Assessment of Nutritional Status and Food Habits During Menstrual Cycle of College Going Girls

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ABSTRACT:

Introduction: The menstrual cycle is an important indicator of women's reproductive health consisting of various events such as physical symptoms, behavioral, and emotional symptoms prior or during menstrual cycle. Menstruation marks the shedding of the uterine lining when pregnancy does not occur, and this cycle is an important indicator of women's reproductive health.Menstrual cramps, or dysmenorrhea, are a common symptom associated with the menstrual cycle, characterized by painful menstruation that can affect daily life. Primary dysmenorrhea typically begins during adolescence and may decrease with age.

Aim : The aim of this study was to study the nutritional status and dietary patterns during menstrual cycle among the study subjects.

Methodology: This descriptive study was conducted among young adult female students of age 18- 24 years old of Telangana Mahila Viswavidyalayam, Hyderabad, Telangana. The size of the sample was 100. The data was collected by using offline and online questionnaire. A pilot study was done and changes were made in questionnaires. The methods used in this study included a detailed questionnaire. Data was analyzed by using frequency distribution and chi-square test.

Results and discussion: The Body Mass Index (BMI) distribution showed that 17% were underweight, 64% had a normal weight, 14% were overweight, and 5% were obese. Data on menstrual cycle characteristics revealed that 58% had cycles of 28-31 days, and 78% experienced a menstrual flow lasting 3-5 days. Common symptoms included stomach cramps, leg and back pain, and mood swings, reported by 58% of participants. The majority (70%) affirmed certain behaviors, with symptoms most frequently experienced "Sometimes" (39%). Dietary preferences indicated that 86% were non-vegetarian, 13% were vegetarian, and 1% were vegan. The data provided an overview of cravings during menstruation, showing that 61% of people experienced cravings, with 36.90% craved sugary foods the most. Cravings generally lasted 1-2 days for 42.85% of respondents. Additionally, 70% of people noticed a difference in their appetite during their menstrual cycle, with 78.60% eating more and 21.40% eating less. Finally, food preferences were evenly split, with 50% of respondents preferring homemade meals and 50% preferring junk food. Statistical analysis demonstrated a significant association between changes in appetite during the menstrual cycle and BMI(chi² test). Dietary patterns and cravings vary during menstruation, influenced by BMI.

Keywords: Menstrual cycle, Nutritional status, Dietary patterns, changes in appetite, cravings during menstrual cycle

INTRODUCTION:

1.1 Menstrual cycle

The menstrual cycle is a series of physiological changes in the female reproductive system that occur to prepare the body for pregnancy. It is marked by the release of an oocyte and the preparation of the uterus for potential fertilization, with an average duration of 28 days

(Shrivastav et al., 2022)

Menstruation marks the shedding of the uterine lining when pregnancy does not occur, and this cycle is an important indicator of women's reproductive health.

(Varoda et al., 2016).

Menstrual cramps, or dysmenorrhea, are a common symptom associated with the menstrual cycle, characterized by painful menstruation that can affect daily life. Primary dysmenorrhea typically begins during adolescence and may decrease with age.

(Shrivastav et al., 2022)

1.2 Nutrition and menstrual cycle

Nutrition plays a crucial role in maintaining the overall health and well-being of an individual. It is one of the most basic requirements for maintaining good health and promoting well-being, thereby influencing the quality of life of an individual .

(Chandrakumari, 2009).

The menstrual cycle is a vital indicator of health and well- being in women, and its regularity and characteristics can be influenced by various factors, including nutritional status, dietary patterns, and lifestyle choices. Menstruation is a normal consequence of hormonal changes in a woman's body and is significantly affected by dietary habits. Menstrual health is influenced by food habits, which can lead to various menstrual disorders.

(Amgain, 2019)

1.3 Nutritional status and menstrual cycle

Assessing nutritional status by using anthropometric measurements (BMI) and the menstrual cycle involves a comprehensive approach. The study also found a correlation between nutritional status and menstrual regularity The results showed that underweight nutritional status was associated with irregular menstruation, while normal nutritional status was associated with regular menstruation.

(Ratriana Nur Rahmawati,2019)

1.4 Food habits during the menstrual cycle

The menstrual health of college-going girls is significantly influenced by their dietary habits and body mass index (BMI). Studies have shown that excessive intake of junk and fast food, as well as a non-vegetarian diet, are associated with menstrual problems such as dysmenorrhea and irregular menstrual cycles. Additionally, skipping meals and having poor eating habits are also linked to menstrual disorders. For instance, a study found that 68.6% of participants who consumed fast food regularly experienced menstrual problems, and 91.6% of those who skipped meals had menstrual issues .

(Amgain, 2019);(Dharma Muthu Meenakshi,2021)

MATERIALS AND METHODS:

Methodology plays a crucial role in any research study, providing the researcher with a detailed plan or framework for the research being conducted. The present study titled **"ASSESSMENT OF NUTRITIONAL STATUS AND FOOD HABITS DURING MENSTRUAL CYCLE OF COLLEGE GOING GIRLS"** was conducted among college- going adults females of age 18-25 years old to evaluate the nutritional status, menstrual profile, dietary patterns, food cravings, and hygiene during the menstrual cycle.

Research design: Non- experimental design

Research approach: Mixed approach. Qualitative and quantitative Methodology

Place of study : The study was conducted to identify how mensuration hygiene practices among undergraduate (UG) and postgraduate (PG) female students in the Telangana Mahila Vishwavidyalayam.

Sample size: The sample size included 100.

Sample type: was random sampling

Criteria for selecting the sample

Inclusive criteria :

• Female students who are currently enrolled in undergraduate (UG) or postgraduate (PG) programs.

• Respondent must be actively pursuing their studies at the time of the research.

• Students residing among TMV students both undergraduate and postgraduate female students.

Exclusion Criteria:

• Students not enrolled at Telangana Mahila Vishwavidyalayam

• All graduates and passed-out students

• Individuals who opted not to participate were excluded.

Tools and Techniques:

A well-structured questionnaire was developed and distributed both offline and online. The online version was created using Google Forms. The questionnaire was designed to align with the study's objectives**.**The types of questionnaires included were both close-ended/ dichotomous(yes/ no) and open-ended. The assessment questionnaire included general information, anthropometric measurements, Information on the menstrual cycle, dietary information – dietary habits and food cravings, and hygiene practices during the mensuration cycle.

General information:

The general information was collected to get the following details like personal information of the respondents i.e., name, age, education qualification, and place of residence.

Anthropometric information:

The measurements of height and weight were taken and BMI(body mass index) was calculated by using the measurements.

Information on the menstrual cycle:

The menstrual profile, and menstrual irregularities questionnaire were included.

Dietary information:

To know their dietary habits, questions about their dietary preferences, number of meals, snacks, consumption of fruits, vegetables, milk, meat, junk food, and cravings during the menstrual cycle were included.

Hygiene information:

The hygiene practices followed during the menstrual cycle, the type of products used during the menstrual cycle, and special practices followed during the menstrual cycle were included

Calculation and classification of BMI:

The BMI is determined by dividing weight (w) in kilograms by the square of height (h) in meters, using the formula: BMI = weight / (height)². According to WHO standards, BMI categories include underweight, normal weight, overweight, and obese

The classification is as follows:

Table:1 classification of BMI

Category	Range (kg/m²)
Underweight	<18.5
Normal weight	18.5-24.9
Overweight	25-29.9
Obese	≥30

Statistical analysis:

The data gathered from the questionnaire was compiled and analyzed using calculated percentages, frequencies, and the chi-square test as a statistical technique.

Statistical analysis was done using:

- MS EXCEL.
- SPSS

Chi-square test:

The chi-square test helps to determine whether there is a notable difference between normal frequency and the observed frequencies in one or more classes.

The formula of chi-square test is:

$$x^2 = \sum_i \frac{(O_i - E_i)^2}{E_i}$$

Where,

X^2 = chi-square test

O_i = Observed value

E_i = Expected value

*p-value of ≤ 0.05 was kept significant for above analysis.

RESULTS AND DISCUSSION:

The study revealed that 41% of the participants were pursuing were pursuing graduation and 59% of the participants were pursuing post-graduation are among the age group of 18-25 years old college going girls.

Table 2: Body Mass Index (BMI) of respondents.

| BMI classification	BMI	Percentage(%)
Under weight	<18.5	17
Normal weight	18.5-24.9	**64**
Over weight	25-29.9	14
Obese	≥30	5

The above table represents the Body Mass Index (BMI) distribution of respondents. The data reported that 17% of respondents were underweight, 64% were normal weight, 14% of respondents were overweight, and 5% of respondents fell in the obese category.

Table 3: Menstrual Profile

Interval Duration of menstrual cycle	Percentage (%)
Less than 28 days	20
28-31 days	**58**
31-35 days	17
40-45 days	1
Irregular	4
Total	100
Duration of Menstrual Flow	**Percentage**
10-14 days	1
3-5 days	78
7-10 days	21
Total	100
Presence of discomfort	**Percentage**
Yes	**70**
No	24
Sometimes	6
Total	100
Symptoms	**Frequency**
Stomach cramps	16
Leg and back pain	18
Mood swings	3
All the above	**58**
Total	95
Presence of Menstrual irregularity	**Percentage**
Yes	**73**
No	27
Frequency of menstrual irregularity	**Percentage**
Very often	20
Often	14
Sometimes	**39**
Rarely	27
Total	100

The table presents data on menstrual cycle characteristics, showing that most participants (58%) have cycles of 28-31 days, with 78% experiencing a menstrual flow of 3-5 days. Common symptoms include a combination of stomach cramps, leg and back pain, and mood swings, reported by 58%. The majority of respondents (70%) affirm certain behaviors, and symptoms are most frequently experienced "Sometimes" (39%). The data highlight variations in menstrual experiences among participants.

Figure 4: Dietary Choices of Participants

food preference

■ non-vegetarian ■ vegan ■ vegetarian

13%
1%
86%
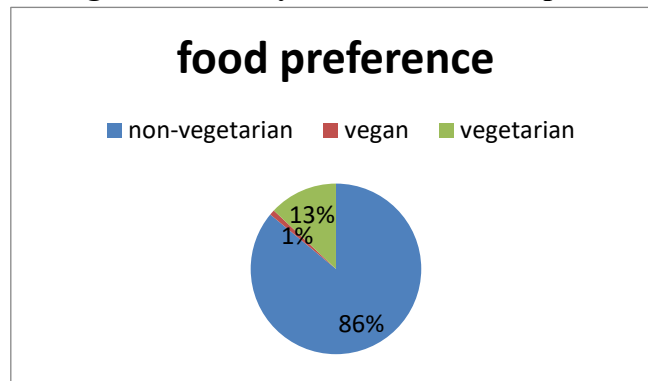
According to the figure 4, 86% of respondents are non-vegetarian, 13% are vegetarian and 1% are vegan.

Table 5: Patterns and Duration of Menstrual Cravings

presence of cravings		
Yes	**Sometimes**	**No**
61%	23%	16%
	⬇	
When does it start		
2-3 days prior to menstrual cycle	**After menstrual cycle**	**During menstrual cycle**
32	1	**51**
Type of cravings		
Most foods craved	**Frequency**	**Percentage**
Sugary foods	31	36.90
Salty foods	1	1.19
Deep fried foods	6	7.14
Spicy foods	14	16.67
All the above	**32**	**38.09**
Total	84	100
How long does cravings last		
Duration of cravings	**Frequency**	**Percentage**
1-2 days	**36**	**42.85**
2-4 days	17	20.23

4 days or more	11	13.09
Less than one day	20	23.80
Total	**84**	**100**

The table:5 provides a comprehensive overview of cravings experienced during the menstrual cycle. It reveals that 61% of people experience cravings during their cycle, 23% occasionally, and 16% never. Most cravings start during the cycle itself, with some beginning 2-3 days before. Sugary foods are most commonly craved (36.90%), followed by a mix of sugary, salty, deep-fried, and spicy foods (38.09%). Spicy foods (16.67%), deep-fried foods (7.14%), and salty foods (1.19%) are also noted. Cravings generally last 1-2 days for 42.85% of respondents, with 23.80% experiencing them for less than one day, 20.23% for 2-4 days, and 13.09% for more than 4 days. This data shows that cravings are common during menstruation and vary in type and duration.

Table 6: Appetite Changes During the Menstrual Cycle

Appetite changes during menstrual cycle	
Yes	**No**
70%	30%
Eat more	**Eat less**
78.60%	21.40%

Table 6 represents the changes in respondents' appetites during their menstrual cycles. It reveals that 70% of people notice a difference in their appetite during this time, while 30% don't see any change. For those who do experience changes, most (78.60%) find themselves eating more food than usual. On the other hand, 21.40% of people eat less food during their menstrual cycle. Hence, most people tend to eat more when they have their period, but some might eat less..

Table: 7 Food preferences during menstrual cycle.

Foods consumed during menstrual cycle	Percentage
Home-made meals	50%
junk foods	50%

Table 7 shows that 50% of respondents preferred homemade meals whereas 50% preferred junk food.

Conclusion

The study on assessment of nutritional status and food habits during the menstrual cycle of college-going girls revealed that most participants had a normal BMI, with 17% underweight, 14% overweight, and 5% obese. Menstrual cycles were typically 28-31 days long, with flows lasting 3-5 days. Common symptoms included stomach cramps, leg and back pain, and mood swings, reported by 58% of participants. Dietary preferences showed 86% were non-vegetarian, 13% vegetarian, and 1% vegan. Cravings affected 61% of participants, with sugary foods craved most. Cravings lasted 1-2 days for

42.85% of respondents. Appetite changes were noted by 70% of participants, with 78.60% eating more and 21.40% eating less.

REFERENCES

1. Srivastava P,Varoda A, Venugopal R (2016), Menstrual Cycle Pattern Among Adolescent School Girls in Chhattisgarh, *International Journal of Indian Psychology* 3(3) 10.
2. Shrivastav S, Tyagi R, Singh M, Jha S, (2022) The effectiveness of Curcumin on dysmenorrhea. *International journal of medical sciences pharma research* 8(4)8-12.
3. Abilash Sasidharan nair, Chandrakumari, Pammy Sinha, Shreelakshmidevi Singaravelu, S.Jaikumar, Prevalance of anemia(2019) Among adolescent girls in a rural area of Tamil Nadu, India, *Journal of Family Medicine and Primary Care,* Published by Wolters Kluwe8(4) 1414 – 1417.
4. Amgain, K., & Neupane, S. (2019). Effect of BMI and food habits on menstrual characteristics among adolescent girls. *Europasian Journal of Medical Sciences*, Volume(1)
5. Rahmawati, R. N., & Estri, B. A. (2019). Correlation between nutritional status and menstrual regularity among students of Pajangan 1 Bantul Senior High School. 1st International Respati Health Conference (IRHC).84-89
6. Muthu Meenakshi.MR, Indirani. K, Jenifer Vaseeharan and Krithika. (2021). Assessment of food and dietary pattern of college going girls(18-21 years) during menstrual cycle-coimbatore. *International journal of multidisciplinary education research*(10).