

# The impact of premenstrual syndrome on women's quality of life – a myth or a fact?

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**Abstract. – OBJECTIVE:** The aim of this study was to assess the quality of life (QoL) of women with premenstrual syndrome (PMS).

**PATIENTS AND METHODS:** The study involved 231 regularly menstruating women aged 18 years and older. The research was carried out from July 2018 to November 2018 at St. Maksymilian Maria Kolbe Catholic Secondary School in Szczecin, Non-Public Healthcare Center "MEDI-PLUS" in Zwierzyno, and by electronic means. The research instruments used in the study were: the author's questionnaire concerning the severity of individual PMS symptoms (based on the APA criteria for PMDD, included in the Diagnostic and Statistical Manual of Mental Disorders, 4<sup>th</sup> ed.), and the standardized World Health Organization Quality of Life (WHOQOL-BREF) questionnaire. Statistical analysis was performed using the SPSS 24 statistical package. The Kolmogorov-Smirnov test was used. The level of statistical significance was set as  $p < 0.05$ .

**RESULTS:** The QoL of women with PMS was at a medium level. Emotional symptoms were the most severe ones ( $p = 0.010$ ). The highest QoL scores were obtained for the social relationship domain ( $p = 0.002$ ), and the lowest for the mental health domain ( $p = 0.006$ ).

**CONCLUSIONS:** PMS involves significant morbidity, and the health burden it causes is still not fully assessed. Young women constitute a group that shows the greatest need for psychological support because they experience the most severe PMS symptoms.

*Key Words:*

Premenstrual syndrome, Symptom complex, Quality of life.

productive organs, as well as changes in women's physical and mental condition. When considering the course of the menstrual cycle and its impact on well-being, special attention should be paid to the luteal phase, in which some somatic and psychological symptoms may appear. Most women experience at least one of them, which is considered a physiological phenomenon as long as it does not interfere with normal functioning. In 20-40% of women, these symptoms may indicate a pathology that can significantly affect their quality of life (QoL). Despite quite extensive research, the etiology of this phenomenon has not been fully understood and explained<sup>1-3</sup>.

Premenstrual syndrome (PMS) is a set of emotional, somatic, and behavioral symptoms that occur cyclically only in the luteal phase and subside with the onset of menstrual bleeding. Premenstrual dysphoric disorder (PMDD) is a severe form of PMS manifested by more intense emotional symptoms<sup>1</sup>. So far, nearly 300 symptoms of PMS have been identified. The most common somatic symptoms are abdominal bloating and pain, digestive disorders, constipation, swelling, breast tenderness, headaches, overeating, fatigability, and skin problems. Psychological symptoms include depressed mood, fits of crying, difficulty concentrating, nervousness, insomnia/hypersomnia, angry outbursts, and irritability. Behavioral symptoms are reduced cognitive abilities, as well as visual perception and spatial orientation disorders<sup>4,5</sup>. The American Psychiatric Association (APA) has established diagnostic criteria for PMDD, included in the Diagnostic and Statistical Manual of Mental Disorders, 4th ed. (DSM-IV). On this basis, at least five of the following symptoms must be present during the last week of the luteal phase, and begin to remit within a few days after the onset of the follicular phase: 1) markedly depressed mood, feelings

## Introduction

During the menstrual cycle, sex hormones are responsible for physiological changes in the re-

of hopelessness; 2) marked anxiety, tension; 3) marked affective lability (e.g., feeling suddenly sad or tearful); 4) persistent and marked anger or irritability; 5) decreased interest in usual activities (e.g., work, hobbies); 6) subjective sense of difficulty concentrating; 7) easy fatigability, or lack of energy; 8) marked change in appetite; 9) hypersomnia/insomnia; 10) a subjective sense of being overwhelmed or out of control; 11) other physical symptoms (e.g., breast tenderness, headaches, muscle pain, weight gain). At least one of the symptoms must be either (1), (2), (3), or (4). The disturbance should markedly interfere with work or school or with usual social activities and relationships with others<sup>4,6</sup>.

To establish a pattern and determine if it is PMS/PMDD, a woman may be asked to keep a prospective record of her symptoms on a calendar for at least two menstrual cycles<sup>4,6</sup>. PMDD predisposes to the onset or exacerbation of depression, dysthymia, and generalized anxiety disorder<sup>1,7</sup>. Approximately 15% of women with severe PMS symptoms experience suicide attempts. Therefore, taking a psychiatric history is absolutely justified<sup>8</sup>. Moreover, PMS/PMDD increases the risk of postpartum and perimenopausal depression<sup>9</sup>.

The literature provides many QoL definitions. One of the first definitions describes QoL as the sum of happiness and life satisfaction. Each subsequent term treated this issue more widely. In 1993, the World Health Organization (WHO) proposed a definition, based on which specific contributors to overall QoL can be identified. These include the environment, relationships with others, independence, physical and mental health<sup>10</sup>. In social and medical sciences, QoL is characterized at the population level. Both subjective indicators (sense of security, happiness, satisfaction with life, work, and family relations) and objective indicators (gross domestic income, unemployment rate, mortality and suicide rates, average life expectancy) are assessed<sup>11,12</sup>.

In the era of modern healthcare, the focus is on the patient perceived in a holistic way. This holistic approach should involve QoL measurements and research in this field. This will allow the assessment of health, taking into account social and psychological factors, as well as the effectiveness of medical interventions, drugs applied, and actions that may contribute to the patient's life satisfaction<sup>13,14</sup>.

The aim of this study was to assess the QoL of women with PMS.

## Patients and Methods

The study involved 231 regularly menstruating women, aged 18 and above. Before completing the questionnaire, each respondent was informed about the purpose and anonymity of the research, and that it will only be used for scientific purposes. Informed written consent was obtained from all study participants. Since it was a survey-based study, the approval of the Bioethics Committee was not required. The research was conducted from July to November 2018. The research material was collected at St. Maksymilian Maria Kolbe Catholic Secondary School in Szczecin, the Non-Public Healthcare Institution "MEDI-PLUS" in Zwierzyno, and by electronic means.

The research instruments used in the study were the author's questionnaire concerning the severity of individual PMS symptoms, and the standardized WHOQOL-BREF questionnaire.

The author's questionnaire has been developed on the basis of the APA criteria for PMDD included in the DSM-IV. Unfortunately, the respondents in our study did not keep record of their symptoms, and diseases (depression, anxiety disorders, thyroid diseases, endometriosis etc.) were not excluded. Therefore, to avoid misdiagnosis when identifying women with PMS, we adopted stricter criteria. Symptoms were divided into three groups (somatic, psychological, and emotional). Symptom severity was rated on a five-point scale, with (1) denoting 'none', (2) 'mild', (3) 'moderate', (4) 'significant', and (5) 'severe'. PMDD was diagnosed if there were at least 11 out of 15 symptoms rated as significant or severe. Somatic symptoms were treated as one symptom.

The WHOQOL-BREF questionnaire is a universal, subjective, and multidimensional instrument developed by WHO to measure the quality of human life. It is used to assess the QoL of both healthy and sick individuals for cognitive and clinical purposes. It provides an opportunity to assess QoL in four domains: Physical health, Psychological health, Social relationships, and Environment. The WHOQOL-BREF questionnaire contains 26 single-choice questions. Answers are rated on a five-point scale (1-5). The higher the score, the better the QoL in a given domain.

### Statistical Analysis

Statistical analysis was performed using the SPSS 24 software (IBM, Armonk, NY, USA) and the MS Excel 2016 package. It involved

**Table I.** The incidence of PMS and PMDD.

		N	%
Incidence of PMS and PMDD	Patients without PMS	116	50.2
	Patients with PMS	94	40.7
	Patients with PMDD	21	9.1

N: Number of participants; %: Percent of participants.

measurable (quantitative) and non-measurable (qualitative) data. For all measurable (quantitative) parameters, basic descriptive statistics were determined: mean, standard deviation, median, as well as the highest and the smallest values. The normality of the variable distribution was analyzed using the Kolmogorov-Smirnov test. Non-measurable (qualitative) parameters were number and percentage. The level of statistical significance was set at  $p < 0.05$ .

### Characteristics of the Study Sample

The study involved 231 menstruating women, 94 (40.7%) of whom had PMS, 21 (9.1%) had PMDD (the division based on the severity of symptoms), and 116 (50.2%) had neither PMS nor PMDD (Table I).

## Results

The highest severity of symptoms experienced by women with PMS was noted for emotional symptoms—the arithmetic mean was 3.17 ( $p = 0.010$ ). The arithmetic mean for somatic symptoms was 2.70 ( $p = 0.200$ ), and for behavioral symptoms—3.00 ( $p = 0.200$ ) (Table II).

The mean severity of symptoms in particular age brackets was as follows: the age of 18-23 years: emotional symptoms – 3.17, behavioral symptoms – 2.98, and somatic symptoms – 2.58; the age of 24-29 years: emotional symptoms – 3.26, behavioral symptoms – 2.78, and somatic

symptoms – 2.96; the age of 30-35 years: behavioral symptoms – 3.43, emotional symptoms – 3.42, and somatic symptoms – 2.78; the age of 36-41 years: behavioral symptoms – 3.07, emotional symptoms – 2.98, and somatic symptoms – 2.72; the age of 42-47 years: behavioral symptoms – 2.89, emotional symptoms – 2.66, and somatic symptoms – 2.31; the age of over 47 years: somatic symptoms – 3.26, emotional symptoms – 2.67, and behavioral symptoms – 2.42 (Table III).

In the 18-47 age group, the most severe somatic symptoms were *abdominal pain* whose severity decreased with age, and *breast tenderness* persisting despite the increase in years. The 18-29 age group additionally had *complexion problems*, which decreased with age. A somatic problem specific for over 47-year-olds was *back pain* (2.85) whose severity was higher than in other age groups (Table IV).

The most severe behavioral symptoms in the 18 to over 47 years age group were: *overeating*, *easy fatigability*, and *low self-esteem*, showing a tendency to decline with age (Table V).

In the 18-47 age group, the most severe emotional symptoms were: *irritability/nervousness* and *marked affective lability*, both showing a tendency to decline with age. *Tearfulness* was the additional most severe complaint in the group of 18-29-year-olds. In the group of over 47-year-olds, the most severe emotional symptom was *irritability/nervousness* (2.38) (Table VI).

**Table II.** The mean severity of symptoms.

Variable	N	M ± SD	Me	Min- Max	K-S	p
Somatic symptoms	115	2.70 ± 0.68	2.78	1.11-4.00	0.066	0.200
Behavioral symptoms	115	3.00 ± 0.68	2.88	1.13-4.00	0.059	0.200
Emotional symptoms	115	3.17 ± 0.99	3.00	1.00-4.00	0.097	0.010

N: Number of participants; M ± SD: Mean ± standard deviation; Me: Median; Min-Max: Minimum and maximum values; K-S: Kolmogorov-Smirnov test; p: Level of significance.

**Table III.** The mean severity of symptoms in particular age groups.

Symptoms	Age	N	M ± SD	Min-Max	Me
Somatic symptoms	18-23	57	2.58 ± 0.67	1.11-3.89	2.67
	24-29	21	2.96 ± 0.48	2.11-3.78	2.89
	30-35	17	2.78 ± 0.81	1.56-3.89	2.67
	36-41	12	2.72 ± 0.74	1.22-3.78	2.89
	42-47	5	2.31 ± 0.68	1.33-2.89	2.56
	> 47 years	3	3.26 ± 0.65	2.78-4.00	3.00
Behavioral symptoms	18-23	57	2.98 ± 0.91	1.13-5.00	2.88
	24-29	21	2.78 ± 0.75	1.71-4.43	2.57
	30-35	17	3.43 ± 0.96	1.71-4.86	3.29
	36-41	12	3.07 ± 1.02	1.50-4.71	3.00
	42-47	5	2.89 ± 1.12	1.50-5.00	3.50
	> 47 years	3	2.42 ± 0.72	2.00-3.25	2.00
Emotional symptoms	18-23	57	3.17 ± 0.96	1.00-5.00	3.00
	24-29	21	3.26 ± 0.98	2.00-5.00	3.00
	30-35	17	3.42 ± 1.11	2.00-5.00	3.43
	36-41	12	2.98 ± 0.95	1.57-4.14	2.86
	42-47	5	2.66 ± 1.32	1.29-4.57	2.71
	> 47 years	3	2.67 ± 0.58	2.14-3.29	2.57

N: Number of participants; M ± SD: Mean ± standard deviation; Me: Median; Min-Max: Minimum and maximum values.

The highest mean QoL values were obtained for the *Social relationship domain* (M = 13.76; SD = 3.07), and the lowest for the domain of *Psychological health* (M = 11.61; SD = 1.72). The results obtained for specific QoL domains indicate that overall QoL was in most cases at a medium level (Table VII).

## Discussion

PMS was originally perceived as an imaginary disease reported by women. The first serious attempts to describe PMS took place more than 70 years ago in the article “Hormonal causes of premenstrual tension” by Frank<sup>15</sup>. The PMS term was first used in 1953 by Dalton and Green in their article published in the *British Medical Journal*<sup>16</sup>. To this day, the topic of PMS has been present in both medicine and culture. The formal recognition of PMS as a disease was possible thanks to the cooperation of many doctors, scientists, and the APA. It was not until the eighties that the research on PMS started. PMS had not been previously regarded as a social problem. Based on the *International Classification of Diseases*, 10<sup>th</sup> edition (ICD-10), WHO<sup>17</sup> included PMS in the group of gynecological disorders as a disorder of female genital organs (N94).

PMS occurs in women in the reproductive period and affects from 25% to even 60% of the female population. The symptoms of PMS

are very strongly expressed and prevent women from functioning properly, significantly disturbing their professional, social, and personal life. The literature shows that even 20-40% of women suffer from a significant PMS-related QoL decline<sup>4,18</sup>. The most severe PMS symptoms are found in women aged 25-35 years<sup>1,3</sup>. Factors causing PMS have been sought for many years, and many, both organic and external determinants, have been noted. This multitude naturally hinders treatment, at the same time indicating the need for interdisciplinary therapy for women due to the complexity of PMS etiopathogenesis, helping a woman can be very difficult at times. As reported by Grandi et al<sup>19</sup>, symptoms of the syndrome are observed during the entire luteal phase, and their presence does not result from hormonal disorders. The levels of sex hormones in women with and without PMS symptoms are the same. Hence assumption that PMS affects women who may have individual sensitivity to physiological hormonal changes<sup>1</sup>. Other authors<sup>20,21</sup> underline possible genetic contribution. The incidence rate among identical twins is 90%. Clayton et al<sup>20</sup> claim that over 70% of women whose mothers suffered from PMS also experience PMS symptoms. Despite many studies, a specific genotype has not so far been identified.

Bertone-Johnson et al<sup>22</sup> and Girdler et al<sup>23</sup> emphasize the influence of women's emotional experiences, especially in childhood, on the development of PMS at a later age. In such wom-

**Table IV.** The mean severity of somatic symptoms in the age groups.

Somatic symptoms	Age	N	M ± SD
Headaches	18-23	84	2.35-1.27
	24-29	43	2.05-1.02
	30-35	46	2.30-1.40
	36-41	28	2.54-1.57
	42-47	17	2.06-1.39
	> 47 years	13	2.54-1.61
	Total	231	2.29-1.32
Back pain	18-23	84	2.32-1.36
	24-29	43	2.67-1.36
	30-35	46	2.61-1.41
	36-41	28	2.54-1.40
	42-47	17	2.41-1.42
	> 47 years	13	2.85-1.46
	Total	231	2.51-1.38
Abdominal pain	18-23	84	3.85-1.28
	24-29	42	3.71-1.31
	30-35	46	3.11-1.32
	36-41	28	3.00-1.47
	42-47	17	2.65-1.62
	> 47 years	13	2.62-1.61
	Total	230	3.41-1.42
Breast tenderness	18-23	84	2.86-1.32
	24-29	43	3.21-1.25
	30-35	46	2.63-1.32
	36-41	28	2.54-1.40
	42-47	17	2.59-1.28
	> 47 years	13	2.69-1.55
	Total	231	2.81-1.33
Putting on weight	18-23	84	2.30-1.25
	24-29	43	2.49-1.20
	30-35	46	2.54-1.28
	36-41	28	2.50-1.32
	42-47	17	2.41-1.00
	> 47 years	13	2.54-1.66
	Total	231	2.43-1.26
Constipation	18-23	84	1.83-1.18
	24-29	43	2.53-1.30
	30-35	46	1.65-1.02
	36-41	28	1.29-0.60
	42-47	17	1.65-0.79
	> 47 years	13	1.62-1.04
	Total	231	1.84-1.14
Diarrhea	18-23	84	2.26-1.47
	24-29	43	2.02-1.26
	30-35	46	1.91-1.24
	36-41	28	1.86-1.33
	42-47	17	1.12-0.33
	> 47 years	13	1.54-0.97
	Total	231	1.97-1.32
Leg swelling	18-23	84	1.58-1.04
	24-29	43	1.60-0.90
	30-35	46	1.83-1.30
	36-41	28	1.75-0.89
	42-47	17	1.47-0.62
	> 47 years	13	1.92-1.12
	Total	231	1.67-1.04
Complexion problems	18-23	84	3.30-1.29
	24-29	43	3.14-1.34
	30-35	46	2.59-1.36
	36-41	28	2.46-1.37
	42-47	17	1.82-1.13
	> 47 years	13	1.62-1.12
	Total	231	2.82-1.40

N: Number of participants; M ± SD: Mean ± standard deviation.

**Table V.** The mean severity of behavioral symptoms in the age groups.

Behavioral symptoms	Age	N	M ± SD
Sleep problems	18-23	84	1.93-1.28
	24-29	43	1.79-1.12
	30-35	46	1.72-1.17
	36-41	28	1.82-1.25
	42-47	17	1.65-1.11
	> 47 years	13	1.38-0.65
	Total	231	1.80-1.18
Overeating	18-23	84	3.55-1.27
	24-29	43	3.16-1.31
	30-35	46	2.91-1.41
	36-41	28	2.86-1.60
	42-47	17	3.00-0.94
	> 47 years	13	2.38-1.45
	Total	231	3.16-1.37
Difficulty concentrating	18-23	84	2.45-1.28
	24-29	43	2.53-1.33
	30-35	46	2.28-1.42
	36-41	28	2.32-1.33
	42-47	17	2.00-1.27
	> 47 years	13	1.69-0.85
	Total	231	2.34-1.31
Easy fatigability	18-23	84	3.36-1.23
	24-29	43	3.05-1.45
	30-35	46	3.20-1.34
	36-41	28	2.89-1.57
	42-47	17	2.71-1.57
	> 47 years	13	2.62-1.45
	Total	231	3.12-1.38
Decreased interest in professional work	18-23	84	2.50-1.44
	24-29	43	2.40-1.31
	30-35	46	2.43-1.54
	36-41	28	2.21-1.47
	42-47	17	1.82-1.13
	> 47 years	13	1.62-1.96
	Total	231	2.33-1.41
Decreased interest in hobbies	18-23	84	2.43-1.36
	24-29	43	2.28-1.33
	30-35	46	2.35-1.48
	36-41	28	1.93-1.25
	42-47	17	1.76-1.15
	> 47 years	13	1.62-0.96
	Total	231	2.23-1.34
Low self-esteem	18-23	84	3.04-1.47
	24-29	43	2.79-1.32
	30-35	46	2.76-1.59
	36-41	28	2.18-1.42
	42-47	17	2.12-1.36
	> 47 years	13	1.31-0.85
	Total	231	2.67-1.49

N: Number of participants; M ± SD: Mean ± standard deviation.

en the most severe symptoms are psychological ones. Other risk factors for PMS/PMDD include high BMI, dietary errors, personality disorders, and addiction to psychoactive substances<sup>4,24,25</sup>. Among 231 respondents taking part in our study, PMS was found in 94 (40.7%) and PMDD in 21

(9.1%) women. The highest severity was noted for emotional symptoms – the mean was 3.17 ( $p = 0.010$ ), behavioral symptoms – 3.00 ( $p = 0.200$ ), and somatic symptoms – 2.70 ( $p = 0.200$ ). The most severe symptoms in particular age groups were as follows: 18-23 years – emotional symp-

**Table VI.** The mean severity of emotional symptoms in the age groups.

Emotional symptoms	Age	N	M ± SD
Markedly depressed mood	18-23	84	2.29-1.39
	24-29	43	1.98-1.32
	30-35	46	1.96-1.44
	36-41	28	1.71-1.24
	42-47	16	1.31-0.79
	> 47 years	13	1.38-0.77
	Total	230	1.97-1.33
Tension	18-23	84	2.45-1.31
	24-29	43	2.23-1.31
	30-35	46	2.26-1.48
	36-41	28	1.82-1.19
	42-47	17	1.59-0.87
	> 47 years	13	1.46-0.97
	Total	231	2.18-1.32
Marked anxiety	18-23	84	2.05-1.35
	24-29	43	2.12-1.43
	30-35	46	2.11-1.48
	36-41	28	1.50-0.96
	42-47	17	1.47-0.87
	> 47 years	13	1.69-1.18
	Total	231	1.94-1.33
Tearfulness	18-23	84	3.29-1.41
	24-29	43	3.14-1.28
	30-35	46	2.89-1.48
	36-41	28	2.21-1.34
	42-47	17	2.29-1.49
	> 47 years	13	1.92-1.26
	Total	231	2.90-1.45
Irritability/nervousness	18-23	84	3.81-1.20
	24-29	43	3.74-1.20
	30-35	46	3.35-1.45
	36-41	28	2.93-1.54
	42-47	17	2.41-1.28
	> 47 years	13	2.38-1.61
	Total	231	3.42-1.40
Sense of being out of control	18-23	84	2.45-1.40
	24-29	43	2.74-1.45
	30-35	46	2.07-1.45
	36-41	28	1.79-1.29
	42-47	17	1.82-1.24
	> 47 years	13	1.54-1.20
	Total	231	2.25-1.42
Marked affective lability	18-23	84	3.62-1.34
	24-29	43	3.63-1.38
	30-35	46	3.07-1.60
	36-41	28	2.89-1.40
	42-47	17	2.53-1.70
	> 47 years	13	2.15-1.52
	Total	231	3.26-1.50

N: Number of participants; M ± SD: Mean ± standard deviation.

toms (3.17), 24-29 years – emotional symptoms (3.26), 30-35 years – behavioral symptoms (3.43) and emotional symptoms (3.42), 36-41 years – behavioral symptoms (3.07), 42-47 years – behavioral symptoms (2.89), and > 47 years – somatic symptoms (3.26). Buddhabyakan et al<sup>26</sup> ana-

lyzed Thai Secondary School students. The most common somatic symptoms were breast tenderness, headaches, and abdominal distension, and the most prevalent affective symptoms were angry outbursts, anxiety, and irritability. Perimenopausal women with PMS also indicate breast

**Table VII.** The QoL of women with PMS.

Domain	N	M ± SD	Me	Min- Max	K-S	p
Physical health	115	12.57 ± 1.82	12.57	5.71-16.57	0.122	0.000
Psychological health	115	11.61 ± 1.72	11.33	6.00-16.00	0.101	0.006
Social relationships	115	13.76 ± 3.07	13.33	6.67-20.00	0.109	0.002
Environment	115	11.70 ± 1.81	12.00	7.50-16.50	0.080	0.072

N: Number of participants; M ± SD: Mean ± standard deviation; Me: Median; Min-Max: Minimum and maximum values; K-S: Kolmogorov-Smirnov test; p: Level of significance.

tenderness, abdominal distension, and headaches as the main symptoms<sup>27</sup>. Rafique and Al-Sheikh<sup>28</sup> conducted a cross-sectional study of 738 female medical students at the Imam Abdulrahman Bin Faisal University in Dammam, Saudi Arabia. The study showed strong positive correlations between stress and various menstrual irregularities (amenorrhea, dysmenorrhea) (89.7%) and PMS (46.7%). Symptoms of PMS in the target population were strongly associated with stress. High perceived stress was found in 39% of the women, who had a 2.8-fold higher odds ratio of PMS ( $p < 0.05$ ). In Poland, similar research was conducted in 2015 by Sieradzy et al<sup>29</sup>, who analyzed a group of 110 women aged 16-35. They found that breast pain and tension were the most common somatic symptom, and that irritability and conflicts with the environment were the most frequent psychological symptoms. Kozłowski et al<sup>30</sup> carried out research among 122 women aged 16-45. According to the vast majority (72.1%) of the participants ( $p < 0.05$ ), the most severe PMS symptoms were related to the psychological sphere, and included irritability (90.2%), affective lability (75.4%), depressed mood (73.8%), low self-esteem, anxiety, and mental tension before menstruation (52.5%). As far as somatic symptoms are concerned, the surveyed women most often complained about water retention in the body (69.8%). They also indicated complexion problems (45.9%) and their hair was getting greasy more quickly (32.8%). 29.5% of the respondents mentioned breast pain, almost as many experienced headaches or migraine attacks (24.6%), 14.8% had increased appetite, and 9.8% had sleep problems.

QoL is an interdisciplinary concept. It appears in many fields of science, including philosophy, sociology, economics, psychology, and medicine<sup>10,31,32</sup>. Proposed definitions are characterized by many divergences, which also refer to the understanding of this concept. It is common practice to use terms such as life satisfaction, well-be-

ing, contentment, or happiness as synonymous with QoL<sup>32,33</sup>. In both medical and social sciences, the concept is considered at the population level. The criteria that are subject to analysis include both objective and subjective factors<sup>11</sup>. In general, subjective factors are the way we perceive the meaning of life, the system of values, and social context. Objective factors are sets of fixed, same-for-all criteria, for example housing conditions, earnings, and health status<sup>12</sup>. The subjective QoL is closely related to the subjective perception of life associated with one's specific system of values, as well as social, economic, and political situation. A commonly used indicator to measure subjective well-being is life satisfaction. It can be understood as a cognitive reflective assessment of life as a whole or of its individual aspects. This is because individuals themselves are the most reliable and authoritative source of information about their own perception of QoL<sup>34</sup>. In most studies, QoL is considered as a multifaceted phenomenon, combining subjective and objective approaches. In this way, the resources available to individuals as well as their personal feelings are analyzed in a broad sense. This approach, called integrative, avoids the drawbacks of choosing only one viewpoint<sup>35,36</sup>. The health related quality of life (HRQoL) concept links people's QoL to their reaction to changes in their health.

The patient must be viewed holistically, i.e., in all dimensions – physical, mental, environmental, and social. Holistic QoL measurements should serve as the basis for modern healthcare<sup>37</sup>. The impairment of one of the dimensions indicates the incomplete health of the patient. PMS-related symptoms can therefore negatively affect each domain, thus reducing the overall QoL of women with PMS. Urbańska et al<sup>38</sup> noted that PMS affected especially the emotional sphere of female respondents. Feelings of anxiety and depression caused that they performed activities less carefully and did not complete intended tasks. Ur-

bańska's results<sup>38</sup> differ from those obtained by our team. In our study negative emotions did not significantly interfere with the respondents' interests, nor did they affect the execution of their plans. Nevertheless, it should be emphasized that in our study no records of symptoms were kept. The analysis showed that the highest QoL scores were achieved for the social relationships, and the lowest for the mental health domains. The QoL scores obtained for specific domains were usually at a medium level. Urbańska et al<sup>38</sup> found that women with PMS had low QoL in both the physical and psychological health domains. Grandi et al<sup>17</sup>, who analyzed 408 students at the University of Modena and Reggio Emilia, found that 84.1% of them suffered from pain associated with dysmenorrhea. Pitangui et al<sup>39</sup> studied the impact of pain complaints on the QoL of young women (12-17 years) in Brazil, proving that they reduced physical and social activity, made it difficult to perform daily duties, and contributed to absenteeism from school ( $p < 0.05$ ). According to Yonkers et al<sup>3</sup>, the symptoms of PMS faced by the studied women included irritability, fatigue, unjustified anger, depressive states, tearfulness, lower self-esteem, breast tenderness, a feeling of water retention, diarrhea and constipation, skin eruptions, joint pain, and headaches. These symptoms quite often interfere with personal and professional life. Based on their study of 1008 students at Sakarya University in Turkey, Sahin et al<sup>40</sup> reported that the mean QoL scores obtained by the participants with PMS were lower in all QoL domains ( $p < 0.05$ ). In the study by Borenstein et al<sup>41</sup>, the QoL of women diagnosed with PMS was lower compared to the control group. They noted higher absenteeism and lower productivity at work, as well as disrupted relationships with others. Disease burden in PMS/PMDD is similar to that observed in dysthymia and other mental disorders<sup>42</sup>. As stated by Cunningham et al<sup>8</sup>, about 15% of women with severe PMS symptoms attempt suicide. Delara et al<sup>43</sup> studied 602 female students, 224 (37.2%) of whom met diagnostic criteria for PMDD. When comparing the SF-36 results between students with and without PMDD, significant differences in all dimensions were found between the two groups ( $p < 0.001$ ). In the study by Balah et al<sup>44</sup>, PMS was diagnosed in 35.6% of young women. The predominant limited activity was concentration in the classroom (48.3%). The incidence of anxiety and depression was statistically higher in the PMS group.

According to some authors, PMS is a borderline problem between psychiatry and gynecology<sup>1</sup>. The exclusion of other mental and somatic disorders whose symptoms may mimic those of PMS/PMDD is an extremely important part of the diagnosis. Among the most common psychiatric disorders coexisting with PMS/PMDD or exacerbated during the luteal phase are dysthymia, major depression, panic disorder and generalized anxiety disorder<sup>45-48</sup>. Significant social disability concerns patients with depressive, anxiety and personality disorders, which has a negative impact on their QoL. Subjective QoL assessment strongly correlates with the needs considered by the patient as unsatisfied<sup>49</sup>. The form of PMS/PMDD treatment should not only be effective and well-tolerated, but also appropriately matched to the phase of the reproductive cycle, because these disorders are chronic and require long treatment from the onset of the first menstruation to menopause<sup>1</sup>. Research to date has answered many questions about the etiopathogenesis and use of various treatments for PMS, but considering the complexity of the topic, much remains to be discovered. Olajosy and Gerhant<sup>1</sup> believe that the use of modern imaging techniques such as positron emission tomography (PET) and functional magnetic resonance imaging (fMRI) may revolutionize future treatment, and thus improve women's QoL and overall functioning.

Among the observed disorders, dysmenorrhea stands out. Menstrual pain is a very common problem that results in the inability to function normally. As a result of pain, mood disorders and dysfunctions occur, especially in interpersonal contacts and relationships in family, work, or community. Due to its high prevalence among adolescents and young women, menstrual pain negatively affects everyday activities (absence from school, work, socializing). Appearing cyclically for a significant part of women's life, it substantially reduces its quality. Adolescent girls need contact with their peers in order to build a pattern of social relationships that they will use in their adult lives. This process is part of creating the social component of emerging identity. The peer environment has a socializing function, therefore the experiences acquired in the school environment affect adolescent development in many spheres<sup>50</sup>. Early diagnosis is essential because it helps select appropriate therapies, thus minimizing negative effects. Mutual dependencies between the physical, emotional, and social functioning of women and the severity of PMS

symptoms make the QoL assessment an important element of patient management. The knowledge of how symptoms and treatment methods influence patients' functioning helps to comprehensively assess the effectiveness of therapy, to choose a management strategy, and to determine patients' expectations. A high QoL index means that the patients perceive themselves as functioning well physically, psychologically, and socially despite the disease. On the contrary, a low QoL index indicates that they regard the disease as limiting their functioning in various spheres.

It still happens that PMS is belittled or even downplayed, both by women's relatives and medical professionals<sup>7</sup>. Therefore, it is important to state clearly – PMS is not a myth but a real personal and medical problem.

### **Limitations of the Study**

Our study is limited in several ways. The first of them is that the respondents in our study did not keep prospective records of their symptoms, which would help establish a pattern and determine if they had PMDD. Another problem is that other conditions that may explain symptoms and lead the woman to believe that she has PMS (depression, anxiety and eating disorders, substance abuse, anemia, hypothyroidism, autoimmune diseases, endometriosis) were not excluded. Therefore, we would like to conduct further research on a larger group of women, which would allow us to select a study sample that meets the above criteria. It is also worth conducting further research on the influence of various factors contributing to the occurrence of PMS/PMDD, as its somatic and psychological symptoms significantly reduce women's QoL.

### **Conclusions**

The QoL of women with PMS was at an average level, which shows that they did not cope with the disease very well. Women with PMS obtained the lowest QoL scores for the mental health domain, which suggests that the implementation of psychotherapy could bring tangible benefits. PMS is a difficult condition; therefore, all women should be provided with holistic medical care and psychological counseling.

Young women constitute a group that shows the greatest need for psychological support (including education on how to cope with stress), because they experience the most severe PMS symptoms.

PMS involves significant morbidity, and the health burden it causes is still not fully assessed. Hence, there is a need for scientific research carried out by interdisciplinary teams to effectively treat this disease.

### **Conflict of Interest**

The Authors declare that they have no conflict of interests.

### **Funding Statement**

This research received no external funding.

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