PREVALENCE OF PREMENSTRUAL SYMPTOMS AMONG BULGARIAN WOMEN

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Abstract:

INTRODUCTION: Premenstrual symptoms are common and can worsen women's quality of life. This study examines the prevalence of premenstrual symptoms such as weight gain; swelling of ankles, feet, and hands; frequent change of mood; fatigue; difficulty concentrating; depression; nervousness and irritability; and nausea.

OBJECTIVES: The objectives of this study are: (1) to reveal the prevalence of premenstrual symptoms among Bulgarian women and (2) to establish how the presence of premenstrual symptoms affects the Emotional well-being of women.

METHODS: The applied methodology includes an online-based anonymous study, which focuses on the prevalence of premenstrual symptoms among Bulgarian women and their emotional health. A characteristic of the studied contingent on age, BMI, and physical activity was made.

RESULTS: The results of 126 women surveyed were analyzed. Of these, 96.8% have at least one premenstrual symptom. 30.2% have one or two symptoms, 43.7% have 3-4 symptoms and 23% have 5-8 symptoms. 14.8% of women with symptoms reported worsening of their symptoms because of increased stress associated with COVID-19. There is a statistically significant correlation between the number of symptoms and the emotional well-being of women.

CONCLUSION: The prevalence of premenstrual symptoms is common among the studied Bulgarian women. A greater number of symptoms has a negative effect on women's emotional well-being. We consider it appropriate to introduce the application of physiotherapeutic methods as well as alternative therapies for the treatment and prevention of premenstrual syndrome.

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Keywords: Premenstrual symptoms, Emotional well-being; Bulgarian women

Introduction

This study examines the prevalence of premenstrual symptoms such as weight gain; swelling of ankles, feet, and hands; frequent change of mood; fatigue; difficulty concentrating; depression; nervousness and irritability; and nausea among Bulgarian college women.

As Rapkin and Mikacich (2006) writes 60-80% of menstruating women experience some degree of premenstrual symptomatology. Premenstrual symptoms are common and can worsen a women's quality of life.

Literature review

Dickinson et al. (2003) systematize premenstrual symptoms such as Behavioral symptoms: fatigue, insomnia, dizziness, changes in sexual interest, food cravings or overeating; Psychologic symptoms: irritability, anger, depressed mood, crying and tearfulness, anxiety, tension, mood swings, lack of concentration, confusion, forgetfulness, restlessness, loneliness, decreased self-esteem, tension; and Physical symptoms: headaches, breast tenderness and swelling, back pain, abdominal pain and bloating, weight gain, swelling of extremities, water retention, nausea, muscle and joint pain. According to the authors up to 85 percent of menstruating women report having one or more premenstrual symptoms.

Matsumoto et al. (2019) investigated commonly reported symptoms in the premenstrual phase among 200 college students. The subjects completed a rating of their premenstrual experiences relative to 46 symptoms in eight categories of the self-reporting menstrual distress questionnaire to evaluate the prevalence and severity of premenstrual symptoms. The results of the study show that 10 symptoms most often occurring among the participants included skin disorders, irritability, fatigue, mood swings, general aches and pains, lowered school or work performance, backache, painful breasts, weight gain, and swelling. It is concluded that the prevalence of premenstrual symptoms, regardless of severity and number, suggests that negative subjective perceptions of health and stress may be related to the intensity of premenstrual symptomatology among college students.

Weight gain in the period before menstruation is mainly due to increased food intake. Dye and Blundell (1997) writes that orderly fluctuations in eating and other measures of food consumption do occur during the menstrual cycle. Generally, there is an increase in energy intake and appetite during the premenstrual phase (when compared to the ovulatory or post menstrual phases); This increase in energy intake and appetite during the premenstrual phase also occurs in women who suffer from PMS. In these women the

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appetite changes may be experienced with greater intensity and given increased psychological emphasis. During the premenstrual phase food cravings are increased in frequency and intensity. Food craving appears to be more severe in women with PMS (Dye and Blundell, 1997). Bhuvanewari et al. (2019) after a study with 300 women concluded that dietary and lifestyle factors such as consumption of sweets and lack of physical activity were associated with the presence of PMS. In this study, the authors found that PMS was associated with a poorer quality of life across all domains.

Adverse effects on quality of life have also been reported in a study by Mushtaq et al. (2020) where they studied 300 women with a mean age of 32.59 ± 7.12 years, of which 245 (81.7%) had a regular menstrual cycle. The authors conclude that Premenstrual somatic symptoms, like headache, fatigue, backache, muscle and joints pain, abdominal bloating, etc., negatively affected all aspects of females' lives, their psychological and physical wellbeing, their social life and even made them inefficient in terms of having control of their environment during this phase.

Of interest are a series of studies related to the application of exercise (Çitil, et al., 2021; Mohebbi Dehnavi et al., 2018; Zhang et al., 2014; Pokharel et al., 2020; Pearce et al., 2020; Samadi et al., 2013) and yoga (Tsai, 2016; Vaghela et al., 2019) in women with premenstrual symptoms.

Es-Haghee et al. (2020) summarize the application of aromatherapy in the presence of premenstrual symptoms.

We believe that physiotherapy as well as some alternative methods of treatment such as acupressure and aromatherapy have yet to establish their place in the prevention and elimination of the negative effects of premenstrual symptoms.

Data and methodology

The objectives of this study are: (1) to reveal the prevalence of premenstrual symptoms among Bulgarian women and (2) to establish how the presence of premenstrual symptoms affects the emotional well-being of women.

The applied methodology includes an online-based anonymous study, which focuses on the prevalence of premenstrual symptoms among Bulgarian college women and their emotional health. A characteristic of the studied contingent on age, BMI, physical activity was made. The surveyed contingent of women filled out an Internet-based questionnaire in which they reported the presence of certain symptoms that are associated with the course of their premenstrual period as a self-assessment.

In the statistical processing of data to establish the relationship between the indicators studied, we used the Pearson correlation coefficient (r).

Results and Discussion

The results of 126 women surveyed (76.19% of them are being younger than 25 years old) were analyzed. 122 of them (96.8%) have at least one premenstrual symptom. 30.2% have one or two symptoms, 43.7% have 3-4 symptoms and 23% have 5-8 symptoms. 14.8% of women reported worsening of symptoms because of increased stress associated with COVID-19.

Prevalence of premenstrual symptoms

The main part of our survey is aimed at the spread of certain premenstrual symptoms such as weight gain; swelling of ankles, feet, and hands; frequent change of mood; fatigue; difficulty concentrating; depression; nervousness and irritability; nausea.

Figure 1: Prevalence of premenstrual symptoms (n=126)

Figure 1 shows the distribution of premenstrual syndrome symptoms in the women studied. The largest number of surveyed women 55 (43.7%) experience 3-4 premenstrual symptoms. 38 women in the study contingent reported 1-2 premenstrual symptoms.

Approximately a quarter of 23 % (29 women) reported 5-8 premenstrual symptoms. Only 3.2% of the contingent do not experience any premenstrual symptoms.

Our results demonstrate a high percentage of women who experience uncomfortable symptoms associated with the premenstrual period.

Table 1: Frequency of symptoms (n=122)			
	Premenstrual symptoms	Number	Percent
	Weight gain	47	37.30%
	Frequent change of mood	94	74.60%
	Fatigue	58	46.03%
	Difficulty concentrating	31	24.60%
	Depression	49	38.89%
	Nervousness and irritability	102	80.95%
	Nausea	20	15.87%
	Swelling of ankles/ feet/ hands	9	7.14%
Source: Author			

The most common symptom is nervousness and irritability 102 (in 80.95% of women surveyed). The next most common symptom is a frequent change in mood 94 (74.60%). A large number of women surveyed also reported the presence of symptoms of fatigue (46.03%) and depressed mood (38.89%). The least pronounced symptom is swelling of the ankles, feet or hands (7.14%).

Self - assessment of the worsening of premenstrual symptoms associated with increased stress due to the presence of COVID-19

One of the questions included in our survey focused on the increased overall level of stress associated with the presence of COVID-19. We asked the women we examined if they had noticed a worsening of their premenstrual symptoms because of the pandemic situation. 14.8% of women reported subjective worsening of their premenstrual symptoms.

Emotional well-being

We used SF-36 to assess the emotional state of the women we studied. The following questions were asked: "How much of the time during the past 4 weeks... 1) Have you been a very nervous person? ; Have you felt so down in the dumps that nothing could cheer you up? ; Have you felt calm and peaceful? ; Have you felt downhearted and blue? ; Have you been a happy person?" The corresponding possible answers are "All of the time; Most of the time; A good bit of the time; Some of the time; A little of the time; None of the time". Their values were calculated.

Table 2: Emotional well-being (n=122)		
	Symptoms	Points
	1-2 symptoms	75.16
	3-4 symptoms	62.25
	5-8 symptoms	55.86
Source: Author		

In the women we studied, those who reported 1-2 premenstrual symptoms had an average of 75.16 points according to the SF-36 emotional well-being calculation. The corresponding number of points is 62.25 for women with 3-4 symptoms and 55.86 points for women with 5 or more symptoms. There is a tendency for the number of premenstrual symptoms to have a negative impact on women's emotional well-being.

Physical activity

WHO defines physical activity as any bodily movement produced by skeletal muscles that requires energy expenditure. Physical activity refers to all movement including during leisure time, for transport to get to and from places, or as part of a person's work. Both moderate- and vigorous-intensity physical activity improve health. Popular ways to be active include walking, cycling, wheeling, sports, active recreation and playing, and can be done at any level of skill and for enjoyment by everybody (WHO,

2020). WHO recommends that adults aged 18–64 years should do at least 150–300 minutes of moderate-intensity aerobic physical activity; or at least 75–150 minutes of vigorous-intensity aerobic physical activity; or an equivalent combination of moderate- and vigorous-intensity activity throughout the week (WHO, 2020).

Table 3: Physical activity (n=122)					
	Symptoms	At least 150 minutes	Less than 150 minutes	Does not perform	
	1-2 symptoms	21 (17.21%)	12 (9.84%)	5 (4.1%)	
	3-4 symptoms	17 (13.93%)	19 (15.57%)	19 (15.57%)	
	5-8 symptoms	17 (13.93%)	4 (3.28%)	8 (6.56%)	
	Total	55 (45.08%)	34 (27.87%)	32 (26.23%)	
Source: Author					

Table 3 shows the results of the contingent we studied in terms of their physical activity and regarding the presence of the different number of premenstrual symptoms. Of the women we studied with at least one premenstrual symptom, 45.08% performed at least 150 minutes a week of regular physical activity. Unfortunately, 26.23% of women do not perform any additional physical activity outside of their normal daily activities. There are no marked trends in the relationship between the number of premenstrual symptoms and the physical activity of the women studied.

Body mass index

Table 4: Body mass index (n=122)					
	Symptoms	Underweight	Normal weigh	Overweight	Obesity
	1-2 symptoms	2 (1.64%)	26 (21.31%)	10 (8.2%)	0 (0.00%)
	3-4 symptoms	13 (10.66%)	33 (27.05%)	8 (6.56%)	1 (0.82%)
	5-8 symptoms	6 (4.91%)	16 (13.11%)	7 (5.74%)	0 (0.00%)
	Total	21 (17.21%)	75 (61.48%)	25(20.49%)	1 (0.82%)
Source: Author					

For the most part, the women we studied with premenstrual symptoms were of normal weight (61.48%). 20.49% of women were overweight and 17.21 were underweight. There is no tendency for significant differences in BMI depending on the number of reported symptoms in our study contingent.

Relationship between the studied indicators

Table 5: Pearson correlation coefficient (r) (n=122)					
Symptoms	BMI	Number of symptoms	Emotional well-being	Physical activity	
BMI	1				
Number of symptoms	-0.069	1			
Emotional well-being	0.115	-0.453*	1		
Physical activity	-0.019	0.072	0.064	1	
Source: Author					

To establish the relationship between the indicators we studied, we used the Pearson correlation coefficient (r).

The analysis of the obtained results established that there is a statistically significant correlation coefficient at $\alpha = 0.05$ between the indicators: “Number of premenstrual symptoms” and “Emotional well-being of women”.

The statistical processing of the obtained results confirms the negative impact of the greater number of manifested premenstrual symptoms on the emotional well-being of the women we studied. This trend is also visible from the analysis of the results in Table 2.

Conclusion

The prevalence of premenstrual symptoms is common among the studied Bulgarian college women. The largest percentage (80.95%) of the women we studied experience nervousness and irritability in the premenstrual period. 43.7% of women have 3-4 different premenstrual symptoms. A relatively small

percentage (14.8%) of the women surveyed reported worsening of their premenstrual symptoms because of the life changing circumstances associated with the COVID-19 pandemic.

Approximately one-third of the women surveyed do not perform any additional physical activity outside of their normal daily activities.

There is a statistically significant correlation between the number of symptoms and the emotional well-being of women. The greater the number of symptoms is associated with a greater negative effect on women's emotional well-being.

We consider it appropriate to introduce the application of physiotherapeutic methods as well as alternative therapies for the treatment and prevention of premenstrual syndrome.

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