The prospective study on prevalence of menstrual disorders in school going adolescents at Sangareddy district, Telangana

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ABSTRACT

Background: Menstrual disorders are common sources of morbidity among adolescent girls. Overall, 75% of adolescent’s experience problems with menstruation either with delaying in onset, irregular menstrual cycles, painful or heavy periods. The study was aimed to evaluate the prevalence and examine the key areas of need and explore the experience of adolescent girls with menstrual problems like dysmenorrhea, Amenorrhea, menorrhagia and PMS.

Methods: The study employed prospective observational design. The pre-designed, self-administered, semi-structured questionnaire was used to elicit the data from 1100 adolescents selected from Government schools in and around Sangareddy district, Telangana by random sampling technique. Data was analyzed by using Chi-square test in Statistical package for social sciences (SPSS) version 22.

Results: A total of (65.6%) subjects were unaware of menstruation before menarche. The mean age at menarche was found to be 12.5±1.36 years. Dysmenorrhea (N=158.6) and PMS (N=125.7) were most commonly reported disorders. Majority of subjects have complained about abdominal pain (N=719). Many of subjects (N=292.7) were found to have history of menorrhagia. Many of them reported about irregular periods (N=172). Study resulted there is positive correlation between dysmenorrhea and dysmenorrhea with PMS with p value <0.05 and also amenorrhea and amenorrhea with dysmenorrhea with p value <0.05 which are significant.

Conclusions: This study revealed that majority of girls prone to menstrual problems which often goes unreported due to lack of knowledge on their reproductive health. Hence there is a huge need of educating and screening programs in schools for early diagnosis and management of menstrual disorders, which will improve quality of life and also lower the risks for future diseases.

Keywords: Menstruation, Menstrual disorders, Adolescent girls, Prevalence, Abdominal pain, Screening programs

INTRODUCTION

Adolescence is the transitional phase of physical and psychological changes between childhood and adulthood, it is characterized by immense hormonal changes.1,2 According to WHO, adolescent range in the age group of 10-19, the most striking change in adolescent girls is the onset of menstruation, i.e. menarche; generally occurs approximately 2-3 years after the initiation of puberty between ages of 11-14 years in 95% girls depending on race, ethnicity, socioeconomics and nutritional status.3-6 Menstruation is the normal physiological phenomenon in a girl indicating her capability for procuation.7 It is generally considered as an unclean in Indian society especially and restrictions being imposed on them may result in negative attitude towards this phenomenon.8 In many areas of developing countries, a culture of silence surrounds the topic of menstruation and related issues.9 Prior to menarche, it is an important biological milestone
in a women’s life as it makes the onset of reproductive phase of her life.\textsuperscript{10,12} Awareness of menstruation before 
menarche helps the adolescent girls to prepare physically, 
psychologically and emotionally. Lack of awareness may 
cause serious underlying problems in future.\textsuperscript{10,13}

Overall, 75\% of adolescent experience menstruation associated 
problems like dysmenorrhea, PMS and menstrual irregularities like amenorrhea, and 
menorrhagia.\textsuperscript{14,15} Menstrual cycles often are irregular 
through adolescence, particular the interval from first 
cycle to second cycle. Becoming less frequent as they 
grow older 3-5 years after menarche. Thus, menstruation 
in adolescent is different from adult women.\textsuperscript{1} Menstrual irregularities can be caused by disturbances of central 
gonadotropin-releasing hormone plus generation as well as 
by significant weight loss, strenuous exercise, substantial 
change in sleeping or eating habits and severe stressors. 
Due to environmental factors, including socio-economic 
conditions, nutrition, there is lot of variation in timing and 
progression of puberty, so what was considered normal 
for adolescent menstrual cycle previously may not be normal 
in current scenario.\textsuperscript{1}

Dysmenorrhea is the most common gynecologic complaint 
among adolescent with prevalence ranging from 50-80\% 
worldwide.\textsuperscript{10,14} Pain begins shortly before or at onset of 
menstrual flow and last about 2-3 days and their 
discomfort range from mild to severe.\textsuperscript{16,17}

The absence of menstruation is characterized as 
amenorrhea, the primary amenorrhea is a failure to 
menstruate by the age 16 years in the presence of normal 
growth and secondary sexual characteristics, secondary 
amenorrhea refers to cessation of menstruation for six 
consecutive months in female who have attained 
menarche.\textsuperscript{13,18}

Menorrhagia denotes excessive menstrual bleeding of 
greater than 80ml/cycle or menstrual flow lasting >7 
days.\textsuperscript{7,19} The prevalence of objectively measurable 
menorrhagia has been considered to be around 10\%-20 and 
the most common cause is dysfunctional uterine bleeding 
related to anovulation.\textsuperscript{15}

PMS is cyclic constellation of symptoms occurring in 
second half of menstrual cycle, the symptoms occur a 
week to 10 days between the start of menstrual blood 
loss.\textsuperscript{1,21} Survey have estimated that the frequency of PMS 
is quite high i.e., 80-90\%.\textsuperscript{22} The symptoms include 
bloating, gain in weight, myalgia, backache, headache, 
tiredness, lethargy, fatigue, breast tenderness, depressive 
mood, irritability and decrease in concentration.\textsuperscript{1,6,23}

Menstrual problems not only carry an economic burden 
but also one of the most common cause of absenteeism and 
poor academic performance.\textsuperscript{24} Measures should be taken 
to educate the adolescent and their mothers about 
menstrual disorders and to mitigate their effects on social 
and academic lives of the adolescents.\textsuperscript{10} Poor hygienic 
practices and inadequate self-care are major determinant 
of morbidity and other complications like RTI’s and 
UTI’s.\textsuperscript{9,25}

The aim and objective of the study is to identify the 
prevalence and examine the key areas of need and explore 
the experience of adolescent girls with menstrual problems 
like dysmenorrhea, Amenorrhea, menorrhagia and PMS.

\textbf{METHODS}

The prospective observational study was conducted among 
adolescent school going girls of government schools in and 
around Sangareddy district, Telangana. The survey was 
conducted from November 2019 to December 2020. 
Firstly, permission to carry out the study was sought from 
school authorities. Out of 10 Govt schools present in the 
field practice area, 8 were selected by simple random 
sampling method. From these schools, 6th -10th standard 
students were randomly selected for study. A total of 1100, 
out of 1250 questionnaires present in the field 
were correctly 
filled out and returned (response rate 88\%). The 
respondents were aged between 10-16 years. Students who 
didn’t attained menarche and with incomplete data were 
excluded from the study. A pre-designed, pretested and 
structured questionnaire in both English and local 
language was prepared and used for data collection. The 
questions pertained to complete demographic, source of 
information, menstrual problems, regularities of menses, 
menorrhagia and dysmenorrha in past cycles of 
mestruation and effect of their problem’s in daily routine 
of subjects According to the serial numbers in attendance 
register girls were enrolled to avoid bias and their 
anonymity was maintained by keeping their details 
confidential throughout study and were used only for 
research purpose. After taking informed consent, the data 
was collected through self- administered questionnaire. 
The severity of menstrual pain was measured by visual 
 analogue scale (VAS). After collecting data, educational 
sessions were conducted for girls by visualizing helpful 
videos regarding girl related subject by using digital 
technology and distributed leaflet aids which contained 
standardized information and important counselling points 
to every individual girl who participated in the study.

\textbf{Statiscal analysis}

At 95\% confidence interval, the sample size worked out to 
be 1100. Statistical analysis was done by using SPSS 
version 22, to find out the prevalence of menstrual 
problems and their association with demographics of 
respondents was conducted by using chi-square test; p-
value equal to and less than 0.05 was taken as significant.

\textbf{RESULTS}

The total number of girls enrolled in the study from all 
selected schools were 1250. However due to incomplete 
entries 150 questionnaires could not be included in final 
analysis resulting in attrition rate of 12\%.
Table 1: Prevalence of menstrual disorders by age at data collection.

<table>
<thead>
<tr>
<th>Menstrual Disorder</th>
<th>Age group (10-13)</th>
<th>Age group (14-16)</th>
<th>X</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dysmenorrhea</td>
<td>N=110</td>
<td>N=48</td>
<td>12.8</td>
<td>&lt;0.05</td>
</tr>
<tr>
<td>Dysmenorrhea with PMS</td>
<td>N=94</td>
<td>N=92</td>
<td>11.2</td>
<td>&lt;0.05</td>
</tr>
<tr>
<td>PMS</td>
<td>N=39</td>
<td>N=86</td>
<td>3.98</td>
<td>&lt;0.05</td>
</tr>
<tr>
<td>Dysmenorrhea with Amenorrhea</td>
<td>N=68</td>
<td>N=45</td>
<td>2.61</td>
<td>&gt;0.05</td>
</tr>
<tr>
<td>Amenorrhea</td>
<td>N=26</td>
<td>N=33</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Among 1100 school going adolescent girls studied, maximum was in age group between 11-14 years. Mean age at menarche was found to be 12.5±1.36 years. Most of their mothers were illiterate, from rural background. 65.6% of subjects did not have awareness about menstruation before menarche while 34.4% were known. The source of information was their mothers (25%) followed by friend, sister, relative and internet. Typical menstruation consisted of regular menses in 70% of girls, a cycle length ranging from 21-35 days.

Table 2: Pre-menstrual symptoms.

<table>
<thead>
<tr>
<th>Symptoms</th>
<th>No of subjects (n)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abdominal Pain</td>
<td>719</td>
</tr>
<tr>
<td>Backache</td>
<td>526</td>
</tr>
<tr>
<td>Irritability</td>
<td>490</td>
</tr>
<tr>
<td>Weakness</td>
<td>361</td>
</tr>
<tr>
<td>Psychological upset</td>
<td>305</td>
</tr>
<tr>
<td>Generalized body pains</td>
<td>288</td>
</tr>
<tr>
<td>Headache</td>
<td>209</td>
</tr>
<tr>
<td>Dizziness</td>
<td>134</td>
</tr>
<tr>
<td>Nausea and Vomiting</td>
<td>44</td>
</tr>
</tbody>
</table>

From table 2, majority of girls were experiencing some type of pain. Abdominal pain (65.3%) was more prevalent and found to be most common symptom, followed by backache (47.8%), irritability (44.5%), weakness (32.8%), psychological upset (27.72%), generalized body pains (26.8%), headache (19%), dizziness (14%), nausea and vomiting (4%) where self-care strategies are necessary.

Figure 1: Menstrual disorders in accordance with age groups.

Figure 2: Pre-menstrual symptoms.

Dysmenorrhea and dysmenorrhea with other menstrual disorders were reported by about 458 subjects, majority of subjects have moderate pain (N=207) followed by mild (N=131) and severe (N=120). Only dysmenorrhea was reported by 158.6 subjects. It is associated with PMS and
Amenorrhea and results were reported as N=186.3 and N=113.04 as shown in table 1. 172 subjects of total population complained about having irregular periods (amenorrhea) with menstrual cycle lengths larger than 35 days. 292.7 subjects were reported with heavy bleeding with continuous flow of menses more than 7 days.

Table 3: Menstrual disorders.

<table>
<thead>
<tr>
<th>Menstrual disorders</th>
<th>No. of subjects (n)</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Irregular cycle</td>
<td>172</td>
<td>18.4</td>
</tr>
<tr>
<td>History of menstruation</td>
<td>292</td>
<td>31.2</td>
</tr>
<tr>
<td>Dysmenorrhea</td>
<td>158</td>
<td>17</td>
</tr>
<tr>
<td>Amenorrhea</td>
<td>59</td>
<td>6</td>
</tr>
<tr>
<td>PMS</td>
<td>120.5</td>
<td>13</td>
</tr>
</tbody>
</table>

From table 3, the result of menstrual disorders was reported individually as the regular cycles from total subjects were about 81.5%, irregular cycles were 18.4%, subjects having history of menstruation 31.2%, dysmenorrhea 17% amenorrhea 6% and PMS 13%.

DISCUSSION

Dysmenorrhea was most commonly reported by majority of students with moderate pain followed by mild and severe in accordance to Gilany et al study.5,24-30 Dysmenorrhea is also associated with other menstrual disorders. Consequently, as suggested in our study group, many girls appear to suffer needlessly from dysmenorrhea. The potential reasons are at least twofold in nature: girls believe that menstrual cramps are a normal female experience, even when accompanied with severe pain, nausea, vomiting, diarrhoea, headache, dizziness, and fatigue; and they are not aware that therapy can relieve their distress.28 Accordingly, it was suggested that importance of nutritional status of adolescent girl may reduce dysmenorrhea and to cope with dysmenorrhea adolescent use various strategies that span from medical to non-medical approaches. Prior to awareness regarding menarche and menstruation among girls is generally low in rural areas in our country i.e., 65.5% were ignorant about menstruation before menarche and 33.4% were aware of it, which is similar to the study by Bhattacharya et al.8 In case of PMS, abdominal pain was the major contributor (65.3%) followed by backache, irritability, weakness, psychological stress, generalized body pains, headache, dizziness and least was nausea and vomiting (4%) similar to study done by Purva shoor.1,29 Girls use various strategies to overcome PMS like lifestyle modifications, communicating with others, seeking medical devices, selecting nutritional diet and reducing physical activity during menses to prevent aggravating of symptoms.

The study tends that menses lasted between 3-7 days of menstrual flow in 80% of cycles with average duration of 5 days, 31.2% menstruation observed in study was alarming as heavy menstrual flow also effects psycho-social and academic lives of adolescent and put them at risk of anaemia in accordance to Dewhurst et al and other researchers also.9,24 From the study 6% of subjects were reported with absence of periods (amenorrhea) and 18.4% are with irregular menstrual cycles. Even though menstrual disorders, the study reports 81.5% subjects have regular menstrual cycle.

Findings highlights that the information girls were receiving is insufficient to prepare them for menarche. The results reported that mother is the major source of information to adolescent girls regarding menstruation and menstrual patterns which is similar to Thakre et al study.8 Emotional maternal support must be provided at the time of menarche which is associated with positive experience of menarche. Girls reported many challenges in managing menstrual symptoms at school but some schools lack basic facilities, such as a first aid room with ready access to pain relief, heat-packs or highly absorbent sanitary products. The study finds 61.8% were reported as school absenteeism and the main reason was dysmenorrhea and others are leaking, lack of privacy, staining and smell in similar to Bani Karim et al. Measures should be taken to educate the adolescent and their mothers about menstrual disorders and to mitigate their effects on social and academic lives of the adolescents.

CONCLUSION

Menstrual problems are frequent among adolescents which often goes unreported due to lack of knowledge on their reproductive health, so there is a need of education and screening programs for early diagnosis, management of menstrual problems, which would show a great impact on their reproductive health. Implementing awareness programs will improve academic performance and understanding selfcare strategies, life style modifications and dietary practices are needed to cope up menstrual discomforts.

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Ethical approval: The study was approved by the Institutional Ethics Committee

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