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To Study The Effect Of Premenstrual Syndrome And Assessment Of Nutritional Status & Intake Amoung Young Females

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ABSTRACT

Menstruation is an essential aspect of women lives. It is the first step towards motherhood. At this moment, many hormonal changes also take place in the body. The onset of menstruation indicates that a girl has crossed the biological threshold and entered puberty. PMS is a series of emotional, physical and psychological symptoms that begin during a woman's ovulation and usually terminate with the start of menstrual flow. Premenstrual signs are experienced by approximately 73% of women (Steiner&Pearlstein, 2000) and upto 40% experience symptoms severe enough to affect daily life.The study is conducted in the Meerut city of uttar pradesh indicates that lack of energy (72%), sleep disturbance (70%) and decreased interest in work activities(67%) are the common PMS symptoms that occur more often among the respondents. The average daily intake of different nutrients among the Group A(diet during normal days), Group B(diet during PMS days) shoes some varitaions when compared with RDA ICMR(2020). The variations in nutrients intake between the two groups highlight the potential difference in dietary pattern and sources of different nutrients. It is impotant to note that the consumption of fat for both the groups is less because of low intake of fried foods, snacks, less of oil to be used in cooking.

Key Words: Biological threshold, Dietary pattern, Menstruation, , Ovulation, Psychological symptoms, Puberty.

INTRODUCTION

Menstruation is an essential aspect of women lives. It is the first step towards motherhood. At this moment, many hormonal changes also take place in the body. The onset of menstruation indicates that a girl has crossed the biological threshold and entered puberty. Menarche or the onset of menstruation happens when the female becomes physically and sexually mature during her adolescence and enters the stage of puberty. Menstrual period should become come regularly every 28 days and lasts 3-4 days without clotting of blood. The menstrual cycle is synchronized by the complex interaction of four hormones i.e., estrogen, progestrone, follicule stimulating hormone (FSH), luteinizing hormone(LH). PMS is a collection of physical & psychological symptoms that occur during the luteal phase of the menstrual cycle and remit with or soon after the onset of menses. Psychological symptoms include irritability, nervousness, anger, insomnia, difficulty in concentration, lethargy, depression, fatigue, anxiety, confusion, mood swings, forgetfulness, and sleep disturbances. Psychological factors including perceived stress, tobacco consumption (Fernandez et al.,2019), neuroticism, and coping strategies (negative cognitive styles) are strongly related to PMS/PMDD (Del Mar Fernandez et al.,2019). Respiratory, gastrointestinal, and skin problems including acne and skin inflammation with itching can also be seen. Neurological & vascular symptoms include headache, faintness, numbness, prickling, tingling, and heart palpitations. Premenstrual syndrome (PMS) is one of the most widespread disorders in reproductive age, negatively impacting women's emotions, and performance (Zendehdel & Elyasi, 2018). Although the first symptoms, similar to PMS, were described as early as Hippocrates, the diagnostic criteria were specified more recently. Mainly due to the heterogeneity of menstrual symptoms, definitions have varied substantially over the years, evolving from "menstrual moods," "premenstrual tension," to "PMS" (. Chocano et al.,2022; King S, 2020).

PMS can be treated with medications, dietary changes, nutritional supplements, incorporating exercise into a daily routine, reducing stress, and the use of herbs. Eat complex carbohydrate such as whole grain bread, pasta & cereals. Cut back on sugar & fat because a diet high in saturated and trans-fats is implicated in making the symptoms worse. Increasing fruits & vegetables help to increase essential mineral & vitamin intake. To minimize bloating and fluid retention, avoid salt before your period. Eliminate alcohol from the diet because alcoholics are believed to suffer more. There are also a number of dietary supplements that claim to help with pain relief, often with fewer side effects than conventional therapies like calcium, magnesium, vitamin B6, vitamin E zinc, some multivitamin and mineral supplement, soy products, and omega 3 oils. Menstrual symptoms like PMS have long been treated with herbal preparations. More than 80% of women experience severe period pain, and the right nutrients can help significantly. Several herbs are inexpensive and readily available, and they will save your life like fennel seeds, cinnamon and ginger roots.

OBJECTIVES

- To study the prevalence of premenstrual syndrome and its symptoms
- To assess the nutritional status of respondents in normal days and PMS days
- To comapre the nutritional status and intake with RDA for given population

METHODOLOGY

Locale of Investigation - The study was conducted in Meerut city of Uttar Pradesh. Sample was consisted of Approx. 100 females both working & non-working. Respondent's dietary recall will be taken in normal days considered as group A & dietary recall in premenstrual days will be considered as group B. The method of convenient sampling were adopted.
Sample Selection - In the present study, the main criterion for the sample selection is the age of respondents which is kept 18-40 years. Age & sex used be a constant factor. The selection of sample was done on convenient random sampling basis.
Method Used for Survey - data were collected by questionnaire-cum-interview & discussion method comprising of structured & some open-ended questions.

- **General Information -** General information includes questions regarding age, height, weight, waist circumference & hip circumference, hemoglobin level educational qualification, job status, marital status & type of family.
- **Information Regarding Reproductive Cycle -** This part included questions regarding onset of menstruation, duration of menstruation, menstrual syndrome changes, age at marriage, number of children, family history & premenstrual changes.
- **Physical Activity -** Questions on the daily routine exercise schedule & type of exercise done by the respondents & its duration in hours were asked.
- **Dietary Pattern & Food Habits -** This part were included questions regarding the food choices, food preferences & type of food consumed by the respondents.
- **Actual Dietary Intake -** Information will be collected regarding the actual dietary intake of the subjects. For quantitative dietary intake, 24 hours recall method were used. The subjects were interviewed for 3 days in a week in which they were asked questions regarding the type & amount of food eaten on the previous day. The nutrient intake of the subjects were assessed by the records taken on the tables containing detailed food intake.

Calculation Of The Nutritive Value - A 3 days menu will be obtained from each respondent which will be converted to raw ingredients. The nutritive value of the raw ingredients will be computed from "Nutritive value of Indian Foods" by B.S. Narsinga Rao, Deosthale and K.C. Pant (2023 Edition). Thus, the nutrient intake per day, per subject were obtained. Then the mean consumption score for each nutrient, for the entire sample were computed. The actual average were then compared with the recommended dietary allowances.

Collection of Data

- **Classification -** Complex, scattered, haphazard data in the concise, logical & intelligent form were explained well. In order to clarify & emphasize points of similarity & dissimilarity in the data obtained classification is used.
- **Coding -** To save time & space and easier to sort out the data & tabulate the information usage of coding were organized into classes & a number or symbol is given to each item according to the class in which it falls.
- **Tabulation of Data -** After the data is classified, the data were arranged in the form of tables.

Statistical Analysis of The Data - Statistics which were used to analyze the responses was mean, percentage, standard deviation & students 't' test to find out the significance of differences between the 2 means.

RESULTS AND DISCUSSION

A substantial number of women undergo diverse and sometimes discomforting symptoms during their menstrual cycles. While some experience brief and manageable discomfort, others contend with a broader array of symptoms that temporarily disrupt their routine functioning. This study delves into premenstrual syndrome, focusing on a sample of a hundred women. The research explores and discusses various results obtained from this sample, shedding light on the prevalence, types, and intensity of symptoms experienced. Table 1, delves into various symptoms of Premenstrual Syndrome (PMS). It's evident that 55 percent of respondents often exhibited mood swings, whereas 10 percent reported never experiencing them. A study in the United States in 2003 found that 79 percent of women reported emotional changes like mood swings, irritability, anger, and depression during PMS.
Regarding tension, 51 percent of respondents often felt it, while 28 percent experienced it sometimes. A substantial 67 percent often had decreased interest in work activities, and 38 percent often had decreased interest in social activities. Additionally, 22 percent often experienced depression, while a significant majority, 62 percent, never had it. These findings provide a detailed picture of the prevalence and variability in emotional and psychological symptoms experienced

by the surveyed individuals during the premenstrual period. Harinder Singh's 2004 research emphasized a significant link between Premenstrual Syndrome (PMS) and behavioral alterations, recognizing depression, aggression, and irritability as highly common symptoms.

In line with this, the table shows that a majority of respondents, 55 percent, often complained of vaginal fluid, with 13 percent experiencing it sometimes. Notably, 47 percent of women expressed a lack of interest in sex during the premenstrual period. Suicidal tendencies were reported by only 6 percent, with the majority (71 percent) never experiencing such thoughts. Dalton's 1995 findings indicated that a substantial proportion of psychiatric admissions and attempted suicides occurred during menstruation or pre-menstruation.

Sleep disturbances were prevalent, with 70 percent often experiencing them, and 43 percent having a lack of sleep during PMS. Breast tenderness was reported by 56 percent of respondents often, 18 percent sometimes, and 20 percent never. These results underscore the varied and impactful nature of symptoms associated with PMS, shedding light on their prevalence and potential psychological implications.

Table 1: Distribution on the basis of symptoms of premenstrual syndrome (N=100)

S.No.	Symptoms	Often	Sometimes	Rarely	Never
1.	Mood swings	55	27	8	10
2.	Tension	51	28	11	10
3.	Decreased interest in work activities	67	12	4	17
4.	Decreased interest in social activities	38	18	13	31
5.	Difficulty in concentration	15	13	9	63
6.	Lack of energy	72	5	4	19
7.	Irritability	61	8	3	28
8.	Depression	22	6	10	62
9.	Vaginal fluid	55	13	8	24
10.	Severe fatigue	68	10	1	21
11.	Food craving	41	5	12	42
12.	Overeating	22	--	2	76
13.	Lack of appetite	46	3	4	47
14.	Inability to sleep	43	5	2	50
15	Lack of interest in sex	27	17	9	47
16.	Suicidal tendencies	6	6	17	71
17.	Sleep disturbances	70	5	30	22
18.	Breast tenderness	56	18	6	20

Dietary nutrients are consumed by the body to provide energy and structural material needed for growth, maintenance and repair of body tissues. The intake of all the essential nutrients in the form of a balanced diet brings health benefits for the present and also for the future. The nutrient intake of the respondents of both the groups i.e. group A and B discussed below: Group A= diet during normal days

Group B= diet during PMS days

Calories: Table 2, indicates that the average actual daily caloric intake of group A exceeded the recommended daily allowance (RDA), amounting to 1919.89 Kcal. On the other hand, group B had an average actual daily caloric intake of 1645.76 Kcal, which was below the RDA of 1875 Kcal.

The primary sources of calories in the diet for both groups were identified as sweets, chocolates, and a high consumption of tea and coffee. This information underscores potential variations in dietary habits and calorie intake between the two groups.

Table 2: Average Actual Daily Intake of Calories

Age Group	**RDA**	**Avg.Act Daily intake**	**Diff**	**S.D.**	**t'value**
(18-40yrs)		**(Kcal)**			

Group A

Normal	1875	1919.79	44.79	+63.38	4.998***
Days		**Group B**			
PMS Days	1875	1645.76	-229.2	+136.44	-11.88***

* Values are non-significant Kcal = Avg. actual daily intake
**Significant at 0.05 level Diff = Difference
***Significant at 0.00level S.D = Standard Deviation

Protein: Table 3: indicates that the average actual daily protein intake for respondents in group B was below the recommended daily allowance (RDA), with a value of 42.7 grams compared to the RDA of 50 grams. In contrast, the protein intake for respondents in group A was nearly equal to the RDA, with an average actual daily intake of 50.5 grams. The primary sources of protein identified by the respondents were cereals, pulses, milk, eggs, and chicken. Additionally, some respondents mentioned an increased intake of soya products, which are known sources of protein. The variations in protein intake between the two groups highlight potential differences in dietary patterns and protein sources.

Table 3: Average Actual Daily intake of Protein

Age group 18-40 years	**% contribution to**			**RDA**	**Avg. Act. Daily intake**	**Diff.**	**S.d**	**T'value**
	calories RDA	**Actual**	**Diff.**					
(gm) GROUP A								
Normal	8-10	10.77	1.77	50	50.57	0.57	±2.67	1.506***
Days								
GROUP B								
PMS Days	8-10	9.1	0.1	50	42.71	-7.28	±2.05	-25.04***

Fat: It was observed that the average actual daily intake of fat was less than the RDA for both groups. Group A consumed 38.8 gm of fat and group B consumed 33.9 gm/day as against RDA of 40gms/day Table 4.
The consumption of fat for both the groups is less because of the low intake of fried foods, snacks, less of oil to be used in cooking.

Table 4: Average Actual Daily intake of FAT

e group 18-40 years	**% contribution to**			**RDA**	**Avg. Act. Daily intake**	**Diff.**	**S.d**	**T'value**
	calories RDA	**Actual**	**Diff.**					
(gm) GROUP - A								
Normal	8-10	18.6	-.39	50	38.84	-1.15	±2.41	-
Days 3.39***								

GROUP - B

PMS Days	8-10	16.2	-6.3	50	33.94	-6.05	±2.69	-15.87***

Carbohydrate: Table 5, reveals that the average actual daily intake of carbohydrates for both groups (A and B) was higher than the recommended dietary allowances (RDA). Among the respondents of group A, the average daily intake was 445.8 grams, while among those in group B, it was 356.4 grams. The RDA for carbohydrates is 348.12 grams per day.

Interestingly, the average actual daily intake of carbohydrates for group B was slightly higher than the RDA, indicating that this group consumed a relatively high amount of carbohydrates compared to the recommended levels.

Table 5: Average Actual Daily intake of CARBOHYDRATE

Age group 18-40 years	**% contribution to calories**			**RDA**	**Avg. Act. Daily intake**	**Diff.**	**S.d**	**T'value**
	RDA	**Actual**	**Diff.**					
(gm) GROUP - A								
Normal Days	60-65	94.1	32.6	348.12	445.83	97.71	±43.51	15.87***
GROUP - B								
PMS Days	60-65	76.03	13.53	348.12	356.41	8.29	±35.13	1.66***

Calcium: Table 6, indicates that the average actual daily intake of calcium for both groups (A and B) was 785.5 mg and 660.9 mg, respectively, surpassing the recommended dietary allowance (RDA) of 400 mg/day. This suggests that respondents in both groups consumed higher amounts of calcium, primarily through milk and calcium supplements.

Table 6: Average Actual Daly intake of Calcium

Age Group	**RDA**	**Avg. Act Daily intake (mg)**	**Diff**	**S.D.**	**t'value**
Group A					
Normal Days	400	785.5467	385.54	+176.46	15.44
Group B					
PMS Days	400	660.91.29	260.91	+123.36	14.95

Iron: Table 7, highlights that the average actual daily intake of iron for both groups (A and B) was 28.9 mg/day and 25.3 mg/day, respectively. These values fall slightly below the recommended dietary allowance (RDA) of 30 mg/day. Adequate iron intake is crucial for maintaining hemoglobin levels, impacting work efficiency and overall well-being. The lower iron intake observed in both groups could be attributed to insufficient consumption of green leafy vegetables and other iron-rich foods. This suggests a potential area for improvement in dietary habits to ensure optimal iron levels.

Table 7: Average Actual Daily intake of Iron

Age Group	RDA	Avg. Act Daily intake (mg)	Diff	S.D.	t'value
GROUP A					
Normal Days	30	28.94	-1.05	+2.13	-3.50***
GROUP B					
PMS Days	30	25.36	-4.63	+1.49	-21.86***

Fibre: Table 8, highlights that the average actual daily intake of fiber for both groups (A and B) was below the recommended value of 40 gm/day. Specifically, respondents in group A had an average daily fiber intake of 32.7 gm/day, while those in group B consumed only 16.89 gm/day. The lower fiber intake in both groups, particularly in group B, may contribute to the reported issue of constipation during premenstrual days. The decreased consumption of fruits, a significant source of fiber, appears to be a contributing factor to the observed lower fiber intake. Encouraging a higher intake of fiber-rich foods could be beneficial in addressing this nutritional gap.

Table 8: Average Actual Daily intake of Fibre

Age Group	RDA	Avg. Act Daily intake (mg)	Diff	S.D.	t'value
GROUP A					
Normal Days	40	32.7621	-7.23793	+5.57480	-9.181***
GROUP B					
PMS Days	40	16.8907	-23.10927	+1.57997	-103.424***

VITAMIN C: The average actual daily intake of vitamin C in both groups (A and B) was observed to be higher than the recommended value of 40 mg/day. Specifically, group A had an average daily intake of 42.9 mg/day, slightly exceeding the RDA, while group B had an intake of 37.2 mg/day.
The primary sources of vitamin C are citrus fruits such as lemon, tomato, orange, and pineapple, among others. Amla is a stable source of vitamin C. The observations suggest that respondents in group B may not be maintaining a balanced diet, potentially exacerbating PMS symptoms.

Table 9: Average Actual Daily intake of VITAMIN C

Age Group	RDA	Avg. Act Daily intake (mg)	Diff	S.D.	t'value
GROUP A					
Normal Days	40	42.9506	2.95060	+1.73417	12.031***
GROUP B					
PMS Days	40	37.2259	-2.77407	+1.49101	-13.156***

SUMMARY AND CONCLUSION

The menstrual cycle is a natural part of a woman's life, signifying the onset of puberty.
Changes in the length, frequency, and flow of periods can occur. Premenstrual Syndrome (PMS) is a collection of symptoms associated with the menstrual cycle, typically occurring in the week or two weeks before menstruation. The data for this study was collected in the Meerut region using a random sampling method. The questionnaire cum interview method was employed for data collection. The information gathered covered various aspects related to symptoms and dietary changes. This comprehensive data collection aims to provide insights into the diverse factors influencing women's experiences with menstruation and premenstrual symptoms. Symptoms of PMS depicted that 55% of the sample experienced mood swings while 51% were often tense. 67% showed decreased interest in work activities while 38% often lost interest in social activities. 72 % of the subjects were often suffering from lack of energy and 61% of the respondents were often suffering from irritability. Majority of them (55%) were often complaining of vaginal fluid, 68% of fatigue, and 56% of breast tenderness. 41% had developed food cravings and 46% often had a lack of appetite.

The energy intake of group A was 1919.89 Kcal which was higher than the RDA i.e. 1875 Kcal and the intake of group B was 1645.76 Kcal which was lower than the RDA. The average daily intake of protein was less than the RDA (50gm/day) of the respondents of group B (42.7gm/day) while the intake of respondents of group A (50.5 gm/day) was slightly higher than the RDA. The average daily intake of fat by group A was 38.8 gm and by group, B was 33.9 gm as against the RDA of 40 gm/day. The intake of carbohydrates by all the respondents of group A and group B was above the recommended value i.e. 445.8 gm and 356.4 gm against RDA of 348.12gm respectively. The average daily intake of calcium was higher in both groups, particularly in group A. Calcium is a crucial mineral for bone growth, mineralization, and increasing bone mass, particularly important during adolescence. The elevated intake observed in both groups indicates a positive dietary practice in terms of calcium consumption. In the case of iron the intakes were 28.9 mg and 25.3 mg as against the RDA of 30 mg. The intake of fibre among the respondents was 32.7 gm/day and 16.89gm/day against the RDA 40gm. The intake of vitamin C was 42.9
mg and 37.2 mg/day as compared to 40 mg/day i.e. RDA. It's important to note that only 50% of vitamin C can be fully available for the body, and if the consumption of vitamin C is less than the RDA, it may hinder the absorption of iron, leading to conditions like anemia.

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