



“PREVALENCE OF IRREGULAR MENSTRUATION INFEMALES OF AHMEDABAD CITY- A CROSS- SECTIONAL STUDY.”

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ABSTRACT

BACKGROUND: A natural process in which the blood is discharged through the

vagina from the uterus, mainly occurs monthly at regular intervals in every women is known as menstruation. Menstrual abnormalities have the potential to have an impact on women's health and can be an indication. Therefore, awareness about this diseases can make the precautionary measurements a lot more easier.

AIM: To find the prevalence of Irregular menstruation in females of Ahmedabad

city.

MATERIAL AND METHODS: This cross-sectional study was carried out within

period of six months to study various menstrual problems experienced by the females. A questionnaire was designed and 500 females were asked to partake by answering questions regarding their menses. After that, their data as collected for analysis.

RESULTS: Result shows that most of the population had regular menstruation

cycle. Under closure analysis, it was found that 59 percent of females had medium bleeding flow and 64 percent had a painful menstrual cycle. However, 18 percent of which are taking treatment for the same.

CONCLUSIONS: This study's findings depicts about how the population is unaware of menstrual disorders and its impact on a women's life as only fewer subjects had intended to take treatment. Therefore, proper education must be gained by the females to maintain their health and thereby prevent these disorders. Moreover, attention

should be drawn towards it.

KEYWORDS: Prevalence, Irregular menstruation, Menstrual disorders

INTRODUCTION

Menstruation is the visible manifestation of cyclic physiologic uterine bleeding due to shedding of the endometrium. The period extending from the beginning of a period (mens) to the beginning of the next one is called menstrual cycle.¹

Menstrual cycle starts at the age of 12 to 15 years, which marks the onset of puberty. The commencement of menstrual cycle is called menarche. Menstrual cycle ceases at the age of 45 to 50 years. Permanent cessation of menstrual cycle in old age is called menopause.²

The four basic stages of the menstrual cycle are: Menstruation, the follicular stage, ovulation, the luteal stage. During menstruation, the thickened outside layer of the uterus is disposed of from the body through vagina. Blood cells from the coating of the uterus and bodily liquid form the menstrual fluid. During the initial stages of cycle, the level of estrogen begins to rise, coating of the uterus grows and thickens due to the rise in the levels of estrogen.³

Normal menstrual cycle in females represents the complex interplay of hormones such as estrogen and progesterone. Regular menstrual cycle occurs every 28-35 days \pm 2-3 days in which the menstrual flow lasts for 3-5 days with an average loss of 30-80 ml of blood.⁴

Menstrual cycle pattern changes with age. Overall cycle variations are common at menarche and perimenopause. A menstrual disorder is an abnormal condition in women's menstrual cycle.

Menstrual disorder may present as abnormal uterine bleeding, dysmenorrhea, premenstrual syndrome and premenstrual dysphoric disorder.⁵

Normal menstrual cycle is the indication of functioning of hormones in a proper manner, which is significant of a healthy hypothalamo-pituitary axis with a normal uterus. Nevertheless, a number of conditions such as sudden over-exercising, weight loss, medical conditions such as Polycystic ovarian disease, and even stress can have unpleasant effects on a woman's ability to experience a normal menstrual cycle. From most of the existing literature, it is evident that both longer duration of menstrual bleeding and irregular cycles are associated with major depression.⁶ Life of adolescents is majorly affected by menstrual disorders. Among these are women who are affected by dysmenorrhea and heavy menstruation. The WHO reports that 18 million women aged 30 - 55 years identify their menstrual bleeding to be extreme.³

Menstrual patterns can be affected by a number of factors, including age, ethnicity, family history, smoking, physical activity, and dietary habits. Stress can be a major contributor to, or cause of menstrual irregularities. In addition, a high incidence of menstrual problems has been observed in students studying medicine and health sciences.⁷

Irregular menstruation can have various health implications, and is an indicator of health in women. The prevalence of irregular menstruation varies from 5% to 35.6% depending on age, occupation, and the country of residence.⁸

Abnormal menstrual cycle is any deviation from the normal cycle. Menstrual disorders prevailing in adolescent girls, including dysmenorrhea, amenorrhea, menorrhagia, hypomenorrhea, polymenorrhea, oligomenorrhea, and premenstrual syndrome.⁴

Menstrual irregularity results from various causes such as endometriosis, PCOS, type-2 diabetes mellitus, depression, hormonal imbalances, stress, underweight or obesity, smoking habit, etc.⁸ The menstrual problems are not always problems but bodily reactions to various changes inside. Most of the women have some symptoms or a combination of a few or all of them, which may be either physical or emotional. Insomnia or change in appetite is also a part of menstrual cycle.⁴ There is a lack of information about the awareness and behaviors of adolescents

towards menstruation. Mostly girls have little knowledge about regular menstruation and about their irregularities. Their only source of information is from their mothers or peers. Girls are interested in knowing more about normal and abnormal menstruation. Having knowledge of these disorders, helped them to get medical advice as and when required.³

Some women experience backache, headache, or abdominal pain during their menstrual cycle. Pain around the breasts, swelling, soreness, or heaviness also occurs during menstruation.

Abdominal cramps are the worst among the menstrual pains that really bother all activities. These are caused by the involuntary contraction of the uterine muscles. Knowledge of the complications that are caused by these menstrual disorders in the general population may help to inform women when they should consult primary care and aid the appropriate referral of women for investigation of malignancy.⁹

REVIEW OF LITERATURE

1. Pattern and prevalence of menstrual disorders in adolescents.^[3] Zafar M et al (2018):

This study was conducted in the year 2018, that depicts about adolescent menstrual disorders which are exceptionally not unusual, study reported higher than predicted incidence of menstrual issues. Expertise regarding the factors influencing menstrual symptoms is critical as a way to manage it correctly and assist the girls to make up the days less troublesome and tolerable. A selection of factors is recognized to affect menstrual behaviors, the most influential ones being economic popularity. Absenteeism from the school changed into the impact of menstruation related problems on their each day recurring. Dysmenorrhea and premenstrual symptoms had been perceived as maximum distressing symptoms leading to school absenteeism and of days off work. Women with premenstrual signs and symptoms have suggested a greater number of days with impairment in recurring work, school and household activities.

2. Prevalence of Menstrual Disorders and Their Association with Physical Activity in Adolescent Girls of Aligarh City.^[4] Kulshrestha S. et al (2019):

This cross-sectional descriptive study was conducted in 2019 to assess the prevalence of menstrual disorders and their association with physical activity among 320 adolescent girls aged between 14 to 17 years in Aligarh city. Data regarding age of menarche, menstrual cycle interval, menstrual flow length and period pain was contained. Physical activity was assessed by the Physical activity questionnaire scale (PAQ-A). The overall prevalence of menstrual disorders was reported by 76.9%. Dysmenorrhea and PMS were found to be highly prevalent among girls in Aligarh. It was found that PMS was the commonest menstrual disorder that interfered with the daily routine of the school girls.

3. Prevalence of Menstrual Disorders in Woman of Reproductive Age Group.^[5] Farhan I. et al (2020):

This study was conducted in 2020 which showed that menstrual disorders are prevalent in Pakistan. Management of these disorders should be paid more attention within the available reproductive health care programs. Further research into prevalence of and risk factors for menstrual disorders and their morbidity is endorsed. Appropriate health education measures should be promoted to influence females to seek medical management leading to early diagnosis and precautionary treatment.

4. Association of Menstrual Patterns with Perceived Stress Score in College Going Female Students of a South Indian Town.^[6] Periasamy P. et al (2021):

This study was conducted in 2021, stated an association between high stress levels in students (PSS >20) and menstrual pattern could not be established notably. However, there was association established between high stress levels (PSS >20) and menorrhagia (heavy menstrual bleeds). Consequently, despite high levels of stress in

undergraduate students, other factors can also play a significant role in maintaining their menstrual cycle. Therefore, other causes must also be looked for among the young females complaining of menstrual problems before concluding them because of stress.

5. Prevalence of menstrual problems and their association with psychological stress in young female students studying health sciences.^[7] Rafique N. et al (2018):

This study conducted in 2018 concluded that the prevalence of menstrual problems and stress is quite high in young, Saudi, female health sciences students. In addition, a strong positive association between psychological stress and amenorrhea, dysmenorrhea, and premenstrual symptoms was identified. It is recommended that all health sciences students should be provided with short courses on stress management techniques as part of their curriculum. Moreover, all health sciences colleges should make arrangements for early identification of students with menstrual problems, as these conditions can not only affect the academic performance of the students, but can also have negative effects on their psychological and reproductive health. The students identified should be provided with timely psychological and gynecological counselling, as well as instructions and strategies for preventing future complications.

6. Prevalence of irregular menstruation according to socioeconomic status: A population-based nationwide cross-sectional study.^[8] Kwak Y. et al (2019):

This cross-sectional study conducted in the year 2019, observed a higher prevalence of irregular menstruation among women with higher incomes and lower educational levels. Public health professionals should recognize the need for early education, detection, and intervention for at-risk populations and stress the importance of building a multidimensional understanding of irregular menstruation.

7. Prevalence of irregular menstruation among homemakers and working women.^[9] Sharon V. et al (2019):

This study was conducted in 2019 which described about the development of the symptoms of menstrual loss among women in the community is common, in contrast to the rarity of gynecological malignancy. That raised concern about the usefulness of the current guidelines, based on symptoms, advising women when to consult, and for the early awareness of gynecological malignancy in the community and primary care.

8. Pattern of menstrual irregularities amongst women presenting to gynaecological outpatient department. Journal of Islamabad Medical & Dental College (JIMDC).^[10] Mahmood M. et al (2013):

This study conducted in the year 2013 depicted about how most of the patients are unaware about what represents normal menstrual pattern. Therefore, it is important to educate patients regarding range of normal cycle length. It is equally important for the clinicians to have an understanding of bleeding patterns and ability to differentiate between normal and abnormal conditions. Menstrual cycle as an additional vital sign adds a powerful tool for the assessment of normal development and exclusion of pathological conditions.

9. Prevalence and pattern of menstrual disorders among Lebanese nursing students.^[11] Karout N. et al (2012):

This study conducted in 2012 found a higher percentage of different menstrual disorders among young female students in Lebanon. These disorders are not only likely to affect the quality of life and future productivity of women but may also be indicators of underlying problems that can become serious in the future and this is an important concern for reproductive health policy-makers. Health education on menstrual problems targeting female students

and their parents, and including education on reproductive health in the school curriculum may assist in early diagnosis of these disorders.

10. Factors associated with menstrual cycle irregularity and menopause.^[12]Bae J. et al (2018):

This study conducted in the year 2018, results showed the importance of healthier behavioral practices to maintain menstrual cycle regularity, especially when considering that smoking may be associated with the occurrence of early menopause. Given the association between early menopause or irregular menstruation and women's health, improvements in health behaviors should be emphasized in view of public health.

NEED OF STUDY

Irregular menstruation is an important indicator and mediator of various health problems among women. The study focuses on women experiencing irregular menstruation cycle are somehow not aware about the future health issues. Therefore, the study is necessary to measure the awareness level and prevalence of the irregular menstruation among women. The results obtained will be helpful in creating strategies for improving psychological and reproductive health.

OBJECTIVE OF THE STUDY

- 1) AIMS:** To find the prevalence of Irregular menstruation in females of Ahmedabad city.
- 2) OBJECTIVE OF THE STUDY:** To assess the menstrual health in females of 18-30 age groups in Ahmedabad city using a questionnaire.
To measure the awareness level of the causes of irregular menstruation in Ahmedabad city.

METHODOLOGY

This was a cross-sectional study of six month duration (2021), in which 500 females (aged between 18 and 30 years) of Ahmedabad city were invited to participate.

The questionnaire was designed by the author, based on some previous similar studies and was regarding menstrual characteristics, and multiple choice questions were used for assessment of intensity of pain.

The subjects were asked to complete a menstrual problem identification questionnaire anonymously. The questionnaire included items relating to the participants' demographic details, and concerned their menstrual pattern (menarche age, cycle length in days, duration of flowing days, menstrual regularity).

Furthermore, all the data were collected by sending the questionnaire form to the females who agreed to participate in the survey.

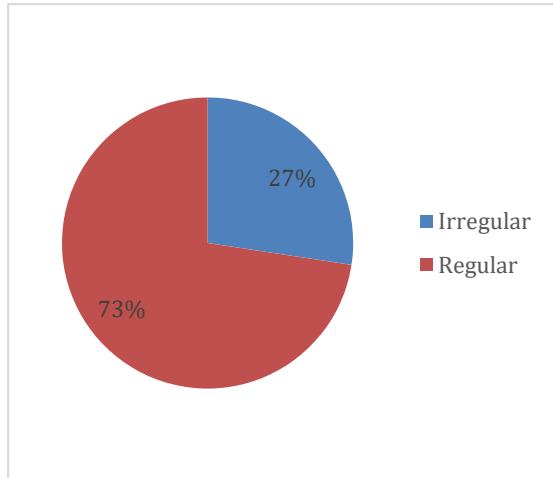
In addition to that, the participants were given brief about the procedure and purpose of the study and thereby the consent was contained in an understandable language and all the participants were assured that their personal information would be kept confidential.

After that, the result was shown with statistical analysis which included proper graphs and charts that provided detailed information of the numbered characteristics.

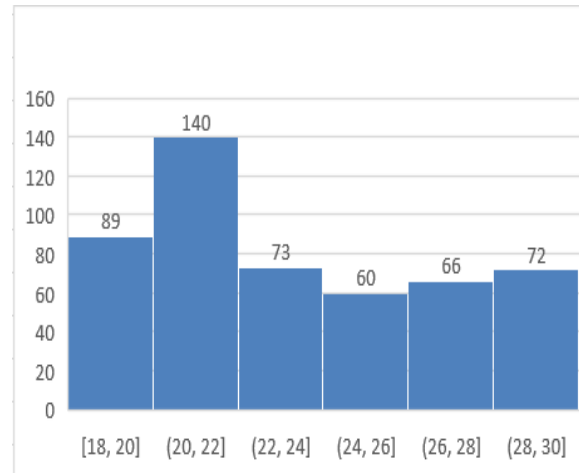
RESULT

In this cross-sectional study of 500 subjects among females aged between 18 to 30 years, irregular menstrual cycle was noticeably lesser than the regular menstrual cycle. Under thorough observation, plethora of questions were asked and analyzed accordingly [Graph 2].

Irregular menstruation was observed to be about 27% while the regular menstruation stated about 73% overall [Graph 1].



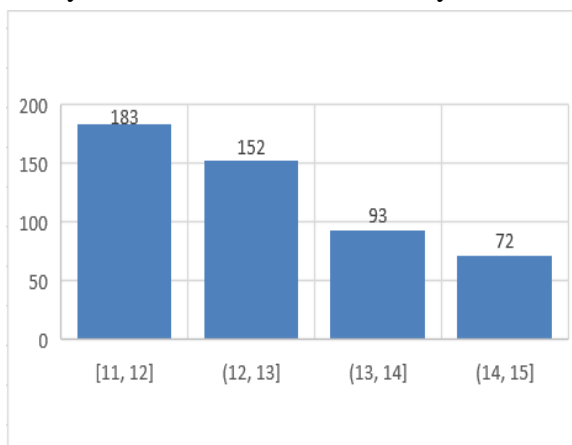
Graph 1: Menstrual period



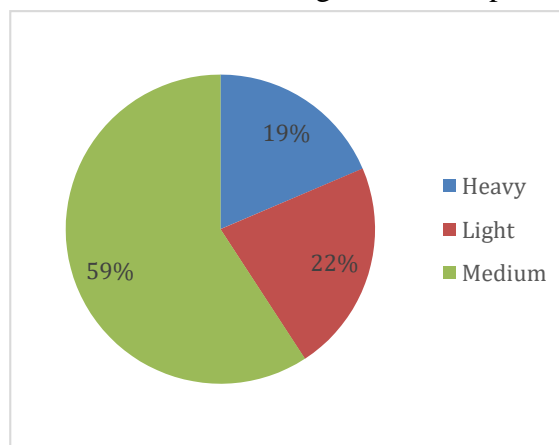
Graph 2: Age

The females who participated in the study had their menarche age from 11 to 15 years. Moreover, the average value suspected was 13 years of age [Graph 3].

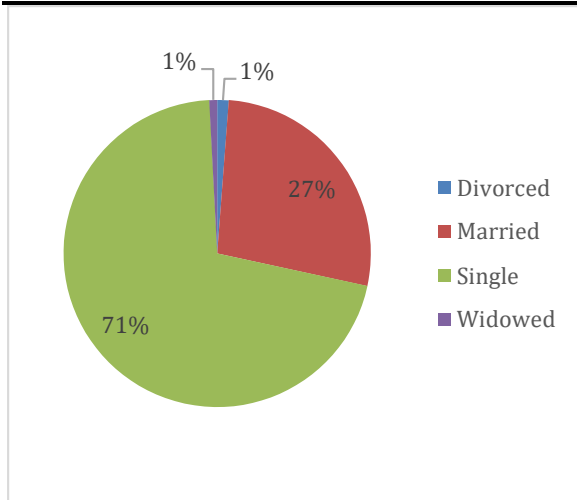
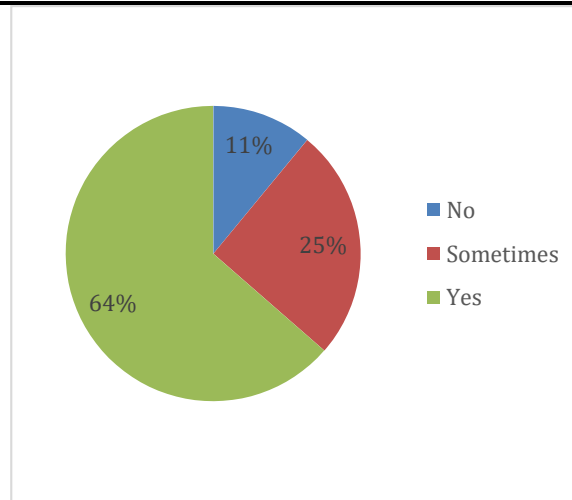
When the females were asked about the bleeding, around 59% of the females were observed medium flow, and the heavy flow was observed in nearly 19% of females. While 22% observed light flow [Graph 4].



Graph 3: Age of menarche

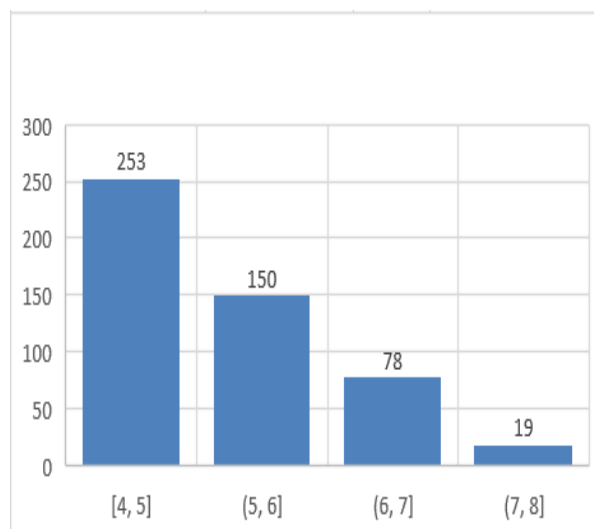
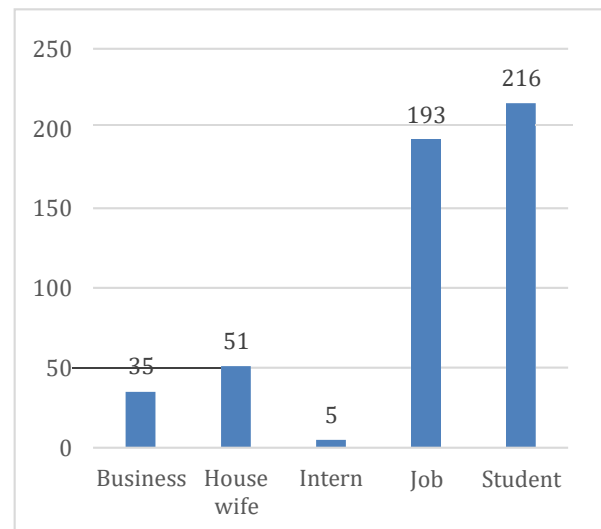


Graph 4: Bleeding

**Graph 5:** Marital status**Graph 6:** Pain during menstrual period

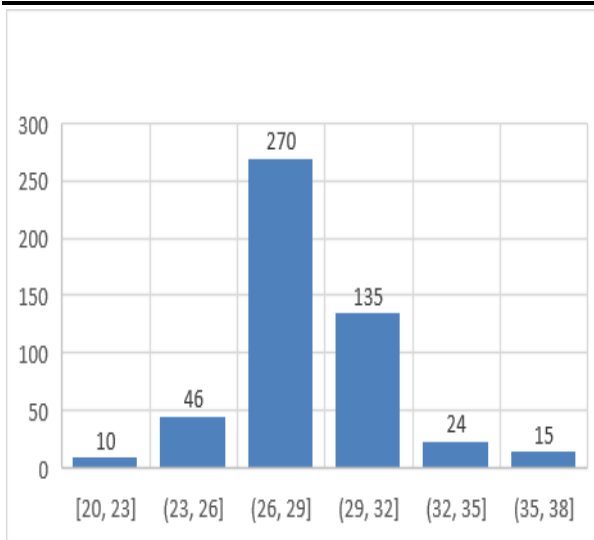
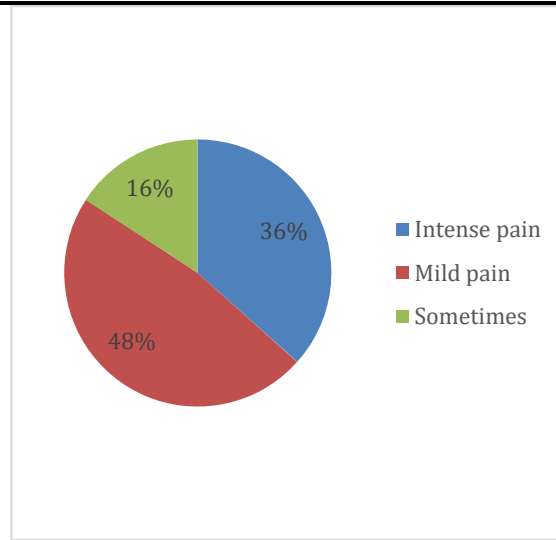
Besides that, the highest subjected females were single as amounted to 71% , and 27% married women being the second highest. Whereas, the other two categories had remarkably as low as 1% individually [Graph 5].

Menstrual cramp or pain is the most common remark presented as well as observed in the population. 64% of the women had experienced pain during their menses and 25% of which had experienced it sometimes. The women who did not go through menstrual cramps were around 11% [Graph 6].

**Graph 7:** Menses period**Graph 8:** Occupation

Most of the females, that is about 253 females had their menses for about four to five days, and the least score was 19 females who had their period for seven to eight days. The other 228 subjected females were experiencing 5 to 7 days of menstrual cycle [Graph 7].

In this study, the subjected females were from various sectors such as student, job, housewife, business, intern. All of this details are kept in descending order according to the outcome [Graph 8].

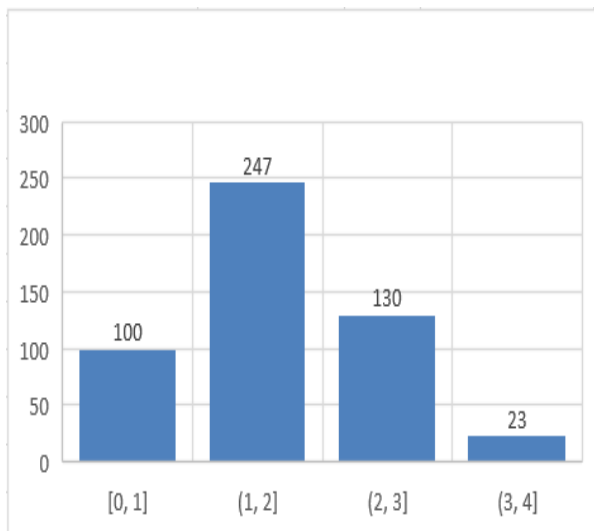
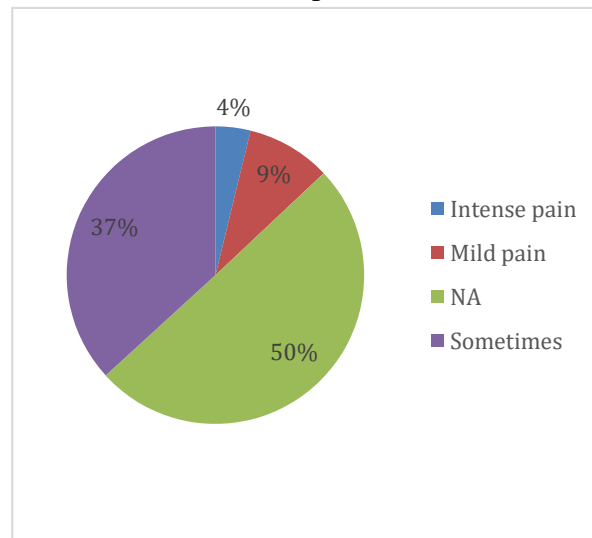
**Graph 9:** Days of menstrual cycle**Graph 10:** Stomach pain

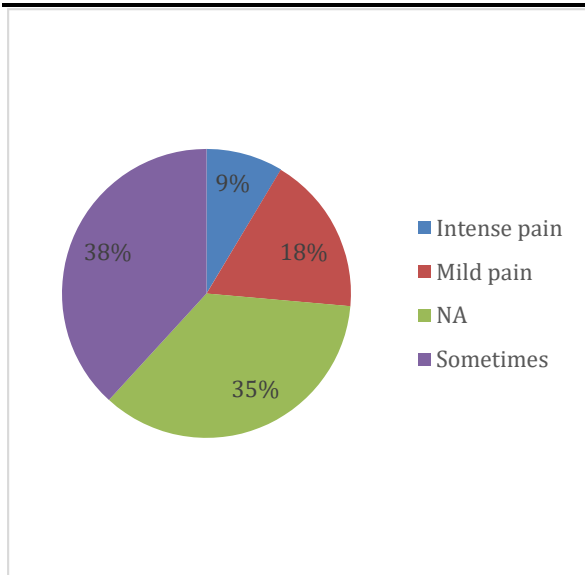
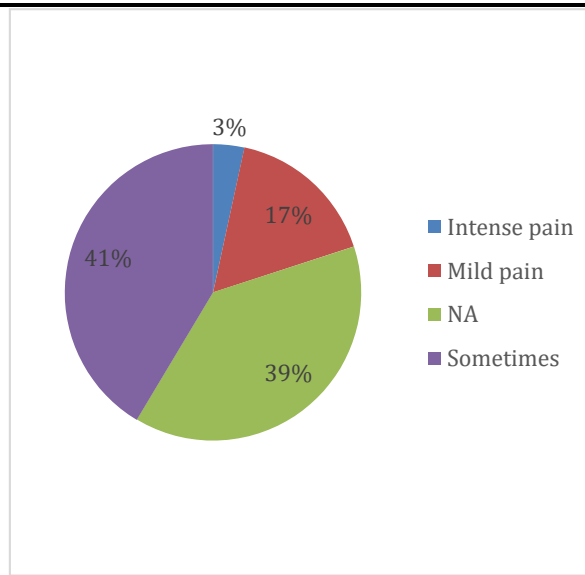
When asked about their days of menstrual cycle, however, the range was from 20 days to 38 days, but 270 females had nearly 26 to 29 days during their menstrual cycle which states that huge amount of females had normal menstrual cycle [Graph9].

In addition to this, menstrual pain can be seen in various parts of the body, stomachpain has relatively higher remarks in that. 48% of women were having mild pain symptom. Whereas, the other women had experienced sometimes and intense pain amounting to 16% and 36% respectively [Graph 10].

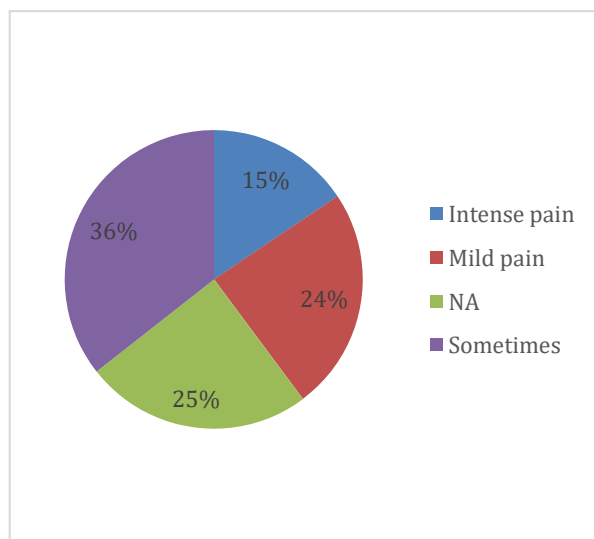
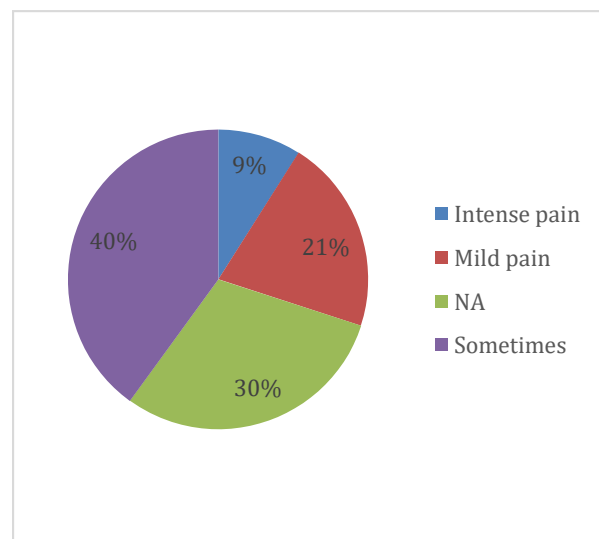
Other than that, the severity of pain was experienced highest on the first two days as claimed by 247 females. While the intensity of pain on 3rd and 4th day was quite low [Graph 11].

When asked about chest pain, 50% of the females had no experience as such while the other 50 percent of women had experienced mild pain (9%), intense pain (4%), sometimes (37%) [Graph 12].

**Graph 11:** Days of severe pain**Graph 12:** Chest pain

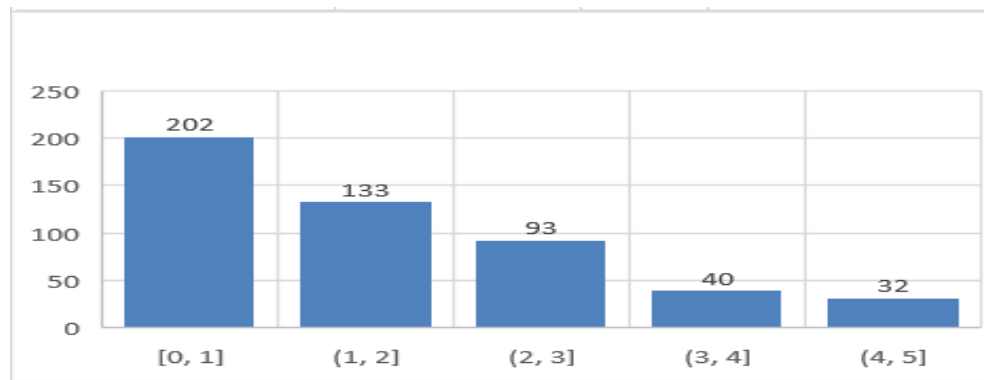
**Graph 13:** Pain in the hip**Graph 14:** Pain in the arms

Further when questioned about pain in the hip, 38 percent of females had pain sometimes, and 35 percent of them had responded to no, whereas, 18 and 9 percent had experienced mild and intense pain respectively [Graph 13]. Next question was about pain in the arms, as low as 3% of which had experienced intense pain and 17% females had experienced mild pain. On the other hand, 41% females had responded sometimes [Graph 14].

**Graph 15:** Pain in the legs**Graph 16:** Pain in the joints

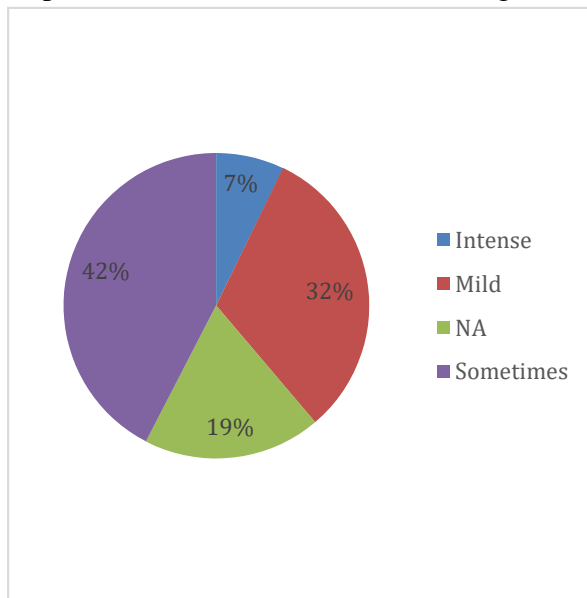
When asked about pain in the legs, 15 percent of females had intense pain and 36 percent of which had experienced pain sometimes. The females had responded to no pain as well as mild pain of about 25% and 24% respectively [Graph 15].

After that, a question about pain in joints was observed to have responded sometimes (40%), no pain (30%), mild pain (21%), intense pain (9%) in the same manner [Graph 16].

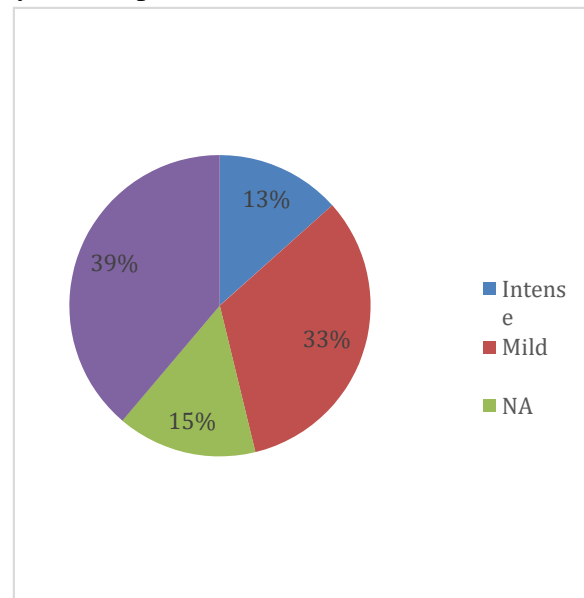


Graph 17: Number of irregularities in a year

The majority of the population, that is, 202 females experienced 0 to 1 irregularities in a year. While 133 females claimed it to have extended up to 1 to 2 irregularities. On the other hand, some females around 32 of them had responded to have 4 to 5 menstrual irregularities in a year [Graph 17].



Graph 18: Headache



Graph 19: Fatigue

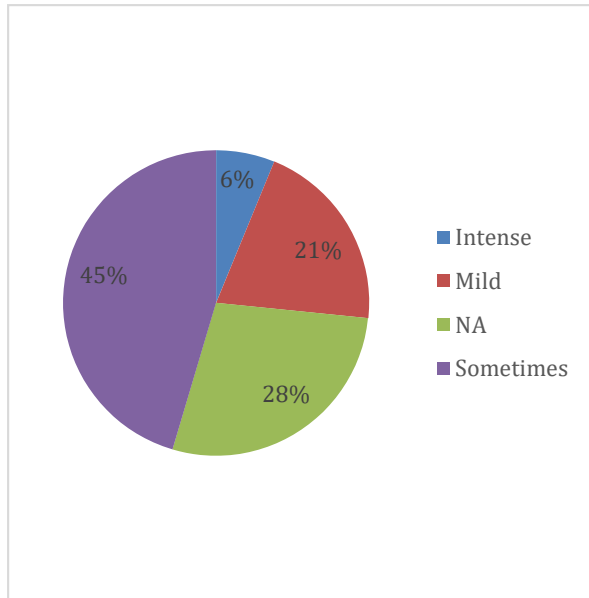
Headache was observed to be at peak about 42% with sometimes response, whereas, mild headache was noted to be around 32%, and significant aching in 7% of females [Graph 18].

Among 39% of females, fatigue or tiredness was experienced sometimes. While the mild and intense tiredness along with no response was observed to be 33%, 13% and 15% respectively in females [Graph 19].

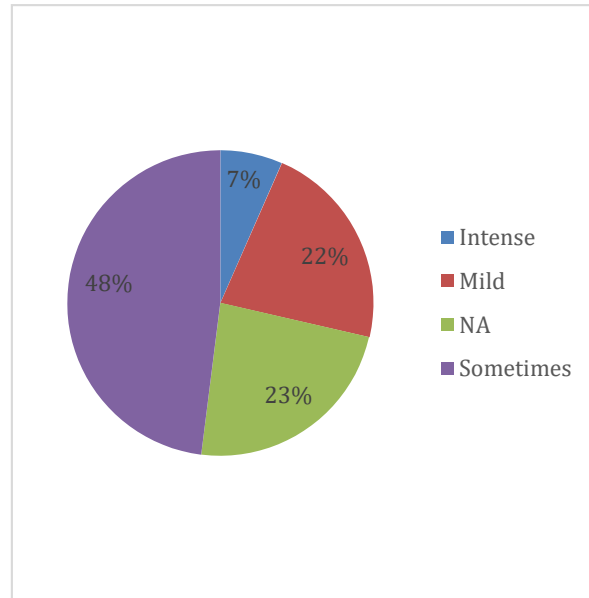
Nausea was experienced sometimes for about 45% of females, while mild (21%) and intense (6%) nausea was

answered by females. Of which, 28% had no response at all [Graph 20].

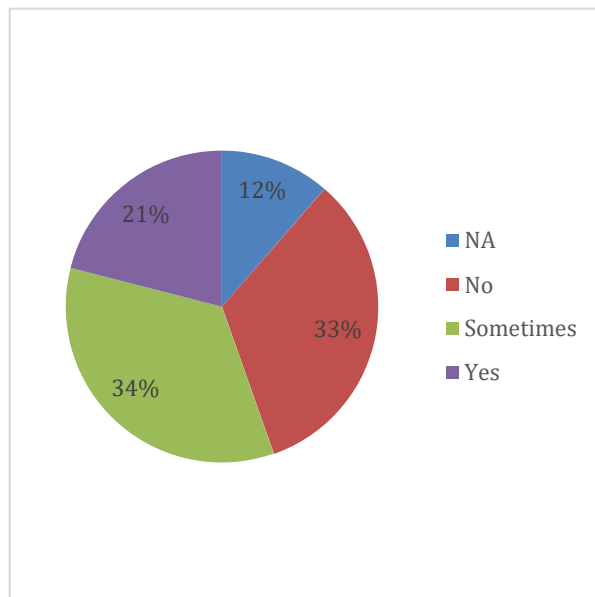
Almost around 48 percent of females answered sometimes when asked about dizziness. Whereas, the mild and intense response was noted to be around 22 and 7 percent individually [Graph 21].



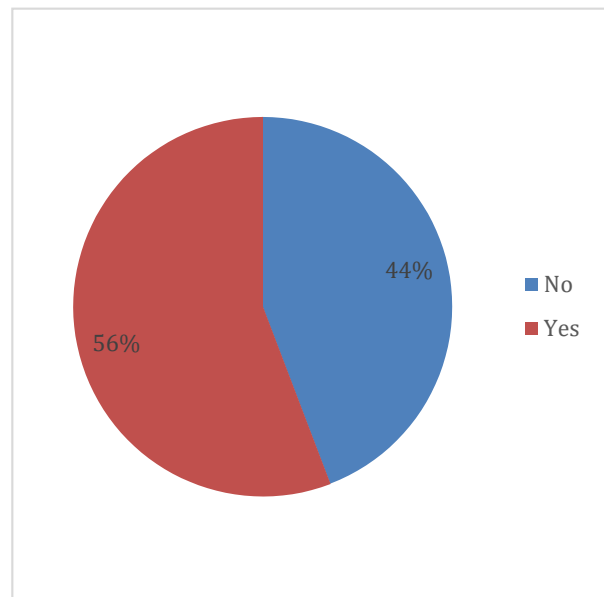
Graph 20: Nausea



Graph 21: Dizziness



Graph 22: Anxiety

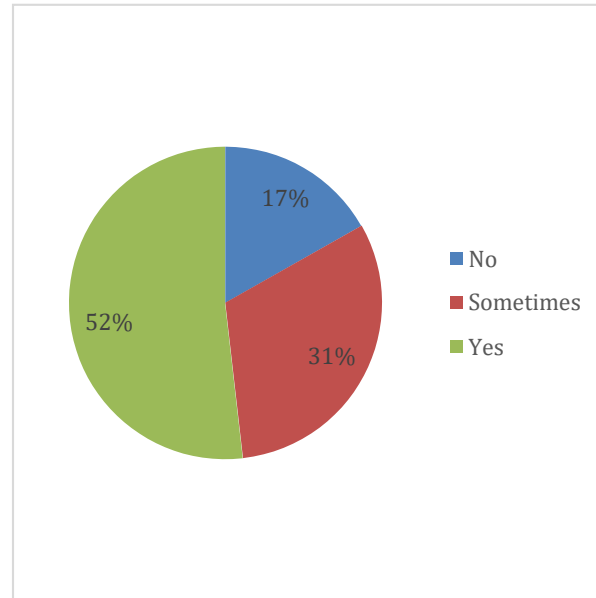
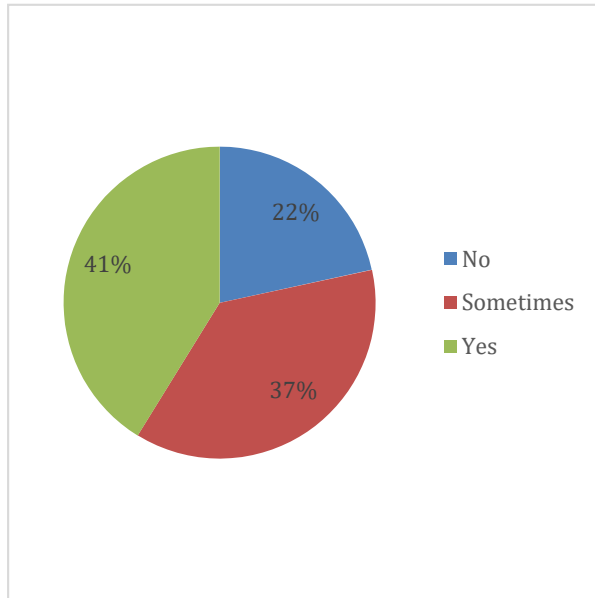


Graph 23: Increased appetite

When enquired about the anxiety level during their menstrual period, 34 % of them had answered sometimes, while 21% answered yes , 33% answered no and 12% had no response as such during their menses [Graph 22].

Among 56% of females felt that their appetite had increased during their menses while the other 44% of them had

felt the literal opposite of it [Graph 23].



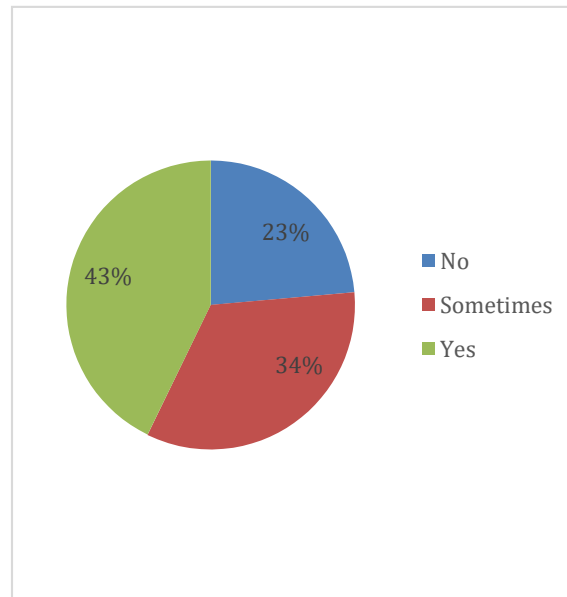
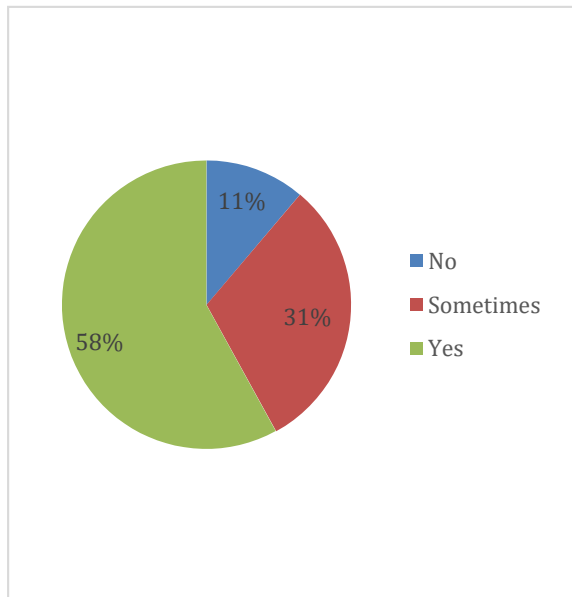
Graph 24: Difficulty in concentrating **Graph 25:** Irritability

Almost 41% of the females had faced lack of concentration during their menstrual period while 22% of which had no difficulty in concentrating. Whereas, 37% of them had experienced it sometimes [Graph 24].

Irritability during the menses was noticeable as 52% of females answered yes, the other 31% of them answered sometimes, and 17% of females answered no [Graph 25].

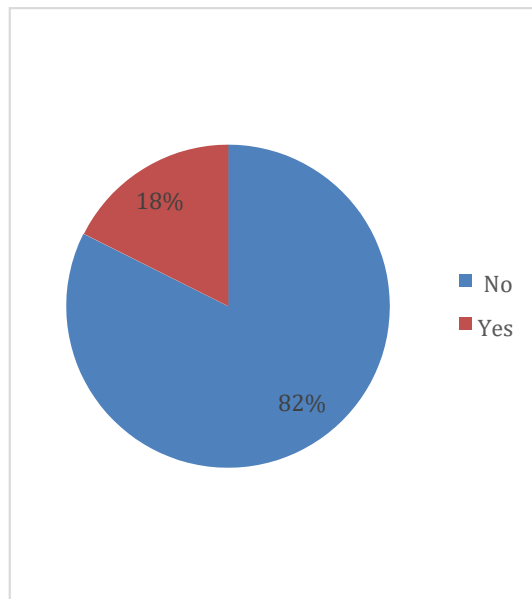
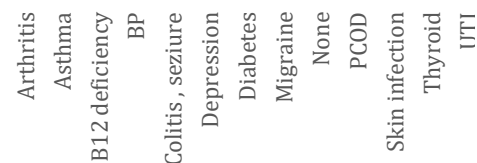
Among 58% of females had experienced mood swings, whereas, some females answered no (11%) along with sometimes (31%) during their menstrual cycle [Graph 26].

Anger issues were observed in 43% of females, 23% of them had no such feelings while the other 34% of females were experiencing anger problems sometimes during their menstrual period [Graph 27].



Graph 26: Mood swings

Graph 27: Anger

**Graph 28:** Taking treatment**Graph 29:** Any other major diseases

When questioned about taking any precautionary treatment, only 18% of females agreed to it while the other 82% of females answered no [Graph 28].

Majorly diabetes (7 females), asthma (6 females), arthritis (6 females) and PCOD

(6 females) were listed when question was raised regarding diseases. Other diseases listed had a very miniscule amount as 459 females in particular were completely healthy [Graph 29].

DISCUSSION

Menstrual cycle being irregular mainly affects women health as they are not aware of its causes. The present study shows that most of the population had regular menstruation cycle. Under closure analysis, it was found out that 59 percent of females had medium bleeding flow and 64 percent had a painful menstrual cycle. However, 18 percent of which are taking treatment for the same.

Sharon V et al. in their survey reported that 33.4% of homemakers had experienced hip pain sometimes, 46.6% responded to yes, and 20% responded to no.⁶

This study depicts that around 270 respondents had a normal length cycle, and 10 respondents had a shorter cycle. These variations in cycle length and duration are consistent with other findings from Rafique and Alshiekh, where they found 13% of their participants had a short cycle with only 5% reporting long menstrual periods.¹¹

According to the World Health Organization International and Multicenter study of 3073 girls, the median length of the first cycle after menarche was 34 days with 38% of cycle lengths exceeding 40 days. Hence, the irregular menstrual cycle in young girls may not be taken in account since they vary from 34 days.¹³

The survey in Tiruchirappalli district shows that 68.6% of women experience pain during their cycle, intense stomach pain (23.8%), intense hip pain (25.7%), and intense leg pain (23.3%). 80% of respondents have no headache, 94.8% have no chest pain, and 84.3% have no pain in joints.

Pitts et al. have reported high rates of pelvic pain in Australian women. Among 4366 women, 15% of them reported severe pain with dysmenorrhea, 7.3% women with dyspareunia, and 20% of women with chronic pelvic pain.¹⁴

Agarwal and Agarwal reported in their survey that dysmenorrhea is a very common problem among adolescent girls and they experience a number of physical and emotional symptoms associated with increased intensity of pain.¹⁵

CONCLUSION

This study's findings depict about how the population is unaware of menstrual disorders and its impact on a woman's life as only fewer subjects had intended to take treatment. Therefore, proper education must be gained by the females to maintain their health and thereby prevent these disorders. Moreover, attention should be drawn towards it.

SUMMARY

A cross-sectional study was contained among 500 females of Ahmedabad city regarding their menstrual cycle. To assess, the subjected females were asked to answer different questions about their menstrual period. After that their data was collected to analyze and find out the prevalence of irregular menstruation among these women. The end result showed that only fewer population are experiencing irregular menses but somehow only half of these females are taking proper care which brings out about their lack of knowledge towards it.

LIMITATIONS:

The sample size was limited due to study conducted in Ahmedabad city only.

FUTURE RECOMMENDATIONS:

The future study can involve effects of various exercises on irregular menstruation.

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