

VARIOUS PATTERN OF LIFE STYLE AND ITS IMPACT ON MENSTRUATION

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Abstract: **BACKGROUND:** The menstrual cycle is an integral aspect of women's life in the reproductive age group. Menstrual irregularities is related to a number of factors related to lifestyle that includes stress, obesity, smoking, alcohol consumption and The aim of this investigation was to consuming birth control pills. This study was conducted to study lifestyle impact on menstruation and its abnormality **METHODS** This study was conducted as an observational study on 384 participants in the 18–30 age range. The study included a standardized survey with questions about lifestyle, physical activity type, and changes in menstrual factors and the menstrual cycle. **RESULTS** In this study 47.39% of women are prevalent to menstrual abnormality. The study identified that almost 50 % of the population were having sedentary lifestyle. The study population was experiencing high levels of alteration in physical activity and had a higher incidence of occurrence of dysmenorrhea, polymenorrhea and premenstrual symptoms. This in turn can cause delayed ovulation and thus result in a delayed menstruation. **CONCLUSION** The findings shows that there are significant impact on menstruation in sedentary lifestyle individuals in compared to active lifestyle.

Keywords: Menstrual cycle, physical activity, pattern of lifestyle, abnormalities.

INTRODUCTION

A normal biological function, the menstrual cycle usually every month in women of reproductive age, regulated by a delicate balance of hormones, primarily estrogen and progesterone.⁽¹⁾ The average cycle lasts about 28 days, but variations between 21 and 35 days are also considered normal.⁽²⁾ The cycle involves the shedding of the uterine lining (endometrium) when the absence of pregnancy, leading to menstruation, or what is commonly known as a period.⁽³⁾ For most women, menstruation is a regular event that causes little disruption to daily life. However, menstrual cycle disturbances are not uncommon, and They may significantly impact physical, emotional, and social well-being.⁽⁴⁾ Disorders such as dysmenorrhea (painful periods), menorrhagia (heavy menstrual bleeding), polymenorrhea (frequent periods), and irregular menstruation can all affect women at various phases of life, particularly during adolescence, during a period of hormonal transition.

Menstrual cycle irregularities are typically divided into a number of groups, according to the nature of the disruption. Some women may experience painful menstruation, while others may face excessive bleeding or irregular cycles. Common menstrual disorders include: Dysmenorrhea (Painful Periods): This refers to pain experienced during menstrual cycle, which can vary from mild discomfort to severe cramping. Dysmenorrhea can be classified into primary and secondary types. Primary dysmenorrhea is pain without an underlying medical condition, typically starting just before or within the onset of the menstrual cycle and subsiding after a few days. Secondary dysmenorrhea, however happen due to conditions like endometriosis,

fibroids, or adenomyosis, and the pain is often more severe and persistent.⁽⁵⁾

Polymenorrhea (Frequent Periods): Women with polymenorrhea experience menstrual cycles that happen more often than usual less than 21 days apart. This condition is typically caused by hormonal imbalances or uterine abnormalities. Women with thyroid disorders or those approaching perimenopause are inclined to go through polymenorrhagia.⁽⁶⁾

Menorrhagia (Heavy Menstrual Bleeding): Menorrhagia refers to excessively heavy menstrual bleeding, typically defined as blood loss exceeding 80 milliliters per cycle. This condition can lead to anemia, fatigue, and a significant reduction in a woman's quality of life. Common causes of menorrhagia include fibroids, hormonal imbalances, and bleeding disorders.⁽⁷⁾

Irregular Menstruation: Many women, especially during adolescence and perimenopause, experience irregular periods. These periods can vary widely in terms of frequency and duration, and are often unpredictable. Stress, weight fluctuations, hormonal imbalances, and changes in lifestyle are some of the components that lead to irregular menstruation.⁽⁸⁾

Oligomenorrhea (Scanty Menstruation): This refers to light or infrequent periods, which may indicate hormonal imbalances such as anovulation (lack of ovulation). Causes of oligomenorrhea include excessive physical activity, stress, low body weight, or disorders such as polycystic ovary syndrome (PCOS).⁽⁹⁾

Premenstrual Syndrome (PMS): PMS involves a range of physical and emotional symptoms that occur in the

two weeks leading up to menstruation. These symptoms include irritability, mood swings, fatigue, breast tenderness, and bloating. While PMS is common, it can be debilitating for some women, impacting their daily functioning. In more severe cases, PMS can progress to premenstrual dysphoric disorder (PMDD), a condition marked by extreme mood swings and significant impairment in work and social activities.⁽¹⁰⁾

Irregularities in the menstrual cycle might be triggered by several of factors, including hormonal imbalances, health conditions, and lifestyle factors. Understanding the underlying causes of these disturbances is essential for effective management and treatment.⁽¹¹⁾

Hormonal Imbalances: The cycle of menstruation is controlled by the complex interaction of hormones such as estrogen, progesterone, luteinizing hormone (LH), and follicle-stimulating hormone (FSH). Any imbalance in these hormones may occur in irregular periods or other menstrual issues. Disorders such as PCOS (polycystic ovary syndrome), thyroid disorders, hyperprolactinemia (high prolactin levels), and adrenal disorders can all result in hormonal disruptions that affect the menstrual cycle.⁽¹²⁾

Stress: Psychological stress is Among the most common causes of menstrual irregularities. Stress affects the hypothalamus, which regulates hormones that are released that control ovulation and menstruation. Excessive stress can cause delayed ovulation, missed periods, or even anovulation (lack of ovulation). Chronically stressed women or anxiety are particularly susceptible to these disruptions, which can manifest as irregular cycles or amenorrhea (absence of menstruation).⁽¹³⁾

Diet and Nutrition: A woman's diet plays a crucial role in her menstrual health. Poor nutrition, including insufficient intake of essential nutrients for instance, vitamins (e.g., vitamin D and B-vitamins), minerals (e.g., magnesium, calcium), and fiber, can lead to hormonal imbalances and menstrual problems. Diets that are heavy in processed foods, sugars, and unhealthy fats can exacerbate problem like PCOS, menorrhagia, or dysmenorrhea. Additionally, eating illness like anorexia nervosa or bulimia can cause menstrual irregularities, as low body weight or malnutrition disrupts hormone production.⁽¹⁴⁾

Excessive Exercise: While moderate physical activity is beneficial for overall health, excessive or intense exercise can obstruct the menstrual cycle. This is particularly for female athletes or individuals who engage in high-intensity workouts that result in low body fat. Over-exercising without adequate rest and nutrition can lead to anovulation and amenorrhea, as the body responds to physical stress by shutting down reproductive function. This condition is often seen In

sports where the focus is on the low body weight, such as gymnastics or long-distance running.⁽¹⁵⁾

Body Weight: Both underweight and overweight women are at risk of getting menstrual cycle abnormalities. Low body weight, especially in females suffering from eating disorders, may occur in low estrogen levels, preventing regular ovulation and causing amenorrhea. However, overweight women mainly those with a lot of belly fat, may experience hormonal imbalances due to increased levels of estrogen and insulin resistance. Conditions such as PCOS are more common in overweight women and can cause irregular periods.⁽¹⁶⁾

Contraceptive Use Birth control tablets and other hormonal contraceptives, intrauterine devices (IUDs), and hormone injections, can alter the menstrual cycle. Though some women might face regular, predictable cycles on birth control, Others might have irregular bleeding, breakthrough bleeding, or even miss periods altogether. In some cases, long-term use of hormonal contraceptives can lead to temporary changes in menstrual patterns after discontinuation.⁽¹⁷⁾

Lifestyle elements, such as nutrition and physical activity, and stress, are important in regulating menstrual health. Considering the effects of these elements the menstrual cycle is crucial for women to manage their reproductive health.⁽¹⁸⁾

Dietary Habits: Consuming unhealthy foods can lead to hormonal imbalances and menstrual irregularities. Diets that are heavy in processed foods, sugars, and unhealthy fats can increase inflammation and disrupt insulin sensitivity, leading to conditions like PCOS. Additionally, low-calorie diets or those lacking vital nutrients may cause problems with ovulation and cause menstrual problems. A balanced diet rich in fruits, veggies, entire grains, and good fats, and lean proteins supports hormonal regulation and helps maintain a healthy menstrual cycle.⁽¹⁹⁾

Physical Activity: Regular, moderate exercise is beneficial for overall health and can help regulate the menstrual cycle. Exercise promotes hormonal balance, improves insulin sensitivity, and helps maintain a healthy weight. However, excessive or intense exercise, especially in conjunction with insufficient nutrition or extreme weight loss, can disrupt menstrual cycles and cause conditions like amenorrhea. A balanced exercise routine that includes aerobic, strength, and flexibility training, combined with adequate rest and nutrition, is crucial for maintaining menstrual health.⁽²⁰⁾

Psychological Stress: Chronic stress has a profound impact on menstrual health. Stress causes the release of cortisol, a hormone that interferes with the reproductive system. Stress management techniques such as mindfulness, yoga, meditation, and cognitive-

behavioural therapy (CBT) are effective ways to reduce the impact of pressure on the menstrual cycle. Women who undergo an excessive amount of stress should prioritize mental health care to support both emotional and physical well-being.⁽²¹⁾

Environmental Exposure: Environmental pollutants, particularly endocrine- substances that disrupt (EDCs) found in plastics, pesticides, and personal care products, can disrupt the control of hormones and lead to menstrual disturbances. These chemicals mimic or block the action of natural hormones, potentially contributing to conditions such as endometriosis, fibroids, or irregular cycles. Limiting exposure to EDCs by choosing natural products and reducing plastic usage may help improve menstrual health.⁽²²⁾

Abnormalities in the menstrual cycle are common but often treatable. Understanding the causes and danger signs for these disturbances is the first step toward effective management.⁽²³⁾ Women experiencing menstrual issues should seek medical advice to exclude underlying health conditions and consider lifestyle interventions.⁽²⁴⁾ Adopting a maintaining a healthy diet, exercising frequently, controlling stress, and limiting exposure to environmental toxins are all essential strategies for maintaining a regular and healthy menstrual cycle.⁽²⁵⁾ For some women, medical treatments such as hormonal therapy or other interventions may be necessary. By addressing both lifestyle and medical factors, women can better manage

their menstrual health and enhance their general state of health.

MATERIAL AND METHODS

This The study was conducted as an observational study on 384 participants in the 18–30 age range. The study included a standardized survey with questions about lifestyle, physical activity type, and changes in menstrual factors and the menstrual cycle.

Inclusion criteria

- Women aged between 18-30 years with possible menstruation.

Exclusion Criteria:

- Women's going through menopause.

Sample Size

$$n = Z^2pq/L^2$$

P = Prevalence of menstruation abnormalities in different study parameters such as diet, physical activity, stress = 60 % (as per reference)

q= no abnormalities (100 – p)

L= Allowable errors 5% at 95% confidence interval

N=384

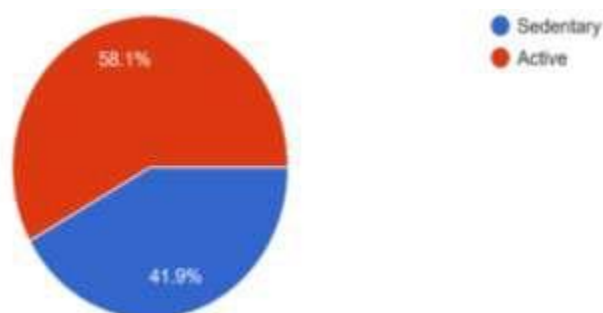
RESULTS AND OBSERVATIONS:

Section A: LIFESTYLE MODIFICATION

1. What type of lifestyle do you live?

	Frequency	Percentage %
Sedentary	192	50
Active	192	50

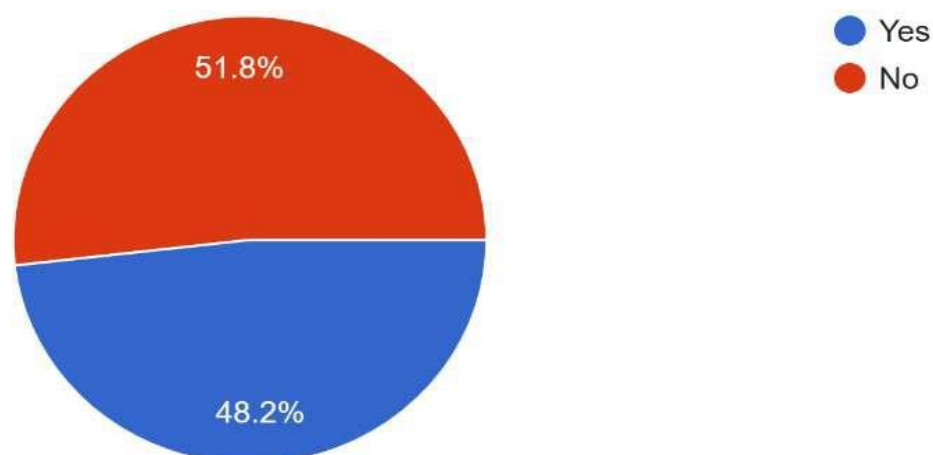
Interpretation: Above the chart represent type of lifestyle. Most common greater than those who have been harmed by active lifestyle 50%. now sedentary lifestyle suffered from 50%.



2. Do you exercise regularly?

	Frequency	Percentage %
Yes	185	48.2
No	199	51.8

Interpretation: Above the chart represent 48.2% people have exercise regularly.51.8% people have not exercise regularly.

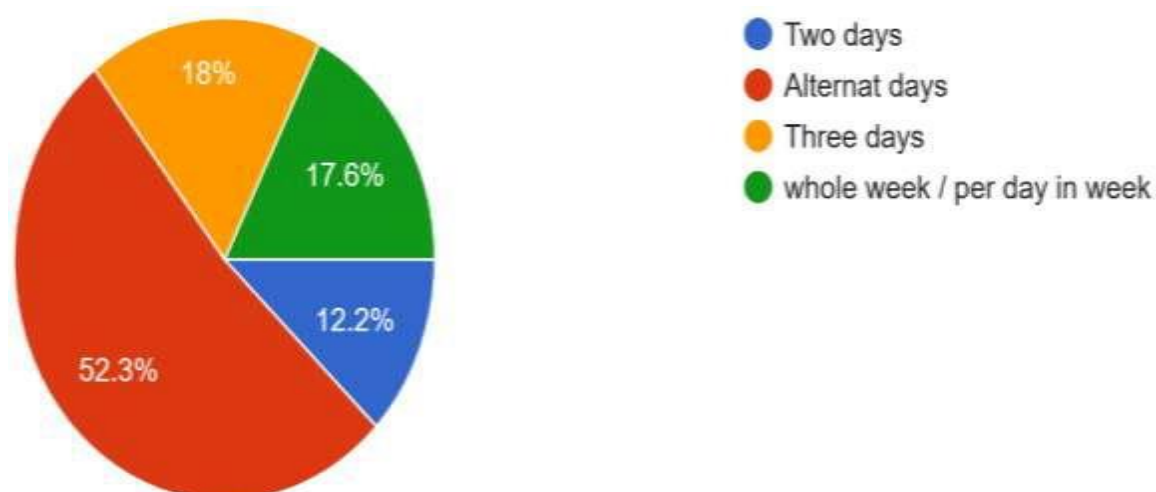


2. How often do you exercise in a week

	Frequency	Percentage %
Two days	27	12.2
Alternate days	116	52.3
3 days	40	18
Whole week	39	17.6
Blank	162	42.1

Interpretation:

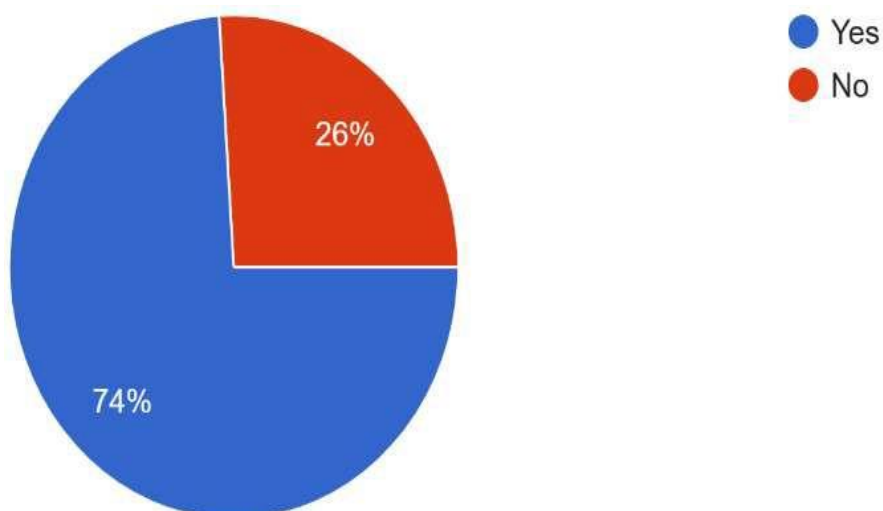
Above the chart 17.6% people have exercise in a week. 12.2% people have alternate day exercise low rate of exercise is alternate day.



3. Have you recently experienced any stress full event?

	Frequency	Percentage %
Yes	284	74
No	100	26

Interpretation: Above the chart 74% people have more stress full event.



4. How often do you consume fast food?

	Frequency	Percentage %
Per day	32	8.3
Once in week	327	85.2
Once in month	25	6.5

5. How many hours of sleep do you get at night?

	Frequency	Percentage %
Less than 6 hrs	206	53.6
More than 6 hrs	178	46.4

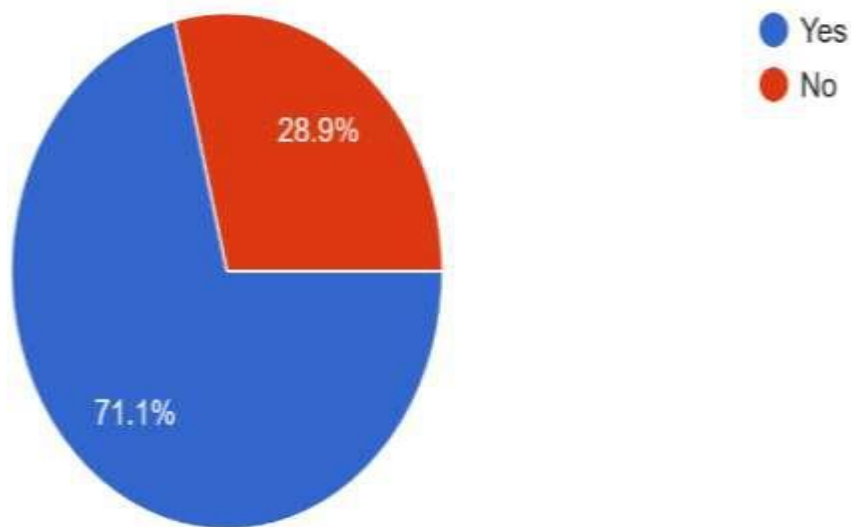
Section B: Menstruation

1. Is your menstruation cycle regular?

	Frequency	Percentage %
Yes	273	71.1
No	111	28.9

Interpretation:

Above the chart 71.1% regular menstruation cycle. 28.9% irregular menstruation cycle.

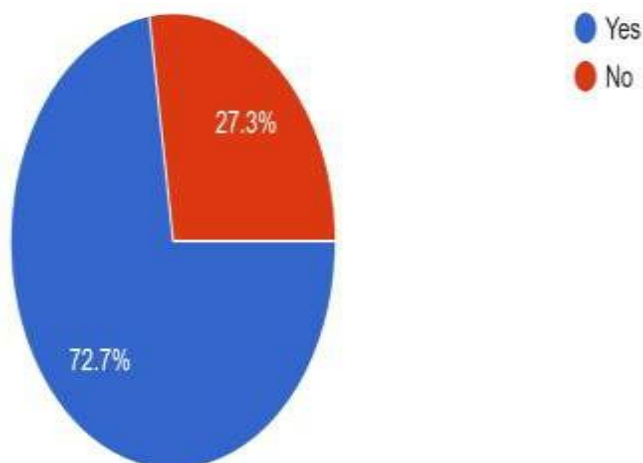


2. What is the age of menarche?

	Frequency	Percentage %
9 to 11	24	6.3
11 to 14	271	70.6
14 to 16	89	23.2

Interpretation:

Above the chart heavy blood flow is 72.7%. less blood flow id 27.3%.



3. What type the length of your menstrual cycle?

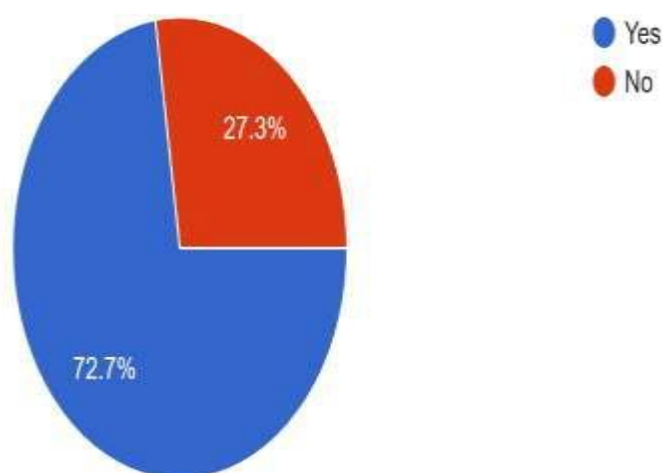
	Frequency	Percentage %
21 to 35 days	126	32.8
Less than 21 days	180	46.9
More than 35 days	78	20.3

4. Do you experience heavy flow during menstrual cycle?

	Frequency	Percentage %
Yes	279	72.7
No	105	27.3

Interpretation:

Above the chart heavy blood flow is 72.7%. less blood flow id 27.3%.

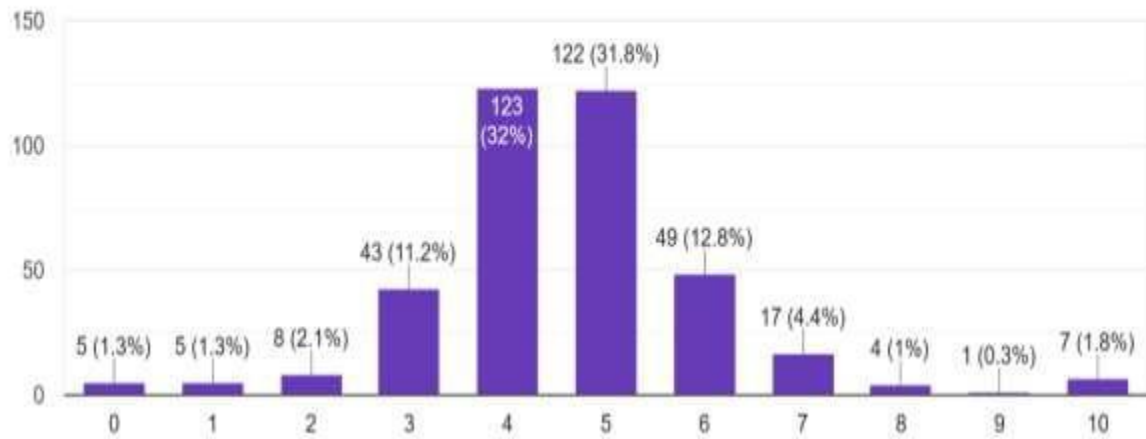


5. How much pain do you experience during your menstrual cycle?

At rest

	Frequency	Percentage %
0	5	1.35
1	5	1.3
2	8	2.1
3	43	11.2
4	123	32
5	122	31.8
6	49	12.8
7	17	4.4
8	4	1
9	1	0.3
10	7	1.8

number as you experience pain) 0= No pain 5 = Modert pain 10= maximum pain At rest
384 responses



Interpretation:

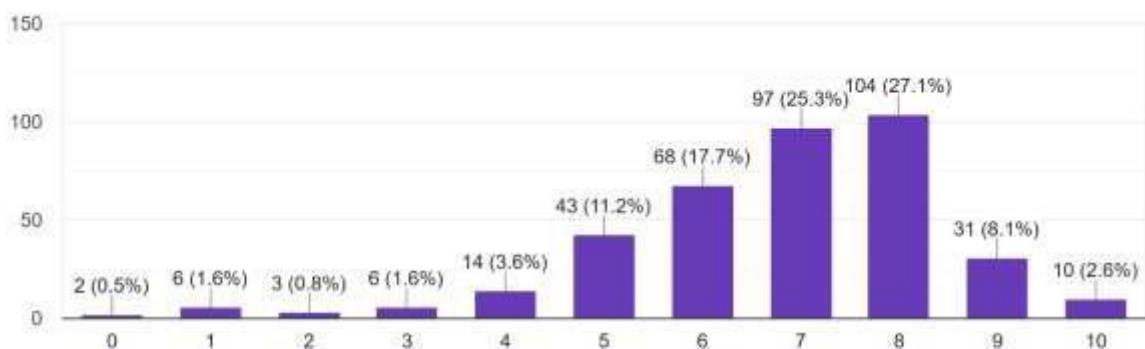
Above the graph 32% people have more pain at rest

On activity

	Frequency	Percentage %
0	2	0.5
1	6	1.6
2	3	0.8
3	6	1.6
4	14	3.6
5	43	11.2
6	68	17.7
7	97	25.3
8	104	27.1
9	31	8.1
10	10	2.6

On activity

384 responses



Interpretation: Above the graph 27.1% people have more pain on activity.

Table- Impact of Lifestyle Patterns on the Prevalence of Menstrual Abnormalities

Lifestyle	dysmenorrhea	polymenorrhea	Irregular menstruation	Oligomenorrhea	Total (percentage)
Active	28	10	27	10	75(19.53%)
Sedentary	65	25	57	35	182(47.39%)

Higher prevalence of menstrual abnormality is observed in sedentary individuals compared to active individuals. This suggests that physical activity may help alleviate menstrual pain, potentially due to improved blood circulation and hormonal balance.

DISCUSSION

The connection between the lifestyle factors and menstrual health was a subject of considerable interest in recent years, especially as modern-day changes in diet, physical activity, stress levels, and Natural components have grown increasingly prominent. Menstrual cycle abnormalities, including conditions such as dysmenorrhea (painful periods), polymenorrhea (frequent periods), menorrhagia (heavy bleeding), and irregular cycles are becoming more prevalent among women of reproductive age.(1) The present study's findings show that almost 60% among the study population experiences menstrual abnormalities. (2) This can be attributed to a variety lifestyle choices, such as drinking alcohol and smoking consumption, dietary habits, inadequate physical activity and tension.

This research offers important new information regarding the ways in which lifestyle modification especially those related to physical activity, stress, and diet can affect menstrual health. (4) Specifically, the study focused on two main factors: physical activity and psychosocial stress, both of which were found to significantly alter menstrual patterns.(5) Furthermore, changes in diet, particularly with respect to fast food consumption and restrictive weight loss programs, were shown to exacerbate menstrual irregularities. (6) These findings align with earlier studies, which suggests that lifestyle behaviours are directly linked to reproductive health outcomes, including the occurrence and intensity of menstrual abnormalities.(7)

Impact of Exercise on Menstrual Health

Among the key findings of this study was the correlation between altered physical activity levels and the increased prevalence of menstrual abnormalities. (8) The study identified that nearly 41.9% of the study population had experienced elevated amounts of alteration in exercise, and these women exhibited a higher incidence of dysmenorrhea, polymenorrhea and premenstrual symptoms.(9) According to earlier studies, this supports the idea that both excessive and insufficient Physical activity can negatively impact the menstrual cycle.(10)

Frequent exercise has been demonstrated to improve menstrual regularity and reduce the severity of menstrual discomfort.(11) A study conducted by Goh et al. (2016) discovered that women who participated in moderate physical activity experienced fewer menstrual

cramps and less severe premenstrual syndrome (PMS).(12) Similarly, the Karad study also reported that physical activity, such as exercise and yoga, was connected to a decrease in menstrual cramps and water retention, both of which are common symptoms of dysmenorrhea and premenstrual syndrome.

However, the current study also highlights the risks of excessive physical activity. (13) While Moderate exercise can be beneficial with menstrual health, overtraining—often associated with weight loss programs, athletic training, or high-intensity exercise—has been linked to menstrual irregularities such as anovulation and amenorrhea. A study by Loucks et al. (2011) showed that excessive physical exercise, particularly when paired with low body fat as well as inadequate caloric intake, could disrupt the hypothalamic-pituitary-ovarian (HPO) axis, leading to disrupted menstrual cycles.(14)

In contrast Additionally, the study discovered that 51.8% of participants had limited physical activity, and among them, 45% experienced a higher incidence of dysmenorrhea.(15) This finding is particularly important because it suggests that a sedentary lifestyle, which is becoming increasingly prevalent in modern societies, may support the growth of menstrual discomfort and irregularities.(16) Limited Exercise can exacerbate signs and symptoms like bloating, fatigue, and menstrual cramps. Moreover, Sedentary lifestyles have been connected to insulin resistance and obesity, both of which can negatively impact reproductive health.(17)

Thus, it is evident indicates engaging in consistent, moderate exercise is necessary for maintaining menstrual health.(18) Participating in pursuits like walking, yoga, swimming, or cycling can help reduce the incidence of menstrual discomfort, improve circulation, and support overall hormonal balance. (19) Additionally, it's critical to note that excessive or extreme exercise should be avoided, as it can disrupt the delicate hormonal balance necessary for regular ovulation and menstruation.(20)

The Function of Stress in Menstrual Abnormalities

Stress is another major factor influencing menstrual health.(21) As stated by the current study, women who elevated levels of stress had a higher probability of experience prolonged menstrual cycles, heavy bleeding, and exacerbated premenstrual symptoms. High levels of psychosocial stress, whether due to work, personal

relationships, or other factors, can activate the hypothalamic-pituitary-adrenal (HPA) axis and disrupt the normal functioning of the HPO axis.(22) This disruption can result in modifications to the the length and regularity of menstrual cycles, in addition to variations in the amount and quality of menstrual flow.(23)

Numerous studies have demonstrated that stress can lead to delayed ovulation, anovulation (lack of ovulation), and irregular cycles.(24) A research carried out by Seidler et al. (2012) discovered that ongoing mental stress was linked to a greater likelihood of menstrual irregularity and a longer cycle length.(25) In the present study, 74% of participants reported significant concentrations of stress, and 61% of these women experienced menstrual abnormalities, with the most prevalent being irregular cycles, heavy bleeding, and dysmenorrhea. (26) These The outcomes are consistent with earlier research by Koren et al. (2013), which found that workplace stress and emotional strain could lead to menstrual disturbances, particularly in women in high-stress occupations.(27)

Stress-induced changes in the menstrual cycle are often linked to hormonal imbalances, particularly involving cortisol, estrogen, and progesterone.(28) High levels of cortisol, which is the body's primary stress hormone, can inhibit the production of reproductive hormones and interfere with ovulation.(29) In addition to delaying menstruation, high stress can aggravate premenstrual symptoms such as irritability, mood swings, bloating, and fatigue.(30) Therefore, Using relaxation techniques to manage stress, mindfulness practices, and counseling may help alleviate some of the adverse effects of stress on menstrual health.(31)

Dietary Habits and Their Effect on Menstrual Cycle
Dietary habits are another key factor influencing menstrual health.(32) According to the current study, 85.2% of participants had altered their diets, with many engaging in weight loss programs that led to restrictive eating.(33) Among these women, 45.2% experienced irregular menstrual cycles, and 72.7% had menorrhagia. (34) These findings align with current research on the connection between diet and and menstrual function.(35)

Changes in diet, particularly those that involve reduced calorie intake, restrictive eating, or an increase in processed in addition to fast food consumption, can disrupt the balance of hormones necessary for regular menstruation. (36) Weight loss programs, which often involve limitation of calories, have been demonstrated to reduce estrogen levels and impair ovarian function. (37) This can result in anovulation and irregular periods.(38)A study by Jeng et al. (2015) discovered that females who followed low-calorie diets or engaged in extreme weight loss regimens were more probable to

experience menstrual irregularities and delayed cycles.(39)

In contrast, a well-balanced diet that incorporates sufficient calories, healthy fats, Minerals and vitamins are essential for preserving hormonal equilibrium and normal menstruation. (40) The survey also discovered that participants who consumed a higher proportion of fast foods experienced more frequent menstrual disturbances, including menorrhagia.(41) Generally speaking, fast food is high in unhealthy fats, sugars, and refined carbohydrates, can exacerbate inflammation and insulin resistance, which are connected to menstrual irregularities and conditions like PCOS. (42) Therefore, promoting a healthy, balanced diet high in fruits, vegetables, complete foods, and lean meats, as well as good fats can help support menstrual health. Conclusion: The Value of Changing One's Lifestyle for Menstrual Health.(43)

The results of this investigation highlight the significance of lifestyle modifications in managing menstrual health.(44) Both Exercise and lowering stress levels are essential elements. in maintaining regular menstrual cycles and alleviating symptoms of dysmenorrhea, menorrhagia, and other menstrual disorders.(45) Regular, moderate exercise helps regulate hormonal balance and reduce menstrual discomfort, while using relaxation techniques to manage stress can mitigate the negative effects of cortisol on the reproductive system. (46) Further more adopting A well-balanced diet that supports hormonal health is necessary to avoid disruptions to the menstrual cycle.(47)

Given the growing prevalence of menstrual abnormalities in women, particularly among younger populations, It is necessary to raise knowledge of the function of lifestyle factors in menstrual health. (48) Health care providers ought to inspire women to exercise frequently, control your stress, and adopt a nutritious diet to optimize menstrual health and overall well-being.(49) With the right lifestyle modifications, many women can experience improved menstrual regularity and a reduction in menstrual discomfort.(50)

CONCLUSION

The study reveals that there are significant impact on menstruation in individual having sedentary lifestyle in compared to individual having active lifestyle.

Limitation:

In this study we involve 18 to 30 years aged women. A large sample size required to make the study more reliable.

Future scope:

This research can be further taken up for studies. This research can help be done in larger population. Different outcome measures can be taken. This research

can be involving reproductive age group. This research can be done in other geographical area.

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