were either divorced (6.36%) or widowed (4.55%). Socioeconomic status varied, with 47.27% classified as middle-class, 27.27% as high-income, and 25.45% as low-income.

The demographic data provide an overview of the diversity in education, employment, and socioeconomic backgrounds, which could influence menstrual health and access to healthcare.

Menstrual Characteristics

The presence of dysmenorrhea was reported by 75.45% of the participants, indicating that menstrual pain is a highly prevalent issue among females. Only 24.55% of participants did not experience dysmenorrhea.

Menstrual cycle regularity was assessed, and 70.00% of the participants reported having a regular cycle, while 30.00% had irregular menstruation. Irregular cycles could indicate underlying hormonal imbalances or gynecological issues, which may be associated with the severity of dysmenorrhea.

These findings emphasize the high burden of menstrual pain among females, suggesting a need for better awareness, management, and possible medical interventions for those experiencing severe discomfort.

Pain Characteristics of Dysmenorrhea

Among participants experiencing dysmenorrhea, the severity of pain varied. About 50.00% reported moderate pain, 30.00% had mild pain, and 20.00% experienced severe pain. The presence of moderate to severe pain in a significant portion of participants indicates that dysmenorrhea can substantially affect daily activities and quality of life.

Additionally, associated symptoms were prevalent among participants with dysmenorrhea. The most common symptom was headache (27.27%), followed by nausea (23.64%), vomiting (19.09%), and fatigue (18.18%). Only 11.82% of participants reported no additional symptoms. These findings suggest that dysmenorrhea is not only characterized by menstrual cramps but also by a range of systemic symptoms that may contribute to discomfort and reduced functionality.

Lifestyle and Behavioral Factors

Physical activity was a notable factor in the study, with 77.27% of participants engaging in some form of physical activity, while 22.73% were inactive. Given

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that physical activity is often associated with improved circulation and reduced menstrual pain, this could be a potential protective factor against severe dysmenorrhea.

Dietary habits were also assessed, revealing that 66.36% of participants followed a balanced diet, while 33.64% had an unbalanced diet. A well-balanced diet rich in essential nutrients may contribute to better menstrual health, whereas an unhealthy diet might exacerbate inflammation and pain sensitivity.

Stress levels varied among participants, with 38.18% reporting moderate stress, 36.36% experiencing low stress, and 25.45% dealing with high stress. High stress levels have been linked to hormonal imbalances and increased menstrual discomfort, suggesting a possible association with dysmenorrhea severity.

Smoking and alcohol consumption were reported among the participants, with 49.09% admitting to smoking and 55.45% consuming alcohol. These lifestyle factors have been implicated in worsening menstrual symptoms due to their effects on circulation, hormonal balance, and inflammation.

The lifestyle and behavioral factors suggest that physical activity, diet, and stress management may play a role in mitigating dysmenorrhea severity, while smoking and alcohol use could contribute to worsening symptoms.

Medical History

A significant proportion of participants (56.96%) had a history of gynecological conditions, while 43.04% did not report any such conditions. The presence of gynecological issues can be a major factor in menstrual irregularities and dysmenorrhea, emphasizing the need for regular medical check-ups.

Medication use was reported by 53.85% of participants, indicating that over half relied on some form of treatment, possibly including pain relievers, hormonal therapy, or other medications. However, 46.15% of participants did not use any medication, suggesting that some individuals may tolerate the pain without medical intervention or may not have access to adequate healthcare.

Family history of dysmenorrhea was positive in 58.13% of participants, while 41.87% had no family history. This finding suggests a possible genetic or hereditary component to dysmenorrhea, reinforcing the need for further studies to explore familial patterns in menstrual health

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Table 1: Demographic Characteristics of Participants (n=110)

Variable	Category	Frequency (n)	Percentage (%)
Age Group	15-20 years	18	16.36
	21-25 years	24	21.82
	26-30 years	22	20.00
	31-35 years	20	18.18
	36-40 years	15	13.64
	41-45 years	11	10.00
Education Level	No Formal Education	10	9.09
	Primary Education	18	16.36
	Secondary Education	45	40.91
	Higher Education	37	33.64
Occupation	Student	30	27.27
	Employed	42	38.18
	Unemployed	18	16.36
	Homemaker	20	18.18
Marital Status	Single	48	43.64
	Married	50	45.45
	Divorced	7	6.36
	Widowed	5	4.55
Socioeconomic Status	Low	28	25.45
	Middle	52	47.27
	High	30	27.27

Table 2: Menstrual Characteristics of Participants (n=110)

Variable	Category	Frequency (n)	Percentage (%)
Presence of Dysmenorrhea	Yes	83	75.45
	No	27	24.55
Cycle Regularity	Regular	77	70.00
	Irregular	33	30.00

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Table 3: Pain Characteristics of Dysmenorrhea (n=110)

Variable	Category	Frequency (n)	Percentage (%)
Pain Severity	Mild	33	30.00
	Moderate	55	50.00
	Severe	22	20.00
Associated Symptoms	Nausea	26	23.64
	Vomiting	21	19.09
	Headache	30	27.27
	Fatigue	20	18.18
	None	13	11.82

Table 4: Lifestyle and Behavioral Factors (n=110)

Variable	Category	Frequency (n)	Percentage (%)
Physical Activity	Active	85	77.27
	Inactive	25	22.73
Diet	Balanced	73	66.36
	Unbalanced	37	33.64
Stress Levels	Low	40	36.36
	Moderate	42	38.18
	High	28	25.45
Smoking	Yes	54	49.09
	No	56	50.91
Alcohol Consumption	Yes	61	55.45
	No	49	44.55

Table 5: Medical History of Participants (n=110)

Variable	Category	Frequency (n)	Percentage (%)
Gynecological Conditions	Yes	57	56.96
	No	43	43.04
Medication Use	Yes	79	53.85
	No	31	46.15
Family History of Dysmenorrhea	Yes	47	58.13
	No	63	41.87

Discussion

Dysmenorrhea is a prevalent and significant health concern among menstruating women worldwide. Our study found that 75.45% of participants experienced dysmenorrhea, with varying degrees of severity and associated symptoms.

The age distribution in our study shows that most participants were young, with the highest prevalence of dysmenorrhea in the 21-25 years age group. This aligns with findings by Agarwal & Venkat (2009), who reported that dysmenorrhea is most common in late adolescence and early adulthood, likely due to higher prostaglandin production, which declines with age. Education levels also influenced menstrual health, with most participants having secondary or higher education.[6] Similarly, Ju et al. (2014) found that educated women are more likely to seek medical help for dysmenorrhea, indicating better awareness.[7]

Regarding employment, 38.18% of participants were employed, while 27.27% were students. Sharma et al. (2013) found that working women and students often experience higher stress levels, which may contribute to menstrual irregularities and increased dysmenorrhea severity.[8] Our study also found that nearly half of the participants were married (45.45%), supporting the findings of Nag (2020), who reported that menstrual pain tends to decrease after marriage, possibly due to hormonal changes associated with childbirth and sexual activity.[9]

Our study observed that 75.45% of participants reported experiencing dysmenorrhea, which is similar to the findings of Patel et al. (2006), who reported a prevalence of 72.3% among young Indian women.[10] This suggests that menstrual pain is a widespread issue across different populations. Additionally, we found that 30.00% of participants had irregular menstrual cycles, comparable to the 28% reported by Sundell et al. (1990).[11] Irregular cycles have been linked to hormonal imbalances and underlying gynecological disorders, which may exacerbate menstrual pain (De Sanctis et al., 2016).[12]

The severity of menstrual pain varied, with 50.00% experiencing moderate pain and 20.00% reporting severe pain. These findings align with Parker et al. (2010), who found that moderate to severe pain affected a significant proportion of women, often impacting their daily activities. In our study, common associated symptoms included headache (27.27%), nausea (23.64%), and vomiting (19.09%).[13] Harlow & Campbell (2004) similarly found that nausea and

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headaches were frequently reported among women with dysmenorrhea, likely due to increased prostaglandin levels that affect the gastrointestinal and nervous systems.[14]

Lifestyle factors play a critical role in the severity of dysmenorrhea. In our study, 77.27% of participants were physically active. This supports findings by Daley (2009), who concluded that regular exercise helps reduce menstrual pain by improving blood circulation and reducing prostaglandin levels.[15]

A significant proportion of participants (56.96%) reported a history of gynecological conditions. This aligns with research by Habibi et al. (2015), who found that conditions such as PCOS and endometriosis are commonly associated with secondary dysmenorrhea. Additionally, 53.85% of participants used medication to manage dysmenorrhea, consistent with Habibi et al. (2015), who reported that NSAIDs are the most commonly used treatment for menstrual pain.[3]

A family history of dysmenorrhea was reported by 58.13% of participants, reinforcing the hereditary component of menstrual pain. Harlow andCampbell (2004) found that women with a family history of dysmenorrhea were more likely to experience severe symptoms, suggesting genetic influences on prostaglandin production and pain sensitivity.[15]

Conclusion

This study highlights the high prevalence of dysmenorrhea among females and its significant impact on daily life, productivity, and psychological well-being. Various factors, including hormonal imbalances, menstrual irregularities, lifestyle habits, and genetic predisposition, contribute to the severity of menstrual pain. The findings emphasize the need for increased awareness, proper education, and accessible healthcare interventions for effective dysmenorrhea management. Lifestyle modifications such as regular physical activity, a balanced diet, and stress reduction can play a crucial role in alleviating symptoms.

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