

# Frequency of Pre-Menstrual Syndrome and Menstrual Irregularities in Adolescents of Different Socioeconomic Groups

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## ABSTRACT

**Objective:** To assess association between menstrual irregularities and socioeconomic status in adolescent girls.

**Study Design:** Cross sectional study

**Place and Duration of study:** This study was conducted at different schools and colleges of Karachi from December, 20<sup>th</sup> 2010 to 15<sup>th</sup> January 2011

**Materials and Methods:** The study included 650 girls from schools and colleges of Karachi district representing different socio economic groups. A questionnaire was constructed comprising of biodata, menstrual cycle pattern and details of dysmenorrhea and premenstrual syndrome (PMS). Girls between 15-19 years were selected randomly from schools and colleges representing low, middle and high income group. They were requested to fill questionnaire. Information thus obtained was analysed on spss version 11.

**Results:** A total of 611 questionnaires were analyzed. 33.2% of adolescent girls belonged to low income group, 30.3% were from middle and 36.5% from high income group. Mean age of girls was 16.7 years. Menstrual cycle pattern was regular in 75.28% girls. No difference was found in cycle pattern between different socioeconomic groups. 83.79% girls complained of dysmenorrhea and 34.76% of them were from low income group, 29.49% from middle and 35.75% from high income group. Treatment of dysmenorrhea was required in 14.56% girls, including 41.57% from low, 24.71% middle and 33.8% from high income group. PMS was noted 71.68% girls. 36.1% girls reporting PMS were from low and 32.2% and 31.7% from middle & high income group respectively.

**Conclusion:** Menstrual cycles are regular in majority of teen age girls. Dysmenorrhea and PMS are prevalent menstrual disorders in young adolescents. Incidence of PMS is significantly higher in low socio-economic group.

**Key Words:** Menstrual disorders- premenstrual syndrome (PMS)- Dysmenorrhea- Adolescents

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## INTRODUCTION

Adolescence is a transitional period between childhood and adulthood and is associated with many physiological changes including growth spurt. Menarche is the onset of menstruation which is the main physiological change occurring in adolescent girls. Menstruation plays a very important role in female reproductive life representing maturity of hypothalamus-pituitary-ovarian axis. Menstrual problems are frequently seen in adolescent and about 75% of girls experience some problem associated with menstruation<sup>1</sup>. The common menstrual disorders in adolescents include menstrual irregularities, dysmenorrhea and pre menstrual syndrome (PMS)<sup>2</sup>. Few years after menarche more than half of cycles are anovulatory resulting in menstrual irregularities.

After 1-2 years maturation of hypothalamus-pituitary develops which initiates regular mid cycle LH surge and ovulation, thus establishing regular menstruation. Dysmenorrhea is a common menstrual disorder characterized by recurrent crampy abdominal pain during menstruation. This may sometimes cause disturbances in daily activities, missing school and social withdrawal in severe cases<sup>3</sup>. Primary dysmenorrhea is associated with ovulatory cycles and it is due to myometrial contractions induced by prostaglandins originating in secretory endometrium, whereas secondary dysmenorrhea is due to associated pelvic pathology

An another common menstrual disorder seen in adolescents is Premenstrual Syndrome which consists of emotional, behavioral and physiological changes not caused by organic disease typically occurring in last week of menstrual cycle and symptoms regress after onset of menstruation<sup>4</sup>.

Premenstrual syndrome is listed in international statistical classification of disease and related health problems 10<sup>th</sup> revision (ICD 10)<sup>5</sup> with a symptom checklist for diagnosis of PMS.

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The ICD criteria for PMS includes seven symptoms i.e., minor psychological discomfort, weight gain or bloating, breast tenderness, muscular tension, aches and pain, poor concentration and appetite changes. Symptoms are typically confined to luteal phase of cycle and should disappear with menstruation.

The severe form of PMS is called premenstrual dysphoric disorder PMDD<sup>6</sup>. It is characterized by the presence of at least five symptoms including (one should be severe) that occur one week before menstruation. Symptoms included are depressed mood, anxiety and tension, fluctuating mood, anger and irritability, decreased interest and poor concentration, lethargy and fatigue, feeling overwhelmed and out of control. Physical symptoms including breast tenderness and weight gain are also associated with PMDD. These changes are due to fluctuating hormonal levels during menstrual cycles.

Previous studies about menstrual cycles in teen age girls have been conducted using mainly Caucasian or multi-ethnic population. Only few local studies are available on menstrual disorders. More over there is no information regarding association of menstrual disorders with socioeconomic status.. Therefore, purpose of this study was to find out frequency of menstrual disorders in our adolescent sand to determine association between socioeconomic status and menstrual disorders in these adolescent girls.

## MATERIALS AND METHODS

This was a cross-sectional study conducted at different schools and colleges of Karachi representing low, middle and high socioeconomic groups on the basis of family income. The study was conducted from 20<sup>th</sup> December 2010 to 15<sup>th</sup> January 2011. It included all unmarried girls between 15-19 yrs of age. Married girls, adolescents with endocrine diseases, blood clotting disorders and chronic illness were excluded from the study on the clinical basis.

A self structured questionnaire was made. It included biodata, family income, menstrual cycle pattern and details of dysmenorrhea and PMS. It included physical, psychological and behavioral symptoms of PMS based on Moos menstrual distress questionnaire. Prior approval was taken from principles of respective schools and colleges and informed consent was taken from girls prior to the distribution. The questionnaire was personally explained to the girls in detail and then distributed among 650 girls. Filled questionnaires were retrieved from 629 girls with a response rate of 96.74%. Among these 18 were incompletely filled therefore excluded from the study.

**Statistical Analysis:** A total of 611 questionnaires were analyzed on SPSS version 11. Mean and standard deviation of nominal variables calculated. Frequencies were used to analyze categorical variables. Chi square test was used to determine association between socio-

economic status and menstrual disorders. P value of less than .05 was considered significant.

## RESULTS

Mean age of girls was 16.5 years (table 1). Study included 203 (33.2%) girls from low, 185 (30.3%) from middle and 223 (36.5%) from high income group (table 2). Menstrual cycle was regular in 460 (75.2%) girls (table 3). There was no difference in regularity of cycles among different socio-economic groups. 132 (21.6%) girls had oligomenorrhea and 19 (3.1%) had polymenorrhea. No significant difference was noted in three groups. In this study 83.79% girls complained of dysmenorrhea including 34.76% from low, 29.49% from middle and 35.75% from high income group (table 4). Majority of girls had mild to moderate dysmenorrhea (table 5). 14.5% girls required treatment for dysmenorrhea. This included 41.5% low, 24.7% middle and 33.8% high class teen age girls (table 6). Premenstrual syndrome was observed in 71.68% adolescent girls, including 36.1% from low, 32.2% from middle and 31.7% from high income group (table 7).

**Table No. I: Age of participants**

Minimum	Maximum	Mean	Standard Deviation
5 years	19 years	16.7 years	±0.697

**Table No.2: Socio-Economic Status**

SE status	Number	% age
Low SE	203	33.2%
Middle SE	185	30.3%

**Table No.3: Regularity of Cycle**

Socio-economic Status	Regular cycles	Oligomenorrhoea	Polymenorrhoea	Total
Low	153	41	9	203
Middle	140	40	5	185
High	167	51	5	223
<b>total</b>	<b>460</b>	<b>132</b>	<b>19</b>	<b>611</b>

**Table No.4: Dysmenorrhoea in different Socio economic groups**

Socio-economic status	Dysmenorrhoea positive	Dysmenorrhoea negative	Total
Low	178	25	203
Middle	151	34	185
high	185	38	223
<b>Total</b>	<b>514</b>	<b>97</b>	<b>611</b>

**Table No.5: Intensity of dysmenorrhoea**

Socio-economic status	mild	moderate	Severe	Very severe	total
Low	62	65	34	17	178
Middle	64	58	20	9	151
high	62	75	34	14	185

**Table No.6: Treatment of Dysmenorrhoea**

Socioeconomic status	Treatment required	Not required
Low	37	166
Middle	22	163
High	31	192
Total	90	521

**Table No.7: Premenstrual Syndrome (PMS)**

Socioeconomic status	PMS positive	PMS negative	Total
Low	158	45	203
Middle	141	44	185
High	139	84	223
Total	438	173	611

## DISCUSSION

Menstrual disorders are common among adolescents. Many teen age girls lack the information necessary to recognize that these problems are medical disorders which can be treated. Evaluation of menstrual disorders results in early diagnosis and management which may improve quality of life in young adolescents. The common menstrual disorders include dysmenorrhea, menstrual irregularities and premenstrual syndrome. Social status could be important predisposing factor for these menstrual disorders. This study included 611 teen age girls from different socio economic groups based on monthly family income.

Dysmenorrhea is regarded as most common cause of school and college absenteeism by girls than any other cause<sup>7</sup>. The prevalence of dysmenorrhea increases steadily among menstruating adolescent from 38-90% at 12 year (tanner stage III) to 66-72% at 17 years or tanner stage IV. Pain is mild in 30-50% girls while severe in 15%<sup>8,9</sup>

Balbi C, Musone R, et al described frequency of dysmenorrhea as being 85%<sup>10</sup>. In another study Hillen T, Cabavac SL observed that 80% of young Australian girls had dysmennorea and 53% of these girls reported that it limited their activities. In particular 37% said that dysmennorea affected their school activities.<sup>11</sup> Deligeoroglou E et al suggested in their study that dysmenorrhea is most frequent cause of referral to the physician<sup>12</sup>

Studies have shown that 14-46% of school absence among adolescent is the result of severe dysmenorrhea. In a study by Banikarim 58% of Hispanic girls reported dysmenorrhea. 38% of these girls reported missing school and 33% reported missing individual classes<sup>13</sup>. In our study 83.79 % of girls reported dysmenorrhea. frequency was not significantly different among different income groups (p value >.05).though the need of treatment was more frequent in low income group (41.57%).

Adolescent girls often visit physicians for menstrual disorders. Although irregular periods during first three

years after menarche are usually physiological, it does not excludes pathology. Bieniaz J in 2006 observed 76 adolescent girls and reported that 50 % had oligomenorrhoea, 10.5% had polymenorrhoea and 15.8% had mixed disorder<sup>14</sup>

In our study 21.60% of teen age girls had oligomenorrhea 31% of these girls were from low30% from middle and 38.6%% from high income group.. Polymenorrhoea was reported by 3.2% of girls, 47.3% from low 26.3% from middle and26.4% high income group.

PMS is an important menstrual disorder seen in adolescent girls. PMS is shown to have an adverse impact on quality of life and productivity in young adolescents. Avril in 2006 conducted a study on knowledge, attitude and consequences of menstrual health in urban adolescents; he concluded that PMS is most prevalent disorder in adolescent girls. He reported PMS in 84.3% girls. In this study dysmenorrhea and abnormal cycle length was seen in 65% and 13.2% respectively<sup>15</sup>. In an another study Fisher et al demonstrated that PMS affects between 14% and 84% of adolescent girls<sup>16</sup>. Recognizing that PMS is a common problem is important as it affect teen's ability to concentrate and have a direct effect on social life. Wilson & Kye reported in their study that 17% of adolescents missed their school because of PMS symptoms .Two other studies from France and China reported a lower incidence of 35% and 30.4% respectively.<sup>17,18</sup> In contrast Thu et al and Wiksten reported a high incidence of 75% and 88% respectively.<sup>19,20</sup> In a local study at Khyber medical college 53% of young college girls reported PMS.<sup>21</sup>

Our finding of 71.68% girls reporting PMS concurs with Cleckner-Smith and Wilson &, Kye studies. Our study showed a high incidence of PMS (36.1%) in low socio economic group (p value<.05). The most common symptoms were psychological and behavioral in local study at Khyber medical college. Similar results have been reported by other local studies<sup>22,23</sup>. In our study irritability (43.6%) mylagia and tension were most frequent symptoms. Majority of adolescent had mild PMS in this study.

Limitations of study include inability to calculate sample size and lack of assessment of predisposing factors in low income group which makes PMS more prevalent in them.

PMS is a common disorder in our adolescent girls but it is often under estimated, as most of our young girls and general physicians do not recognize it as a problem. PMS has a great impact on quality of life in teen age girls and therefore there is a definite need of further research so that risk factors could be assessed and prevented. Adolescent awareness of PMS is also required so that early diagnosis and treatment becomes possible which will enhance the morale and performance of our adolescent girls.

## CONCLUSION

This study concluded that menstrual cycles are regular in majority of our adolescent girls. PMS and dysmenorrhea are common in our young adolescents. Incidence of PMS is significantly high among low socioeconomic group. The limitation of the study includes focused group of adolescents and lack of further evaluation of factors involved in the etiology. The study recommends further evaluation of nutritional, social, and environmental factors influencing the prevalence of these menstrual disorders, so that adequate measures could be taken to reduce incidence of these menstrual disorders which influence quality of life in young adolescent.

**Conflict of Interest:** The study has no conflict of interest to declare by any author.

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