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RESEARCH ARTICLE

PREVALENCE OF MENSTRUAL IRREGULARITIES AND THEIR ASSOCIATED FACTORS IN FEMALE MEDICAL STUDENTS OF AIMC

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ABSTRACT

Menstrual irregularities frequently affect the quality of life of females. Such disorders have economic consequences in terms of health care costs due to the consumption of expensive hormonal drugs and laboratory tests.

Aims and Objectives: 1. To find out the prevalence of menstrual irregularities among female medical students (first year to final year) of AllamaIqbal Medical College, Lahore.

2. To find the factors associated with menstrual irregularities among female medical students (first year to final year) of Allama Iqbal Medical College, Lahore.

Study Design: Cross sectional study

Study Setting and Duration: The research was conducted on female medical students (first year to final year) of AllamaIqbal Medical College, Lahore in a duration of one month (April to May).

Results: This research shows that out of 200 female medical students 71 (36%) suffer from menstrual irregularities. Of these 71 females 46(65%) have moderate, 9 (13%) low & 16 (23%) high stress score. There were 24 (34%) females who didn't exercise regularly and 18 (25%) didn't exercise at all. 48 (68%) interviewees with irregular cycle length consume junk food 1-2 times/week. Females who didn't consume junk food at all didn't develop menstrual irregularities.

Conclusions:
The research shows that there is an association of irregular menstrual cycle & more stress, Less exercise and junk food. However no such association could be established with BMI.

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INTRODUCTION

Menstrual irregularities include abnormal cycle length i.e. long cycles of 39 days for 2 consecutive periods or more, short cycles of 24 days for 2 consecutive periods or more or irregular pattern (Yamamoto *et al*., 2009). Menstrual abnormalities indicate hormonal imbalance (Rigon *et al*., 2012). Other prevalent menstrual disorders include premenstrual syndrome, excessive uterine bleeding and dysmenorrhea. (Nisreen *et al*., 2015; Karout *et al*., 2012) Earlier studies have shown that more than 30% of the undergraduate students, suffering from stress had irregular menstrual cycle (Nagma *et al*., 2015). A High Body Mass Index(BMI),low caloric and vegetarian diet and sedentary lifestyle are all linked to menstrual irregularities (Fujiwara and Nakata, 2007; Nisreen Aref *et al*., 2015). Higher age, disruption of social support and depression are also seen as associated factors (Lee *et al*., 2006).

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Irregularity of menstruation is usually seen in adolescents and is related to high levels of androgens leading to increase risk for Polycystic ovarian syndrome, Diabetes, Cardiovascular diseasesand Infertility (Pinola *et al*., 2012; Yamamoto *et al*., 2009). Moreover menstrual irregularities have lead to college absenteeism and Fe-deficiency anaemiabut only a minority seeks medical advice and treatment (Chan *et al*., 2009). Abnormalities leading to ovarian, thyroid or pituitary dysfunction have also been found to be associated with menstrual irregularities (Karout *et al*., 2012). These irregularities can be managed by lifestyle modifications and pharmacotherapy (Nisreen Aref *et al*., 2015). Dependent variables are menstrual irregularities whereas independent variables are physical activity, stress, BMI, diet etc (Lee *et al*., 2006). Lot of studies have been done in the past on the prevalence of menstrual irregularities, yet much research was not done on association with lifestyle factors (Vani *et al*., 2013). In this study we will attempt to find associations between various lifestyle factors like eating junk food, dieting behavior, lack of physical activity with the menstrual problems. The study will help determine the disease

burden and establish associated factors leading to prophylactic measures resulting in a decrease in disease burden.

MATERIALS AND METHODS

Objectıves

Prevalence of menstrual irregularities and their associated factors(BMI, Diet, Exercise, Stress) in female medical students of AIMC.

Operatıonal defınıtıon

Menstrual irregularities include abnormal cycle length i.e long cycle of 39 days for 2 consecutive periods or more or short cycles of 24 days for 2 consecutive periods or more or irregular pattern. Menstrual disorders include Premenstrual syndrome and dysmenorrhea.

Study Design

Cross-sectional study

Study Setting

The study is conducted at AllamaIqbal Medical College affiliated with Jinnah Hospital Lahore.

Duration of study:

One month(April to May)

Sample Size

200 female students of AIMC

Sampling Technique

Non-probability convenient sampling

Sample Selection

Inclusion Criteria

- Female medical students of AIMC between age 18-25 years
- Both boarders and day scholars

Exclusion Criteria

Students who already have other medical issues like hypothyroidism, hyperthyroidism, ovarian cyst, pelvic inflammatory disease, endometriosis or fibroids are excluded from the study.

Data collectıon procedure

200 female medical students (first year to final year) of AllamaIqbal Medical College Lahore fulfilling the inclusion criteria were asked to fill out the self-structured pretested questionnaire consisted of demographic details of interviewees and information related to their menstrual cycle and various factors influencing it.Stress core was measured by PSS scale (perceived stress score scale).

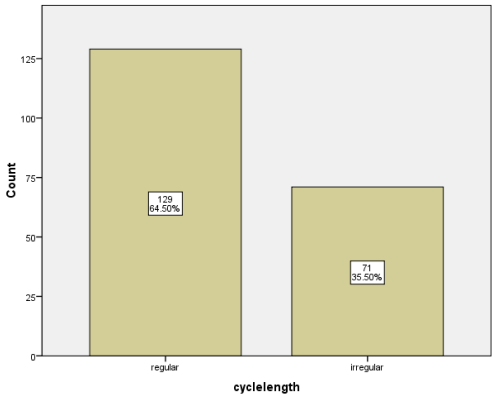
Each potential interviewee was given full explanation regarding the reason for study, procedure and time required to form the interview and she will be given the opportunity to opt in or out. All the interviewees were assured that this study doesn't intend to reflect or suggest apprehensions for any particular religion, race and ethnicity. Every student was ensured that this data will not be disclosed to any unauthorized person without her prior permission

Data analysıs procedure

Data was entered and analyzed in SPSS Version 17.0. Prevalence of menstrual irregularities and their associated factors was evaluated and data be presented in the form of tables, graphs and charts. whereas stress score was measured using standardized PSS scale (perceived stress scale).

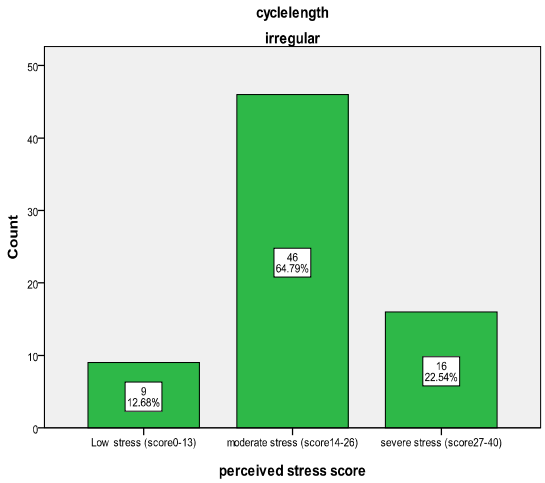
RESULTS

We obtained results from 200 female medical students of 1st year to final year studying at AllamaIqbal medical college Lahore among these 71 of the female students (35.5%) reported irregular menstruation while 129 female student (64.5%) reported regular menstruation as shown by the graph below. The ages of participants were between 17-25 with a variance of ±2.217.



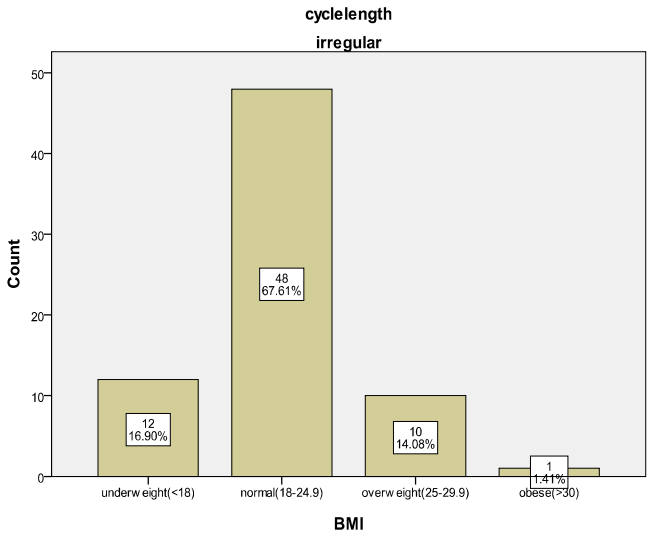
In our study we established association of menstrual irregularities with the following factors

- Stress
- BMI
- Exercise
- Junk food



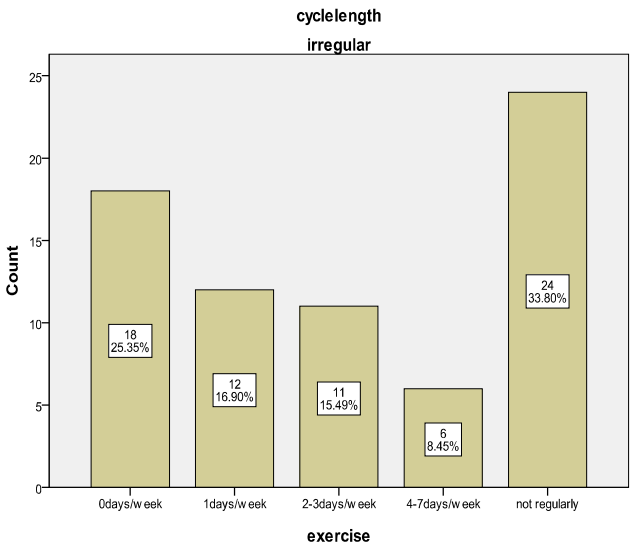
x2=1.114 p value=0.573

The collected data shows that females who had higher stress score were more likely to experience irregular menstrual cycles. 64.79% of the females experiencing irregular menstrual cycles had a stress score of 14-26 while the 22.54% had a stress score of 27-40 whereas only 12.68% females with 0-13 stress scores. Thus an association was established between stress levels and irregular menstrual cycle although chi-square test is insignificant as shown above.



x2=3.502 p-value=0.321

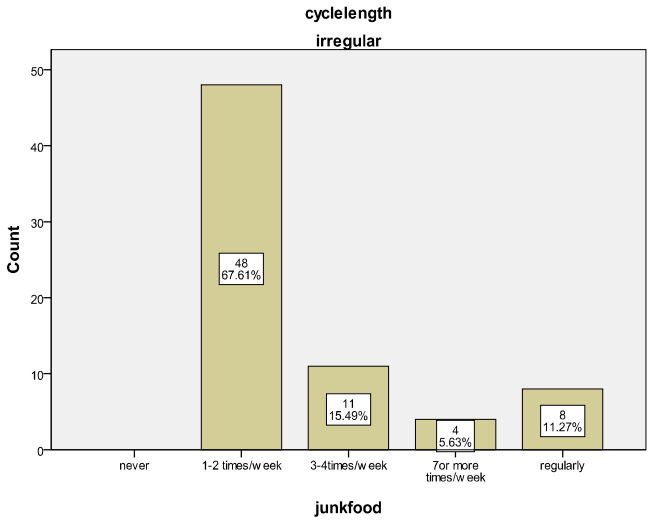
The collected data shows that 16.9% ,67.61% ,14.08%,1.41% of females with irregular menstrual cycles were under weight , normal weight, overweight ,obese respectively. Although the expected result was that irregularities will be significantly more common in obese and overweight females however no such relationship could be established. The probable reason being the fact that menstrual irregularity predisposes individuals to weight gain and thus obesity rather than occurring in already obese and overweight females



x2=1.048 p value =0.902

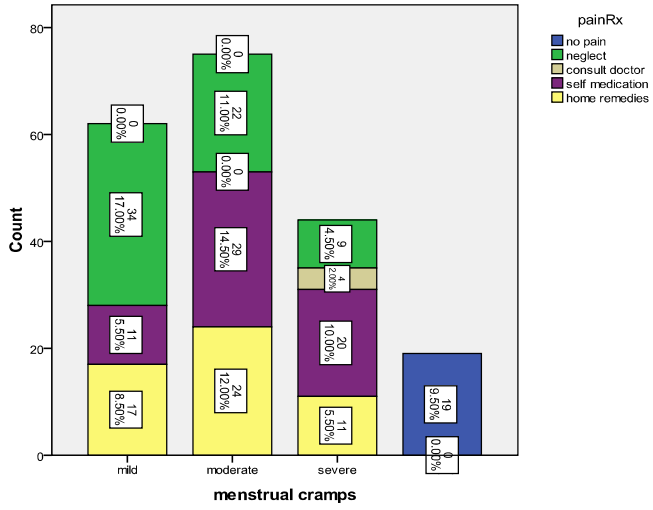
Data analysis shows that females who maintained weight and did regualr exercise were less likely to develop menstrual irregularities. Only 8.54% of the females who did regular exercise 4-7 days a week developed the problem with 15.49% and 16.90% in females who exercised 2-3 days and 1 day a week respectively.

On the other hand 25.35% of girls who do not exercise at all experienced irregularity and 33.80% of females who did exercise on and off suffered from irregular menstrual cycle.



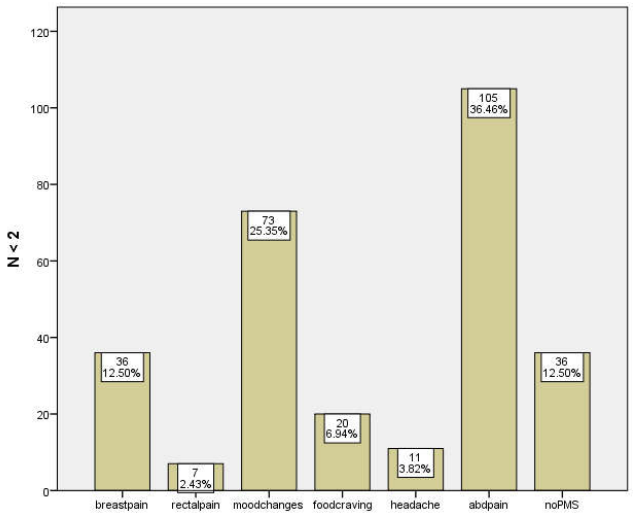
x2= 4.209 p-value=0.307

The data analysis has shown that females who consume junk food regularly are more prone to develop irregular cycles. Females who did not consume junk food did not develop irregular menstrual cycle whereas 67.61%,15.49%,5.63%, 11.27% with irregular cycle consumed junk food 1-2 times/week, 3-times/week, 7 or more times/week ,regularly respectively. In our research we also observed the prevalence of menstrual disorders. Menstrual disorders include dysmenorrhea, Premenstrual Symptoms, excessive uterine bleeding etc. Dysmenorrhea was evaluated based not on biomedical markers or hormone measurements but solely on students 'self-reports of their subjective perception and recognition. the results obtained are shown in the table below



The data shows the different severities of menstrual pain experienced along with the preferable choice of treatment. The data shows that 31% of females experience mild pain , 37.5% experienced moderate pain ,the remaining 22% experienced severe pain while 9.5% experienced no pain at all. It can be observed here that only females with severe pain consult doctors and others resort mostly to self medication and home remedies.

This depicts the attitude of the population, even amongst the educated masses self medication is quite prevalent in spite of the known hazards and that people will consult the doctor only when the disease has progressed to severest forms. Premenstrual syndrome (PMS) refers to physical and emotional symptoms that occur in the one to two weeks before a woman's period. These include breast tenderness, rectal pain, mood swings, lower abdominal pain, food cravings etc. In our study we observed the frequency of occurrence of these symptoms in female medical students the obtained frequencies are stated in the following table:



DISCUSSION

Menstrual irregularities are becoming more and more common amongst females with increased usage of junk food, hormone containing animal feed, sedentary life style, increasing stress etc. Menstrual irregularities have been found to be clinically important in various aspects as they indicate hormonal variations and also indicate predisposition to diabetes, infertility, uterine and ovarian carcinomas. Previous studies have shown significant association between menstrual irregularities and BMI, diet, exercise, stress, marital status, dyslipidemia, oligomenorrhea and dysmenorrhea. We studied the association between menstrual irregularities and stress, nutrition, exercise and BMI among female students, from first year to final year, of AIMC. Although direct association between them was not found to be significant however, we found association with certain variables to some extent.

In present study,64.50% students had regular cycle while 35.50% students had irregular cycle which is contrary to previous studies[1,7,8] whereas a Japanese study shows similar results i.e 33.3% reported irregular menstruation (66.7%) reported regular menses Similarly while perceiving association between stress and menstrual abnormality it was found that 64.59% students who experienced irregular menstrual cycles had PSS score labeled as moderate while 12.68% individuals had irregular menstrual cycle with PSS score of severe stress. This is also countering former studies that showed a direct co relation between aforementioned variables (Yamamoto *et al*., 2009; Nisreen Aref *et al*., 2015; Ekpenyong *et al*., 2011). In the present study we attempted to co relate various life style factors with irregular menstrual cycle one of which is consumption of junk food. In our study it was seen that alarmingly high number of students (88.7%) were reported to consume junk food among which 67.6 % female students had irregularities to some extent and they consumed junk food 1-2 times/week, 15.5% students experienced irregular cycles with eating junk food 3-4 times/week while 5.6% individuals who ate junk food on regular basis had irregular cycle length. This is incongruousto prior studies that shows females eating junk on regular basis suffer more with menstrual abnormalities (Vani *et al*., 2013; Amaza *et al*., 2010; Lakkawar *et al*., 2014). Increased also shows certain relation with irregular menstrual cycle. According to present study,16.90% underweight,67.6% normal weight,14.08% overweight and 1.41% obese female students had irregular cycle length which is also in contrast with previous studies (Nisreen Aref *et al*., 2015; Dovom *et al*., 2016). According to our present study,certain association between physical exercise and menstrual problems were found. Students who performed regular exercise(for 4-7 days) suffered less from menstrual irregularities (8.45%) while who did not perform exercise regularly,experienced more menstrual abnormalities(33.80%) which is in accordance with former work results (Lee *et al*., 2006; Vani *et al*., 2013). It was found that specific diet plans for weight reduction were followed by some girls(11%) among them 8% individuals followed such plans rarely and experienced irregularities in menstrual cycle while 3% of them followed specific diet on regular basis and experienced irregular cycle length. On the other hand 24.5% females never followed any dieting plan and had irregularities which in contrary to prior results (Fujiwara and Nakata, 2007; Nisreen Aref *et al*., 2015; Lakkawar *et al*., 2014).

It was also seen that female students who experienced menstrual irregularities also had PMS(premenstrual syndrome). In our study 87.415% students had PMS among which 12.5% had breast pain,2.43% had rectal pain,25.35% individuals experienced mood changes,6.94% had food cravings while 3.82% students had headache,36.46% students felt abdominal pain,90.5% individuals had menstrual cramps while 12.50% students had no PMS and 9.5% individuals had no menstrual cramps which is congruous to former studies (Allsworth *et al*., 2007; Dambhare *et al*., 2012). It is significant that during study it was found that students who experienced pain during their menstrual cycle,mostly they neglected their condition(32.5% female students),25 students consulted doctor,30% favoursself medication while 26% students followed home remedies to cope with their condition. This is in accord with prior studies (Nagma *et al*., 2015). The present study was a cross sectional design study based on structured questionnaire on a sample size of 200. The results are not significant as study was conducted for short duration of time of one month,on a smaller sample size,influence of subjective bias was there as students gave information based on their memory and self perception of menstrual irregularity and not on the basis of biomedical markers or hormone measurements. Also this study sample only included girls within 18-25 years of age which made it a restrictive study and so generalization of current findings may be limited. We recommend that further studies may be undertaken with more duration assigned for study, sample size including females of more than 25 years if age too. The incorporation of biomedical markers and certain hormonal assays in such study should be of significant help.

Conclusion

Menstrual irregularitiescan lead to certain health problems like polycystic ovarian disease, infertility, psychological problems and class absenteeism. So medical students should be educated about the importance of menstrual normalcy and also about dangers and ailments that can occur due to deviation from such

normalcy. Students should be encouraged and informed about importance of eating healthy food, avoiding junk food,undergoing physical activities and exercise. Measures that decreases psychosocial stress levels should be implemented among college students to ensure their menstrual regularity and well being, thereby preventing future illnesses from occuring.

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