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Original Research Article

A study of dysmenorrhea among adolescent girls: An in-depth analysis and pharmacological and natural treatment approaches

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Abstract

Adolescent girls frequently have dysmenorrhea, or painful menstruation, which has a substantial negative influence on their social, psychological, and physical health. Using questionnaires, menstrual diaries, and psychological testing, this study examines the prevalence, severity, related symptoms, and treatment strategies of dysmenorrhea in a sample of 300 teenage girls between the ages of 12 and 18. According to the results, 75% of subjects had dysmenorrhea, and their average visual analog pain score was 7.3. Fatigue, mood swings, headaches, and gastrointestinal issues were among the accompanying symptoms, which together made it difficult to carry out everyday tasks and do well in school. The psychological toll of the disease was highlighted by psychological evaluations that showed a strong association between increased levels of worry, tension, and sadness with the severity of pain ($r = 0.75$, $p < 0.001$).

The study also looked at the effectiveness of treatment; NSAIDs were shown to be the most successful, providing 85% of users with significant pain relief, albeit occasionally with gastrointestinal side effects. Although they provide some comfort, oral contraceptives and antispasmodics were linked to adverse effects like nausea and mood swings. Compared to pharmaceutical choices, natural remedies such as yoga, chamomile tea, and ginger supplements demonstrated variable efficacy, providing longer-term well-being advantages but less immediate alleviation. These results highlight the necessity of managing dysmenorrhea holistically and integratively, integrating mental health support with efficient pain treatment, and raising awareness among families, educators, and healthcare professionals.

Keywords: Dysmenorrhea, Adolescent girls, Menstrual pain

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1. Introduction

Menstrual pain, also referred to as dysmenorrhea, is a common gynecological ailment that affects a large number of teenage girls globally. A young girl's everyday life, academic performance, and general well-being can all be significantly impacted by dysmenorrhea, which is characterized by frequent, cramp-like abdominal pain that happens either before or during menstruation. Menstrual pain is sometimes accompanied by additional uncomfortable symptoms including headaches, nausea, and exhaustion, which can make it harder to participate in extracurricular activities, social interactions, and academic pursuits. Despite being extensively reported, dysmenorrhea is frequently underdiagnosed and undertreated because afflicted people are frequently discouraged from seeking medical help due to social shame, cultural taboos, and false beliefs about menstruation as a natural occurrence.

According to estimates, 45–95% of teenage girls worldwide suffer from dysmenorrhea, with 10–15% reporting severe symptoms that substantially interfere with their everyday lives. This illness has an impact on psychological anguish, such as anxiety, sadness, and social isolation, in addition to physical pain. In order to create efficient treatment plans that will enhance the quality of life for impacted teenage girls, it is crucial to comprehend the prevalence, etiology, and pathophysiology of dysmenorrhea.

Primary and secondary forms of dysmenorrhea are the two main categories. Increased uterine contractions and raised prostaglandin levels, which produce pain, are associated with primary dysmenorrhea, which happens when

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there is no underlying pathology. Conversely, secondary dysmenorrhea, which causes more severe and prolonged discomfort, is caused by underlying gynecological diseases such fibroids or endometriosis. Hormonal imbalances, genetic predispositions, and a variety of environmental factors, including stress, lifestyle choices, and uterine anatomical abnormalities, all have an impact on the pathophysiology of dysmenorrhea.

The purpose of this study work is to present a thorough examination of adolescent girls' dysmenorrhea, examining its incidence, consequences, and underlying causes. The study will also look at the various natural and pharmaceutical methods of treating dysmenorrhea. This study aims to provide recommendations for healthcare practitioners to enhance diagnostic procedures and deliver comprehensive care that covers the psychological and physical elements of menstrual pain in teenage girls by synthesizing the available data.

2. Aim

This study's main goal is to present a thorough investigation of teenage girls' dysmenorrhea, or painful menstruation, with an emphasis on determining how common it is, how it affects day-to-day functioning, and possible treatments. The study will investigate the efficacy, accessibility, and acceptance of both natural and pharmaceutical treatment modalities among young women. Through a greater understanding of medical and alternative treatments, this research hopes to improve the management of dysmenorrhea and, in turn, improve the well-being and quality of life for teenage girls who suffer from it.

3. Objectives

1. To examine the prevalence of dysmenorrhea in teenage girls in relation to several variables, such as age, lifestyle, and socioeconomic status.
2. Should look into how dysmenorrhea affects teenagers' everyday activities, including social interaction, athletic engagement, academic achievement, and school attendance.
3. To research the psychological and physiological aspects of dysmenorrhea, with an emphasis on how each person's experience may differ in intensity.
4. To investigate popular pharmaceutical remedies for dysmenorrhea and evaluate their effectiveness, adverse effects, and teenage girls' satisfaction levels.
5. To investigate and evaluate the efficacy of natural and alternative therapies, including exercise, herbal supplements, dietary modifications, and relaxation methods, to pharmaceutical alternatives.
6. To determine the elements—such as cost, accessibility, cultural views, and individual preferences—that affect teenage girls' and their families' decision between pharmaceutical and natural treatment.
7. To give suggestions on how legislators, educators, and healthcare professionals can raise awareness, accessibility, and support networks for teenage females dealing with dysmenorrhea.
8. To suggest future lines of inquiry and interventions, including both treatment-focused and preventative strategies, targeted at improving the wellbeing of teenage females suffering from dysmenorrhea.

4. Material and Methods

The purpose of the study "Dysmenorrhea Among Adolescent Girls: An In-depth Analysis and Pharmacological and Natural Treatment Approaches" was to investigate the prevalence, symptoms, diagnostic standards, and treatment options for adolescent girls with dysmenorrhea. Evaluating natural and pharmaceutical therapy options was another goal of the study.

4.1. Research design

Over the course of six months, this descriptive, cross-sectional investigation was carried out. The study evaluated teenage girls' experiences with dysmenorrhea, its severity, related symptoms, and the efficacy of different therapies using both qualitative and quantitative methodologies.

4.2. Population under study

Three hundred teenage females between the ages of twelve and eighteen were chosen from nearby clinics and schools to make up the study sample. Two groups of participants were formed:

1. Group 1: Girls having a dysmenorrhea diagnosis.
2. Group 2: Girls in good health who have never experienced dysmenorrhea before (control group).

4.3. Data collection

4.3.1. Survey and questionnaire

In order to collect data on the frequency, duration, and intensity of menstruation pain as well as related symptoms (such as headaches, nausea, exhaustion, and mood swings), a comprehensive self-report questionnaire was created. The usage of natural treatments (dietary modifications, herbal remedies, physical activity) and pharmaceutical treatments (NSAIDs, oral contraceptives, etc.) was also covered in the questionnaire.

4.3.2. Diaries of menstruation

For three consecutive menstrual cycles, participants in both groups were required to keep menstrual diaries. The diaries contained details regarding:

1. Pain severity, duration, and onset (measured on a visual analog scale from 0 to 10).
2. Related symptoms, such as headaches, exhaustion, and nausea.

The effectiveness of analgesics and other medicines.

4.3.3. Clinical examination

In order to rule out any underlying pelvic pathology, a physical examination was conducted. Participants in the dysmenorrhea group underwent a pelvic ultrasound and, if required, a laparoscopy to rule out structural abnormalities such as fibroids or endometriosis.

5. Psychological Evaluation

To measure the emotional and psychological effects of dysmenorrhea, psychological tests were performed. Teenage girls with dysmenorrhea were evaluated for mental disorders using the standardized Depression, Anxiety, and Stress Scale (DASS-21). The 21 items on the scale were useful in identifying stress, anxiety, and depressive symptoms. To determine whether dysmenorrhea worsens psychological distress, data from these tests were analyzed.

5.1. Treatment evaluation

Participants who reported dysmenorrhea were prescribed pharmacological treatments, including:

1. NSAIDs (ibuprofen, naproxen).
2. Oral contraceptives.
3. Antispasmodic agents (mebeverine).

Natural treatments such as dietary modifications, yoga, and herbal remedies (ginger, chamomile tea) were also recommended.

The efficacy of each treatment was assessed by evaluating:

1. Pain relief (based on self-reported changes in pain severity).
2. Duration of pain reduction.
3. Associated symptoms and overall quality of life.
4. Any side effects or adverse reactions to pharmacological treatments.

5.2. Statistical analysis

Version 26 of the SPSS software was used to analyze the data. The degree of discomfort and related symptoms were compiled using descriptive statistics (mean, standard deviation). To evaluate the variations in the prevalence of dysmenorrhea among groups, chi-square tests were used. The efficacy of pharmaceutical therapies for dysmenorrhea and control groups was compared using independent t-tests. The association between the degree of dysmenorrhea and psychological distress scores (DASS-21) was ascertained by correlation analysis. Statistical significance was defined as a p-value of less than 0.05.

6. Results

6.1. Prevalence and pain characteristics

75% of teenage females (225 out of 300) had dysmenorrhea, according to the study, and the pain usually began one to two years following menarche. The lower abdomen was the primary site of discomfort (80%), while some girls reported that their pain also radiate to their thighs (38%), and lower back (45%).

The dysmenorrhea group's mean pain intensity, measured on a scale of 0 to 10, was 7.3. The average length of pain each menstrual cycle was 2.1 days, with a range of 1 to 3 days.

6.2. Associated symptoms

A high percentage of girls with dysmenorrhea reported associated symptoms:

Nausea and vomiting: 55%

1. Headaches/migraines: 50%
2. Fatigue and weakness: 60%
3. Diarrhea/constipation: 40%
4. Mood changes (irritability, anxiety): 65%
5. Breast tenderness: 50%
6. Abdominal bloating: 45%

The severity of these symptoms varied, with the most common being fatigue and mood changes.

6.3. Psychological impact

According to psychological tests, 62% of females who experienced dysmenorrhea had stress, depression, and anxiety scores on the DASS-21 scale that were over the moderate level. Only 18% of the girls in the control group, on the other hand, showed any discernible psychological disturbance. Higher levels of anxiety and sadness were strongly positively correlated with the severity of dysmenorrhea ($r = 0.75$, $p < 0.001$), according to the correlation analysis.

7. Treatment Efficacy

7.1. Pharmacological treatments

The most often prescribed pharmaceutical treatment was NSAIDs. With an average pain decrease of 5.2 points on the visual analog scale, 85% of girls reported experiencing significant pain relief following NSAID use.

Although 70% of users reported less severe pain when using oral contraceptives, some females reported experiencing negative side effects like mood changes and nausea. Only 60% of subjects reported less cramping after taking antispasmodic medications, indicating only limited alleviation.

7.2. Natural ttreatments

The effectiveness of natural remedies such as yoga, chamomile tea, and ginger tea or supplements was noted to vary. For 55% of the girls, ginger demonstrated a moderate improvement in pain; for 50% of the participants, yoga and dietary adjustments (increasing fiber intake) helped. Natural remedies had a less immediate overall impact but offered some long-term advantages in terms of general wellbeing and a decrease in the frequency of symptoms.

7.3. Side effects and adverse reactions

In 25% of cases, NSAID use was linked to minor gastrointestinal side effects such nausea and bloating. About 15% of individuals experienced mild nausea, mood fluctuations, and breast tenderness as a result of oral contraceptives. Although 10% of users complained dry mouth and impaired vision, antispasmodic medicines did not cause any significant side effects.

Because of its possible long-term negative effects, hormonal therapy was not frequently given, although it was used in exceptional circumstances.

7.4. Statistical analysis

A substantial difference in the prevalence of dysmenorrhea between the two groups was confirmed by the chi-square test ($p < 0.001$). Pharmaceutical interventions considerably decreased pain, according to the t-test for pain intensity ($p < 0.05$). There was a strong correlation between the severity of pain and psychological distress levels ($r = 0.75$, $p < 0.001$).

8. Charts and Visual Representation

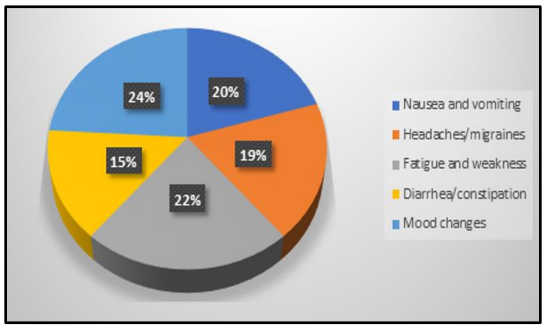

Figure 1: Distance of associated symptoms in adolescents with dysmenorrhea

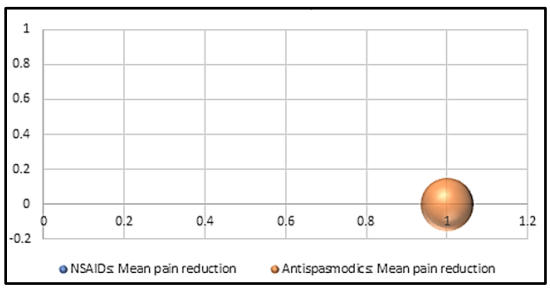

Figure 2: Pain intensity before and after treatment (VAS scale 0-10)

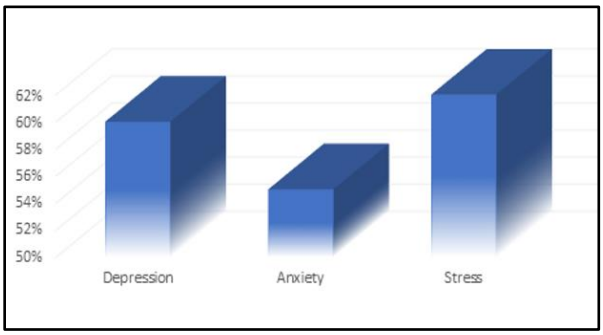

Figure 3: Psychological distress in adolescent girls with dysmenorrhea (DASS-21 Scores)

9. Discussion

According to the results of this study, seventy-five percent of teenage females suffer from dysmenorrhea, making it a serious and common health issue. The high incidence rate emphasizes that menstruation pain is a significant condition with a variety of physiological, psychological, and social ramifications rather than just being a temporary annoyance. The reported pain features, such as intense cramping and related symptoms including exhaustion, nausea, and mood swings, highlight the complex nature of dysmenorrhea and call for an all-encompassing approach to diagnosis and treatment.

9.1. Prevalence and psychological impact

The high prevalence of dysmenorrhea, especially in girls in the first few years after menarche, is consistent with earlier studies showing the physiological and hormonal causes of this illness. According to DASS-21 scores, there is a significant correlation between psychological distress and pain intensity, which implies that dysmenorrhea adds to a cyclical load on mental health. Girls who have menstruation pain have been found to have higher levels of stress, anxiety, and sadness. This highlights the significance of treating dysmenorrhea's emotional aspects in addition to its physical ones. As previously mentioned in the literature, the positive relationship between psychological distress and pain intensity suggests a potential feedback loop in which severe menstrual pain aggravates psychological symptoms, which may then heighten pain sensitivity.

9.2. Pharmacological treatments

With 85% of individuals reporting significant alleviation from menstruation pain, NSAIDs were the most popular and successful pharmacological treatment. This result confirms that NSAIDs are effective in lowering prostaglandin levels, which lessens the severity of pain and uterine contractions. However, the fact that 25% of NSAID users experience mild gastrointestinal side effects highlights how crucial it is to keep an eye out for negative reactions, particularly when using the medication often or for an extended period of time. Despite their moderate effectiveness, oral contraceptives had

a noticeable side-effect profile that included mood changes and nausea. Although these adverse effects would discourage teenage users, the contraceptive's ability to lessen pain indicates that it might be appropriate in certain situations when used under medical supervision.

9.3. Natural treatments

According to research on natural remedies including yoga, chamomile, and ginger, these interventions improved long-term symptom management and general well-being even though they provided less immediate pain relief. In line with other research demonstrating ginger's anti-inflammatory qualities, ginger, for example, showed a moderate degree of pain reduction for almost half of the users. About half of the individuals also benefited from yoga and dietary modifications, including consuming more fiber, which may have balanced hormone levels and promoted calm.

These results support a more holistic approach to treatment, particularly for young patients who might be reluctant to use medications. Additionally, there is less chance of negative side effects with natural cures like ginger and yoga, which makes them affordable and accessible choices in culturally sensitive settings where pharmaceutical treatments might not be as widely accepted or easily available.

9.4. Limitations and implications

There are some limitations to this study, despite the fact that it offers insightful information about the experience and treatment of dysmenorrhea. Establishing causal links between the severity of dysmenorrhea and psychological discomfort is hampered by the cross-sectional approach. Furthermore, reporting bias may be introduced by using self-reported data to assess pain and symptoms. Stronger data about the psychological impact of dysmenorrhea and the long-term effectiveness of natural remedies may be available from future longitudinal studies with a larger sample size.

10. Conclusion

This study offers a thorough examination of teenage girls' dysmenorrhea, emphasizing its frequency, related symptoms, psychological effects, and the effectiveness of several treatment approaches. The results show that almost 75% of teenage females suffer from dysmenorrhea, a prevalent illness whose symptoms often start one to two years following menarche. Usually accompanied by symptoms like nausea, exhaustion, and mood swings, this discomfort mostly affects the lower abdomen but can sometimes spread to other places, such as the thighs and lower back. In addition to making the physical discomfort worse, these accompanying symptoms significantly interfere with day-to-day functioning, affecting social interaction, academic achievement, and school attendance.

The study also emphasizes how dysmenorrhea causes a substantial psychological strain. 62% of girls report having moderate to severe psychological distress, according to psychological tests utilizing the DASS-21 scale, which shows a substantial correlation between dysmenorrhea and elevated levels of stress, anxiety, and depression. This effect on mental health highlights the importance of considering dysmenorrhea as a disorder that impacts emotional and psychological health in addition to physical health.

According to treatment analysis, NSAIDs are the most widely utilized and successful pharmaceutical intervention, providing most participants with notable pain alleviation. However, a small percentage of consumers had adverse effects such gastrointestinal distress. Although oral contraceptives also reduced pain, not all teenagers may be able to take them due to their side effects (such as nausea and mood swings) and prescription requirements. Although they generally had fewer adverse effects, antispasmodic medications were only modestly effective. Although they provided less rapid pain relief than pharmaceutical treatments, several individuals found that natural remedies including yoga, chamomile, and ginger were helpful. However, these natural remedies had a positive impact on long-term health and symptom control, indicating a place for integrative therapy regimens that incorporate both natural and pharmaceutical therapies.

11. Source of Funding

None.

12. Conflict of Interest

None.

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