

# RELATIONSHIP BETWEEN THE DIETARY HABITS AND MENSTRUATION AMONG REPRODUCTIVE WOMEN

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## **ABSTRACT**

### **BACKGROUND:-**

Menstruation is a fundamental physiological process that signifies reproductive health and hormonal balance in women. The menstrual cycle is a complex interplay of hormonal, nutritional, and environmental factors that collectively influence its regularity, duration, and associated symptoms. Menstrual disorders such as dysmenorrhea, irregular cycles, premenstrual syndrome (PMS), and heavy menstrual bleeding affect a substantial proportion of women globally, impacting their physical health, psychological wellbeing, and quality of life. The relationship between dietary habits and menstrual health has garnered increasing attention in recent years. Nutrition plays a pivotal role in hormonal regulation, with specific nutrients influencing the synthesis and metabolism of reproductive hormones.

### **AIM:-**

The aim of the study was to assess the relationship between dietary habits and menstrual patterns including menstrual health, symptoms, and irregularities among women.

### **OBJECTIVES:-**

The main objectives of this study were to assess the dietary habits and nutrient intake of the selected population, to evaluate menstrual patterns such as cycle, regularity, duration, and flow, to identify the prevalence of menstrual problems like dysmenorrhea, PMS, and irregular cycles, to analyse the association between specific dietary components and menstrual health, to examine the impact of lifestyle factors.

## **METHODOLOGY:-**

A Descriptive cross sectional study was conducted among 100(n=100) women using a structured questionnaire

## **RESULT:-**

Data were analysed using descriptive statistics and Chi square tests with statistical significance considered at ( $p < 0.05$ ). The results revealed The study included 100 women aged 17-40 years, Chi square analysis revealed that diet type was significantly associated with menstrual regularity the study of 100 participants predominantly young and single revealed a high prevalence of underweight status (41%) alongside mostly non vegetarian dietary habits and fruit and dairy intake ,lifestyle assessment indicated predominantly sedentary behaviour(61%)and moderate to high stress levels (83%)with a third reporting insufficient sleep .Menstrual health findings showed regular cycles in (84%)yet dysmenorrhea was highly prevalent (80%)accompanied by notable rates of anaemia (18%)PCOD (9%)PCOS (4%) Statistical analysis demonstrated a significant association between diet type and menstrual regularity ( $\chi^2 = 9.0462$ ,  $p = 0.02$ ). Similarly, the junk food significantly associated with menstrual pain ( $\chi^2 = 66.197$ ,  $p = 0.01$ ).and stress level was not significantly associated with menstrual pain ( $\chi^2 = 2.391$ ,  $p = 0.303$ ). The association between BMI category and menstrual regularity was also not statistically significant ( $\chi^2 = 4.030$ ,  $p = 0.258$ ). Furthermore, fruit intake showed no significant association with menstrual pain ( $\chi^2 = 2.536$ ,  $p = 0.468$ ).

## **CONCLUSION:-**

This study concludes the relationship between dietary habits and menstrual health among 100 reproductive age women aged 17-40 years .The findings revealed a high prevalence of underweight status and predominantly non vegetarian dietary patterns among participants .Lifestyle assessment indicated concerning patterns including sedentary behaviour in the majority and moderate to high stress levels in participants with one third reporting insufficient sleep .Regarding menstrual health. the majority of participants experienced regular cycles ,Yet dysmenorrhea was highly prevalent affecting women .Notable rates of menstrual related conditions were observed ,including anaemia, PCOD, PCOS, and thyroid disorders These findings highlight the significant burden of menstrual problems in these population.

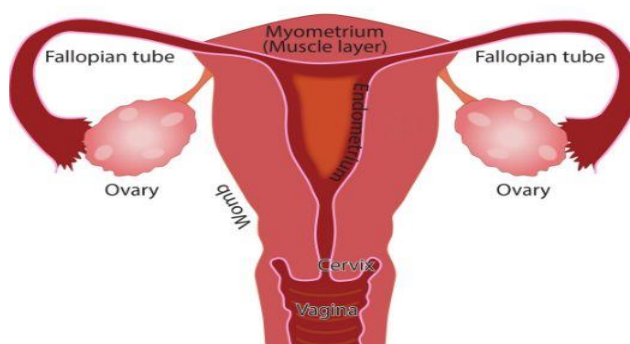
## **KEYWORDS:-**

Menstruation , Dysmenorrhea, Anaemia, Menstrual health Nutrition ,Dietary habits ,Reproductive health , Polycystic Ovary Syndrome (PCOS), Polycystic Ovarian disease (PCOD)

## **CHAPTER – I**

### **INTRODUCTION**

Menstruation represents a natural biological process that occurs in females during their reproductive years. This physiological phenomenon serves as a crucial indicator of reproductive health, reflecting both hormonal equilibrium and the body's overall nutritional condition. The menstrual cycle involves the periodic shedding of the uterine lining, typically occurring at intervals of 21–35 days, with bleeding lasting approximately 3–7 days. Although menstruation constitutes a normal physiological event, numerous adolescent girls and women encounter menstrual irregularities, including painful menstruation, heavy bleeding, irregular cycles, and premenstrual syndrome (PMS), and endocrine disturbances. Among the various elements affecting menstrual health, dietary patterns exert considerable influence.



**Figure 1.1 Structure of the female Reproductive system**

### **THE CONNECTION BETWEEN NUTRITION AND MENSTRUAL FUNCTION:-**

Nutrition demonstrates a significant relationship with hormonal regulation, metabolic processes, and reproductive function. A well-balanced diet comprising sufficient carbohydrates, proteins, fats, vitamins, and minerals supports the maintenance of a healthy menstrual cycle. Conversely, inadequate dietary practices—such as meal skipping, excessive consumption of processed foods, high intake of sugary beverages, insufficient iron consumption, and nutrient deficiencies—can adversely affect menstrual health. Poor nutrition may contribute to delayed puberty, irregular menstruation, anaemia, obesity, and conditions like Polycystic Ovarian Syndrome (PCOS). Consequently, comprehending the relationship

between dietary patterns and menstruation holds importance for enhancing the health and wellbeing of adolescent girls and women

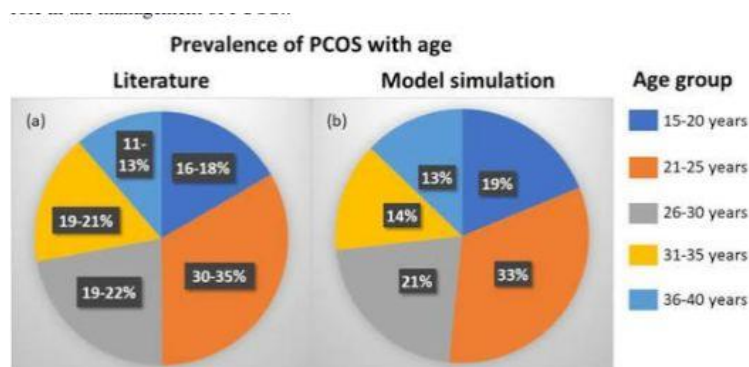
### **PUBERTY AND NUTRITIONAL FOUNDATION:-**

Puberty represents the transitional phase from childhood to adulthood, during which physical, emotional, and hormonal transformations occur. In females, puberty typically commences between ages 8 and 13 years. During this period, the body undergoes rapid growth and development driven by hormonal changes initiated by the endocrine system. Secondary sexual characteristics emerge, including breast development, pubic hair growth, hip widening, and the commencement of menstruation. Menarche, or the first menstrual period, stands as one of the most significant milestones in female puberty.

The timing of menarche is influenced by multiple factors, including genetic predisposition, environmental conditions, socioeconomic status, physical activity levels, and nutritional intake. Proper nutrition during adolescence proves essential, as this stage demands increased energy and nutrients to support growth and reproductive maturation. Girls who consume balanced diets rich in iron, calcium, protein, and vitamins typically achieve menarche at appropriate ages and maintain superior menstrual health. Conversely, poor nutrition during adolescence can disrupt hormonal balance and delay or impair menstrual function. Under nutrition may result in delayed menarche and irregular cycles, while excessive consumption of calorie-dense foods combined with sedentary lifestyles can contribute to overweight and obesity, which are associated with early puberty and menstrual disorders. Thus, dietary habits established during puberty exert long-term effects on reproductive health, with healthier eating patterns associated with optimal menarche timing.

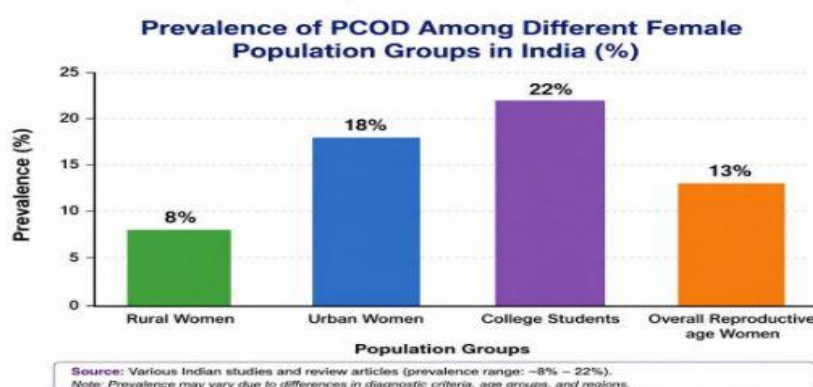
### **PCOD and PCOS:-**

Polycystic Ovarian Disease (PCOD) and Polycystic Ovarian Syndrome (PCOS) represent common endocrine disorders affecting women of reproductive age. These conditions are characterized by irregular menstruation, hormonal imbalance, ovarian cyst formation, acne, weight gain, excessive hair growth, and fertility challenges. PCOS is recognized as a metabolic and endocrine disorder, whereas PCOD primarily involves the development of immature eggs within the ovaries.



**Figure: - 1.2 Prevalence of PCOS (Polycystic ovary syndrome) across age groups**

Unhealthy dietary habits contribute significantly to the increasing prevalence of PCOD and PCOS. Diets high in refined carbohydrates promote insulin resistance, which subsequently elevates androgen hormone levels, disrupting ovulation and causing irregular menstrual cycles. Women with PCOS frequently experience irregular or absent periods due to hormonal disturbances. Maintaining a healthy diet can assist in managing symptoms and improving menstrual regularity. Consumption of whole grains, fruits, vegetables, lean proteins, healthy fats, and fibre-rich foods helps regulate blood sugar levels and maintain hormonal balance. Regular physical activity, combined with proper nutrition, also plays a crucial role in PCOS management.



**Figure 1.3 Prevalence of PCOD (Polycystic ovarian disease) across age groups**

### **AFFECTED POPULATION:-**

Menstrual problems affect a substantial population of adolescent girls and women worldwide. In India, menstrual disorders are highly prevalent among teenagers and young adults due to poor nutrition, limited awareness, hormonal imbalances, and lifestyle modifications. Adolescence represents a vulnerable period, as girls experience rapid physical growth and increased nutritional requirements.

Research indicates that a considerable proportion of girls suffer from dysmenorrhea (painful menstruation), irregular menstrual cycles, excessive bleeding, and premenstrual symptoms. Menstrual disorders can negatively impact physical health, mental wellbeing, academic performance, and overall quality of life. Additionally, many girls hesitate to discuss menstrual issues openly due to social stigma and cultural taboos.

Urbanization and modernization have transformed dietary patterns among adolescents. Increased consumption of fast foods, soft drinks, packaged snacks, and nutrient-poor foods has contributed to obesity and hormonal disturbances. Simultaneously, under nutrition and micronutrient deficiencies remain common among girls from low socioeconomic backgrounds. Both under nutrition and over nutrition can affect menstrual health.

### **ANAEMIA IN INDIA:-**

Anaemia represents one of the most serious nutritional challenges among adolescent girls and women in India. The condition is primarily caused by iron deficiency, although deficiencies of folic acid and vitamin B12 may also contribute. Menstruating girls and women face elevated risk of anaemia because blood loss during menstruation increases iron requirements.

According to national health surveys, a large proportion of adolescent girls and women in India suffer from anaemia. Symptoms include fatigue, weakness, dizziness, pale skin, reduced concentration, and compromised immunity. Severe anaemia can affect physical growth, reproductive health, and pregnancy outcomes. Heavy menstrual bleeding further exacerbates iron deficiency, creating a cycle of poor health and nutritional depletion.

Poor dietary habits constitute a major cause of anaemia in India. Many girls consume diets lacking iron-rich foods such as green leafy vegetables, pulses, millets, nuts, meat, eggs, and fortified cereals. Frequent consumption of junk foods and low intake of fruits and vegetables also reduce nutrient availability. Additionally, limited awareness regarding menstrual hygiene and nutrition contributes to the high prevalence of anaemia.

### DROP IN ANAEMIA CASES Among Children And Adults (In Per Cent)

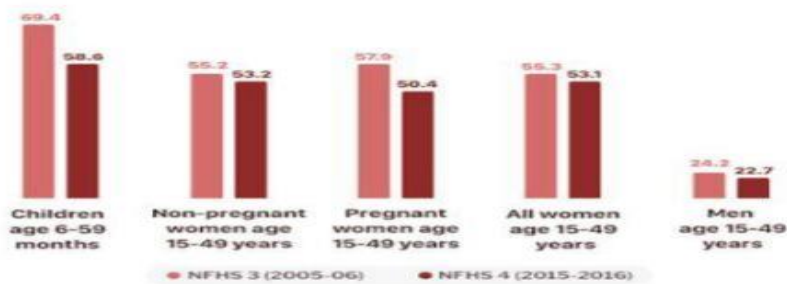


Figure 1.4 Prevalence of Anaemia among Adults in India

### DIETARY HABITS AND MENSTRUAL HEALTH:-

Dietary habits refer to the regular pattern of food consumption followed by individuals. Healthy dietary habits are essential for maintaining hormonal balance, body weight, and reproductive health. Nutrients such as iron, calcium, magnesium, zinc, omega-3 fatty acids, vitamin D, vitamin B-complex, and proteins play significant roles in menstrual functioning.

A balanced diet helps regulate hormones involved in the menstrual cycle. Adequate protein intake supports tissue repair and hormone production, while healthy fats are necessary for the synthesis of reproductive hormones. Whole grains, fruits, and vegetables provide fibre and antioxidants that reduce inflammation and improve overall health.

Unhealthy dietary practices such as skipping breakfast, crash dieting, excessive caffeine intake, consumption of processed foods, and high sugar intake can disturb menstrual regularity. Obesity caused by excessive calorie intake may lead to hormonal imbalance and increase the risk of PCOS. Similarly, under nutrition and eating disorders can suppress ovulation and result in irregular or absent menstruation.

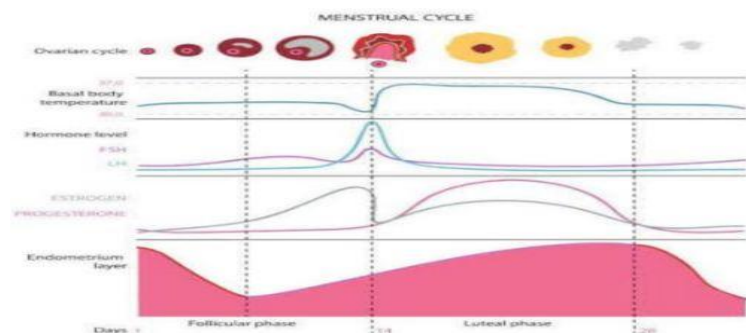


Figure 1.5 Phases of the Menstrual Cycle and hormonal changes

## **CHAPTER –II**

### **AIMS & OBJECTIVES**

#### **AIMS:-**

To study the relationship between dietary habits and menstrual patterns including menstrual health, symptoms and irregularities among women.

#### **OBJECTIVES:-**

- 1) To assess the dietary habits and nutrient intake of the selected population.
- 2) To evaluate menstrual patterns such as cycle, regularity duration, and flow
- 3) To identify the prevalence of menstrual problems like dysmenorrhea PMS and irregular cycles.
- 4) To analyse the association between specific dietary components and menstrual health
- 5) To examine the impact of lifestyle factors.

#### **HYPOTHESIS:-**

Balanced dietary habits and healthy lifestyle practices including adequate sleep and stress management, contain several nutrients essential for hormonal regulation and reproductive health. Diet also provides minerals like iron and magnesium, which are crucial for maintaining regular menstrual cycles and preventing anaemia. However excessive consumption of junk foods , coupled with sedentary behaviour , high stress levels , and insufficient sleep, can lead to several side effects , including dysmenorrhea , menstrual irregularities , weight gain ,PCOD , PCOS ,and other metabolic disturbances .The research is being conducted to know if there is relationship between dietary habits ,lifestyle factors , and various menstrual health outcomes or not .

### **CHAPTER – III**

#### **REVIEW OF LITERATURE**

**Elibol et al., 2026** investigated the relationship between pain, sleep, and nutrition during the premenstrual, menstrual, and post menstrual phases among (n=250) women aged 19–40 years using a descriptive cross-sectional design. Data were collected via demographic questionnaire, Sleep Quality Scale, Premenstrual Symptoms Coping Scale, dietary records, and Visual Analogy Scale across three menstrual phases. Results showed appetite increase rates of 55.6% in premenstrual, 45.6% in menstrual, and 16.0% in postmenstrual phases. Single women had significantly lower sleep quality scale scores and higher visual analogue scale scores compared to married women, ( $p < 0.05$ )

**Ghosh A and Muley A., 2025** explored the association of ultra-processed food consumption with body composition, bowel movements, and menstrual irregularities among (n = 110) university students aged 18–25 years in Pune, India using a cross-sectional design. A developed and validated FFQ based on NOVA classification was used to evaluate UPF consumption, while the Constipation Scoring System and Premenstrual Symptoms Screening Tool assessed bowel and menstrual health. Anthropometric data including BMI, body fat percentage, and visceral fat were measured using an Omron Karaka Analyser. Results showed 74.8% of participants were female and 42.1% ate outside food 2–3 times per week. Higher UPF consumption showed a trend toward increased body fat, ( $p = 0.053$ )

**Emara et al., 2018** conducted a cross-sectional study on (n=730) preparatory school girls aged 12-17 years in Alexandria, Egypt to assess prevalence of overweight/obesity and its relation to

dietary habits and age at menarche. Data collected via self-administered questionnaire on demographics, menstrual history, and 25-item dietary habits. Anthropometric measurements: weight, height, waist circumference. BMI and percentiles compared to CDC growth charts. Results: 14.7% overweight, 34.7% obese, 24.7% abdominal obesity. Mean age  $13.7 \pm 0.8$  years, mean age at menarche  $12.3 \pm 0.9$  years. Poor dietary habits significantly associated with obesity,  $p < 0.05$ . Almost half 47.9% of girls with poor dietary scores were obese. Eating meals away from home,  $p = 0.045$ , and consuming 2-3 loaves of “ballad” bread daily linked to higher obesity. 51.9% of girls who started menstruating before age 12 were obese vs. 35.5% after age 12, ( $p = 0.004$ )

**De Souza et al., 2018** conducted a cross-sectional study on ( $n = 27$ ) undergraduate nutrition students at a public university in Matos Gross do Sul, Brazil to assess anthropometric measures, food intake, and food cravings during menstrual cycle phases. Data collected in follicular phase days 5-9 and luteal phase. Food intake evaluated via 24-hour recall; cravings via Food Desire Questionnaire. ANOVA + Turkey test for food intake; Mann-Whitney test for cravings, significance  $p < 0.05$ . Results: Desire for foods rich in sugar, salt, and fat such as chocolate, pastries, snacks, and desserts was significantly higher during the premenstrual/luteal period,  $p < 0.05$ . This did not translate to higher energy intake or altered macronutrient distribution. Higher intake of carbohydrates, proteins, fibres, and calcium observed in luteal phase but without statistical difference. No differences in food group intake or anthropometric measurements, ( $p > 0.05$ )

**Prameshti Widya Hapsari et al., 2025** performed a quasi-experimental pre-post-test study between January and February 2023 involving ( $n = 57$ ) female junior high school students aged 12-15 years in Banyumas, Indonesia to examine the effects of online nutrition and menstrual education on dietary patterns. The intervention group consisted of 33 students who used the “Menstrual Beastie” application, while 24 students in the control group received education through a WhatsApp group over a one-month period. Both groups were taught about menstrual cycle phases, PMS, dysmenorrhea, and nutritional recommendations during menstruation. Dietary behaviour during menstruation was evaluated using a modified 23-item Adolescents Food Habit Checklist. Most participants in both groups had normal nutritional status, 54.5% in the intervention group and 66.7% in the control group. Dysmenorrhea was reported by all participants. Bivariate analysis revealed that the WhatsApp-based control group demonstrated a trend toward improved eating habits, ( $p = 0.054$ )

**Latif et al., 2022** conducted a comparative cross-sectional study from July to September 2021 on 200 adolescent girls aged 13-19 years at Bahrain International Hospital, Lahore, Pakistan to assess the link between junk food consumption, BMI, and menstrual abnormalities. Participants were divided into Group A n=100 with menstrual abnormalities and Group B (n=100) controls without menstrual problems. Data on demographics, anthropometry, menstrual cycles, and dietary habits were collected via self-administered questionnaire and analysed using SPSS v20 with Chi-Square test. Mean age was  $17.02 \pm 1.76$  years. Findings showed 40% had irregular cycles, 56% dysmenorrhea, and almost all of Group A had premenstrual dysfunction. BMI showed no significant difference between groups,  $p \geq 0.05$ . Junk food consumption was significantly higher in Group A vs Group B,  $p \leq 0.05$ . No significant difference was found for salty snacks and frozen meat items, ( $p \geq 0.05$ )

**Alammar et al., 2020** performed a cross-sectional study on (n=655) female health track students aged 17-26 years at Imam Abdurrahman Bin Faisal University in Saudi Arabia, conducted March 1 to May 21, 2020, to examine the impact of dietary habits on dysmenorrhea and menstrual irregularity. A non-quantitative food frequency questionnaire was administered and data were analysed using Chi-square test with statistical significance set at  $P < 0.05$ . Findings indicated that dysmenorrhea severity correlated significantly with reduced seafood intake,  $P = 0.007$ , and low nut consumption,  $P = 0.02$ . Elevated sweet intake was significantly linked to greater pain during menstruation,  $P = 0.002$ , and increased overall dysmenorrhea severity,  $P = 0.04$ . Additionally, lower coffee consumption showed a significant association with fewer adverse dysmenorrhea effects, ( $P = 0.04$ )

**Sevim and Yagar. 2022** conducted a cross-sectional study with (n=400) healthy women of reproductive age in Turkey to examine changes in taste, food preferences, body weight, mood, and physical symptoms during the luteal and follicular phases of the menstrual cycle. Data were collected through an online questionnaire and analysed using Spearman's correlation. The findings revealed that weight gain during the luteal phase had weak but positive correlations with cravings for salty flavour, concentration problems, abdominal bloating, edema, increased appetite, sleep problems, constipation, irritability, anxiety, and social withdrawal. Similarly, during the follicular phase, comparable correlations were observed between weight change and these physical and psychological symptoms. In addition, participants reported a significant increase in cravings for salty and sour foods during the luteal phase compared to the follicular phase, with the differences being statistically significant ( $p = 0.001$ )

**Fitri S et al., 2024** identified factors affecting the menstrual cycle among ( $n = 193$ ) female college students in Depok, Indonesia using a cross-sectional design with stratified random sampling. Data collection included fast food consumption habits and fat intake using the Semi-Quantitative Food Frequency Questionnaire, sleep quality using the Pittsburgh Sleep Quality Index, stress levels using the Perceived Stress Scale-10, and menstrual cycle assessment using a menstrual cycle questionnaire, with analysis through chi-square tests and multiple logistic regression. Results showed no significant correlation between the frequency of fast food consumption and the menstrual cycle, ( $p = 0.780$ )

**Hashmi MS et al., 2019** determined the prevalence and severity of premenstrual syndrome and its associations with dietary habits, lifestyle behaviors, and anthropometric factors among ( $n = 300$ ) female university students aged 18–24 years at the University of Sharjah, UAE using a cross-sectional design. Data were collected using self-administered questionnaires and anthropometric assessments, with analysis through descriptive statistics and multiple logistic regression. Results showed that 95% of participants reported at least one PMS symptom and the prevalence of PMS was \*35.3%, with mild symptoms most common. Multiple regression analysis revealed that smoking was associated with increased risk of psychological symptoms, OR: 2.5; 95% CI: 1.1–5.8; ( $p < 0.05$ )

**Çengel & Arslan., 2024** evaluated the relationship between menstruation period, macronutrient intake, appetite, and premenstrual syndrome in ( $n=410$ ) women aged 18-40 attending the nutrition and diet polyclinic of kocaeli derince Training and Research Hospital. Using an observational design, they collected 3-day nutritional intake records, Simplified Nutritional Appetite Questionnaire (SNAQ), and Premenstrual Syndrome Scale (PMS). Results showed that as intake of carbohydrates, protein, fat, and saturated fat increased, scores for PMS factors including Anxiety, Irritability, Depressive Affect, Pain, Fatigue, Changes in Appetite and Sleep, and total PMS scores increased significantly,  $p < 0.01$ . Higher SNAQ scores were also associated with higher Depressive Affect, Fatigue, Changes in Sleep, Bloating, Changes in Appetite, and total PMS scores, ( $p < 0.05$ )

**Gupta et al., 2026** conducted a cross-sectional study on ( $n = 153$ ) females aged 18–25 years in India. Results showed 60% had menstrual irregularities and 30–35% had PCOS-related features. Significant associations were found between unhealthy dietary habits and higher incidence of menorrhagia/dysmenorrhea

**Pant et al., 2026** conducted an analytical cross-sectional study on (n=207) bachelor-level menstruating female students at Mid-West University, Surkhet Nepal from Oct 29 – Nov 30, 2023 to determine dysmenorrhea prevalence and its association with dietary habits. Dysmenorrhea prevalence was 88.4% (183/207), with 43.7% of affected students reporting severe menstrual pain. Family history of dysmenorrhea showed significant association with pain severity, ( $p = 0.004$ )

**Aktürk NBK et al., 2025** conducted a descriptive study among (n = 393) women aged 18–45 years with regular menstruation to determine the effects of menstrual symptoms on dietary intake frequency. Results showed participants had significantly higher dietary intake of traditional beverages and dietary supplements during menstruation compared to before menstruation ( $p < 0.001$ )

**Dawali & Widiatriputri.,2025** conducted a cross-sectional study on( n=30) female high school students at Ambassador High School, Malang, Indonesia to examine the relationship between eating patterns and menstrual cycles. 56.7% of respondents had unbalanced diets characterized by high fast food, low fruit/vegetable intake, and frequent meal skipping. 60% reported menstrual cycle irregularities. Chi-Square analysis showed  $X^2 = 4.420$  with  $p = 0.035$ , indicating a significant relationship between diet and menstrual cycle. 76.5% of students with unbalanced diets experienced irregular cycles 38.5% with balanced diets. ( $p = 0.035$ )

**Soderman et al., 2025** conducted a study in G city examined menstrual discomfort and dietary habits among (n=320) female middle school students using the Menstrual Discomfort Questionnaire and dietary habit lists. The results showed that menstrual discomfort scores were significantly associated with VAS scores, amount of menstrual bleeding, height, adequacy of meal time, consumption of milk and milk products, intake of hot, salty and irritant foods, consumption of more than three kinds of side-dishes with each meal, and intake of various protein foods, with p values ranging from  $p = 0.000$  to  $p = 0.042$ .

**Mahraj et al.,2025** conducted a cross-sectional study with (n=288) women aged 19–30 years in Karachi, Pakistan, from August 2023 to January 2024 to determine the prevalence of heavy menstrual bleeding and its association with dietary behaviour's. Data were collected using the validated SAMANTA questionnaire and a structured dietary habits questionnaire, and analysed using descriptive statistics and chi-square tests in SPSS version 29. The study identified a significant association between heavy menstrual bleeding and the intake of high-calorie foods ( $p = 0.015$ ),

**Anapana G et al., 2025** explored the relationship between fast food consumption and menstrual health disturbances among ( $n = 300$ ) female college students aged 17–25 years in Vizianagaram, Andhra Pradesh using a cross-sectional study design. Data were collected using a structured, self-administered questionnaire on dietary intake, menstrual symptoms, lifestyle behaviours, and health awareness, with analysis through chi-square tests and logistic regression. Results showed nearly half of the participants consumed fast food more than twice a week, and higher intake was significantly associated with irregular menstrual cycles, prolonged bleeding, dysmenorrhea, mood instability, fatigue, and absenteeism from academic activities, ( $p < 0.05$ )

**Moschonis et al., 2013** conducted a cross-sectional study with ( $n=1222$ ) pubertal girls aged 9–13 years in Greece to investigate the association of iron depletion with menstrual blood loss, lifestyle, and dietary habits. Biochemical, anthropometrical, dietary, clinical, and physical activity data were collected and analysed using SPSS software with regression analysis and odds ratios at a significance level of ( $p < 0.05$ )

**Ciolek et al., 2024** assessed ( $n= 505$ ) young women in Poland to examine menstrual cycle knowledge and diet's effect on menstrual distress. 90% reported  $\geq 1$  menstrual disorder, with dysmenorrhea at 70.7%. Severe dysmenorrhea correlated with higher intake of refined cereals, processed meat, sugar, and water, while mild pain correlated with sweetened dairy, animal fats, and fruit. Knowledge of menstrual physiology differed significantly across dietary models. Secondary amenorrhea was least common at 13.8 %, ( $p = 0.002$ .)

**Ahmed et al., 2024** conducted a cross-sectional analytical questionnaire-based study with ( $n=352$ ) female medical and paramedical students at Beni-Suef University, Egypt, to assess the relationship between dietary patterns and menstrual disorders. Data on demographics, physical activity, menstrual history, and dietary assessment were analysed using SPSS version 26, The study found that females with heavy menstrual blood flow and severe dysmenorrhea reported significantly lower adherence to the Mediterranean diet ( $p = 0.007$  and  $p = 0.029$  respectively),

**Güzeldere et al., 2024** conducted a cross-sectional study involving 599 women to examine the association between dietary habits and menstrual disorders. The findings indicated that women with menstrual disorders had significantly lower consumption of protein, vitamin K, vitamin B2, vitamin B3, vitamin B6, and sodium, and significantly higher sugar intake compared to women without menstrual disorders ( $p < 0.05$ ).

**Umairah et al., 2024** examined the relationship between nutritional status and menstrual cycle among (n=64) adolescent girls at SMAN 4 Kota Solok using an observational analytic cross-sectional design. Nutritional status was assessed via BMI from weight/height measurements, while menstrual cycle data was collected through questionnaires. Results showed most girls had normal BMI and normal menstrual cycles. However, chi-square analysis found no significant relationship between nutritional status and menstrual cycle, ( $p = 0.215$ )

**Yuli Yuliana et al., 2024** carried out a cross-sectional study to examine the association between body weight, dietary patterns, and menstrual health. The study included 80 participants ( $n = 80$ ). Data analysis was performed using a significance level of  $\alpha = 0.05$ . The findings indicated a statistically significant relationship among the variables ( $p = 0.003$ )

**Ghazzawi HA et al., 2023** examined the association between nutrient intake and severity of menstrual cycle symptoms among ( $n = 2024$ ) regularly menstruating women aged 18–40 years using a self-administered, cross-sectional online survey design. Data were collected through sociodemographic questionnaire, semi-quantitative food frequency questionnaire (FFQ), and Arabic Premenstrual Syndrome Scale (A-PMS-S). Results showed intake of polyunsaturated fatty acids (PUFAs) was associated with lower risk of moderate to severe physical symptoms, OR: 0.71, 95% CI: 0.59–0.85;  $p < 0.001$ , and psychological symptoms, \*OR: 0.87, 95% CI: 0.77–0.99; ( $p < 0.05$ )

**Naraoka et al., 2023** conducted a cross-sectional study with ( $n=511$ ) to explore the relationship between menstrual pain and nutrient intake. The results showed that the group experiencing heavy menstrual pain had a significantly lower protein intake per 1000 kcal and a significantly higher sugar intake compared to the other group ( $p = 0.041$ )

**Qualia et al., 2023** conducted a study with ( $n=30$ ) women (16 with PMS and 14 controls) to investigate the association between dietary habits and the occurrence and severity of premenstrual syndrome. Participants completed the Daily Record of Severity of Problems to diagnose PMS and kept a three-day food record during the premenstrual phase. The analysis showed no significant differences between women with PMS and control subjects in total energy intake, diet composition, or the consumption of most macro- and micronutrients. However, copper intake was significantly higher in women with PMS compared to controls

**Helmy N et al., 2023** conducted a cross-sectional study on ( $n = 100$ ) Egyptian females with PMS (mean age  $27.1 \pm 4.98$  years) to assess dietary habits and PMS severity. Results showed

16% had mild, 60% moderate, and 24% severe PMS. A significant relationship was found between PMS severity and consumption of seafood ( $p = 0.03$ ) and fish ( $p = 0.008$ ).

**Huwaikem. 2023** conducted a cross-sectional study at King Faisal University, Saudi Arabia, to explore the association between premenstrual syndrome, lifestyle, and dietary habits among ( $n=502$ ) female college students. Data were collected using a self-administered questionnaire, Shortened Premenstrual Assessment Form (SPAF), and Food Frequency Questionnaire (FFQ). Results showed PMS was diagnosed in 62% of students with mean BMI  $21.6 \text{ kg/m}^2$ . A significant positive correlation was found between BMI and PMS severity,  $r = 0.111$ , ( $p = 0.013$ )

**Kwon et al., 2022** conducted a cross-sectional study on ( $n=262$ ) Korean women aged 20-49 years to investigate the association between dietary patterns, Mediterranean diet adherence, and Premenstrual Syndrome (PMS). PMS prevalence was significantly lower in the highest Mediterranean Diet Score textile T3 vs lowest T1: 55.4% in T3 vs 74.4% in T1,  $p = 0.045$ . After adjusting for confounders, participants in the highest textile of the bread/snack dietary pattern had higher PMS risk, OR = 2.59, 95% CI: 1.32-5.06. 65.3% of participants had PMS. Dysmenorrhea prevalence was significantly higher in PMS group, 95.3% vs 80.2%, ( $p < 0.001$ )

**Abu Alwafa R et al., 2021** investigated the prevalence of PMS symptoms and their relationship with psychosocial status and lifestyle among ( $n = 398$ ) female students at An-Najah National University in Palestine using a cross-sectional design with random sampling. PMS was assessed using the Arabic Premenstrual Scale, psychosocial variables using the DASS-21 Arabic version, and dietary habits using a 24-item self-reported questionnaire, with data analysed by one-way ANOVA and chi-square tests. Results showed 100% of participants reported some kind of PMS symptoms, with 100% having physical symptoms, 99.7% psychological symptoms, and 85.2% behavioural symptoms. All PMS symptoms were significantly associated with student psychosocial status, ( $p < 0.01$ )

**Talekar V et al., 2021** conducted a descriptive study among ( $n = 100$ ) adolescent girls from MGM School, Navi Mumbai to assess the association between dietary habits and menstrual disorders. Results showed 54% experienced moderate menstrual pain, 21% severe pain, and 36% had premenstrual symptoms, with  $>42\%$  consuming fast food and many skipping afternoon meals. A significant association was found between dietary habits and menstrual problems ( $p \leq 0.0001$ )

**Fitrianingsih & Santanu., 2021** examined factors affecting primary dysmenorrhea risk in (n=97) female college students from the Faculty of Sports and Health Education, Universities Pendidikan Indonesia. Using a quantitative correlational analytic cross-sectional design with consecutive sampling, they assessed characteristics, dietary habits, and exercise types. Results identified two variables significantly related to primary dysmenorrhea: breakfast habits (OR = 0.007;  $p = 0.004$ ) and positive family history (OR = 1.14; ( $p = 0.001$ ))

**Taheri et al., 2020** conducted a cross-sectional study on (n=217) women aged  $28.8 \pm 7.9$  years to assess links between macronutrient intake, anthropometric indices, and menstrual disorders. 52.5% had  $\geq 1$  menstrual disorder: painful menstruation 41%, PMS 24.9%, irregular menstruation 22.1%. Women with disorders had higher waist circumference  $86.7 \pm 14.0$  vs  $76.0 \pm 11.8$ ,  $P < 0.001$ . They also consumed more calories, carbs, protein, and fat vs women with no disorder,  $P < 0.001$ . Overweight/obese women had significantly higher rates of all disorders vs normal BMI, ( $P < 0.001$ )

**Onieva-Zafra et al.,2020** conducted a study with (n=311) Spanish female health science students to explore how adherence to the Mediterranean diet and intake of regional foods relate to menstrual pain and cycle features. The findings showed that just 29.6% of participants had high adherence to the Mediterranean diet, while 55.3% had moderate adherence. Students with low adherence had significantly longer menstrual cycles, Additionally, women who consumed olive oil daily reported less menstrual bleeding, ( $p = 0.044$ )

**Neti sundari et al., 2020** conducted a cross-sectional quantitative study with (n=262) female adolescents aged 15–19 years to investigate the association between dietary habits and dysmenorrhea. The study employed the Menstrual Symptoms to assess menstrual pain and a dietary habit to evaluate nutritional intake, with data analysed using the Chi-Square test. The results demonstrated that dysmenorrhea was widespread among the participants, and statistical analysis revealed a significant relationship between dietary habits and the occurrence of dysmenorrhea. The findings suggest that inadequate dietary habits are associated with a higher prevalence of dysmenorrhea, indicating that nutritional factors contribute to menstrual pain in adolescent girls. ( $p=0.005$ )

**Monday et al., 2019** carried out a cross-sectional study among (n=478) females aged 11-55 years in Saint Vincent and the Grenadines to assess the association between dietary intake and the occurrence/severity of dysmenorrhea. Findings showed that 45.5% of respondents experienced dysmenorrhea during every menstrual cycle, with 81.74% of the participants

falling in the 11-20 years age group. The analysis revealed no significant correlation between general diet and dysmenorrhea,  $p > 0.05$ . Consumption of caffeinated drinks was significantly associated with dysmenorrhea,  $p < 0.05$ . Elevated sugar intake was linked to increased dysmenorrhea rates, but this link was not statistically significant, ( $p > 0.05$ )

**Singh M and Wadhawan N.,2019** studied ( $n = 100$ ) young girls aged 16–18 years to assess the effect of dietary habits on menstrual problems. Results showed 61% had irregular menstrual cycles and 80% skipped meals, with breakfast most commonly skipped (72%). A significant association was found between consumption of junk foods, dieting, and skipping meals on the menstrual cycle of respondents, the study concluded that decreasing junk food intake and promoting healthy eating should be emphasized for a healthy menstrual cycle.

**Lagowska et al., 2018** studied ( $n = 348$ ) young women aged 15–25 years to assess nutrition and menstrual disorders. Results showed women with menstrual disorders had significantly higher body weight, BMI, waist circumference, and fat mass, with higher animal protein and saturated fat intake, and lower vitamins B<sub>1</sub> and B<sub>6</sub> intake. Eating inhibition was also significantly more frequent in the MD group ( $p < 0.05$ ).

**Priya et al., 2017** conducted a cross-sectional study on  $n=90$  female college students aged 17-22 years in Bhopal, India to explore the association of skipping breakfast on menstruation. Data collected via self-administered semi-structured questionnaire on breakfast habits, menstrual cycles, and dysmenorrhea. Mean age  $20 \pm 3.66$  years, mean age at menarche  $13.34 \pm 1.39$  years. Results: 82% of students skipped breakfast more than 3 days/week. Study revealed dysmenorrhea intensity was significantly higher in girls who skipped breakfast compared to those who had breakfast, ( $p < 0.0001$ )

**Mohamadirizi & Kordi., 2015** studied ( $n=407$ ) high school females in Mashhad, Iran to examine the relationship between food frequency and menstrual distress across 3 menstrual phases. 71% reported minor pre-menstrual distress, 81% during bleeding, 39% post-menstruation. Mean weekly intake: sweet-fatty foods 3.6, salty-fatty foods 3.3, fast foods 1.3, caffeine 10.2. Pearson correlation test showed no significant correlation between pre-menstruation distress and food frequency, ( $p > 0.05$ )

**Farasati et al.,2015** conducted a case-control study on 320 nurses aged 20-45 years in Tehran, Iran to examine the link between Western dietary pattern and PMS. Cases ( $n=160$ ) with PMS, controls  $n=160$  without PMS. Three dietary patterns identified: healthy, Western, traditional. Women in the 2nd quintile OR=3.65, 95% CI 1.75-7.58 and 3rd quintile OR=3.65, 95% CI

1.97-9.81 of Western dietary pattern were more likely to experience PMS vs 1st quintile, crude model. Association remained after adjusting for age, BMI, menstrual cycle, energy intake, physical activity, OR=2.53, 95% CI 1.97-9.81. No significant association found for healthy or traditional patterns, ( $p > 0.05$ )

**Hayam.,2014** conducted a cross-sectional descriptive study among ( $n=300$ )female nursing students to investigate the impact of skipping breakfast on the menstrual cycle. Data were gathered through an interview-based questionnaire. The findings revealed that menstrual regularity was marginally higher among students who consumed breakfast than among those who skipped it; however, the association was not statistically significant ( $p = 0.206$ ).

**Nirmala et al.,2014** conducted a cross-sectional study on ( $n=200$ )female medical students aged 17-22 years in Pondicherry, India to evaluate prevalence of menstrual disorders and correlation with lifestyle, psychological stress, and college absenteeism. Mean age of menarche was  $12.6 \pm 1.32$  years; mean cycle duration  $4.25 \pm 0.5$  days. Most common disorders: dysmenorrhea 76%, premenstrual syndrome 69%, irregular menstruation 29%. 86.5% consumed junk food; 29.5% were obese. Increased BMI was significantly associated with oligo menorrhea, hypo menorrhea, dysmenorrhea and PMS. Junk food consumption was associated with oligo menorrhea, hypo menorrhea, dysmenorrhea and PMS. Psychological stress was significantly associated with prevalence of various menstrual disorders. ( $p < 0.05$ )

**Usmani et al., 2014** explored the relationship between BMI, dietary habits, and ovarian/uterine morphology in ( $n=100$ ) subfertile women aged 20-40 with PCOS. This cross-sectional study measured BMI using WHO protocol and assessed ovarian volume, follicle count/size, uterine area, and endometrial thickness via sonography. Dietary habits were recorded through a structured questionnaire. Participants were split into two BMI groups:  $25.6 \pm 4.7$  kg/m<sup>2</sup> and  $28.6 \pm 5.7$  kg/m<sup>2</sup>. Higher BMI was linked to increased ovarian volume, uterine area, and endometrial thickness, while follicle count and size decreased,  $p < 0.05$ . Women who frequently consumed fast food had significantly higher ovarian volume vs those who rarely ate it, ( $p = 0.00$ )

**Elisabetta Di Canto et al., 1997** conducted a case-control study involving 106 women who had experienced moderate to severe dysmenorrhea for at least 12 months. The participants with dysmenorrhea were matched with controls based on age, selected sociodemographic characteristics, smoking habits, and oral contraceptive use. The findings indicated that women with shorter menstrual cycles had a lower risk of dysmenorrhea compared to those with longer

cycles. The highest risk was observed in women who reported in completely irregular menstrual cycles. Nevertheless, this association was not statistically significant ( $p > 0.05$ )

**Hong KJ et al., 2005** examined menstrual discomfort and dietary habits among ( $n = 320$ ) female middle school students in G city using a descriptive survey design. Data were collected using the Menstrual Discomfort Questionnaire (MDQ) and dietary habit lists. Results showed significant factors related to MDQ scores included VAS scores,  $r = .361$ ;  $p = .002$ , amount of menstrual bleeding,  $r = .131$ ;  $p = .019$ , height,  $r = .134$ ;  $p = .016$ , adequacy of meal time,  $t = 7.19$ ;  $p = .008$ , consumption of milk & milk products,  $F = 3.20$ ;  $p = .042$ , hot, salty & irritant foods,  $F = 8.01$ ;  $p = .000$ , eating more than 3 kinds of side-dishes with each meal,  $F = 8.32$ ;  $p = .000$ , and various protein foods,  $*F = 5.15$ ; ( $p = .006$ )

**Arslan., 2024** evaluated the relationship between menstruation period, macronutrient intake, appetite, and premenstrual syndrome in ( $n=410$ ) women aged 18-40 attending the nutrition and diet polyclinic of Kocaeli Derince Training and Research Hospital. Using an observational design, they collected 3-day nutritional intake records, Simplified Nutritional Appetite Questionnaire (SNAQ), and Premenstrual Syndrome Scale (PMS). Results showed that as intake of carbohydrates, protein, fat, and saturated fat increased, scores for PMS factors including Anxiety, Irritability, Depressive Affect, Pain, Fatigue, Changes in Appetite and Sleep, and total PMS scores increased significantly,  $p < 0.01$ . Higher SNAQ scores were also associated with higher Depressive Affect, Fatigue, Changes in Sleep, Bloating, Changes in Appetite, and total PMS scores, ( $p < 0.05$ )

**Giordano et al., 2001** conducted a study with ( $n=134$ ) overweight women to examine changes in nutrient intake during the premenstrual and postmenstrual phases of the menstrual cycle among those with and without premenstrual syndrome. Participants completed 4-day food diaries during both phases, and nutrient intake was analysed using statistical tests. Among the 84 women identified with PMS

**Fitrianingsih & Santanu., 2021** examined factors affecting primary dysmenorrhea risk in ( $n=97$ ) female college students from the Faculty of Sports and Health Education, identified two variables significantly related to primary dysmenorrhea: breakfast habits ( $OR = 0.007$ ;  $p = 0.004$ ) and positive family history

## **CHAPTER – IV**

## **METHODOLOGY**

### **INTRODUCTION:-**

The present study was conducted to compare the nutritional status , physical activity ,sleep quality , psychological stress level , menstrual problems and menstrual patterns among the BMI category include normal, underweight, overweight , obese , The study was undertaken in Hyderabad ,telangana due to ease of data accessibility .Data collection began in June 2026.

**Methodology of the present study is discussed under the following heads:-**

- Research Design
- Place of Study
- Size of the Sample
- Data Collection
- Data Analysis

### **RESEARCH DESIGN:-**

- The college in towlichowki, Hyderabad, Telangana was selected as the place of study. The technique used was random sampling
- The sample size included 100 (n=100) subjects.
- The subjects were particularly the women.
- The tool used to collect the data from the subject was Questionnaire Method (Survey)
- The survey was done to find out the relationship between dietary habits and menstruation.
- The data collected was then subjected to statistical analysis

### **PLACE OF STUDY:**

The present study was conducted at college located in Hyderabad city.

### **PILOT STUDY:-**

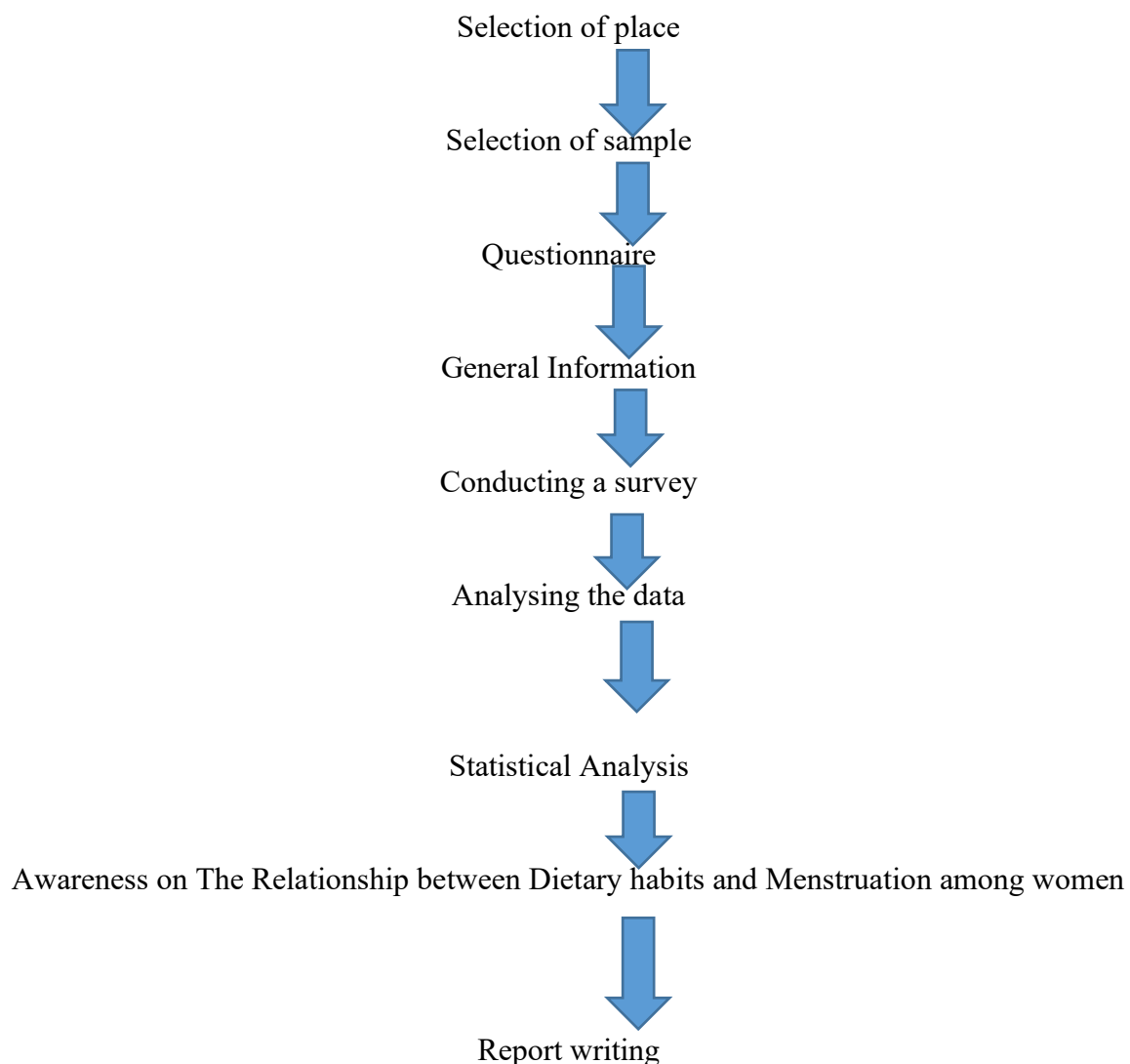
A pilot study was carried on 5 samples it was selected to test the present study tools to analyse acceptability and time required to complete it The required necessary modification of the tools were done ,students who were participated in the pilot study were excluded.

### **SAMPLE SIZE AND SELECTION CRITERIA:-**

- Sample size :- 100
- Age group :- 17-40
- Selection of the sample individual between age group were selected as the sample to conduct the sample size
- 100 subjects (n=100) was selected by random sampling/

#### **Work plan of the study:-**

The study was planned as follows:-



**Figure- 4.1 Work plan of the study**

#### **TOOLS AND TECHNIQUES FOR DATA COLLECTION:-**

- **Questionnaire:-**A pre texted designed and structured questionnaire to collect demographic details and information related to the relationship between dietary habits and menstruation.

- **Dietary Habit Assessment :-**Questions on frequency ,quantity ,timing of meals , with a focus on the consumption of specific food groups ( e.g. :-fruits , vegetables , dairy ,junk,fried,sugary foods ) during the menstrual cycle .
- **Menstrual Symptom Assessment;-**Questions regarding the presence and severity of symptoms such as dysmenorrhea (menstrual pain) bloating, fatigue, mood swings, and nausea vomiting.
- **Physical Activity Assessment:-** Questions related to exercise frequency and intensity , as physical activity can influence both dietary habits and menstrual health
- **Medical health Assessment :-**Comprehensive evaluation including self-reported history of gynaecological conditions ( egg ,PCOS , PCOD , endometriosis ) chronic illness history (e.g. :-thyroid, anaemia ,diabetes, hypertension

#### **STATISTICALLY ANALYSIS:-**

- **Descriptive Statistics:** - Frequencies, percentages, mean and standard deviation used to summarise participant characteristics, dietary patterns menstrual profiles, and medical health indicators.
- **Chi square test:-**Applied to determine the association between specific dietary habits and the severity of menstrual symptoms as well as between medical health conditions and menstrual irregularities.
- **Significance level –  $p < 0.05$**

## **CHAPTER V**

### **RESULT AND DISCUSSION**

#### **RESULTS:-**

In accordance with the study published by **Pant et.al (2026)**, reported experiencing dysmenorrhea during their menstrual cycles. The menstrual cramps are not an occasional complain but a near universal phenomenon within this specific population affecting almost 9 out of every 10 female students such a high prevalence rate significantly exceeds suggesting that regional dietary lifestyle or environmental factors may be exacerbating prostaglandin mediated uterine contractions. Beyond mere prevalence the study critically1 stratified the

intensity of menstrual pain among the affected students. A pivotal finding of this study pertained to the hereditary component of menstrual pain. While the stated objective of the study was to determine the association between dysmenorrhea and dietary habits, the provided abstract data highlights the genetic association with the robust statistical clarity, it is plausible that dietary habits.

According to **Nirmala et.al (2014)** the study meticulously documented baseline, the relationship between dietary habits and menstruation observed were genuinely pathological rather than artefacts of abnormal baseline reproductive development. The study identified a triple burden of menstrual pathology dysmenorrhea was the most commonly reported disorder affecting a staggering population, While this prevalence is slightly lower. Cycles less than 21 days or longer than 35 days was observed in the participants. The relatively high rate of obligor anovulation points towards potential underlying endocrine disturbances such as subclinical hypothyroidism, hyperprolactinemia or insulin resistance.

### **STATISTICAL ANALYSIS:**

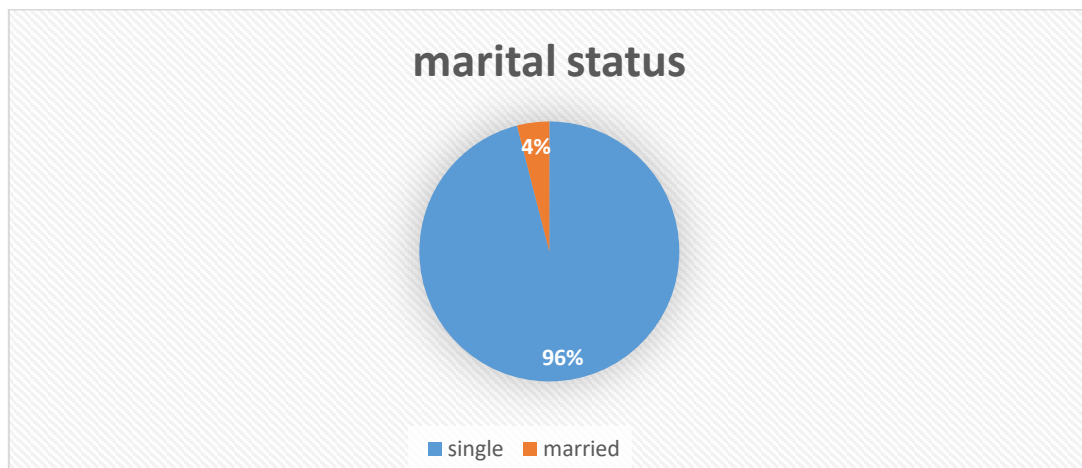
Descriptive analysis was carried out using frequency and percentage for categorical variables. The association between the diet type and menstrual regularity was assessed using the Chi square test. A p value of less than 0.05 was considered statistically significant. Data were analysed and using CO Guide REAP software version 2.0.

The present study was conducted using a well-structured, pre-texted questionnaire. A Total of 100 college students were selected through convenient sampling from college in Hyderabad Telangana, India.

The questionnaire included questions age, gender, BMI, diet type, meals per day, physical activity level, sleep duration, stress level, menstrual cycle regularity, cycle length, period duration, flow, menstrual pain, medical conditions, diet affects period, and period symptoms.

| Marital status | Frequency | Percentage |
|----------------|-----------|------------|
| Single         | 90        | 90%        |
| Married        | 4         | 4%         |
| Total          | 100       | 100%       |

**Table 5.1 marital status**

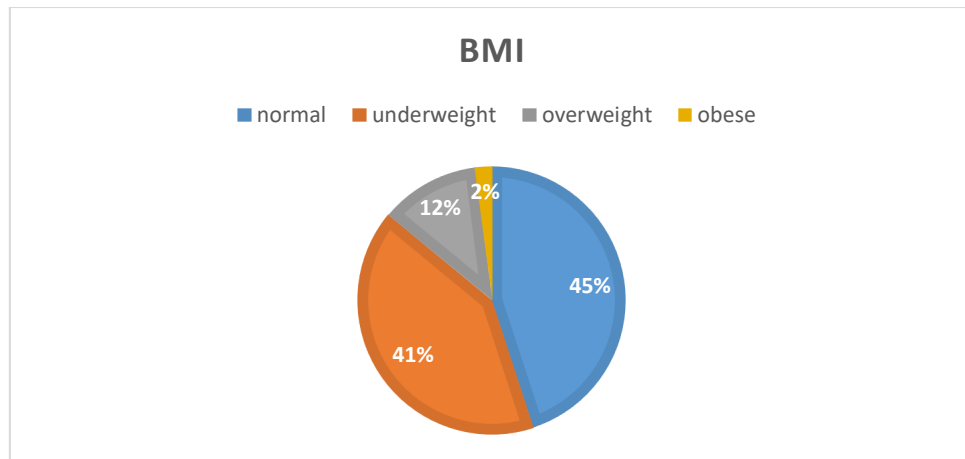


**Figure 5.1 marital status**

The findings revealed that the study population was overwhelming dominated by unmarried individuals. Specifically 96 out of 100 participants (96%) reported their marital status as single. in contrast only a minimal proportion of the sample 4 respondents (4%) were married.

| BMI category | Frequency | Percentage |
|--------------|-----------|------------|
| Normal       | 45        | 45%        |
| Under weight | 41        | 41%        |
| Over weight  | 12        | 12%        |
| Obese        | 2         | 2%         |
| Total        | 100       | 100%       |

**Table: - 5.2 BMI category**

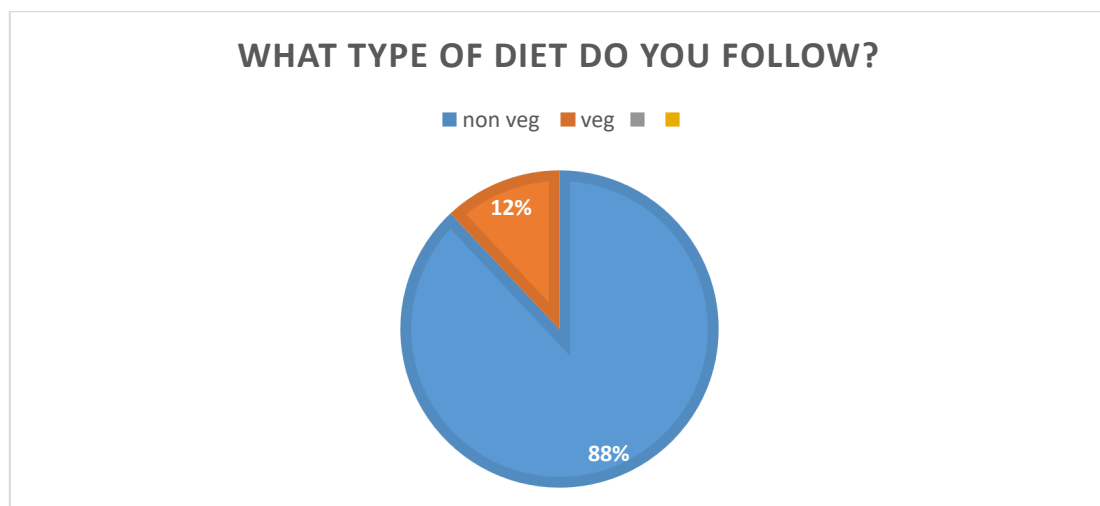


**Figure 5.2 BMI category**

Figure 5.2 effectively uses a pie chart to emphasize that over 80% of this cohort falls into either the NORMAL or OBESE extremes with very few people sitting in the intermediate OVERWEIGHT category .The missing 2% almost certainly belongs to overweight.

| Type of diet | Frequency | Percentage |
|--------------|-----------|------------|
| Non veg      | 88        | 88%        |
| Veg          | 12        | 12%        |
| Total        | 100       | 100%       |

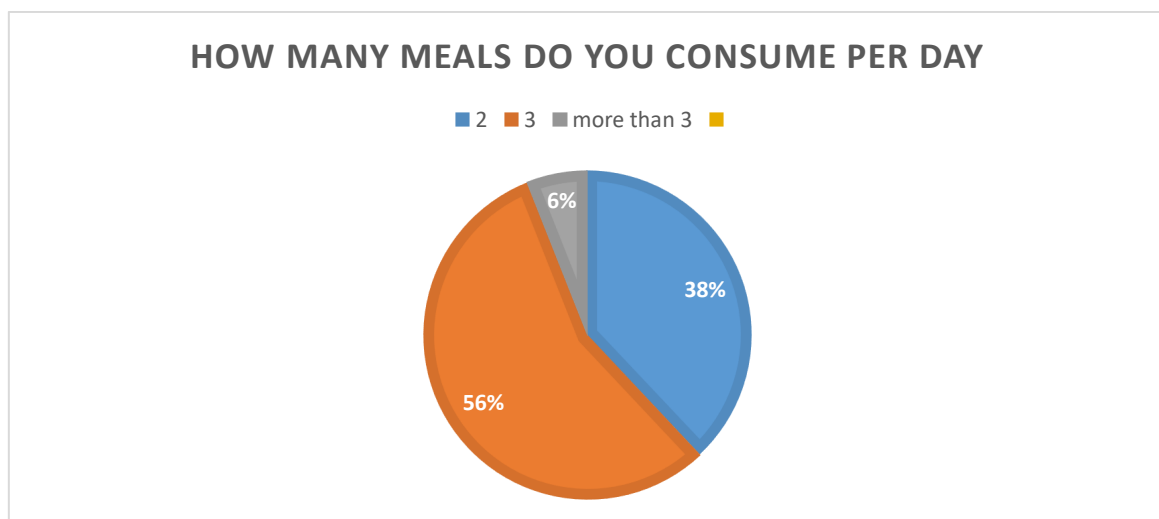
**Table 5.3 Type of diet**



**Figure 5.3 Type of Diet**

Figure 5.3 would show one over whelming dominant slice (88%) and a much smaller slice (12%) clearly illustrating that the vast majority of participants consume a non vegetarian diet

| Meals per day | Frequency | Percentage |
|---------------|-----------|------------|
| 2             | 38        | 38%        |
| 3             | 56        | 56%        |
| More than 3   | 6         | 6%         |
| Total         | 100       | 100%       |

**Table 5.4 Meals per day****Figure 5.4 Meals per day**

The chart highlights that the vast majority of participants eat atleast 3 meals daily. Is actually more common (56%)than sticking strictly to the traditional 3 square meals (38%) , while skipping meals to only 2 per day is extremely rare .

| Fruit intake | Frequency | Percentage |
|--------------|-----------|------------|
| Daily        | 23        | 23%        |
| Weekly       | 42        | 42%        |

|              |     |     |
|--------------|-----|-----|
| Occasionally | 23  | 23% |
| Rarely       | 12  | 12% |
| Total        | 100 | 00% |

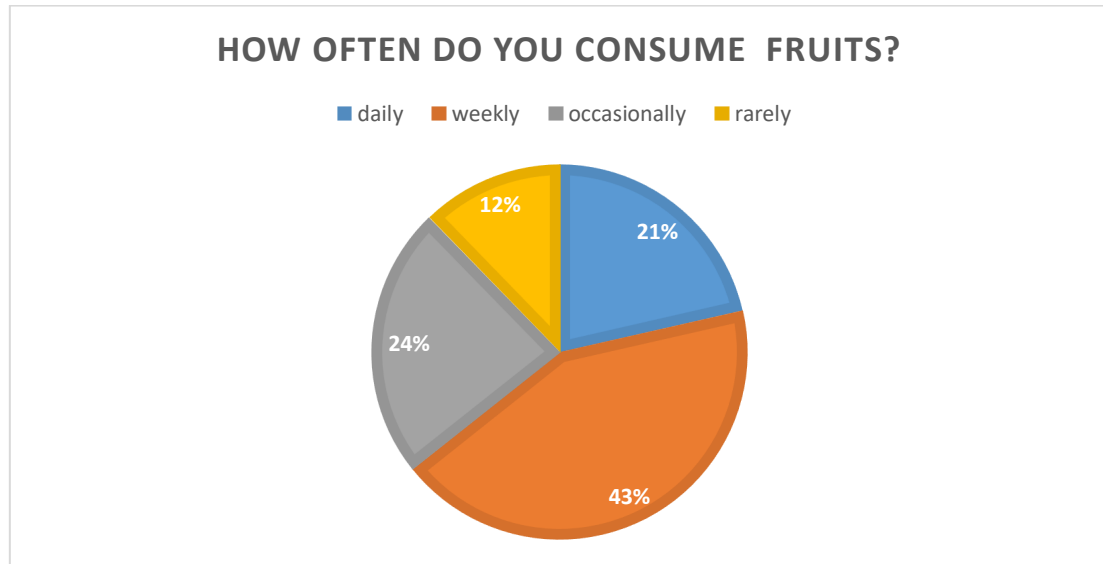
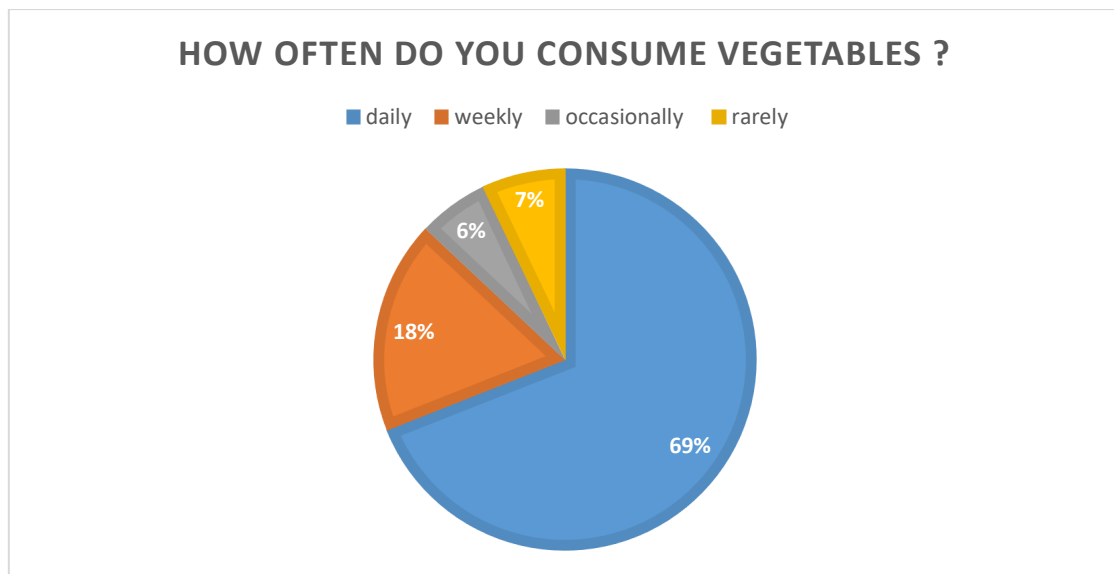
**Table 5.5 fruits intake per day****Figure 5.5 fruits intake per day**

Figure 5.5 illustrates the frequency of fruit consumption among the study participants . The finding show that 43% of the participants consumed fruits weekly, representing the largest proportion 24% reported consuming fruits occasionally, while 21% consumed fruits daily, only 12% of the participant's reportedly rarely consuming fruits. These results indicate that regular daily fruit consumption was relatively low, with the majority of participants consuming fruits on a weekly or occasional basis.

| Vegetables intake | Frequency | Percentage |
|-------------------|-----------|------------|
| Daily             | 69        | 69%        |
| Weekly            | 18        | 18%        |
| Occasionally      | 6         | 6%         |
| Rarely            | 7         | 7%         |
| Total             | 100       | 100%       |

**Table 5.6 vegetables intake per day**

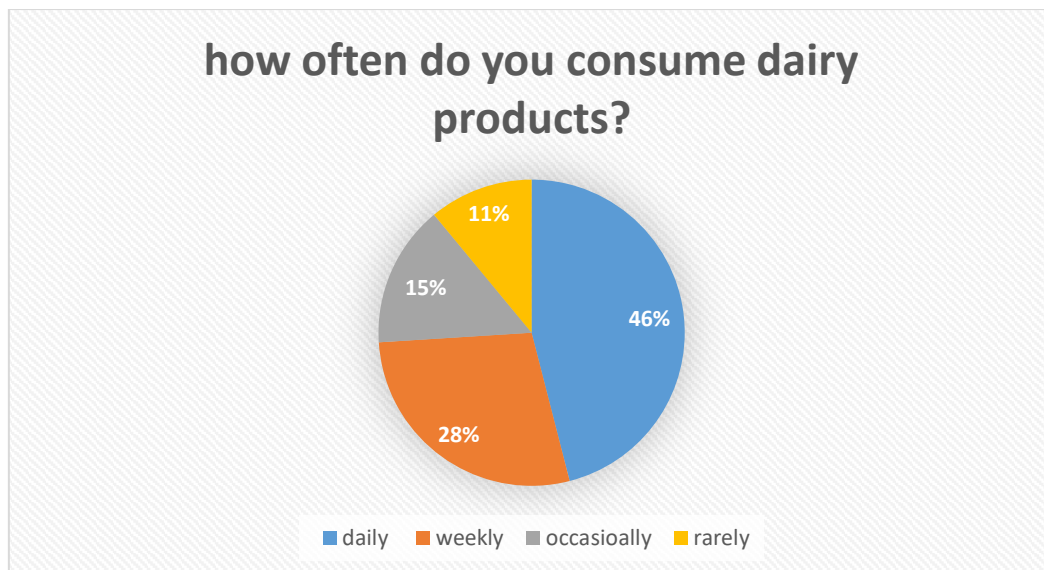


**Figure 5.6 Vegetables intake per day**

Figure 5.6 illustrates the frequency of vegetable intake among the study participants .The majority of participants (69%)reported consuming vegetables daily , indicating that regular vegetable consumption was common in the study population . (18%) of the participants consumed vegetables occasionally ,Only (7%) of the participants consumed rarely . Overall , the findings suggest that most participants had a regular vegetable intake , with nearly two third consuming vegetables everyday , which reflects relatively good dietary habits among the study population

| Dairy intake | Frequency | Percentage |
|--------------|-----------|------------|
| Daily        | 46        | 46%        |
| Weekly       | 28        | 28%        |
| Occasionally | 15        | 15%        |
| Rarely       | 11        | 11%        |
| Total        | 100       | 100%       |

**Table 5.7 Dairy intake per day**

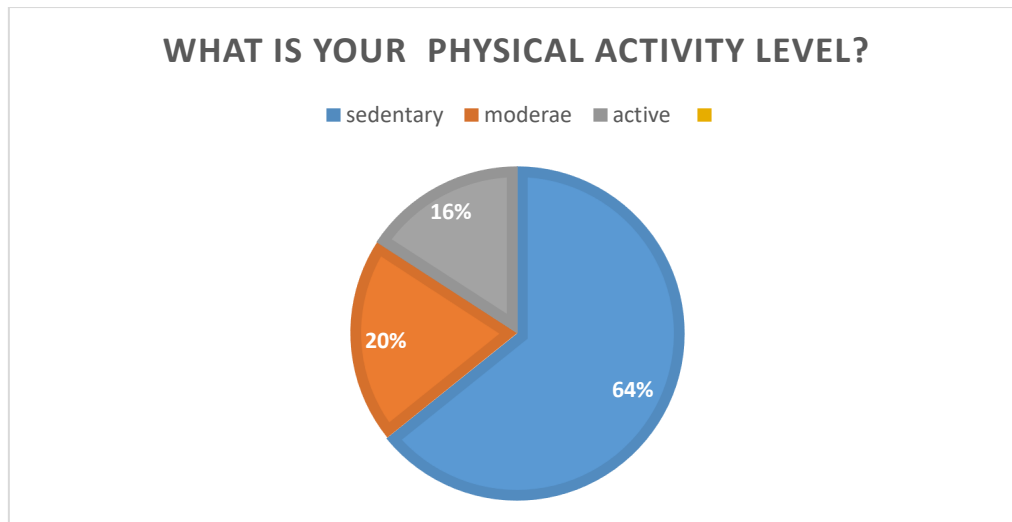


**Figure 5.7 Dairy intake per day**

Figure 5.7 illustrates the frequency of dairy intake among the study participants. Nearly half of the participant (46%) reported consuming dairy products daily, indicating that daily dairy consumption was common among the study population. (26%) of the participants consumed dairy products weekly, while (15%) reported consuming them occasionally. Only (11%) of the participants rarely, Overall the findings suggest that a majority of the participants consumed dairy products on a regular basis, with almost half including dairy in their diet.

| Physical activity | Frequency | Percentage |
|-------------------|-----------|------------|
| Sedentary         | 61        | 61%        |
| Moderate          | 19        | 19%        |
| Active            | 15        | 15%        |
| Total             | 100       | 100%       |

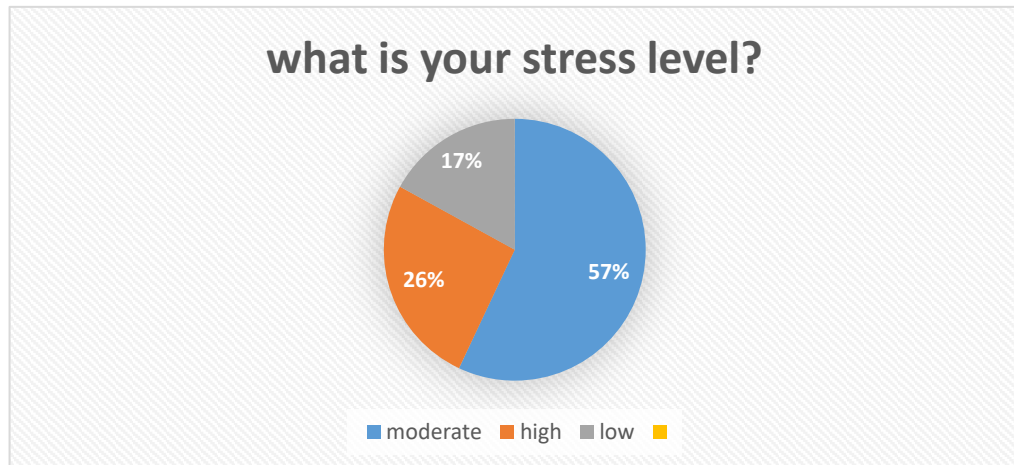
**Table 5.8 Physical activity**



**Figure 5. 8 Physical activity**

Figure 5. 8 illustrates the physical activity levels of the study participants . The majority of participants (64%) reported having a sedentary lifestyle , indicating that most engaged in little or no regular physical activity (20%) of the participants reported engaging in moderate physical activity , while only (16%) were classified as physical active . Overall findings suggest that a large proportion of the study population had low levels of physical activity , with fewer than one fifth participating in regular active exercise . This indicates that sedentary behaviour was common among the participants and may have implications for there overall health and menstrual well being .

| Stress level | Frequency | Percentage |
|--------------|-----------|------------|
| Moderate     | 57        | 57%        |
| High         | 26        | 26%        |
| Low          | 17        | 17%        |
| Total        | 100       | 100%       |

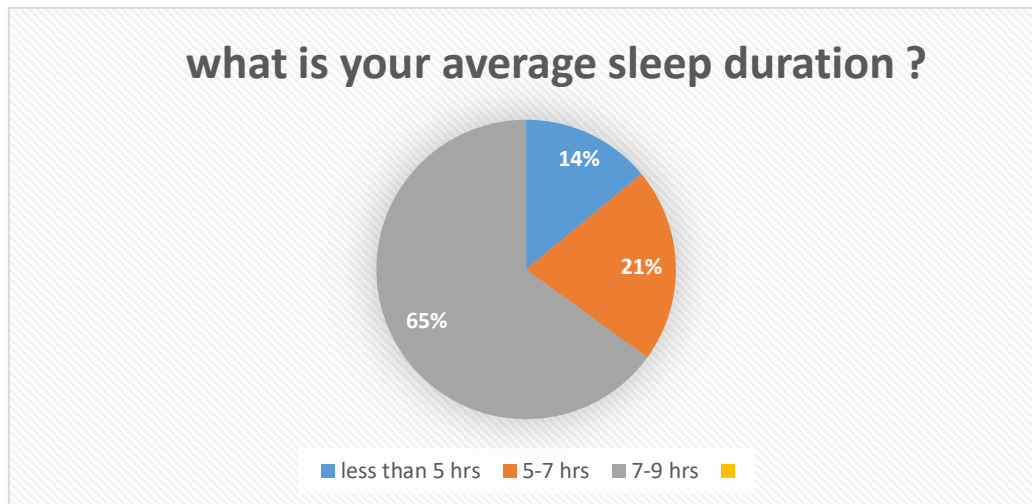


**Figure 5.9 Stress level**

Figure 5.9 illustrates the distribution of stress level among 100 study participants . The result shows that 57% of the participants reported moderate stress making it the most common stress category .High stress was reported by 26 % by 26 % of the participants , while 17% experienced low stress . These findings indicate that the majority of participants experienced moderate levels of stress, with over one forth reporting high stress. This suggests that stress is prevalent among the study population and may influence dietary habits and menstrual health .

| Sleep Duration    | Frequency | Percentage |
|-------------------|-----------|------------|
| Less than 5 hours | 14        | 14%        |
| 5-7 hours         | 21        | 21%        |
| 7-9 hours         | 65        | 65%        |
| Total             | 100       | 100%       |

**Table 5.10 Sleep duration**

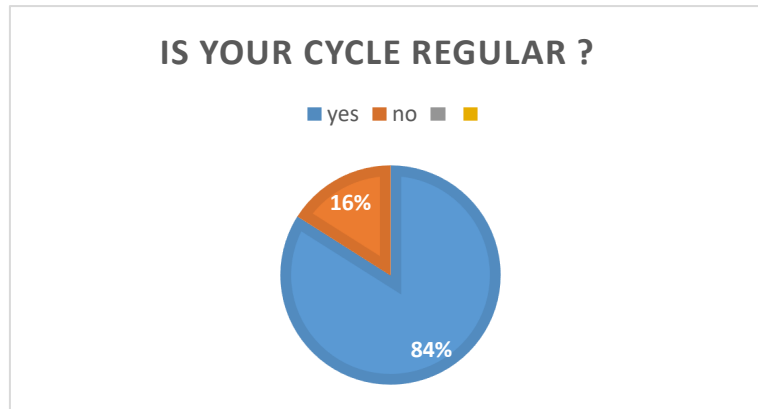


**Figure 5. 10 Sleep duration**

Figure 5.10 illustrates the distribution of sleep duration among the study participants. The pie chart shows that the majority of participants (65%) sleeping 7-9 hours per day, indicating that most respondents achieved the recommended duration of sleep. About 21% of the participants slept 5-7 hours, suggesting a moderate level of sleep duration. While 14% of the participants reported sleeping less than 5 hours per day, reflecting inadequate sleep.

| Menstrual cycle Regular | Frequency | Percentage |
|-------------------------|-----------|------------|
| Yes                     | 84        | 86%        |
| No                      | 16        | 16%        |
| Total                   | 100       | 100%       |

**Table 5.11 Menstrual cycle**

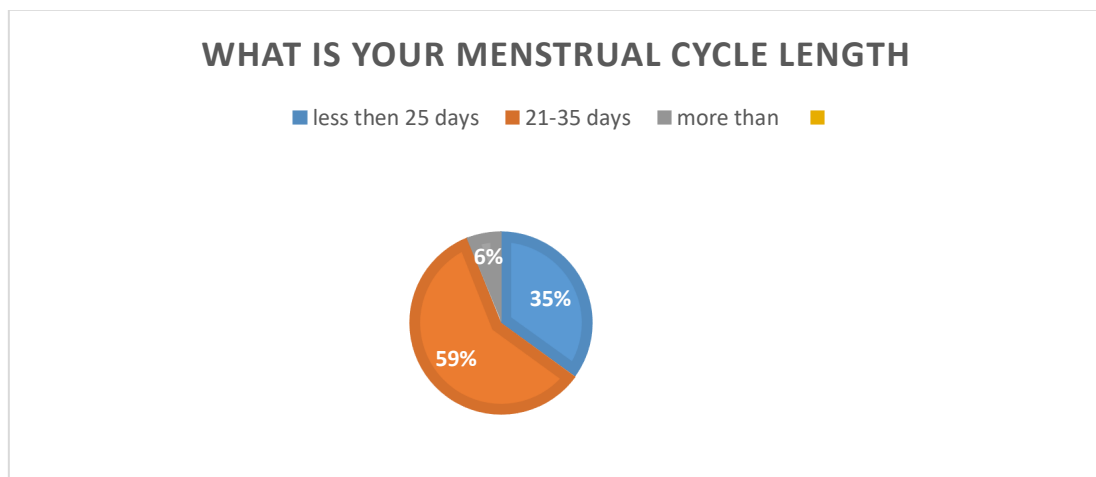


**Figure 5.11 Menstrual cycle**

Figure 5.11 present the distribution of menstrual cycle regularity among the study participants .According to figure (84%) of the participants reported having a regular menstrual cycle , While (16%)reported having an irregular menstrual cycle .The findings indicate that the majority of the participants experienced regular menstrual cycle suggesting good menstrual health among most respondents . However a smaller proportion experienced irregular menstrual cycles .

| Cycle Length      | Frequency | Percentage |
|-------------------|-----------|------------|
| Less than 25 days | 35        | 35%        |
| 21-35 days        | 59        | 59%        |
| More than 35 days | 6         | 6%         |
| Total             | 100       | 100%       |

**Table 5.12 Cycle length**



**Figure 5.12 Menstrual cycle length**

Figure 5.12 illustrates the distribution of menstrual cycle length among the respondents. The chart shows that (59%) of the participants reported a menstrual cycle of 21-35 days, which represents the majority of the study population. A cycle length of less than 25 days was reported by (35%) of the respondents. Only (6%) of the participants had a menstrual cycle length of more than 35 days. These findings indicate that women in the study had a cycle length within the generally considered normal range of 21-35 days.

| Cycle Duration   | Frequency | Percentage |
|------------------|-----------|------------|
| Less than 3 days | 35        | 35%        |
| 3-5 days         | 50        | 50%        |
| More than 5 days | 15        | 15%        |
| Total            | 100       | 100%       |

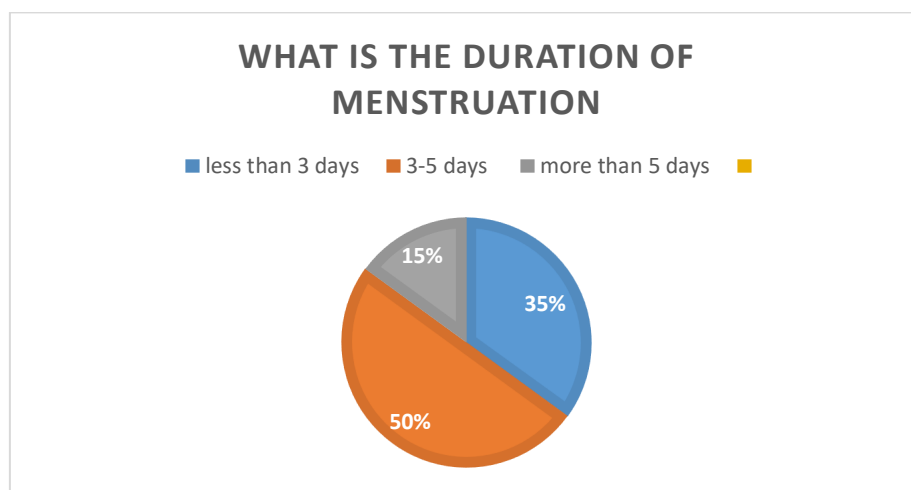
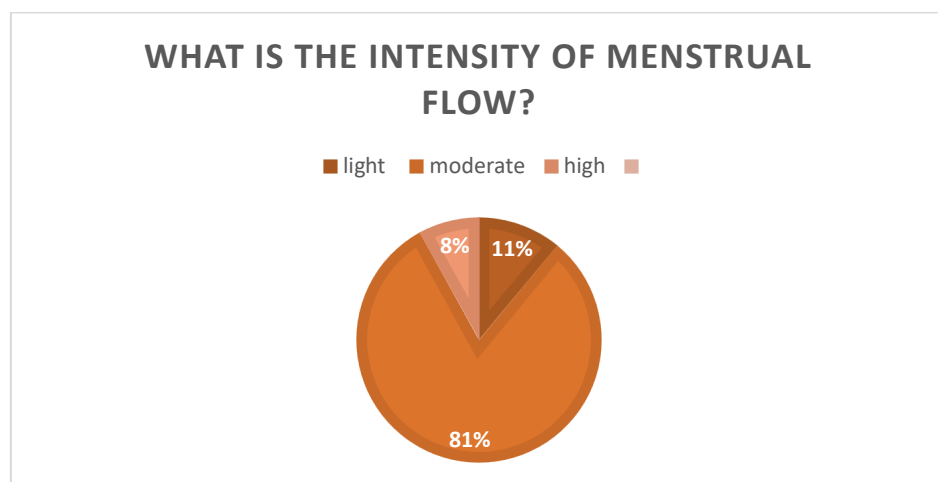
**Table 5.13 Menstrual cycle duration****Figure 5.13 Menstrual cycle duration**

Figure 5.13 illustrates the duration of menstruation among the 100 participants. The pie chart shows that (50%) of the respondents experienced menstruation bleeding lasting 3-5 days, making it the most common duration. (35%) reported a menstrual duration of less than 3 days, while (15%) experienced menstruation lasting more than 5 days. The findings indicate that 3-5 days is the most common menstruation duration.

| Flow Intensity | Frequency | Percentage |
|----------------|-----------|------------|
| Light          | 11        | 11%        |
| Moderate       | 81        | 81%        |
| High           | 8         | 8%         |
| Total          | 100       | 100%       |

**Table 5.14 Menstrual flow intensity**

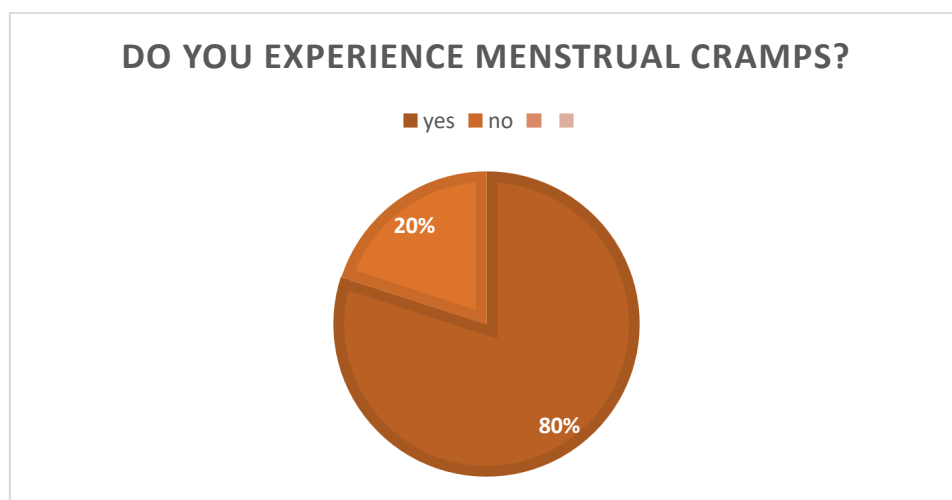


**Figure 5.14 Menstrual flow intensity**

Figure 5.14 illustrates the intensity of menstrual flow among the 100 study participants . The pie chart shows that the majority of respondents (81%) experienced a moderate menstrual flow, making it the most common pattern . A smaller pproportion (11%) reported a light menstrual flow , Whileonly (8%) experienced a heavy menstrual flow . The findings indicate that moderate menstrual flow is the predominantly considered normal.

| Menstrual Cramps | Frequency | Percentage |
|------------------|-----------|------------|
| Yes              | 80        | 80%        |
| No               | 20        | 20%        |
| Total            | 100       | 100%       |

**Table 5.15 Menstrual cramps**



**Figure 5.15 Menstrual cramps**

Figure 5.15 illustrates the prevalence of menstrual cramps among 100 study participants . The pie chart shows that (80%) of the respondents experienced menstrual cramps , while (20%) reported that they did not experienced menstrual cramps . The findings indicate that menstrual camps are highly prevalent among the study participants ,with four out of every five women reporting cramps during menstruration

### **CHI SQUARE ANALYSIS**

A Chi-Square ( $\chi^2$ ) test is a statistical method used to determine if there is a significant association between categorical variables, or if your observed data fits an expected theoretical distribution. It compares the data you actually collect against what you would expect to see by pure chance.

The Formula:

The test statistic is calculated using the formula:

$$\chi^2 = \sum (\mathbf{O} - \mathbf{E})^2 / \mathbf{E}$$

Where:

$\chi^2$  = The Chi-Square test statistic

$\Sigma$  = Summation

O = Observed value

E = Expected value

**Diet Type × Menstrual regularity**

| Count of serial no             | Responses2 responses |     |         |     |         |  | yes<br>Total | Grand<br>Total |
|--------------------------------|----------------------|-----|---------|-----|---------|--|--------------|----------------|
|                                | no                   | veg | non veg | veg | (blank) |  |              |                |
| Vegetarian<br>vegetarian Other | Non<br>non veg       | veg |         |     |         |  |              |                |
| Veg                            |                      | 3   |         |     |         |  | 9            | 12             |
| (blank)                        | 12                   |     |         |     |         |  | 76           | 88             |
| Grand Total                    | 12                   | 3   |         |     |         |  | 85           | 100            |

Table 5. 16 Diet Type × Menstrual regularity

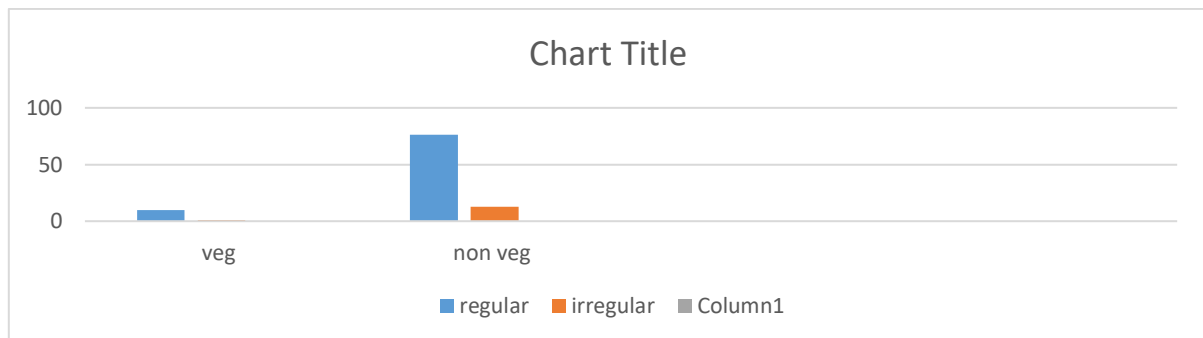


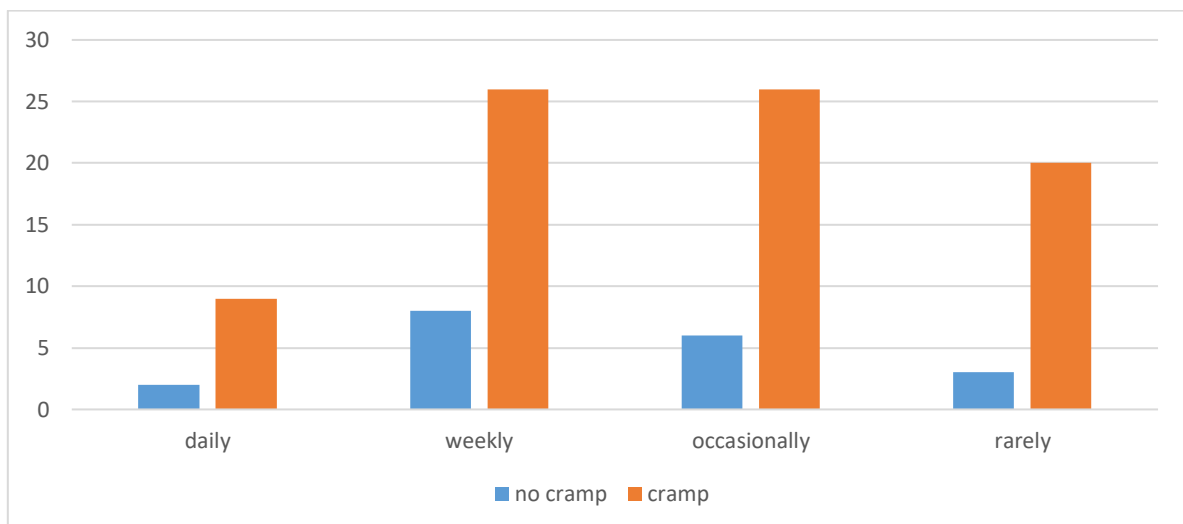
Figure 5.16 Diet Type × Menstrual regularity

A chi square test of independence was conducted to determine the relationship between Diet type and menstrual regularity . The results showed a chi square value of 9.04 with 1 degree of freedom and a p value of 0.002 which is less than 0.05 , significance level .Therefore , the result is statistically indicating that there is a significant association between the variables .

**Junk food intake × menstrual cramp**

| <b>Junkfood</b>           | <b>responses</b> | <b>Sum of serial no</b> |
|---------------------------|------------------|-------------------------|
| daily                     | No               | 5                       |
| <b>daily Total</b>        |                  | <b>5</b>                |
| daily                     | yes              | 697                     |
| <b>daily Total</b>        |                  | <b>697</b>              |
| occasionally              | no               | 315                     |
|                           | yes              | 1132                    |
| <b>occasionally Total</b> |                  | <b>1447</b>             |
| Rarely                    | yes              | 2                       |
| <b>rarely Total</b>       |                  | <b>2</b>                |
| rarely                    | no               | 212                     |
|                           | yes              | 651                     |
| <b>rarely Total</b>       |                  | <b>863</b>              |
| Weekly                    | yes              | 1                       |
| <b>weekly Total</b>       |                  | <b>1</b>                |
| weekly                    | no               | 354                     |
|                           | yes              | 1581                    |
| <b>weekly Total</b>       |                  | <b>1935</b>             |
| (blank)                   | yes              | 100                     |
| <b>(blank) Total</b>      |                  | <b>100</b>              |
| <b>Grand Total</b>        |                  | <b>100</b>              |

**Table 5.17 Junk food intake × menstrual cramp**



**Figure 5.17 Junk food intake × menstrual cramp**

A chi square test of independence was conducted to determine the relation between junk food intake and menstrual cramp . The results showed a chi square value of 66.1 with e degree of

freedom and a p value of 0.001 which is less than 0.05 significance level .Therefore, the result is statistically significant , indicating that there is a significant association between the variables

#### Physical activity × menstrual regularity

| physical activity | menstrual regularity | Sum of serial no |
|-------------------|----------------------|------------------|
| Sedentary total   | yes                  | 14               |
| Moderate total    |                      | 62               |
|                   | yes                  | 14               |
| Active total      |                      | 24               |
| Total             |                      | 100              |
| Grand Total       |                      | 100              |

Table 5. 18 Physical activity × menstrual regularity

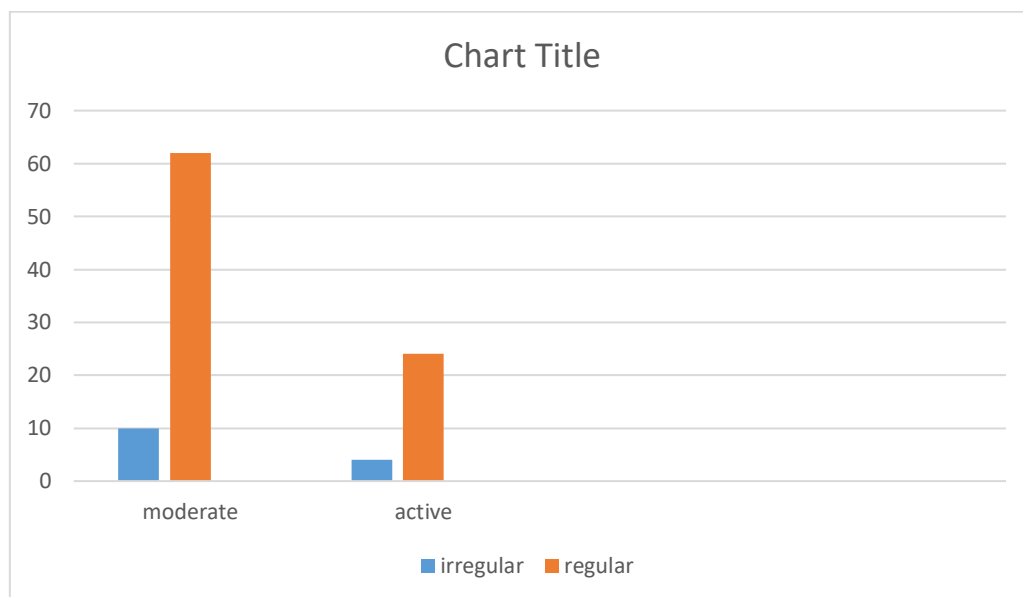


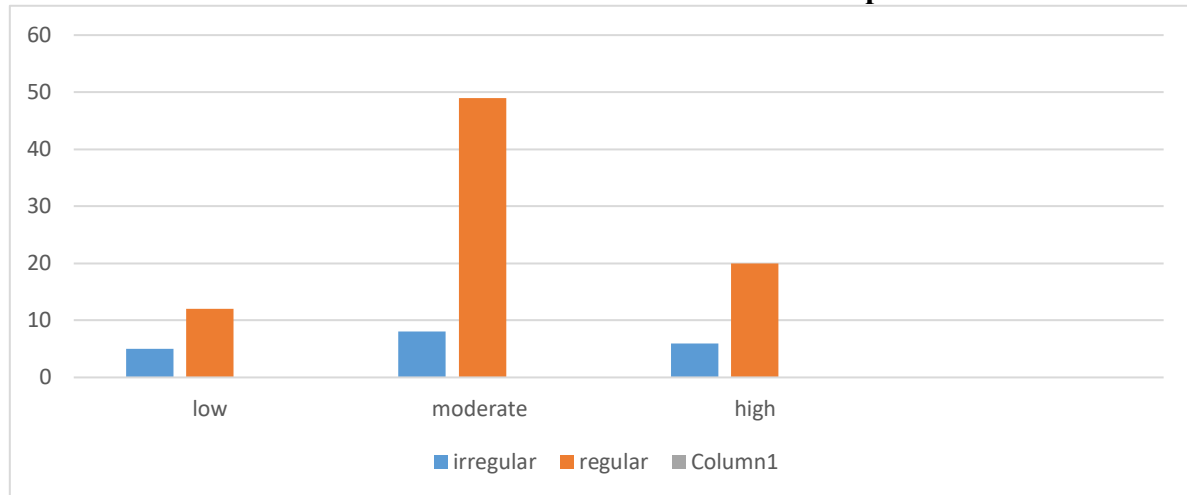
Figure 5.18 physical activity × menstrual regularity

A chi square test of independence was conducted to determine the relation between physical activity and menstrual regularity . The results showed a chi square value of 2.65 with 2 degree of freedom and a p value of 0.26 which is greater than 0.05 significance level .Therefore the

result is not statistically significant , indicating that there is no significant association between the variables .

**Stress level× menstrual cramp**

| stress level | menstrual pain | responses2    | responses     | Sum<br>s.no | of       |    |  |
|--------------|----------------|---------------|---------------|-------------|----------|----|--|
| Low          | Yes            | yes           | low           | 40          |          |    |  |
|              |                | yes Total     |               |             | 40       |    |  |
|              |                | yes Total     |               |             | 40       |    |  |
|              |                | (blank)       | nn            | low         | 19       |    |  |
|              |                |               | nn Total      |             |          | 19 |  |
|              |                |               | (blank) Total |             |          | 19 |  |
|              | low Total      |               |               | 59          |          |    |  |
|              | (blank)        | Yes           | yes           | high        | 12       |    |  |
|              |                |               |               | low         | 2        |    |  |
|              |                |               |               | moderate    | 25       |    |  |
|              |                |               | yes Total     |             |          | 37 |  |
|              |                |               | yes Total     |             |          | 37 |  |
|              |                |               | (blank)       | n           | moderate | 16 |  |
|              |                | n Total       |               |             | 16       |    |  |
|              |                | nn            |               | high        | 22       |    |  |
|              |                |               | moderate      | 43          |          |    |  |
|              |                | nn Total      |               |             | 66       |    |  |
|              |                | (blank) Total |               |             | 67       |    |  |
|              |                | (blank) Total |               |             | 100      |    |  |
| Grand Total  |                |               | 100           |             |          |    |  |

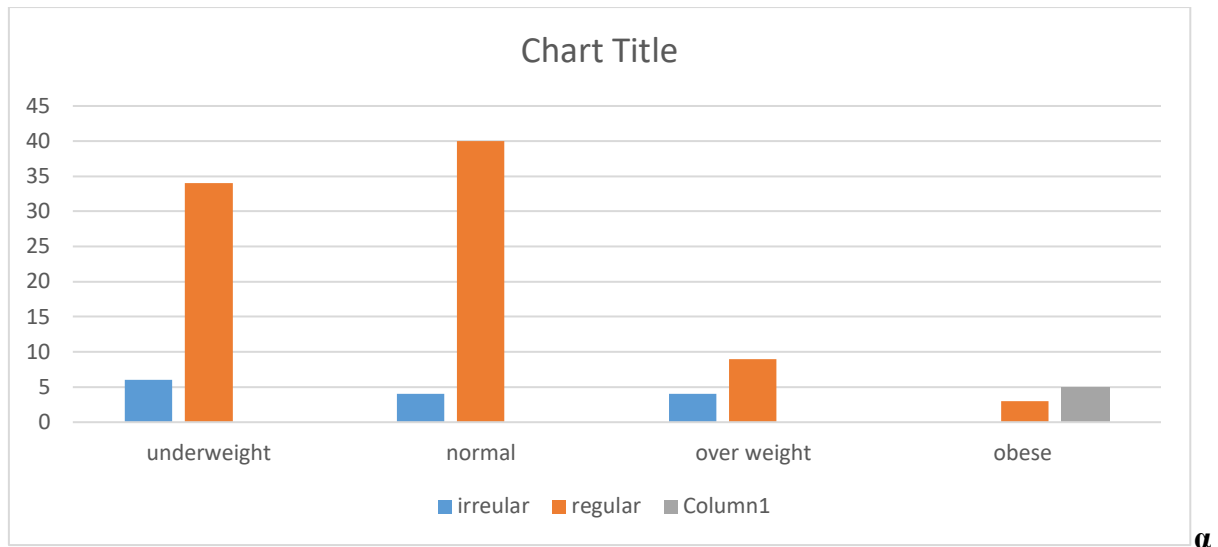
**Table 5.19 Stress level× menstrual cramp****Figure 5. 19 Stress level× menstrual cramp**

A chi square test of independence was conducted to determine the relation between stress level and menstrual cramp . The results showed a chi square value of 2.391 with 2 degree of freedom and a p value of 0.302 which is greater than 0.05 significance level . Therefore , the result is not statistically significant indicating that there is no significance association between the variable

**BMI category × menstrual regularity**

| BMI category      | responses | Sum of s.no |
|-------------------|-----------|-------------|
| Normal            | Irregular | 4           |
|                   | Regular   | 40          |
| normal Total      |           | 44          |
| Obese             | regular   | 3           |
| obese Total       | irregular | 0           |
| Overweight        |           | 3           |
|                   | regular   | 9           |
| overweight Total  |           | 4           |
| underweight       | Irregular | 6           |
|                   | regular   | 34          |
| underweight Total |           | 40          |
| Grand Total       |           | 100         |

**Table 5.20 BMI category × menstrual regularity**



**Figure 5.20 BMI category × menstrual regularity**

A chi square test of independence was conducted to determine the relation between BMI category and menstrual regularity. The results showed a chi square value of 4.03 with 3 degree of freedom and a p value of 0.258 which is greater than 0.05 significance level . Therefore, the result is not statistically significant indicating that there is no significance association between the variables

#### Relationship between Dietary habits and menstrual regularity

| Variables                               | Chi square | Degree of freedom | P value | Significance ( $\alpha 0.05$ ) |
|-----------------------------------------|------------|-------------------|---------|--------------------------------|
| Dietary habits and menstrual Regularity | 9.04       | 1                 | 0.002   | Significant                    |

**Table 5.21 Relationship between Dietary habits and menstrual regularity**

A Chi square test of independence was conducted to determine the relation between the Dietary habits and Menstrual Regularity .The results showed a chi-square value of 9.04 with 1 degree of freedom and a p value of 0.002 significance level. Therefore the results is statistically significant, indicating that there is a significant association between the variables.

#### Relationship between Junk food intake and Menstrual Cramp

| Variables                            | Chi square | Degree of freedom | P value | Significance ( $\alpha 0.05$ ) |
|--------------------------------------|------------|-------------------|---------|--------------------------------|
| Junk food intake and menstrual cramp | 66.1       | 3                 | 0.001   | Significant                    |

**Table 5.22 Relationship between Junk food intake and menstrual cramp**

A Chi square test of independence was conducted to determine the relation between the Junk food intake and Menstrual Cramp. The results showed a chi-square value of 66.1 with 3 degree of freedom and a p value of 0.001 significance level, Therefore, the results is statistically significant, indicating that there is a significant association between the variables

**Relationship between Physical activity and menstrual regularity**

| Variables                                  | Chi square | Degree of freedom | P value | Significance ( $\alpha 0.05$ ) |
|--------------------------------------------|------------|-------------------|---------|--------------------------------|
| Physical activity and Menstrual regularity | 2.65       | 2                 | 0.265   | Not Significant                |

**5.23 Relationship between physical activity and menstrual regularity**

A Chi square test of independence was conducted to determine the relation between the Physical activity and Menstrual Regularity .The results showed a chi-square value of 2.65 with 2 degree of freedom and a p value of 0.265 significance level .Therefore , the results is not statistically significant , indicating that there is no significant association between the variables

**Relationship between Stress level and menstrual cramp**

| Variables                        | Chi square | Degree of freedom | P value | Significance ( $\alpha 0.05$ ) |
|----------------------------------|------------|-------------------|---------|--------------------------------|
| Stress level and Menstrual Cramp | 2.39       | 2                 | 0.302   | Not Significant                |

**Table 5.24 Relationship between stress level and menstrual cramp**

A Chi square test of independence was conducted to determine the relation between the Stress level and Menstrual Cramp .The results showed a chi-square value of 2.39 with 2 degree of freedom and a p value of 0.302 significance level .Therefore, the results is not statistically significant, indicating that there is no significant association between the variables .

**Relationship between BMI category and menstrual regularity**

| Variables | Chi square | Degree of freedom | P value | Significance ( $\alpha 0.05$ ) |
|-----------|------------|-------------------|---------|--------------------------------|
|-----------|------------|-------------------|---------|--------------------------------|

|                                       |      |   |       |                 |
|---------------------------------------|------|---|-------|-----------------|
| BMI category and Menstrual Regularity | 4.03 | 3 | 0.258 | Not Significant |
|---------------------------------------|------|---|-------|-----------------|

**Table 5.25 Relationship between Junk food intake and menstrual cramp**

A Chi square test of independence was conducted to determine the relation between the BMI category and Menstrual regularity, The results showed a chi-square value of 4.03 with 3 degree of freedom and a p value of 0.258 significance level .Therefore , the results is not statistically significant , indicating that there is no significant association between the variables.

## **DISCUSSION**

The present study examined the relationship between dietary habits and menstrual health among women aged 17–40 years. The findings indicate that dietary habits play a significant role in influencing menstrual health, particularly menstrual regularity and menstrual cramps. These findings are consistent with several previous studies that have reported the influence of nutrition on menstrual health.

A statistically significant association was found between dietary habits and menstrual regularity ( $p = 0.002$ ). This finding is in agreement with Gupta et al. (2026), who reported that unhealthy dietary habits were significantly associated with menstrual irregularities and dysmenorrhea among young women in India. Similarly, Diwali and widiatriputri (2025) found a significant relationship between dietary patterns and menstrual cycles ( $p = 0.035$ ), with students consuming unbalanced diets experiencing more irregular menstrual cycles than those with balanced diets. Anapana G et al. (2025) also reported that frequent fast-food consumption was significantly associated with irregular menstrual cycles and menstrual disorders among female college students. These findings suggest that maintaining healthy dietary habits is essential for normal menstrual function.

The present study also revealed a highly significant association between junk food intake and menstrual cramps ( $p = 0.001$ ). This finding supports the study by Anapana G et al. (2025), who observed that higher fast-food consumption was significantly associated with dysmenorrhea, prolonged bleeding, mood instability, and fatigue. Likewise, Mahraj et al. (2025) reported a significant association between heavy menstrual bleeding and the intake of high-calorie foods ( $p = 0.015$ ). Gupta et al. (2026) further demonstrated that unhealthy dietary habits increased

the incidence of dysmenorrhea. These findings indicate that frequent consumption of processed and junk foods may negatively affect menstrual health through hormonal imbalance and increased inflammatory responses.

No statistically significant association was found between physical activity and menstrual regularity ( $p = 0.265$ ). Although physical activity is generally considered beneficial for reproductive health, the present findings did not demonstrate a significant relationship. This may be attributed to differences in the level and frequency of physical activity among participants or the limited sample size. Similar variations have been reported in previous studies where physical activity alone was not a significant predictor after adjusting for dietary and other lifestyle factors.

Similarly, stress level was not significantly associated with menstrual cramps ( $p = 0.302$ ). While stress has been identified as a contributing factor to menstrual disturbances in several studies, the present findings suggest that stress did not independently influence menstrual cramps in this study population. Individual coping mechanisms and variations in stress exposure may explain this difference.

The association between BMI category and menstrual regularity was also not statistically significant ( $p = 0.258$ ). Although Ghosh and Muley (2025) observed that higher ultra-processed food consumption showed a trend toward increased body fat and menstrual irregularities, and Moschonis et al., (2013) highlighted the influence of dietary habits and lifestyle on menstrual health, BMI alone was not significantly associated with menstrual regularity in the present study. This may be because dietary quality has a greater influence on menstrual health than body weight alone.

Furthermore, Elibol et al. (2026) reported that nutritional intake varied across menstrual phases and was associated with pain and sleep quality while aktürk NBK et al. (2025) found that women significantly changed their dietary intake during menstruation. These studies further support the importance of nutrition in menstrual health and complement the findings of the present study.

Overall, the findings of the present study support the existing literature, demonstrating that healthy dietary habits are associated with better menstrual health, whereas frequent junk food consumption is associated with menstrual irregularities and menstrual cramps. Although physical activity, stress level, and BMI were not significantly associated with menstrual outcomes in this study, adopting a balanced diet and limiting junk food intake remain important

recommendations for improving menstrual health. Further research involving larger and more diverse populations is recommended to better understand the combined effects of dietary habits and lifestyle factors on menstrual health.

## **CHAPTER – VI**

### **SUMMARY AND CONCLUSION**

#### **SUMMARY**

The present study was conducted to assess the relationship between dietary habits and menstruation among women aged 17–40 years. The study evaluated demographic characteristics, dietary habits, lifestyle factors, menstrual characteristics, and the association between dietary habits and menstrual health. Variables such as dietary pattern, junk food intake, physical activity, stress level, BMI category, menstrual regularity, and menstrual cramps were assessed using a structured questionnaire and analysed using descriptive statistics and the Chi-square test.

The majority of the participants belonged to the reproductive age group of 17–40 years. Most participants had a normal BMI, while the remaining participants were underweight, overweight, or obese. The study also assessed dietary habits, including type of diet, meal frequency, fruit and vegetable intake, dairy consumption, and junk food intake, along with lifestyle factors such as physical activity, sleep duration, and stress level.

The findings revealed that a considerable proportion of the participants consumed junk food regularly, while many participants reported inadequate intake of fruits and vegetables. Most participants followed mixed dietary patterns, and varying levels of physical activity and stress were observed among the study population.

Regarding menstrual health, the study found that a majority of participants experienced regular menstrual cycles, whereas some reported irregular menstruation. Menstrual cramps were

common among the participants, with varying degrees of severity. The findings suggest that menstrual health is influenced by multiple dietary and lifestyle factors.

Chi-square analysis demonstrated a statistically significant association between dietary habits and menstrual regularity ( $p = 0.002$ ), indicating that healthy dietary habits were associated with better menstrual regularity. Similarly, a highly significant association was observed between junk food intake and menstrual cramps ( $p = 0.001$ ), suggesting that frequent consumption of junk food may increase the occurrence of menstrual pain.

However, no statistically significant association was found between physical activity and menstrual regularity ( $p = 0.265$ ), stress level and menstrual cramps ( $p = 0.302$ ), or BMI category and menstrual regularity ( $p = 0.258$ ).

The findings of the study indicate that healthy dietary habits play an important role in maintaining menstrual health. Participants who consumed a balanced diet rich in fruits, vegetables, dairy products, and regular meals were more likely to have regular menstrual cycles, whereas those with unhealthy dietary habits showed a greater tendency toward menstrual irregularities and menstrual pain. These findings are consistent with previous studies, which have reported that poor dietary practices, particularly frequent consumption of junk food and inadequate intake of nutrient-rich foods, may negatively affect menstrual health.

The study also observed that although physical activity, stress level, and BMI are considered important lifestyle factors influencing menstrual health, no statistically significant association was found between these variables and menstrual regularity or menstrual cramps in the present study. This suggests that menstrual health is influenced by multiple biological, nutritional, and lifestyle factors, and further research is needed to better understand these relationships.

Overall, the study highlights the importance of adopting healthy dietary habits to promote better menstrual health among women. Regular consumption of nutritious foods, limiting junk food intake, maintaining a balanced lifestyle, and creating awareness regarding healthy eating practices may contribute to improved menstrual regularity and reduced menstrual discomfort. The findings of this study provide valuable information for healthcare professionals, nutritionists, educators, and women, emphasizing the need for nutrition education and lifestyle interventions to support reproductive health and overall well-being.

## **CONCLUSION**

The present study concludes that dietary habits have a significant influence on menstrual health among women aged 17–40 years. Healthy dietary practices were significantly associated with regular menstrual cycles, whereas unhealthy dietary habits were associated with menstrual irregularities.

The study further concludes that junk food intake is significantly associated with menstrual cramps. Women who frequently consumed junk food were more likely to experience menstrual pain, emphasizing the importance of limiting processed and high-fat foods as part of a healthy lifestyle.

Although physical activity, stress level, and BMI category are recognized as important factors affecting overall health, the present study did not find statistically significant associations between these variables and menstrual regularity or menstrual cramps.

The findings emphasize the importance of promoting balanced dietary habits, regular meal patterns, increased consumption of fruits and vegetables, and reduced intake of junk food to improve menstrual health and overall well-being. Nutrition education and awareness programmes should be encouraged among women to promote healthy lifestyle practices and reduce the risk of menstrual problems.

Overall, the study demonstrates that maintaining healthy dietary habits is an important strategy for supporting normal menstrual function and reducing menstrual discomfort. Further research involving larger sample sizes and diverse populations is recommended to better understand the combined effects of nutrition and lifestyle factors on menstrual health.

## **LIMITATIONS OF THE STUDY:-**

### **1. Small Sample Size**

The present study was conducted among a limited number of women participants. The relatively small sample size may limit the generalizability of the findings to the wider population.

### **2. Self-Reported Responses**

The data were collected using self-administered questionnaires. Therefore, the responses may be affected by recall bias, misreporting, or social desirability bias, which could influence the accuracy of the information provided.

### **3. Geographical Restriction**

The study was carried out in a single educational institution. Hence, the findings may not represent women from different geographical regions, educational settings, or cultural backgrounds.

### **4. Cross-Sectional Study Design**

As the study employed a cross-sectional design, it examined the association between dietary habits and menstruation at a single point in time. Therefore, a cause-and-effect relationship cannot be established.

### **5. Limited Assessment of Other Influencing Factors**

Although dietary habits were assessed, other factors that may influence menstrual health, such as hormonal status, genetic factors, medical conditions, medication use, psychological stress, and environmental influences, were not evaluated in detail.

### **6. Limited dietary of lifestyle factors –**

Although physical activity, sleep duration stress level and BMI were included, other important lifestyle factors such as smoking, alcohol consumption, medications were not assessed

## **RECOMMENDATIONS**

### **1. Increase Sample Size and Study Area**

Future studies should include a larger sample size and participants from different colleges, universities, and geographical regions to improve the representativeness and generalizability of the findings.

**2. Include Additional Variables** Further research should assess additional factors such as micronutrient intake, hormonal profile, sleep quality, physical activity, stress levels, body composition, and existing medical conditions to better understand their relationship with menstrual health.

### **3. Conduct Longitudinal Studies**

Longitudinal or prospective studies are recommended to determine the long-term effects of dietary habits on menstrual health and establish causal relationships.

#### **4. Promote Nutrition Education**

Educational institutions should organize nutrition awareness programs emphasizing balanced diets, adequate intake of fruits, vegetables, whole grains, dairy products, and iron-rich foods while reducing the consumption of fast foods, sugary beverages, and ultra-processed foods to promote healthy menstrual function.

#### **5. Encourage Healthy Lifestyle Practices**

Women should be encouraged to adopt healthy lifestyle behaviours, including regular physical activity, stress management, adequate sleep, proper hydration, and maintaining a healthy body weight, as these factors may contribute to improved menstrual health and overall well-being

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**ANNEXURE-I**

| Name             | Age | Gender | Marital status | Vegetarian Non vegetarian Other |         |         |
|------------------|-----|--------|----------------|---------------------------------|---------|---------|
| Nashra           | 23  | female | married'       | 22.6                            |         |         |
| Maleka           | 23  | female | married'       | 18.4                            | Non veg |         |
| ayesha jabeen    | 24  | female | single         | 17.7                            | non veg |         |
| hiba             | 25  | female | single         | 22.6                            | non veg |         |
| Farah faiz khan  | 20  | female | single         | 11.7                            | non veg |         |
| mrs hafsa khan   | 21  | female | married        | 21.4                            | non veg |         |
| Mrs Rania fatima | 23  | female | married        | 34.6                            | non veg |         |
| Sadaf firdous    | 30  | female | single         | 29.4                            | non veg |         |
| Arshiya jabeen   | 23  | female | single         | 17.3                            | non veg |         |
| Maha afzal       | 23  | female | single         | 19.1                            | non veg |         |
| Nazia Sultana    | 23  | female | single         | 23.7                            | non veg |         |
| Sania mirza      | 23  | female | single         | 19.8                            | non veg |         |
| Saniya banu      | 22  | female | single         | 22.7                            | non veg |         |
| Sana begum       | 23  | female | single         | 23.4                            | veg     |         |
| Sania begum      | 22  | female | single         | 21.1                            | non veg |         |
| amena unnisa     | 21  | female | single         | 29.6                            | non veg |         |
| Amena fatima     | 23  | female | single         | 21                              | non-veg |         |
| husna samreen    | 23  | female | single         | 16.7                            | non veg |         |
| Adiba ulfat      | 22  | female | single         | 34.6                            | non veg |         |
| Masarrat         | 22  | female | single         | 24.6                            | non veg |         |
| Afra             | 22  | female | single         | 17                              | non veg |         |
| Sheema sikander  | 23  | female | single         | 17                              | non veg |         |
| Amena khatoon    | 24  | female | single         | 29.4                            | non veg |         |
| Zeesha fatima    | 22  | female | single         | 17.1                            | non veg |         |
| Amina            | 23  | female | single         | 24.9                            | non veg |         |
| mahira sulana    | 23  | female | single         | 22.3                            | non veg |         |
| Saeeda           | 18  | female | single         | 16.6                            | non veg |         |
| sarah            | 21  | female | single         | 18.9                            | non veg |         |
| Sumaiya zaheer   | 21  | female | single         | 18                              | non veg |         |
| Hadiya anam      | 18  | female | single         | 16.9                            | non veg |         |
| syeda samiha     | 18  | female | single         | 21.5                            | non veg |         |
| Tehreem akhtar   | 18  | female | single         | 20.8                            | non veg |         |
| Taheniyath       | 18  | female | single         | 16.9                            | veg     | non veg |
| Samreenkhanam    | 19  | female | single         | 25.9                            | non veg |         |
| saniya fatima    | 17  | female | single         | 25.9                            | veg     |         |
| syeda nabiya     | 21  | female | single         | 17.8                            | non veg |         |
| Madiha khaled    | 22  | female | single         | 18.5                            | non veg |         |
| Amtul fatima     | 19  | female | single         | 17                              | veg     |         |
| Bareena fatima   | 18  | female | single         | 14.5                            | non veg |         |
| Mariyam          | 18  | female | single         | 20.8                            | non veg |         |
| wajiha sultana   | 18  | female | single         | 18.2                            | non veg |         |

|                 |           |         |          |         |
|-----------------|-----------|---------|----------|---------|
| khadija         | 22 female | single  | 24.7     | non veg |
| Nooreen naaz    | 20 female | single  | 16.7     | non veg |
| zeba iffath     | 22 female | single  | 21.4     | non veg |
| Muskan sadiq    | 22 female | single  | 21.9     | non veg |
| Maryam fatima   | 18 female | single  | 17.6     | non veg |
| Ayesha siddiqua | 18 female | single  | 14.2 veg |         |
| hafsa fatima    | 19 female | single  | 16.2     | non veg |
| muskan fatima   | 19 female | single  | 17.8     | non veg |
| syeda arisha    | 22 Female | single  | 26.5     | non veg |
| Nada fatima     | 19 female | single  | 21.8 veg |         |
| syeda bushra    | 20 female | single  | 14.8     | non veg |
| sanja farzeen   | 20 female | single  | 20.2     | non veg |
| Rehana          | 18 female | single  | 18.7     | non veg |
| Samiya          | 21 female | single  | 22.3     | non veg |
| zoha sultana    | 18 female | single  | 16.8     | non veg |
| syeda husna     | 19 female | single  | 17.6     | non veg |
| sana kauser     | 18 female | single  | 23.1     | non veg |
| musfera maryam  | 18 female | single  | 16.1     | non veg |
| syeda fareeha   | 20 female | single  | 16.5     | non veg |
| p sai durga     | 17 female | single  | 15 veg   |         |
| Eram fatima     | 18 female | single  | 17.2     | non veg |
| Farah unnisa    | 18 female | single  | 15.5     | non veg |
| Farah fatima    | 18 female | single  | 18.9 veg |         |
| Faziha fatima   | 18 female | single  | 20.2     | non veg |
| Saba fatima     | 19 female | single  | 17       | non veg |
| Neha anjum      | 19 female | single  | 17.6     | non veg |
| Mahek muskan    | 19 female | single  | 29.2     | non veg |
| Sadiya          | 18 female | single  | 18.2     | non veg |
| Youmna raza     | 18 female | single  | 25.9     | non veg |
| Musvera khan    | 19 female | single  | 16.6 veg |         |
| Ayesha          | 18 female | single  | 19.1     | non veg |
| Alina khan      | 17 female | single  | 25.7     | non veg |
| syeda sadeem    | 19 female | single  | 25       | non veg |
| Ayesha sultana  | 19 female | single  | 20.2     | non veg |
| Fatima sultana  | 21 female | single  | 21.9 veg |         |
| Fouzia bushra   | 19 female | single  | 17.5     | non veg |
| Syeda tahura    | 19 female | single  | 21.1     | non veg |
| umema fatima    | 19 female | single  | 20.2     | non veg |
| zunaira fatima  | 19 female | single  | 22.5     | non veg |
| ayesha fatima   | 18 female | single  | 15.6     | non veg |
| syeda alina     | 19 female | single  | 27.8     | non veg |
| Rahath unnisa   | 19 female | single  | 14       | non veg |
| safiya khan     | 18 female | single  | 26       | non veg |
| huda ali        | 38 female | married | 39.2     | non veg |

|                 |           |         |      |         |
|-----------------|-----------|---------|------|---------|
| khadija         | 22 female | single  | 24.7 | non veg |
| Nooreen naaz    | 20 female | single  | 16.7 | non veg |
| zeba iffath     | 22 female | single  | 21.4 | non veg |
| Muskan sadiq    | 22 female | single  | 21.9 | non veg |
| Maryam fatima   | 18 female | single  | 17.6 | non veg |
| Ayesha siddiqua | 18 female | single  | 14.2 | veg     |
| hafsah fatima   | 19 female | single  | 16.2 | non veg |
| muskan fatima   | 19 female | single  | 17.8 | non veg |
| syeda arisha    | 22 Female | single  | 26.5 | non veg |
| Nada fatima     | 19 female | single  | 21.8 | veg     |
| syeda bushra    | 20 female | single  | 14.8 | non veg |
| sania farzeen   | 20 female | single  | 20.2 | non veg |
| Rehana          | 18 female | single  | 18.7 | non veg |
| Samiya          | 21 female | single  | 22.3 | non veg |
| zoha sultana    | 18 female | single  | 16.8 | non veg |
| syeda husna     | 19 female | single  | 17.6 | non veg |
| sana kauser     | 18 female | single  | 23.1 | non veg |
| musfera maryam  | 18 female | single  | 16.1 | non veg |
| syeda fareeha   | 20 female | single  | 16.5 | non veg |
| p sai durga     | 17 female | single  | 15   | veg     |
| Eram fatima     | 18 female | single  | 17.2 | non veg |
| Farah unnisa    | 18 female | single  | 15.5 | non veg |
| Farah fatima    | 18 female | single  | 18.9 | veg     |
| Faziha fatima   | 18 female | single  | 20.2 | non veg |
| Saba fatima     | 19 female | single  | 17   | non veg |
| Neha anjum      | 19 female | single  | 17.6 | non veg |
| Mahek muskan    | 19 female | single  | 29.2 | non veg |
| Sadiya          | 18 female | single  | 18.2 | non veg |
| Younna raza     | 18 female | single  | 25.9 | non veg |
| Musvera khan    | 19 female | single  | 16.6 | veg     |
| Ayesha          | 18 female | single  | 19.1 | non veg |
| Alina khan      | 17 female | single  | 25.7 | non veg |
| syeda sadeem    | 19 female | single  | 25   | non veg |
| Ayesha sultana  | 19 female | single  | 20.2 | non veg |
| Fatima sultana  | 21 female | single  | 21.9 | veg     |
| Fouzia bushra   | 19 female | single  | 17.5 | non veg |
| Syeda tahura    | 19 female | single  | 21.1 | non veg |
| umema fatima    | 19 female | single  | 20.2 | non veg |
| zunaira fatima  | 19 female | single  | 22.5 | non veg |
| ayesha fatima   | 18 female | single  | 15.6 | non veg |
| syeda alina     | 19 female | single  | 27.8 | non veg |
| Rahath unnisa   | 19 female | single  | 14   | non veg |
| safiya khan     | 18 female | single  | 26   | non veg |
| huda ali        | 38 female | married | 39.2 | non veg |

| Meals per day |               | how often do you consume per day |              |
|---------------|---------------|----------------------------------|--------------|
| 2             | 3 more than 3 | food items                       |              |
|               |               | fruits                           | vegetable    |
|               | 3             | daily                            | Daily        |
| 2             |               | rarely                           | daily        |
|               | 3             | occasionally                     | Daily        |
|               | 3             | daily                            | daily        |
|               | 3             | occasionally                     | rarely       |
| 2             |               | occasionally                     | daily        |
|               | 3             | occasionally                     | daily        |
|               | 3             | weekly                           | daily        |
| 2             |               | occasionally                     | weekly       |
| 2             |               | daily                            | daily        |
| 2             |               | weekly                           | daily        |
|               | 3             | occasionally                     | daily        |
| 2             |               | weekly                           | Daily        |
| 2             |               | weekly                           | daily        |
| 2             |               | weekly                           | occasionally |
|               | more than 3   | occasionally                     | weekly       |
|               | more than 3   | weekly                           | weekly       |
|               | 3             | daily                            | daily        |
|               | 3             | weekly                           | daily        |
|               | 3             | daily                            | daily        |
|               | 3             | occasionally                     | daily        |
| 2             |               | weekly                           | daily        |
|               | 3             | occasionally                     | daily        |
|               | 3             | occasionally                     | occasionally |
|               | 3             | daily                            | daily        |
|               | 3             | weekly                           | rarely       |
| 2             |               | daily                            | daily        |
| 2             |               | rarely                           | occasionally |
|               | 3             | weekly                           | daily        |
| 2             |               | occasionally                     | daily        |
|               | 3             | weekly                           | daily        |
|               | 3             | weekly                           | daily        |
| 2             |               | daily                            | daily        |
| 2             |               | rarely                           | daily        |
|               | 3             | occasionally                     | weekly       |
|               | 3             | daily                            | daily        |
|               | 3             | occasionally                     | daily        |
|               | more than 3   | occasionally                     | daily        |
| 2             |               | daily                            | weekly       |
| 2             |               | rarely                           | occasionally |

|  |   |             |              |              |
|--|---|-------------|--------------|--------------|
|  | 2 |             | weekly       | weekly       |
|  |   | 3           | rarely       | daily        |
|  |   | 3           | daily        | daily        |
|  |   | 3           | weekly       | daily        |
|  | 2 |             | weekly       | daily        |
|  | 2 |             | occasionally | daily        |
|  |   | 3           | weekly       | daily        |
|  |   | more than 3 | daily        | daily        |
|  | 2 |             | daily        | weekly       |
|  | 2 |             | weekly       | daily        |
|  |   | 3           | weekly       | daily        |
|  | 2 |             | weekly       | daily        |
|  | 2 |             | rarely       | rarely       |
|  | 2 |             | weekly       | weekly       |
|  |   | 3           | weekly       | daily        |
|  | 2 |             | rarely       | daily        |
|  |   | 3           | weekly       | daily        |
|  | 2 |             | weekly       | weekly       |
|  |   | 3           | daily        | daily        |
|  | 2 |             | occasionally | daily        |
|  |   | 3           | daily        | daily        |
|  |   | 2           | daily        | weekly       |
|  |   | 3           | weekly       | daily        |
|  |   | more than 3 | daily        | daily        |
|  |   | more than 3 | daily        | daily        |
|  |   | 3           | weekly       | daily        |
|  | 2 |             | weekly       | rarely       |
|  |   | 3           | weekly       | occasionally |
|  |   | 3           | weekly       | daily        |
|  |   | 3           | daily        | daily        |
|  |   | 3           | daily        | weekly       |
|  |   | 3           | weekly       | daily        |
|  |   | 3           | weekly       | weekly       |
|  | 2 |             | daily        | daily        |
|  | 2 |             | weekly       | daily        |
|  |   | 3           | weekly       | daily        |
|  |   | 3           | weekly       | daily        |
|  | 2 |             | daily        | daily        |
|  | 2 |             | weekly       | weekly       |
|  |   | 3           | weekly       | daily        |
|  |   | 3           | daily        | daily        |
|  |   | 3           | weekly       | daily        |
|  | 2 |             | weekly       | daily        |
|  |   | 3           | rarely       | daily        |

| Physical activity level |              |              |              |
|-------------------------|--------------|--------------|--------------|
| sedentary moderate      |              |              |              |
| milk /Diary             | junkfoods    | fried foods  | sugary food  |
| Daily                   | weekly       | weekly       | Daily        |
| occasionally            | rarely       | rarely       | occasionally |
| occasionally            | occasionally | occasionally | occasionally |
| daily                   | weekly       | weekly       | daily        |
| weekly                  | daily        | occasionally | weekly       |
| rarely                  | rarely       | rarely       | rarely       |
| daily                   | occasionally | rarely       | occasionally |
| daily                   | weekly       | occasionally | occasionally |
| occasionally            | occasionally | occasionally | weekly       |
| weekly                  | rarely       | occasionally | rarely       |
| weekly                  | occasionally | occasionally | occasionally |
| occasionally            | rarely       | occasionally | rarely       |
| daily                   | rarely       | rarely       |              |
| daily                   | rarely       | rarely       | rarely       |
| weekly                  | occasionally | occasionally | weekly       |
| occasionally            | weekly       | rarely       | occasionally |
| occasionally            | rarely       | occasionally | rarely       |
| weekly                  | occasionally | occasionally | occasionally |
| daily                   | occasionally | occasionally | occasionally |
| daily                   | weekly       | occasionally | weekly       |
| daily                   | occasionally | weekly       | occasionally |
| weekly                  | occasionally | rarely       | rarely       |
| rarely                  | occasionally | occasionally | occasionally |
| daily                   | weekly       | occasionally | occasionally |
| daily                   | occasionally | occasionally | occasionally |
| daily                   | weekly       | weekly       | rarely       |
| daily                   | weekly       | daily        | daily        |
| rarely                  | occasionally | occasionally | occasionally |
| daily                   | occasionally | occasionally | weekly       |
| occasionally            | rarely       | weekly       | weekly       |
| weekly                  | occasionally | occasionally | occasionally |
| daily                   | rarely       | occasionally | occasionally |
| daily                   | rarely       | rarely       | rarely       |
| weekly                  | rarely       | rarely       | rarely       |
| occasionally            | weekly       | occasionally | daily        |
| rarely                  | rarely       | rarely       | occasionally |
| weekly                  | rarely       | rarely       | daily        |
| weekly                  | occasionally | weekly       | daily        |
| daily                   | daily        | daily        | weekly       |
| weekly                  | occasionally | occasionally | occasionally |

|              |                                                                                                                        |      |
|--------------|------------------------------------------------------------------------------------------------------------------------|------|
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|--------------|------------------------------------------------------------------------------------------------------------------------|------|

|        |                 |         |     |          |
|--------|-----------------|---------|-----|----------|
|        | less than 5 hrs |         | low |          |
|        | less than 5 hrs |         | low |          |
| active |                 | 5-7hrs  |     | moderate |
| active |                 | 5-7 hrs | low |          |
| active |                 | 5-7 hrs |     | moderate |
|        | less than 5 hrs |         |     | moderate |
|        | less than 5 hrs |         |     |          |
| active |                 | 7-9hrs  |     |          |
|        | less than 5 hrs |         |     | moderate |
| active |                 | 5-7hrs  |     | moderate |
| active |                 | 7-9 hrs |     | moderate |
|        |                 | 5-7 hrs |     |          |
|        |                 | 5-7hrs  |     | moderate |
|        |                 | 5-7hrs  |     |          |
|        |                 | 5-7hrs  |     |          |
|        |                 | 7-9 hrs |     |          |
|        |                 | 5-7 hrs |     |          |
|        | less than 5 hrs |         |     | moderate |
|        |                 | 7-9 hrs |     | moderate |
|        |                 | 7-9 hrs |     |          |
|        |                 | 5-7 hrs |     |          |
| active |                 | 5-7 hrs |     |          |
| active |                 | 5-7 hrs |     | moderate |
| active |                 | 5-7 hrs |     | moderate |
| active |                 | 5-7 hre |     |          |
|        |                 | 7-9 hrs |     |          |
|        |                 | 5-7 hrs |     | moderate |
|        |                 | 5-7 hrs |     | moderate |
|        |                 | 7-9 hrs | low |          |
|        |                 | 7-9 hrs | low |          |
|        |                 | 5-7 hrs |     |          |
|        |                 | 7-9 hrs |     | moderate |
|        |                 | 7-9 hrs |     | moderate |
|        |                 | 5-7 hrs |     | moderate |
|        |                 | 7-9 hrs |     |          |
|        |                 | 5-7 hrs |     | moderate |
|        |                 | 7-9 hrs |     |          |
|        | less than 5 hrs |         |     | moderate |
|        |                 | 5-7 hrs |     | moderate |
| active |                 | 5-7 hrs |     | moderate |
|        |                 | 5-7 hrs |     | moderate |
|        |                 | 7-9 hrs |     |          |
| active |                 | 5-7 hrs |     | moderate |
|        | less than 5 hrs |         |     |          |
| active |                 | 7-9 hrs |     |          |

| How often do you eat this iron rich foods |                  |              |                  |              |              |
|-------------------------------------------|------------------|--------------|------------------|--------------|--------------|
| High                                      | food items Daily |              |                  |              |              |
|                                           | jaggery          | lentils      | gogu leaves meat | meat         | fish         |
|                                           | occasionally     | Daily        | occasionally     | Daily        | weekly       |
|                                           | Rarely           | rarely       | rarely           | weekly       | rarely       |
| high                                      | rarely           | rarely       | rarely           | weekly       | rarely       |
|                                           | occasionally     | daily        | occasionally     | daily        | weekly       |
|                                           | rarely           | rarely       | rarely           | daily        | rarely       |
|                                           | rarely           | weekly       | rarely           | daily        | rarely       |
|                                           | occasionally     | weekly       | rarely           | weekly       | occasionally |
| high                                      | occasionally     | weekly       | weekly           | weekly       | occasionally |
| high                                      | occasionally     | weekly       | rarely           | weekly       | occasionally |
| high                                      | occasionally     | weekly       | rarely           | daily        | rarely       |
|                                           | rarely           | weekly       | rarely           | daily        | occasionally |
|                                           | occasionally     | weekly       | rarely           | rarely       | occasionally |
|                                           | occasionally     | weekly       | occasionally     | Daily        | rarely       |
|                                           | occasionally     | occasionally | rarely           | rarely       | rarely       |
|                                           | occasionally     | weekly       | weekly           | weekly       | occasionally |
|                                           | occasionally     | occasionally | occasionally     | occasionally | weekly       |
| high                                      | Rarely           | weekly       | rarely           | weekly       | occasionally |
|                                           | rarely           | daily        | rarely           | Daily        | occasionally |
|                                           | rarely           | weekly       | rarely           | daily        | occasionally |
|                                           | rarely           | weekly       | rarely           | daily        | weekly       |
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## **ANNEXURE -Ii**

### **AWARENESS PROGRAM ON THE RELATIONSHIP BETWEEN THE DIETARY HABITS AND MENSTRUATION AMONG REPRODUCTIVE WOMEN (17-40 ) YEARS**

#### **‘NOURISH TOUR BODY .BALANCE YOUR CYCLE .EMPOWER YOUR LIFE’**

This awareness program was designed to highlight the significant impact of dietary habits on menstrual health among women aged 17-40 ,Nutrition plays a crucial role in regulating hormones , managing energy levels , and determining the comfort and regularity of the menstrual cycle .The program aimed to educate participants on how specific nutrients can alleviate common menstrual issues like cramps and moodswings , while also demonstrating how poor dietary choices can lead to hormonal imbalances and deficiencies .By understanding the connection between food and their cycle , women can make informed daily choices to improve their overallwell being and quality of life .

#### **Key sights from Awareness Program :-**

- A Balanced diet helps maintain hormonal balance leading to more regular and healthy cycles
- Anti – inflammatory foods are effective in reducing menstrual pain cramps , and bloating .
- Stable blood sugar achieved through proper nutrition , supports a better mood and sustained energy levels .
- Essential nutrients like iron calcium and vitamin D are vital for preventing anaemia and reducing muscle discomfort.
- Unhealthy eating habits ,including high sugar and processed food intake , can lead to irregular periods, severe PMS and fatigue .
- Simple dietary practices such as staying hydrated and eating a variety of fruits and vegetables , can significantly improve menstrual health .

THESIS AWARENESS POSTER

# THE RELATIONSHIP BETWEEN DIETARY HABITS AND MENSTRUATION

*Nourish Your Body. Balance Your Cycle. Empower Your Life.*

AGE GROUP: 17-40 YEARS





### WHY DIET MATTERS FOR YOUR CYCLE?

What you eat has a direct impact on your hormones, energy levels, mood, and the regularity and comfort of your periods.

- Helps maintain hormonal balance
- Boosts energy and improves mood
- Reduces menstrual pain and cramps
- Supports regular and healthy cycles
- Prevents deficiencies and fatigue



### HEALTHY DIETARY HABITS SUPPORT

- REGULAR CYCLES**  
Nutrients help maintain hormonal balance.
- LESS CRAMPS & BLOATING**  
Anti-inflammatory foods reduce discomfort.
- BETTER MOOD & ENERGY**  
Stable blood sugar supports mental well-being.
- STRONGER IMMUNITY**  
Good nutrition builds a resilient body.
- HEALTHY BLOOD LEVELS**  
Essential nutrients prevent anemia and fatigue.

### UNHEALTHY DIETARY HABITS CAN LEAD TO

- Irregular or missed periods
- Severe cramps & PMS
- Hormonal imbalances
- Mood swings & irritability
- Iron deficiency anemia
- Fatigue & low energy



### NUTRIENTS THAT SUPPORT MENSTRUAL HEALTH



**IRON**

Prevents anemia and supports healthy blood.



**CALCIUM & VITAMIN D**

Reduces cramps and supports muscle function.



**OMEGA-3 FATTY ACIDS**

Reduces inflammation and menstrual pain.



**MAGNESIUM**

Relaxes muscles and reduces bloating and cramps.



**VITAMIN B6**

Supports hormone balance and improves mood.



**FOLATE**

Supports red blood cell production and cell health.

### DIET TIPS FOR A HEALTHY MENSTRUAL CYCLE



Stay hydrated



Eat a variety of fruits, vegetables & whole grains



Include healthy fats like nuts, seeds & olive oil



Limit sugar, caffeine & processed foods



Maintain a healthy weight & stay physically active



Manage stress & get enough sleep

### CONCLUSION

A balanced and nutritious diet plays a vital role in maintaining a healthy menstrual cycle. Good dietary habits can reduce menstrual discomfort, support hormone balance, and improve overall well-being. Small daily food choices can lead to big changes in menstrual health and quality of life.






RESEARCHER  
**FAEZA FAIZ KHAN**



DEPARTMENT  
**NUTRITION & DIETETICS**



INSTITUTION  
**St. Joseph's Degree & PG College for Women**



YEAR  
**2026**

♥ AWARE TODAY, HEALTHIER TOMORROW! ♥