A STUDY ON THE PREVALENCE OF MENSTRUAL DISORDERS (DYSMENORRHEA, PREMENSTRUAL SYNDROME AND PCOS/PCOD) AMONG YOUNG WOMEN (20-30 YRS) OF TELANGANA

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Abstract

Background: An essential part of women's reproductive and sexual health is menstrual health [1]. Menstrual disorders are very common and has a considerable effect on female mental health and reproductive ability [2].

Aim: A study on the prevalence of menstrual disorders (Dysmenorrhea, Premenstrual syndrome and PCOS/PCOD) among young women (20-30 yrs) of Telangana, India.

Material and Methods:To determine the prevalence of menstrual disorders [Dysmenorrhea, PMS and PCOS] among non-pregnant non-lactating women aged 20-30 yrs a cross-sectional survey was conducted. A total of 200 participants were selected using randomised sampling design and the google form was shared through whatsapp and emails in light of corona Pandemic.

Results:Overall prevalence of above-mentioned menstrual disorders was found to be 56%. 16.5% (n=33) of the respondents were suffering from dysmenorrhea, 22% (n=44) of the respondents were suffering from premenstrual syndrome, 5% (n=10) of the respondents were suffering from PCOS/PCOD, 10% (n=20) of the respondents were suffering from dysmenorrhea & PMS, 1% (n=2) were suffering from PMS & PCOS, 1.5% (n=3) were suffering from all three mentioned menstrual disorders and 44% (n=88) of the respondents were not suffering from any of the mentioned disorders.

Keywords: Dysmenorrhea, Menstrual disorders, PCOS, Premenstrual Syndrome, Prevalence.

Introduction

Psychological health, physical health and quality of life are affected by any changes in the normal menstrual pattern. Reproductive ill health comprising of contraceptive, obstetric and gynaecological morbidity among women, account for 32% of total burden of disease in the world and 12.5% in India. Gynaecological morbidity leads to about 20% loss of healthy life in total years among the reproductive age group, globally. In India, gynaecological morbidity account for 88.64% of reproductive morbidities [1]. Menstruation is a natural occurrence which involves the discharge of blood from the uterus through the vagina and occurs at more or less regular monthly intervals during the reproductive life of females [3].

Dysmenorrhea

A severe painful cramping sensation in lower abdomen that is often followed by other symptoms such as headaches, nausea, diarrhea, vomiting and tremulousness, all of which take place just before or during menses is termed as dysmenorrhea or painful menstruation [4].

Dysmenorrhoea is classified as primary dysmenorrhoea and secondary dysmenorrhoea [5].

Primary dysmenorrhea without pelvic pathology, is a common, and often disabling, obstetrical condition that affects between 45 and 95% of menstruating women [6].

In most population, incidence of severe pain during menstrual cycle constitutes 3-20 %. Different states of India reports prevalence rate to be as follows: Delhi 63.75% and Chennai 61% and prevalence rates are as high as 71 to 93% in certain regions [7].

Young women aged 17 -24 years showed a greater prevalence of dysmenorrhea with estimates ranging from 67% to 90% [4].

Premenstrual syndrome

The physical, affective, cognitive and behavioural symptoms that take place periodically during the luteal phase of the menstrual cycle and solve quickly at or within a few days (7 to 14 days) of the onset of menstruation is described as premenstrual syndrome [8].

The physical symptoms include breast tenderness or swelling; weight gain due to fluid retention; abdominal bloating; fatigue; dizziness; acne or worsening of an existing skin disorders; nausea and vomiting; muscle aches; pelvic heaviness; constipation; appetite

change; backache and headache. The emotional symptoms are: insomnia; sadness; irritability; tension; anxiety; restlessness; loneliness and food cravings. There are also behavioural symptoms such as: difficulty concentrating; forgetfulness and social avoidance [9].

Premenstrual syndrome causes several difficulties for women including disability in physical functioning, psychological health and severe disruption in social or professional domain [10].

Some form of PMS is experienced by up to 40% of women of childbearing age but only 5–10% have severe psychological presentations that are generally called premenstrual dysphoric disorder [11].

Polycystic Ovary Syndrome (PCOS)
A common endocrine disorder which commonly affects women of reproductive age group is Polycystic ovary syndrome (PCOS) [12].

PCOS affects 4-6% of adolescent girls and young women [13]. The most common endocrine disorder among women of reproductive age in the developed world, affecting 5–10% of this population is polycystic ovary syndrome (PCOS) [14].

A variety of symptoms such as hirsutism, oligomenorrhea, and obesity, not all of which are necessarily present in any one woman are exhibited by this disorder [14]. Diverse clinical manifestations include anovulation, hyperandrogenism, infertility and increased risk of metabolic diseases besides psychosocial dysfunction [12].

Earlier studies reported varied prevalence ranging between 2.2% to 26%. These variations are due to difficulties in hormonal evaluation and absence of consensus on diagnostic criteria [15].

Objectives
1. To determine the prevalence of menstrual disorders (Dysmenorrhea, Premenstrual syndrome and PCOS/PCOD) among young women (20-30yrs) of Telangana.
2. To find if there is an association between nutritional status (BMI) and these disorders.
3. To find if there is an association between dietary habits and these disorders.
4. To find if there is an association between Physical activity and these disorders.

Review of literature
(Deborah et al, 2017) study showed that there is an increase in the prevalence of menstrual irregularities by 4-fold in students with increased body fat when compared with the normal students [16].

(Kural M, et.al 2015; Unsal, A., et.al 2010) in their study found that family history, bleeding duration,Coffee consumption and presence of clots are significant risk factors for dysmenorrhea [17, 18].

(Mohapatra et al, 2016) in their prospective study found that there is a positive correlation between dysmenorrhea in adolescents and low BMI reflecting poor dietary intake [19].

(Monday I., et.al, 2019) found that Consumption of caffeinated beverages is correlated with dysmenorrhea (p < 0.05) and the study reported dysmenorrhea in a large portion of respondents who consumed high quantities of sugars. They concluded that diet high in sugars might benefit from further research [20].

(MR Akbari et.al, 2017) found higher prevalence of PMS among students with normal BMI. They concluded that the prevalence of premenstrual syndrome is high among medical college students and is directly proportional to age and year of study. PMS was found to be more among students residing in hostels [21].

(Jasjit Kaur Randhawa et al 2016) study showed greater prevalence of menstrual disorders in vegetarian women as compared to non-vegetarian women except for dysmenorrhea a positive association was observed between consumption of junk food and menstrual disorders [22].

(Gupta M et al 2018) study revealed that BMI ≥25 and waist hip ratio ≥0.85 were strongly associated with the presence of PCOS [23].

(Sonal Kulshrestha et.al, 2019) study revealed high strong inverse correlation between physical activity and menstrual disorders including dysmenorrhea, oligomenorrhea and PMS [24].

Methodology
Research design
The research design is cross-sectional questionnaire-based study. The population targeted for the study are non-pregnant non-lactating women in the age-group of 20-30 yrs.

The study began in July 2020 and was completed in December 2020. The entire period of data collection and analysis lasted over a period of 6 months.

Study Sample
A total of 200 respondents were selected using random sampling method. All non-pregnant non-lactating women in the age group of 20-30 yrs were included in the study. Lactating mothers and pregnant women were excluded from the study.

Data Collection
The questionnaire was self-administered and was distributed among the sample in the language english. In view of the COVID 19 pandemic, the data collection was done using Google form platform as an online survey. The link of Google form was posted and circulated using various social media platforms like WhatsApp groups and emails.

Materials
A structured questionnaire was developed by referring studies [7], [18], [25], [26], [27].

Before the beginning of actual research, the developed questionnaire was used for pilot study on 30 respondents for acceptability and the responses of pilot study were also included in final results.

The questionnaire is divided into 8 sections.
Section-I includes consent of participation along with valid email address.
Section II includes questions on socio-demographic information such as age, weight, height, Place or residence, Marital status, Family Income/month etc.,

BMI is calculated by the formula: Weight (kg)/Height (meter) ^{2} and categorised using WHO- Asian BMI classification [28].

Section-III include questions such as age at menarche, regularity and length of menstrual cycle.
Section-IV include questions on dysmenorrhea such as severity of pain, location of pain, duration of pain, first experience of pain, Analgesic used (if any) to relieve menstrual pain, etc., A verbal multidimensional scoring system is used to assess the severity of dysmenorrhea. Based on the pain intensity and its effect on daily activity, symptoms, and the need for analgesics, dysmenorrhea is categorized into four grades: zero (none), 1 (mild), 2 (moderate) or 3 (severe) in verbal multidimensional scoring system [18].
Section- V include questions on Premenstrual syndrome and presence of premenstrual symptoms such as anger, irritability, bloating, constipation, Acne etc., at least 5 days before menstrual period and which gets relieved within the first 5 days of period and that have been present in at least 3 out of the past 6 menstrual cycles. Severity of these symptoms is classified as 0=none,1 = mild, does not interfere with daily activities, 2 = moderate, interferes with daily activities but is not disabling, 3 = severe, interferes with daily activities and is disabling [25].
Section- VI includes questions on PCOS such as age at which they were diagnosed with PCOS, family history of PCOS, type of treatment undergoing [27].
Section- VII includes questions on dietary habits such as vegan, non-vegetarian, lacto-vegetarian, Ovo-vegetarian, Lacto-Ovo-vegetarian, frequency of skipping breakfast and food frequency questionnaire with frequency being Daily, Once a week, 2 times/week, 3-4 times/week, 5-6 times/week, once in month, 2-3 times/month, Rarely and Never.
Section- VIII includes IPAQ short form to assess physical activity. IPAQ short form is used for young and middle-aged adults (15-69 years).

Results and Discussion
The data collected through structured questionnaire was analyzed using SPSS software and MS Excel functions. Chi square test, Anova test and Kruskal-Wallis test has been applied. P value <0.05 was considered statistically significant. MS Excel was used for categorization of data. A few interstate responses were also received and were included in the study.

TABLE I

Parameters	Response n (%)
Age Group (years)	
20-23 years	183 (91.5%)
24-27 years	15 (7.5%)
28-30 years	2 (1%)
Profession	
College Student	171 (85.5%)
Stays at home	15(7.5%)
House wife	6 (3%)
Working women	8 (4%)
Age at menarche	12.88 ± 1.19
Regularity of menstrual cycle	
Normal [regular] cycle - Menstrual cycle in equal intervals between 21 and 35 days.	159 (79%)
Short cycle - Menstrual cycle in interval less than 21 days.	14 (7%)
Long cycle - Menstrual cycle in interval greater than 35 days.	27 (14%)
Length of menstrual cycle	
Normal - Bleeding between 2 and 6 days.	170 (85%)
Short- Bleeding for less than 2 days.	14 (7%)
Long - Bleeding for more than 6 days	16 (8%)
Menstrual Disorders	
Dysmenorrhea	33 (16.5%)
Premenstrual syndrome	44 (22%)
PCOS/PCOD	10 (5%)
Dysmenorrhea & PMS	20 (10%)
PMS & PCOS/PCOD	2 (1%)
Dysmenorrhea, PMS & PCOS/PCOD	3 (1.5%)
None	88 (44%)
Nutritional Status	
Underweight	47 (23.5%)
Normal weight	114 (57%)
Overweight	32 (16%)
Obese I	5 (2.5%)
Obese II	2 (1%)
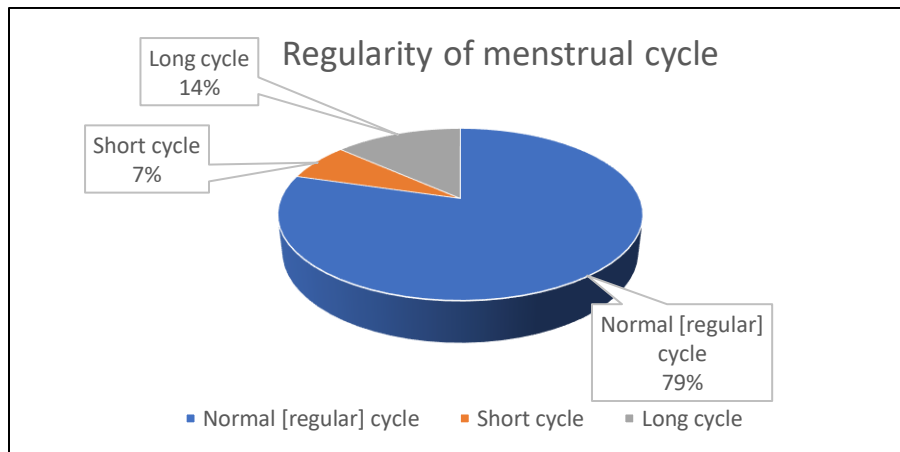
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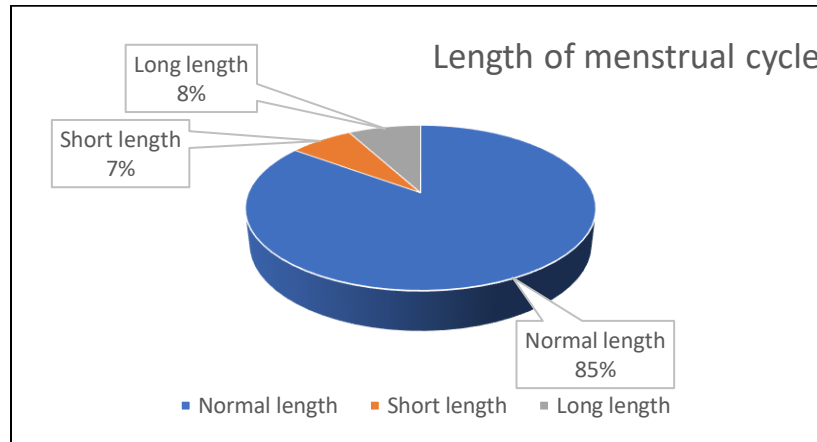
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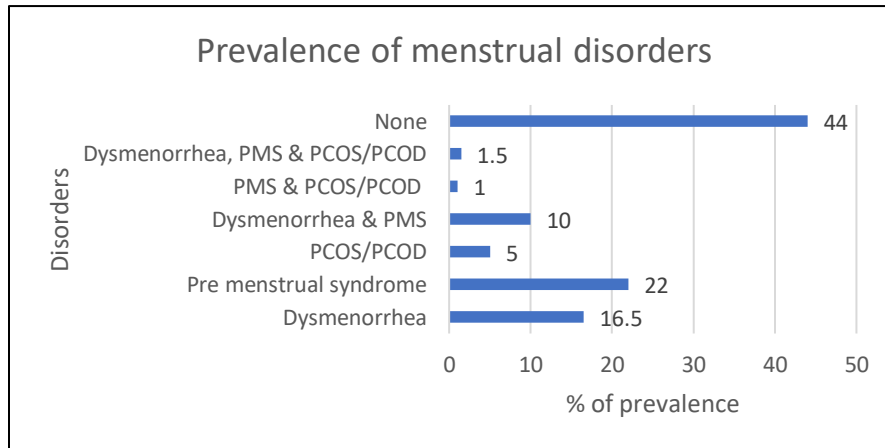
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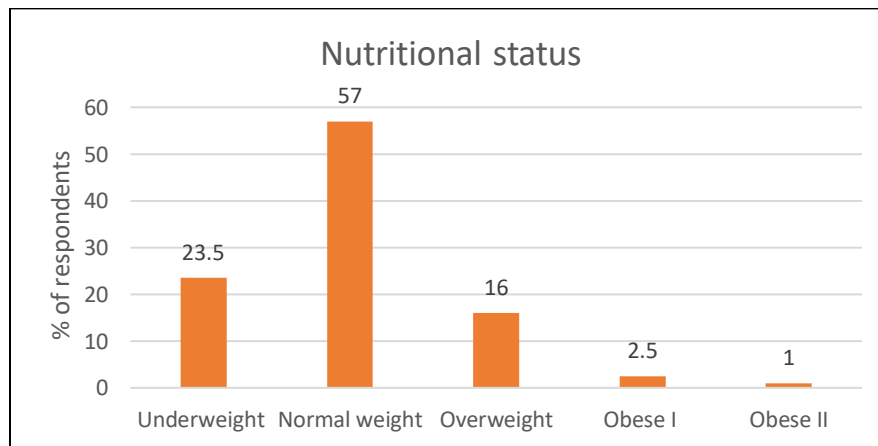
Figure 4

TABLE: II Premenstrual syndrome

Parameters	Response n (%)
Depression	33 (4%)
Angry Outbursts	56 (7%)
Irritability	60 (8%)
Anxiety	43 (6%)

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Confusion	32 (4%)
Social Withdrawal	40 (5%)
Breast tenderness	34 (4%)
Abdominal bloating	53 (7%)
Headache	30 (4%)
Swelling of Extremities	14 (2%)
Decreased interest in my usual activities	54 (7%)
Difficulty concentrating	43 (6%)
Feel easily fatigued	46 (6%)
Lack energy	53 (7%)
Have food cravings (salt, foods high in sugar or chocolate)	55 (7%)
Have trouble sleeping or sleep more than usual	45 (6%)
Feel overwhelmed or out of control	41 (5%)
Acne.	43 (6%)

TABLE III: ANOVA test F and Significance values

Significant Parameters vs Prevalence of Disorders	F	Significance
Age of participants and disorders	0.092	0.985
Age at menarche and disorders	0.245	0.912
BMI and disorders	4.499	0.002 *
Physical activity (MET-min/week total) and disorders	0.642	0.633
*significant at 5% los		

TABLE IV: NUTRITIONAL STATUS VS DISORDERS

Nutritional status	DISORDERS							P- value
	Dysmenorrhea	Dysmenorrhea & PMS	Dysmenorrhea, PMS & PCOS	PMS & PCOS	PCOS/ PCOD	PMS	None	
Obese I	1	0	0	1	1	0	2	
Normal weight	16	9	2	0	5	25	57	
Overweight	3	4	1	0	3	9	12	0.001
Underweight	13	6	0	1	0	10	17	
Obese II	0	1	0	0	1	0	0	

No.of respondents

Figure 5

TABLE V PHYSICAL ACTIVITY VS DISORDERS

Physical	DISORDERS	

activity Level	Dysmen orrhea	Dysmen orrhea& PMS	Dysmenor rhea, PMS & PCOS	None	PMS & PCOS	PCOS/ PCOD	PMS	P-Value
High	8	6	3	31	1	3	11	
Low	12	4	0	24	1	2	16	0.396
Moderate	13	10	0	33	0	5	17	
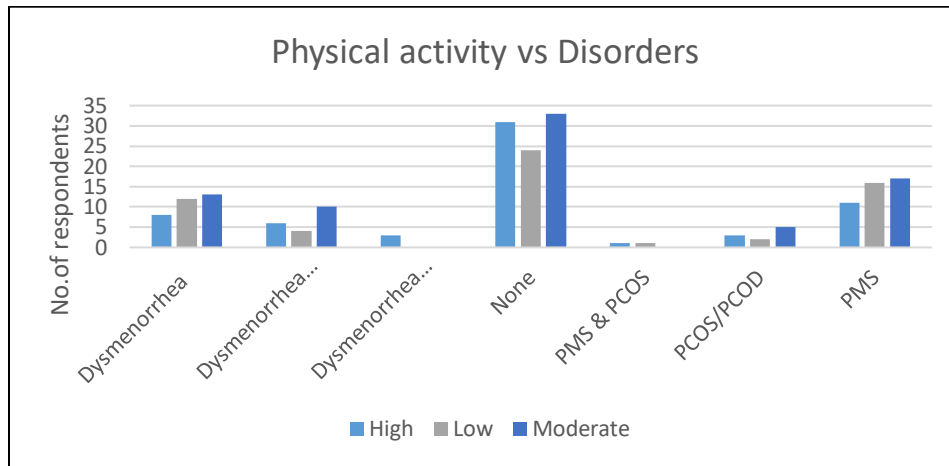
Figure 6

TABLE VI: Test Statistics[a,b]

Significant parameters vs disorders		Chi square	df	Asymp. Sig
Skipping of breakfast and disorders		2.224	4	0.695
dietary habits and disorders	vegan, lacto-vegetarian, Ovo-vegetarian, Lacto-ovo-vegetarian and non-vegetarian	4.532	4	0.339
Green leafy vegetables and disorders	Amaranth	7.153	4	0.128
	Fenugreek	4.482	4	0.345
	Spinach	3.337	4	0.503
	Gogu	1.356	4	0.852
Milk and disorders	Buffalo milk	3.718	4	0.446
	Cow milk	6.098	4	0.192
	Curd	3.663	4	0.454
	Tea	7.820	4	0.098
	Coffee	4.801	4	0.308
Sugars and disorders	White sugar	0.813	4	0.937
	Jaggery	2.735	4	0.603
	Honey	2.885	4	0.577
	Artificial sweeteners	4.761	4	0.313
Junk food and disorders	Carbonated beverages	3.108	4	0.540
	Soft drink	1.586	4	0.811
	Pizza	8.691	4	0.069
	Burger	5.399	4	0.249
	Chips	8.066	4	0.089
	Sweets	4.130	4	0.389
a. Kruskal Wallis Test				
b. Grouping Variable: disease code				
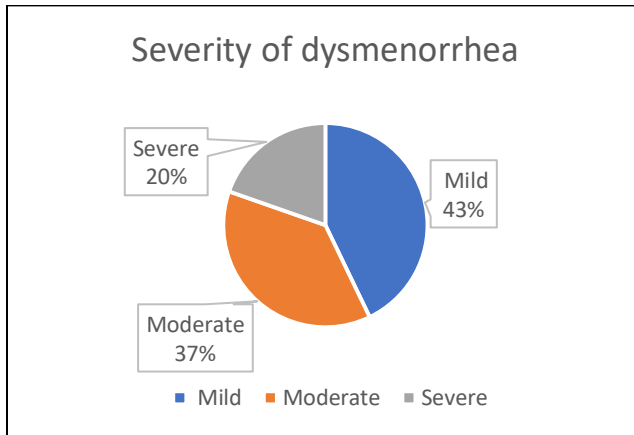
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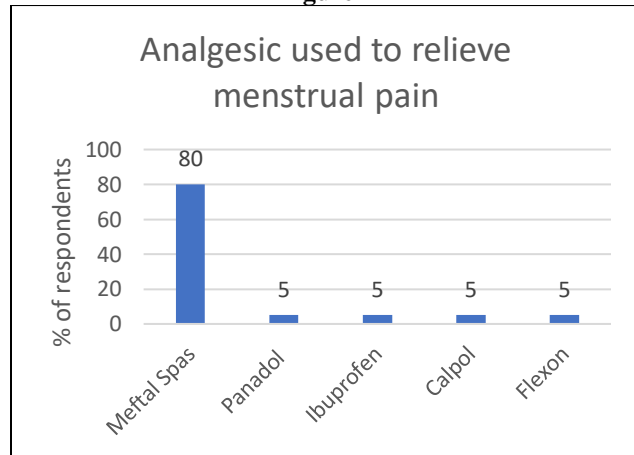
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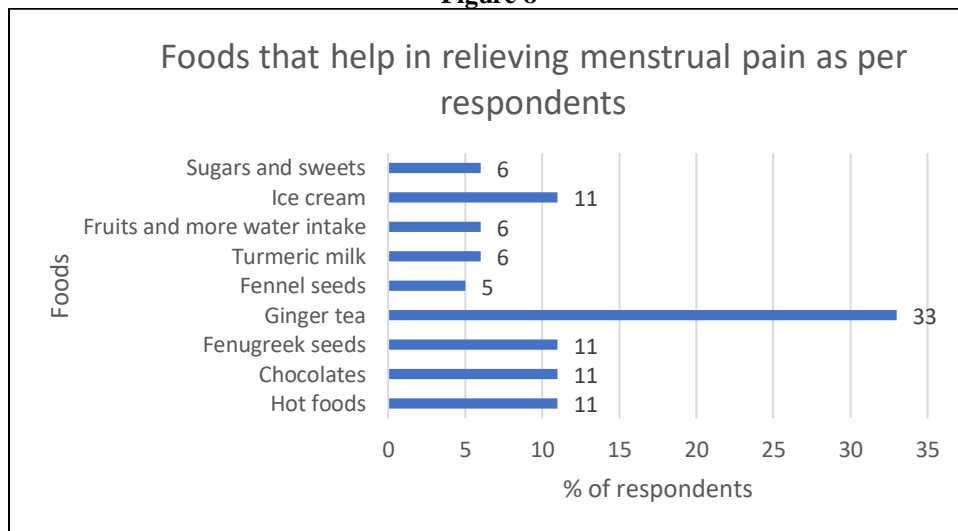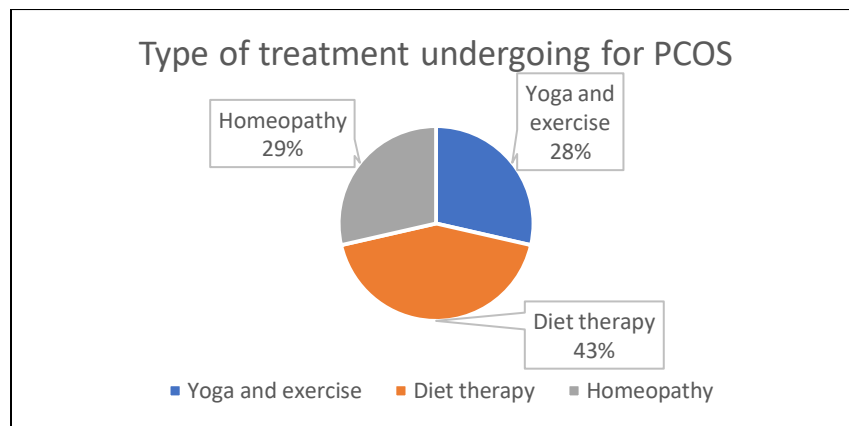

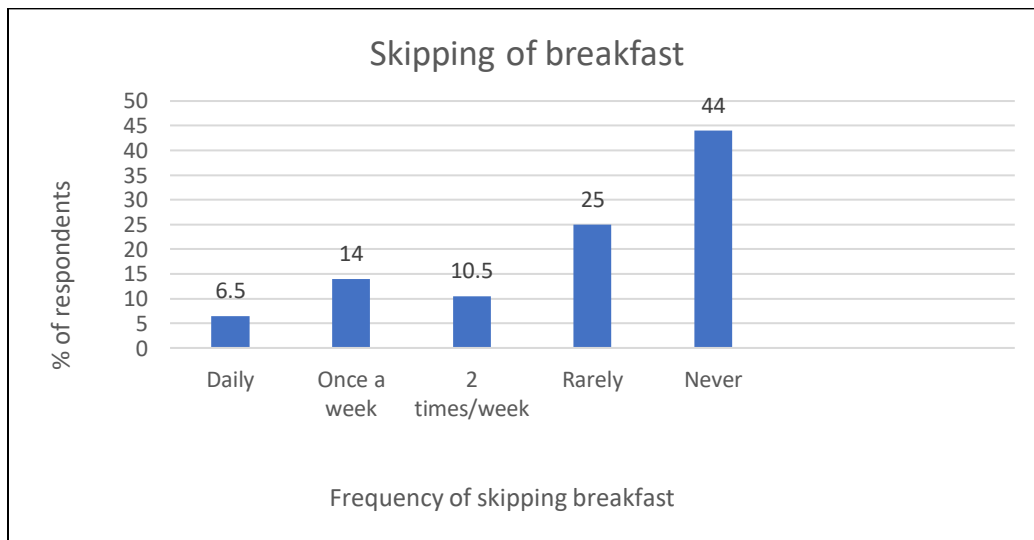**Figure 9**
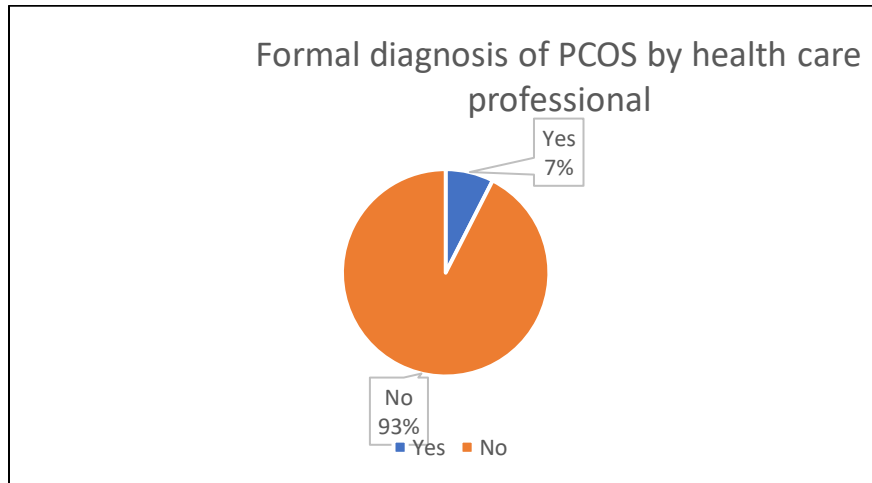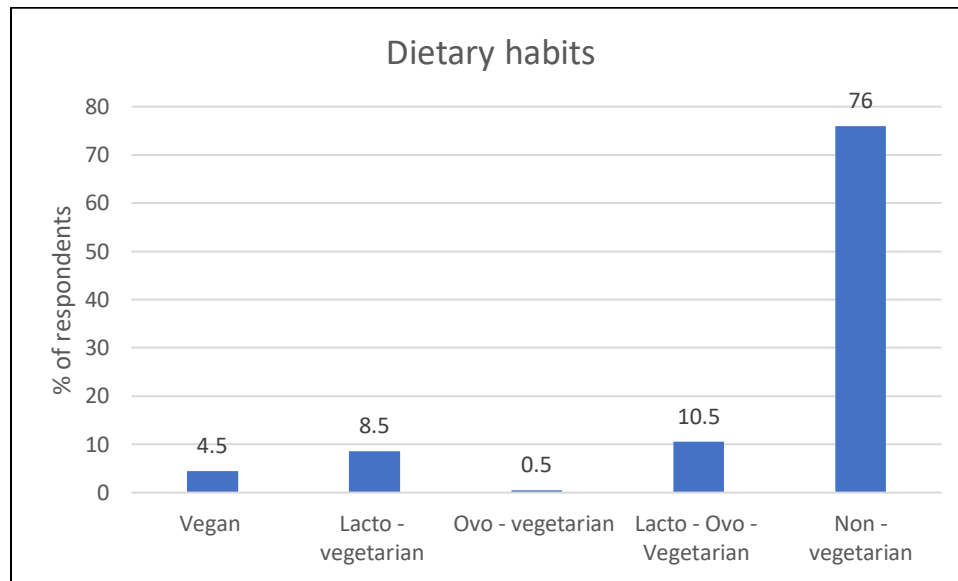
Figure 10

Figure 11

Figure 12

Figure 13

Discussion

In developing countries menstrual disorders constitute an important area of unmet need for women reproductive services [29].

The findings of the study showed that 91.5% (n=183) of the respondents belongs to 20-23 years age group, 7.5% (n=15) of the respondents belongs to 24-27 years age group and 1% (n=2) respondents belong to 28-30years age group [Table I].

Mean age of the subjects at menarche was 12.88 years ± 1.43 years with a range being 8 to 16 years. Majority of the respondents were college students 85.5% (n=171), 7.5% (n=15) of the respondents stays at home, 3% (n=6) of the respondents were house wife and 4% (n=8) of the respondents were working women.

93% (n=187) of the respondents were unmarried and 7% (n=13) of the respondents were married.

79% (n=159) of respondents had normal/regular menstrual cycle (Menstrual cycle in equal intervals between 21 and 35 days), 7% (n=14) of respondents had short menstrual cycle (Menstrual cycle in interval less than 21 days) and 14% (n=27) of respondents had long menstrual cycle (Menstrual cycle in interval greater than 35 days).

85% (n=170) of respondents had normal length menstrual cycle (Bleeding between 2 and 6 days), 7% (n=14) of respondents had short length menstrual cycle (Bleeding for less than 2 days) and 8% (n=16) had long length menstrual cycle (Bleeding for more than 6 days).
Based on the findings of the study, Overall prevalence of menstrual disorders was found to be 56% (n=112) among which 16.5% (n=33) of the respondents were suffering from dysmenorrhea, 22% (n=44) of the respondents were suffering from premenstrual syndrome, 5% (n=10) of the respondents were suffering from PCOS/PCOD, 10% (n=20) of the respondents were suffering from dysmenorrhea & PMS, 1% (n=2) were suffering from PMS & PCOS, 1.5% (n=3) were suffering from all three mentioned menstrual disorders and 44% (n=88) of the respondents were not suffering from any of the mentioned disorders [Figure 3].

WHO BMI Classification was used to assess nutritional status. 23.5% (n=47) of respondents were underweight, 57% (n=114) respondents were of normal weight, 16% (n=32) of respondents were Overweight, 2.5% (n=5) of respondents were obese I and 1 % (n=2) of respondents were Obese II [Figure 4].

From Table II it can be found that Irritability was the most commonly experienced premenstrual symptom being reported by 8% (n=60) of respondents and swelling of extremities was the least experienced premenstrual symptom accounting for 2% (n=14) of respondents.
ANOVA test has been applied to find the association between age of the participants and disorders, age at menarche and disorders, BMI and disorders and Physical activity (MET min/week total) and disorders. From Table III it can be found that there is significant association between BMI and disorders (p=0.002 i.e., <0.005).

Chi square test has been applied to find association between Nutritional status (BMI) and Disorders. From Table IV it can be found that there is significant association between BMI and disorders (p=0.001 i.e., <0.005) which relates to the review of literature [19,23].

From Table V it can be found that there is no significant association between (p=0.396) Physical activity and disorders at 5% los.

From Table VI it can be found that there is no significance in any of the values, Pizza (p=0.069), Chips (p=0.089) and tea (p=0.098) are found to be relatively closer to significance value i.e., <0.05 at 5% los. Suggesting that consumption of these food items might be associated with disorders.

In this study, Severity of dysmenorrhea was assessed using verbal multidimensional scoring system and it was found that 43% (n=24) of respondents were suffering from grade 1 (Mild) dysmenorrhea, 37% (n=21) of respondents were suffering from grade 2 (Moderate) dysmenorrhea and 20% (n=11) of respondents were suffering from grade 3 (severe) dysmenorrhea (Figure 7).

As per the responses, Ginger tea (33% (n=6) of respondents) was found to be the most common food used by respondents to manage menstrual pain [Figure 9].

Formal diagnosis of PCOS by healthcare professional was reported by 7%(n=15) respondents [Figure 10]. Mean age of diagnosis of PCOS was 18.62 years ± 2.43 years.

CONCLUSION

The prevalence of menstrual disorders among women of 20-30 yrs was found to be high in this study. The findings of the study also showed that only small percentage of women sought medical help, despite the high prevalence and negative impact of these disorders on everyday life. Most of these disorders go unreported because of shame, embarrassment, cultural regions and considering these disorders to be normal. Women should be educated about these disorders and ways to manage them and the importance of taking medical advice. Also, about importance of maintaining normal weight and adopting healthy dietary habits as these are associated with disorders.

RECOMMENDATIONS

As the literature review suggests association between dietary habits and menstrual disorders, a study with large sample size may help further to identify the associations. In future studies larger age group can be included so as to differentiate between primary and secondary dysmenorrhea. Further studies can also be carried out to identify the individuals who are at risk of PCOS and also to determine the prevalence of PMDD.

LIMITATIONS

This study does not differentiate between primary and secondary dysmenorrhea, and only a particular age group has been selected.

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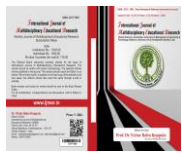
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