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Indian Journal of Obstetrics and Gynecology Research

Journal homepage: www.ijogr.org

Original Research Article

Study of menstrual disorders in 12-25 age group women in urban population and their relation to demographics, medical history, personal habits and impact on academic activities

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ARTICLE INFO

Article history:
Received 23-08-2021
Accepted 24-09-2021
Available online 14-02-2022

Keywords:
PCOD (Polycystic ovarian disease)
HMB (Heavy menstrual bleeding)
Menarche
Menstrual disorders
BMI(Body mass index)
Dysmenorrhea
Menstrual education
PMS (Premenstrual syndrome)

ABSTRACT

Objective: To identify the extent of menstrual disorders and relation to various aspects of life in 100 women of age group 12-25 years.
Materials and Methods: This is a cross-sectional study. Data is collected using questionnaire on demographics, medical history, personal habits, academic performance and menstrual pattern. Results analyzed using EPI info and SPSS software.
Results: 40% have no idea of menstruation prior to menarche, 28% of all were scared at menarche. 15% of menstrual education is contributed by schools. 60% had HMB, 83% had PMS. 91% had menstrual disorders and 37% had severe dysmenorrhea on day 1. Irregular cycles has significant association with BMI and medical history. PMS has significant association with food habits and alcohol intake. 64% with menstrual disorders did not seek medical help.
Conclusion: Adolescent period in women can be quite difficult especially in view of menarche; understanding of menstruation and facing menstrual disroders.it needs preparation which is lacking in India. Menstrual education should be included in school study curriculum. Awareness should be increased about menstrual disorders, hygiene, personal habits and support should be given during menstruation in schools to avoid skipping of schools and to decrease academic stress during periods and medical help should be taken.

1. Introduction

Menarche is the age at puberty at which first menstruation occurs usually at the age of 11–14 years. Demographics, medical history, environmental conditions, geographical location affects the menarcheal age and menstrual pattern.[1,2] Menstrual cycle is natural changes that occurs in the endometrium of the uterus due to the hormones produced by endocrine glands in pituitary and follicles in ovary. It lasts from 2-7 days during which bleeding occurs from uterus. The duration, flow can be affected by factors such as thyroid, PCOD, hypertension, abnormal BMI,stress and nutritional deficiency etc.[3] Any abnormal changes that occurs during menstruation are referred to as menstrual disorders. Types of menstrual disorders include

1.1. Premenstrual syndrome

Prior to every menstrual cycle, some women undergo psychological fluctuations (mood swing) as well as physical discomforts such as abdominal pain, headache, breast tenderness, anger, irritability, back pain, leg cramps, depression, weight gain, sleeping difficulty, itching and redness that interferes with daily activities. When such

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https://doi.org/10.18231/j.ijogr.2022.006

symptoms are seen prior to periods then they are termed as Premenstrual Syndrome (PMS).[4]

1.2. Amenorrhea

Absenteeism of menstrual periods for more than 3 months. It consists of primary and secondary amenorrhea.

1.3. Primary amenorrhea

No menstruation by age 14 in the absence of secondary sexual characters or no menstruation by age 16 regardless of secondary sexual characters.[5]

1.4. Secondary amenorrhea

Normal periods followed by absence of period atleast for 6 months.[6]

1.5. Dysmenorrhea

Characterized by painful menstruation. It consists of primary and secondary dysmenorrhea.

1.6. Primary dysmenorrhea

Painful menstruation with no evident hormonal or anatomical pathology.

1.7. Secondary dysmenorrhea

Painful menstruation which has a demonstrable cause.

1.8. Menorrhagia

Abnormal uterine bleeding/heavy and prolong menstrual bleeding for >7 days or more than 80ml/cycle

1.9. Polymennorhea

Mensuration occurs too frequently, shorter than 21 days.

1.10. Oligomenorrhea

Infrequent mensuration occurs for >35 days.

1.11. Metrorrhagia

Irregular mensuration, bleeding occurs in between periods.[7]

1.12. Polycystic ovarian disease (PCOD)/Polycystic ovarian syndrome (PCOS)

PCOD is a hormonal disorder which is very common, affecting 5 to 10% women causing enlarged ovaries with small cysts on the outer surface of ovary. It is characterized by obesity, acne, excessive hair growth, insulin resistance, metabolic disorders and menstrual irregularities which can further lead to complications such as dyslipidemia, type 2 diabetes mellitus, infertility, cardiovascular disease, endometrial cancer and affect quality of life.[8,9]

In India menstruation is considered a stigma. Menstruation is less spoken openly in families and among people in schools. This lack of knowledge regarding menarche, menstruation and menstrual hygiene has significant impact on physical and psychological burden on young women.

2. Objective

To identify various menstrual problems in young females of age 12-25 and their association with demographics, medical history, personal habits and impact on academic activities.

3. Materials and Methods

3.1. Study design and place and duration

Cross sectional survey study conducted in Hyderabad for 1 month (March 2021).

3.2. Study population

100 female students of age 12-25 years.

3.3. Methodology

The purpose of the study was explained to the girls and informed consent was obtained for participation in the study. Self made survey questionnaire based on socio-economic data, menstrual education, symptoms during menstrual cycle, PMS, pain scale,food habits, academic stress, physical activity and medical history were collected from girls of age 12-25.

3.4. Statistical analysis

The data was analyzed using the statistical software epi info 7 and spss version 23.0.

3.5. Inclusion criteria

Young females students aged 12-25 who were willing to participate in the study.

3.6. Exclusion criteria

Females above age of 25 and females below age of 12.

4. Results

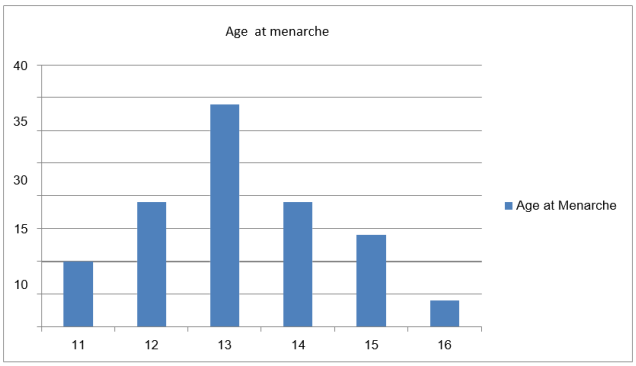
4.1. Demographics

As per Table 1 our study group consists of 100 girls aged 12-25 yrs, 14% belong to 12 -19 yrs, 86% belong to 20-25 yrs age group. Among them 46% belong to healthy BMI and 8% belong to obese BMI, whereas 33% belong to underweight BMI. 80% of girls are students, 14% are working women

and 6% are home makers. 78% belong to various groups in degree, 10% engineering students, 6% are higher secondary and 6% belong to plus 2 group.82% are unmarried, 5% are in physical relationship and 13% are married. 86% belong to middle class group and 14% claim to be affluent. No one belongs to below poverty line class in our study. 72% belong to Hindu religion, 19% Muslims and 7% Christianity 2% to others. Average age of menarche is found to be 12-14 yrs of age. Majority, 34% had attained menarche at 13 yrs of age as shown in Graph 1.

Table 1: Demographic profile

Variables	Frequency
Age groups(Years)	
16-19	9
20-25	86
44-46	5
BMI	
Healthy (20-25)	46
Overweight (25-30)	13
Underweight (<20)	33
Obese (>30)	8
Occupation	
Student	80
Home-maker	6
Working women	14
Socio-economic status	
Affluent	14
Middle class	86
Marital Status	
In a physical relationship	5
Married	13
Unmarried	82
Religion	
Christian	7
Hindu	72
Muslim	19
Others	2



Graph 1: Age at menarche

4.2. Menstrual education

40% of girls do not know about the menstruation prior to attaining menarche. 60% of the girls who had prior knowledge of menstruation claim to attain menstrual knowledge from family around 75%, 15% from teachers, 8.3% from reading books and newspapers. When asked about their first reaction to menstruation 28% were scared, 9% felt annoyed, 5% felt embarrassed, 6% felt happy and 36% immediately informed to family members, 11% cried and 5% did not tell anyone. 67.5% of scared girls at first menstrual cycle and 80% of the embarrassed girls at first cycle do not have any knowledge of menarche. 77.8% of the girls who had prior knowledge about menarche informed to family members immediately.

4.3. Menstrual disorders

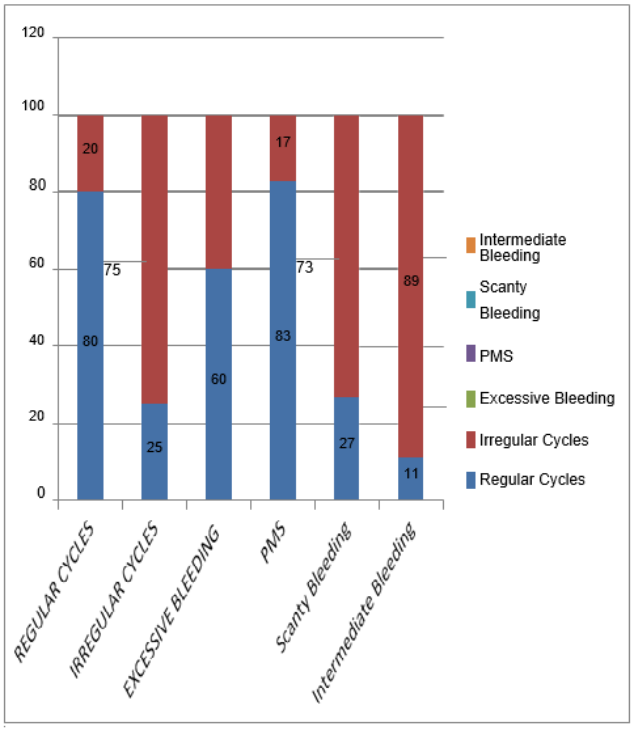
As depicted in Graph 2, 80% of the study group claim to have regular cycles and majority among those have 30 days cycle. Average cycle length is seen to be 28 days. 25% of the study group has claimed to have irregular cycles. 41.5% of those with irregular cycles have oligomenorrhea and 12.5% have polymenorrhea and 12.5% claim to have amenorrhea. 60% of the study group has heavy menstrual bleeding. 83.3% of subjects with HMB claims to use more than 3 pads per day on day1 and day2. 33.3% claims to pass clots and 20% claim to have bleeding more than 7 days. 27% have scanty bleeding i.e., hypomenorrhea among which 33.3% of them have irregular cycles and 70.3% claim to have regular cycles, among which 3.7% claim to have both regular and irregular cycles together with scanty bleeding.

4.4. PMS

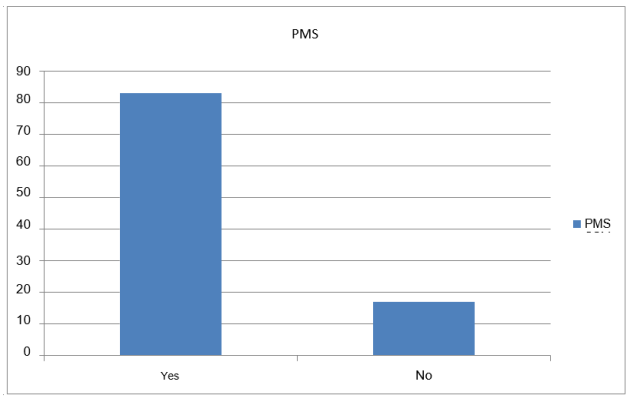
83% claim to have PMS as shown in Graph 3. 73.4% have back pain and 53% have abdominal pain as the symptom. Majority have mood swings as, 54.2% has anger, 38.5% have anxiety, 37.3% have tearfulness and 30.5% feel depressed.

During menstruation when asked about various symptoms like mood swings and abdominal pain and other symptoms 91% of the study group claim to have one or more than 1 symptoms. Among those who have symptoms, 76.9% have back ache, 60.4% have dysmenorrhea 64.8% have anger, 48.3% have anxiety 40.6% have tearfulness, 28.5% have hopelessness and 40.6% have difficulty with sleeping.58% of the study group face acne problems during periods.95% of the study group use pads during menstruation and 1% still use cloth during cycle. 4% claim to use menstrual cup.

7% claim to have severe dysmenorrhea on day before period. Severe dysmenorrhea is seen in 37% on day 1, 30% on day 2 and 10% on day 3. Moderate dysmenorrhea is seen in 30% day before period, 36% on day 1, 35% day 2 and 22% on day 3. 67% have c/o physiological white discharge



Graph 2: Regular cycles, irregular cycles, excessive bleeding, PMS, scanty bleeding and intermenstural bleeding



Graph 3: Incidence of PMS

whereas 40.2% have pathological white discharge.

21% of study group uses medication for dysmenorrhea. 71.4% uses Tab.Mefenemic acid for pain abdomen. 11% have inter menstrual bleeding and 54.5% of them claim to have sought medication. Though 83% have PMS, 91 percent have menstrual disorders 60.4% have dysmenorrhea and other issues, only 36% sought medical help for period related issues. As per Figure 1, 21% use hormonal pills for period related issues, 52.3% use for irregular cycles, 23.8% use for acne, 23.8% use for dysmenorrhea, 33.3% use for PCOD, 14.2% use for HMB and 14.2% use for contraception. 31% of study group has h/o medical illnesses as seen in Graph 4, among them 61.2% has PCOD, 22.5% has anemia, 22.5% have thyroid disorders and 29% have other issues.

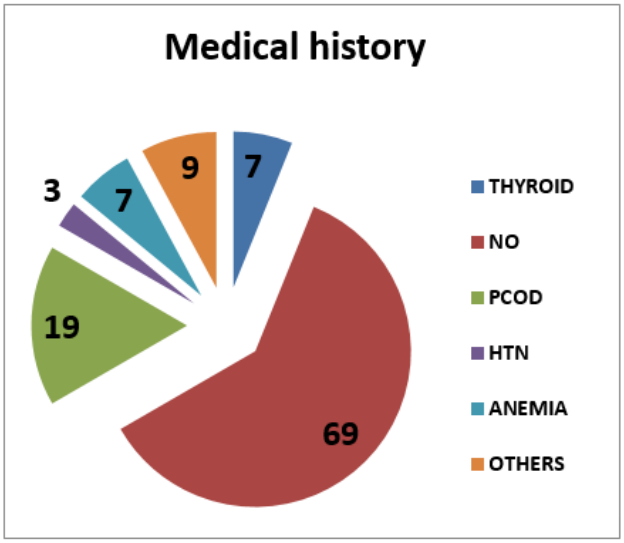
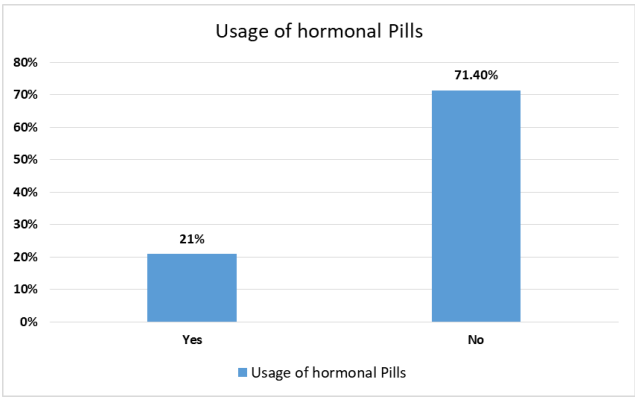


Fig. 1: Incidence of medical history



Graph 4: Usage of hormonal pills

4.5. Dietary habits, physical activity and academic performance

57% of study group found no change in food pattern during menstruation while 23% claim to have increased appetite and 20% have loss of appetite. 46% have habit of coffee, 48% have tea, 19% drink green tea on regular basis.19% do not have any beverages. 7% claim to have habit of smoking.17% claim to have habit of alcohol intake.

Moderate physical activity is seen in 41%, mild activity in 33% and 22% claim to be sedentary. Only 1% has severe intensity physical activity. While exams or viva is going on 23% have observed increase in bleeding during

menstruation, 16% have claimed to have more pain during menstruation whereas 54% claim to have no difference and 6% have decreased bleeding. 52% of the study group seem to feel more stress during periods. 32% of the study subjects skip school/work/college during periods and 65.6% of them skip during day 1, 25% for 2 days and 9.3% for 3 days. 39% subjects felt that menstruation affects sports performance.

5. Discussion

Out of 100 girls of age (12-25), 14% belong to 12 -19 yr, 86% belong to 20-25 yrs age group. 46% of the respondents belongs to healthy BMI, 33% belongs to underweight, and 8% belongs to obese. Our study is similar to the study conducted by Binu thapa regarding "relationship between body mass index and menstrual irregularities among the adolescents" where maximum of girls 61.3% had normal BMI, while 22.9% were under weight and 15.8% were found to be over weight.[10]

Various studies found the mean age of menarche as 13.5, 13.4 yrs. A study conducted by Bilkish nabilal patavegar about "Menstrual pattern and menstrual disorders among school going adolescent girls in Delhi" showed the mean age of menarche as 12.7 respectively.[11] Our study shows mean age of menarche as 13.2.

60% of the girls have knowledge about menstruation prior and 40% do not know about menstruation prior. 60% of the girls who had prior knowledge of menstruation claim to attain menstrual knowledge from family (75%), 15% from teachers, 8.3% from reading books and newspaper contrary to a study by El gilany ah in Egypt where majority of the girls main source of information about menstrual hygiene and knowledge was given by mass media followed by mothers but a large majority of girls said they needed more information probably because in India Menstruation has lot of stigma and is not spoken openly. It is limited to closed conversations among family members.[12,13]

In our study 80% of the girls have regular cycles. 60.4% out of our study group has dysmenorrhea, 3% has polymenorrhea, oligomenorrhea (10% i.e., >45 days and 8% I.e, >35 days) and irregular duration of menstruation (25%). This study slightly varies from the study conducted by N. Karout about "Prevalence and pattern of menstrual disorders among Lebanese nursing students" where dysmenorrhea was seen in (38.1%), polymenorrhea (37.5%), oligomonorrhea (19.3%) and irregular duration of menstruation (43.8%) was seen.[14]

In our study 83% had PMS, (73.4%) have back pain, (53%) abdominal pain, (54.2%) anger, (48.1%) leg cramps, (42.1%) breast tenderness,(38.5%) anxiety, (37.3%) tearfulness, (32.5%) difficulty with sleeping,(30.5%) feeling depressed, (22.8%) head ache, (21.6%) weight gain, (20.4%) itching and redness. This study is almost similar to the study conducted by Sreelakshmi U about "Impact of dietary and life style choices on menstrual patterns in medical students" where 75% had PMS. Most common symptom was Stress/anxiety 95% in Sreelaskshmi study, whereas our study group was found to have back pain as the most common symptom.[15]

In this study pain scale is used to identify the level of pain, on day before period 25% have mild pain, 30% moderate pain, 7% severe and 38% no pain, on day 1 19% mild, 36% moderate, 37% severe and 8% no pain, on day 2 25% mild, 35% moderate, 30% severe and 10% no pain, on day 3 23% mild, 22% moderate, 10% severe and 45% no pain and severe pain is observed during day 2 and 3 and 21% were using medications like Tab. Mefenamic acid (71.4%), Tab.Dicyclomine, (9.5%), Tab.Diclofenac (4.7%) and balms (9.5%).58% had face acne problem before, during periods.

It was found that 32% of our study group skip school /duty during periods. Whereas in a "Study of menstrual pattern and disordered among female students of Kathmandu medical college" by Prabin Kumar Karki, 53.3% absenteeism was seen and shows significant association was seen between dysmenorrhea and absenteeism. Our study does not show any significant association between dysmenorrhea and absenteeism. Our study shows significant association between BMI and irregular cycles (p value<0.05) as shown in Table 2 as similar to Prabin Kumar Karki study.

Table 2: Sought medical help for period related issues

Sought medical help for period related issues) what is the issue?	Frequency	Percent
Acne	2	2.0
extreme period pain	1	1.0
For pain	1	1.0
For severe stomachache	1	1.0
Heavy menstrual bleeding	1	1.0
Heavy menstrual bleeding, abdominal pain	1	1.0
Heavy menstural bleeding	1	1.0
Irregular	1	1.0
Irregular cycle	1	1.0
Irregular periods	6	6.0
Irregular periods, infertility	1	1.0
Irregular periods, pcod	2	2.0
Laproscopic ovarian cystectomy	1	1.0
Missed periods	1	1.0
No period related issues	64	64.0
Ovarial insufficiency	1	1.0
PAIN	1	1.0
Painful periods	1	1.0
Pcod	1	1.0
Pcod	6	6.0
Pcod, irregular periods	1	1.0
Pcod, painful periods	1	1.0
Severe abdominal pain, pcod	1	1.0
Shorter duration of period	1	1.0
Thyroid, pcos	1	1.0
Total	100	100.0

Life style trends like coffee / caffeine intake, physical activity, stress, smoking, alcohol consumption, abnormal BMI and food have been closely associated to menstrual disorders. PMS shows a significant association with Alcohol intake and diet. Medical conditions like PCOD is the major risk factor for infertility, diabetes, heart diseases and endometrial cancer. In this study 31% have medical history and among them 61.2% of the girls have PCOD where PCOD is the major risk factor for fertility and menstrual problems. Our study shows a significant relationship between irregular cycles and history of medical disorders.

In our study 95% use pads, 4% use menstrual cup and 1%still use cloth schools should promote education about menstrual hygiene products.

40.2% have pathological white discharge which is the risk factor for STD'S, bacterial, yeast, bacterial and fungal infections.

6. Limitations

Our study group is small in number. We have not studied about dietary pattern and nutritional status and how many cups of coffee, tea they take

We did not study the total number of cigarette/day and frequency of smoking and the amount and frequency of alcohol consumed.

7. Conclusion

Adolescent period in women can be quite difficult especially in view of menarche, understanding of menstruation and facing menstrual disorders. It needs preparation which is lacking in India. Family was the first informant regarding menstruation in case of 75% of study group. Educational television programs, school teachers, health care personnel's can play an important role in transmitting message regarding mensuration, menstrual health management and menstrual hygiene products. Menstrual education should be included in school study curriculum.[16]

Skipping school during periods can be avoided if medical support can be given during menstruation in schools and to decrease academic stress during periods. Medical aid should be sought in those who have menstrual disorders and irregular cycles.

Physical activity like yoga can be effective in treating different menstrual issues. Maintenance of healthy BMI should be encouraged. Life style modifications like cessation of smoking, alcohol and maintaining healthy BMI, limited coffee intake can help in reducing menstruation disorders.

8. Source of Funding

None.

9. Conflict of Interest

The authors declare no conflict of interest.

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Cite this article: Vaddi P, Paipuru T, Fatima H. Study of menstrual disorders in 12-25 age group women in urban population and their relation to demographics, medical history, personal habits and impact on academic activities. *Indian J Obstet Gynecol Res* 2022;9(1):25-30.