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ORIGINAL ARTICLE

Prevalence of Primary Dysmenorrhea among School-Going Girls in Tribal Populations in Tamilnadu, India

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ABSTRACT
Primary dysmenorrhea is a common menstrual disorder that affects up to 50% of adolescent girls worldwide, characterized by painful cramps in the lower abdomen, lower back, andthighs. It is caused by the release of prostaglandins during menstruation, which triggers uterine contractions and pain. The severity of symptoms can vary from mild to severe, with some girls unable to attend school or carry out their usual activities during menstruation. It can have a negative impact on the health and well-being of school-going girls in tribal populations, leading to academic difficulties andlower educational attainment. This study aims to determine the prevalence of primary dysmenorrhea among school-going girls in tribal populations located in Tamil Nadu, India. Data was collected using a self-administered questionnaire that was developed in English and translated into Tamil. Inclusion criteria for the study were girls between the ages of 12 to 18 years, belonging to tribal communities, and attending government schools in the selected districts. Exclusion criteria weregirls with a history of gynaecological disorders or pelvic surgery, and those who were pregnant or had given birth within the last 6 months. A p-value of less than 0.05 was considered statistically significant. The study findings suggest a high prevalence of primary dysmenorrhea among school-going girls in tribal populations, with 78.3% of participants reporting pain during menstruation. This high prevalence emphasizes the need for greater attention and interventions to address the issue of menstrual health among school-going girls in tribal populations.
***KEY WORDS**: Primary dysmenorrhea; tribal; School Students; Mensuration; Tamil Nadu*

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INTRODUCTION

Primary dysmenorrhea is a common menstrual disorder that affects a significant proportion of adolescent girls worldwide, leading to physical discomfort and psychological distress. The condition is characterized by painful cramps in the lower abdomen, lower back, and thighs, which can be associated with other symptoms such as nausea, headache, and fatigue. Primary dysmenorrhea is caused by the release of prostaglandins during menstruation, which triggers uterine contractions and pain. The severity of symptoms can vary from mild to severe, with some girls being unable to attend school or carry out their usual activities during menstruation[1][2].

The impact of primary dysmenorrhea on the health and well-being of school-going girls in tribal populations is of particular concern, given the lack of access to healthcare and education in these communities. Girls who experience dysmenorrhea may be unable to attend school regularly, leading to

academic difficulties and lower educational attainment. They may also be stigmatized and marginalized due to cultural taboos surrounding menstruation, which can further affect their self-esteem and mental health[3][4].

Primary dysmenorrhea is a widespread menstrual disorder that affects up to 50% of adolescent girls worldwide. [5] The prevalence of dysmenorrhea varies depending on factors such as age, ethnicity, and socioeconomic status. Studies have shown that girls from low-income and marginalized communities are more likely to experience dysmenorrhea and have limited access to healthcare and menstrual hygiene products [6].

In tribal populations, the prevalence of primary dysmenorrhea is relatively high due to a lack of awareness and access to healthcare services. The cultural stigma surrounding menstruation can also exacerbate the problem by discouraging girls from seeking medical help or discussing their menstrual problems openly[5][6].

The prevalence of primary dysmenorrhea among school-going girls in tribal populations has been found to be high in several studies. For example, a study conducted in rural areas of West Bengal, India found that 86.8% of adolescent girls reported experiencing dysmenorrhea [7]. Another study conducted among girls in the tribal population of Gujarat, India found that 78.1% of the girls experienced dysmenorrhea [8]. Similarly, a study conducted in a tribal district of Maharashtra, India found that 77% of the girls reported experiencing dysmenorrhea[9].

The purpose of this study is to determine the prevalence of primary dysmenorrhea among school-going girls in tribal populations located in Villupuram, Thiruvannamalai, Salem, and Dindigul districts of Tamil Nadu, India. The findings of this study can be used to raise awareness about the issue and developtargeted interventions to improve menstrual health and well-being among school-going girls in tribal populations.

MATERIAL AND METHODS

Study Design and Participants:

This cross-sectional study aimed to determine the prevalence of primary dysmenorrhea among school-going girls in tribal populations located in Villupuram, Thiruvannamalai, Salem, and Dindigul districts of Tamil Nadu, India. The study included a total of 507 school-going girls between the ages of 12 to 18 years who belonged to tribal communities and were attending government schools in the selected districts.

Inclusion and Exclusion Criteria:

The inclusion criteria for the study were: (1) girls between the ages of 12 to 18 years, (2) belonging to tribal communities, (3) attending government schools in the selected districts. The exclusion criteria were:

(1) girls with a history of gynecological disorders or pelvic surgery, (2) those who were pregnant or had given birth within the last 6 months.

Data Collection Methods:

Data was collected using a self-administered questionnaire that was developed in English and translated into Tamil, the local language. The questionnaire consisted of two sections: (1) demographic information and (2) menstrual history and symptoms. The questionnaire was pre-tested among a group of 30 school-going girls to ensure clarity and ease of understanding.

The participants were briefed about the study aims and informed consent was obtained from them and their parents or guardians. The questionnaires were distributed to the participants during their regular school hours and they were given ample time to complete it. The completed questionnaires were collected by the research team and checked for completeness and accuracy.

Statistical Analysis Plan:

Data analysis was performed using the Statistical Package for the Social Sciences (SPSS) version 26. Descriptive statistics were used to summarize the demographic characteristics and prevalence of primary dysmenorrhea. The chi-square test was used to determine the association between primary dysmenorrhea and demographic variables such as age, education level, and household income. A p-value of less than 0.05 was considered statistically significant.

RESULT AND DISCUSSION

Table 1 presents the socio-demographic characteristics of the participants with dysmenorrhea. The sample size was 507, and the data was collected from school-going girls in tribal populations.

The table shows that 70.1% of the participants were aged 16-18 years, while 29.9% were aged 13-15 years. The age group of 13-15 years had a significantly higher prevalence of dysmenorrhea (p=0.022). Similarly, participants studying in 8th-10th standard had a significantly higher prevalence ofdysmenorrhea (28%) compared to those in 11th-12th standard (72%), with a p-value of 0.019.

Table: 1 - Socio-Demographic Characteristics Of Participants Dysmenorhhea (n = 507)		
VARIABLES	**TOTAL (%)**	**p VALUE**
Age in years		
13-15 years	152 (29.9%)	0.022
16-18 years	355 (70.1%)	
Standard (class) in which the girl is studying		
8th - 10th	142 (28%)	0.019
11th - 12th	365 (72%)	
Educational status of mother		
No formal education	176 (34.7%)	0.08
Less than high school	206 (40.6%)	
High school and above	123 (24.3%)	
Graduate	2 (0.4%)	
Education status of father		
No formal education	157 (31%)	0.15
Less than high school	190 (37.5%)	
Above high school	149 (29.3%)	
Graduate	11 (2.2%)	
Occupation of the mother		
House wife and Unskilled	479 (94.4%)	0.012
Skilled and Profession	28 (5.6%)	
Occupation of the father		
Unemployed and Unskilled	484 (95.4%)	0.007
Skilled and Profession	23 (4.6%)	
Family monthly income		
Below 7000	434 (85.6%)	0.009
Above 7000	73 (14.4%)	
Type of family		
Nuclear and extended	401 (79.09%)	0.012
Joint	106 (20.91%)	

In terms of maternal education, 40.6% of the participants had less than high school education, while 34.7% had no formal education. There was no statistically significant association between maternal education and dysmenorrhea. On the other hand, the occupation of the mother was significantly associated with dysmenorrhea (p=0.012), with a higher prevalence observed among girls whose mothers werehousewives and unskilled (94.4%).

Regarding the father's education, 37.5% of the participants had less than high school education, while 31% had no formal education. There was no statistically significant association between the father's education and dysmenorrhea. However, the father's occupation was significantly associated with dysmenorrhea (p=0.007), with a higher prevalence observed among girls whose fathers were unemployed and unskilled (95.4%).

In terms of family income, 85.6% of the participants had a monthly income below 7000, while 14.4% had an income above 7000. There was a significant association between family income and dysmenorrhea (p=0.009), with a higher prevalence observed among girls from families with a monthly income below 7000.

Table-2 presents gynaecological related characteristics of 507 tribal school going students. The variables in the table include age at menarche, regularity of menstrual cycle, duration of menstrual flow, interval of menstruation, presence of pain during menstruation, family history of dysmenorrhea, measures taken to control dysmenorrhea, and associated symptoms with pain.

The table indicates that 41.02% of the student's experienced menarche between 11-13 years, while 58.98% had menarche between 14-16 years. Among the students, 67.7% had a regular menstrual cycle, while 32.3% had an irregular cycle. The duration of menstrual flow was 2-3 days for 48.1% of the students, 4-6 days for 42.2%, and more than 7 days for 9.7%.

Table – **2**: GYNAECOLOGICAL RELATED CHARACTERISTICS OF TRIBAL SCHOOL GOINGSTUDENTS **(n = 507)**		
VARIABLES	TOTAL (%)	p VALUE
Age at menarche		
11-13 years	208 (41.02%)	0.21
14-16 years	299 (58.98%)	
Regular mensural cycle		
Yes	343 (67.7%)	0.16
No	164 (32.3%)	
Duration of Mensuration flow		
2 to 3 days	244 (48.1%)	0.004
4 to 6 days	214 (42.2%)	
More than 7 days	49 (9.7%)	
Interval of Mensuration		
24 to 26 days	193 (38.1%)	0.02
27-29 days	175 (34.5%)	
30 days	44 (8.7%)	
Irregular	95 (18.7%)	
Having pain during mensuration		
Yes	397 (78.3%)	0.07
No	110(21.7%)	
If yes, how many days feeling pain		
One day	104 (26.2%)	
Two days	79 (19.9%)	
Three days	156 (39.3%)	
Throughout mensuration	58 (14.6%)	
Any family members have history of dysmenorrhea		
Yes	251 (49.5%)	0.46
No	256 (50.5%)	
If yes who is having dysmenorrhea in your family		
Mother	129 (51.4%)	
Siblings	122(48.6%)	
Have you taken measure to control dysmenorrhea		
Yes	54 (10.7%)	0.008
No	453 (89.3%)	
If yes what was the measure		
Hot application	3 (5.6%)	
Cold application	16 (29.6%)	
Pain killer	24 (44.4%)	
Any other	11(20.4%)	
Is there any associated symptoms along with pain		
Yes	309 (61%)	0.27
No	198 (39%)	
If yes, what was the symptom		
Pain with vomiting	54(17.5%)	
Pain with headache	67(21.7%)	
Pain with weakness	107(34.6%)	
Any other symptoms?	81(26.2%)	

In terms of the interval between menstrual cycles, 38.1% of students had a cycle of 24-26 days, 34.5% had a cycle of 27-29 days, 8.7% had a cycle of 30 days, and 18.7% had an irregular cycle. Furthermore, 78.3% of students experienced pain during menstruation, while 21.7% did not. Of those who experienced pain, 39.3% felt pain for three days, and 14.6% experienced pain throughout their menstrual cycle.

Regarding family history of dysmenorrhea, 49.5% of students had a family member with dysmenorrhea, with mothers (51.4%) and siblings (48.6%) being the most common family members affected. Only 10.7% of students had taken measures to control dysmenorrhea, and painkillers (44.4%) were the most common form of treatment.

Furthermore, 61% of students experienced associated symptoms along with pain during menstruation. Among them, 34.6% had weakness, 21.7% had headaches, and 17.5% experienced vomiting along with pain. The remaining 26.2% experienced other symptoms. The table also reports p-values for each variable to assess the statistical significance of the observed differences.

DISCUSSION

The study findings suggest a high prevalence of primary dysmenorrhea among school-going girls in tribal populations, with 78.3% of participants reporting pain during menstruation. This is consistent withprevious literature indicating that primary dysmenorrhea is a common gynaecological problem among young women globally, with prevalence rates ranging from 45% to 95%. However, the prevalence of dysmenorrhea in this particular population appears to be higher than that reported in other studies of Indian adolescents, which range from 47% to 75%.

The study findings related to the prevalence and characteristics of primary dysmenorrhea among school-going girls in tribal populations are consistent with previous literature. The prevalence of primary dysmenorrhea found in this study is like that reported in other studies conducted among adolescent girls in India and other countries. Similarly, studies conducted in Iran, Turkey, and Taiwan have reported a prevalence of 78%, 72.3%, and 74.3%, respectively [10][11][12].

The study also found that the majority of the girls experienced pain for 2-3 days, which is consistent with previous literature [10]. The study further revealed that most of the girls used painkillers to manage their pain, which is also consistent with previous literature [14]. The use of hot or cold applications was also reported, which has been found to provide relief from menstrual pain in previous studies [13].

The high prevalence of primary dysmenorrhea among school-going girls in tribal populations could be attributed to several factors, including social, cultural, and environmental factors [10][13][14].

lack of knowledge and awareness about menstruation and menstrual hygiene could be a major factor contributing to the high prevalence of primary dysmenorrhea in these populations. Studies have shown that girls from tribal populations are often not informed about menstruation before their first period, which may lead to anxiety, fear, and a lack of preparedness for the onset of menstruation. Furthermore, there may be cultural taboos and restrictions around discussing menstrual health, which could result in girls not seeking help or support when experiencing menstrual pain[15].

poor menstrual hygiene practices and inadequate sanitary facilities could also contribute to the high prevalence of primary dysmenorrhea among school-going girls in tribal populations. Lack of access to clean water, sanitation, and hygiene facilities can lead to the use of unhygienic materials, such as old clothes, rags, or leaves, during menstruation, which may increase the risk of infection and inflammation. Poor menstrual hygiene practices, combined with inadequate sanitary facilities, could result in girls experiencing pain during menstruation[16].

Poor nutrition and low socioeconomic status could also be contributing factors to the high prevalence of primary dysmenorrhea in these populations. Girls from tribal populations may not have access to a balanced and nutritious diet, which could lead to nutritional deficiencies and anemia, both of which are associated with menstrual pain. Low socioeconomic status may also limit access to healthcare andtreatment for menstrual pain, resulting in girls enduring pain and discomfort during menstruation[16][17].

The psychological stressors, such as academic pressure, family conflict, and social isolation, may also contribute to the high prevalence of primary dysmenorrhea among school-going girls in tribal populations. Studies have shown that stress and anxiety can exacerbate menstrual pain and increase the severity of dysmenorrhea[18][19].

Overall, the high prevalence of primary dysmenorrhea among school-going girls in tribal populations could be the result of a combination of social, cultural, environmental, and economic factors. Addressing these factors through education, improved menstrual hygiene practices, access to healthcare, and social and economic empowerment could potentially reduce the prevalence of primary dysmenorrhea and improve the overall health and well-being of girls in these populations.

CONCLUSION

This cross-sectional study aimed to determine the prevalence of primary dysmenorrhea among school-going girls in tribal populations in Villupuram, Thiruvannamalai, Salem, and Dindigul districts of Tamil Nadu, India. The study found that the prevalence of primary dysmenorrhea was 78.3% among theparticipants.

This high prevalence emphasizes the need for greater attention and interventions to address the issue of menstrual health among school-going girls in tribal populations. this study sheds light on the significant burden of primary dysmenorrhea among school-going girls in tribal populations and highlights the need for greater efforts to promote menstrual health and well-being among this population.

CONFLICT OF INTEREST

The authors disclose that there is no conflict of interest.

Ethical issues – addressed

SE, concept and design and communication, SG, SV and H – data collection and analyses, SH manuscriptand data collection, literature search

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