

The impact of endometriosis on the quality of women's life

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ABSTRACT

Objectives: Endometriosis is a disease that involves the ectopic growth of the endometrial tissue outside the uterine cavity. Its average occurrence is about 10% of women of reproductive age. Making a diagnosis of the disease is commonly long-lasting and ambiguous due to the wide variety and intensity of symptoms.

The aim of the study is to determine factors affecting the quality of life of women struggling with endometriosis.

Material and methods: A cross-sectional study was conducted using a diagnostic survey method with the use of the author's questionnaire and the WHOQOL-BREF questionnaire. The study population included 650 people (group with endometriosis — 361 women and group without endometriosis — 289 women).

Results: In the group of women with endometriosis, the mean age was significantly higher (31.87 vs 24.99). Difficulties with conception were significantly more common (51.67%) in the endometriosis group compared to 5.52% in the non-endometriosis group. In each area, the quality of life of women with endometriosis was significantly lower ($p = 0.000$). Women with the history of the disease of over 3 years significantly more often complained of dyspareunia ($p = 0.048$), bladder pain ($p = 0.01$) and lower back pain ($p = 0.029$).

Conclusions: Endometriosis significantly reduces women's quality of life. Factors that deteriorate the quality of life of women with endometriosis include severe pain, infertility, dyspareunia and reduced satisfaction in various spheres of life (somatic, mental, social). More research is necessary to improve the quality of life of women with endometriosis.

Keywords: endometriosis; quality of life; pain

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INTRODUCTION

With each subsequent year of the 21st century, previously unknown and innovative possibilities of the diagnostics and treatment of diseases of the female reproductive system are revealed. The latest achievements in the field of genetics not only affect new diagnostic perspectives, but they also give hope for improving the quality of life of patients [1, 2]. This is especially true for patients struggling with diseases whose symptoms affect their daily function-

ing. Endometriosis undoubtedly belongs to this group of diseases. Endometriosis is defined as the ectopic growth and function of the endometrial tissue outside of the uterine cavity with the average occurrence in about 10% of women of reproductive age [3]. The possible complications include the development of chronic inflammation that increases pelvic pain and, consequently, may lead to infertility. Similarly, to normally located endometrium, the cells proliferate and shed, but are not excreted from the body in the form of

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menstruation. Such a process causes chronic inflammation accompanied by pain [4]. The pharmacological treatment of pain involving the inhibition of the inflammatory reaction is an effective element of analgesic therapy, but the modality is usually only complementary to the surgical treatment of endometriosis [5].

Changes during endometriosis may concern multiple organs. Various phenotypes of abdominopelvic endometriosis may be distinguished: superficial, endometrioma and deep infiltrating lesions involving the bowel or urinary tract [6]. Advanced lesions may lead to the development of deep infiltrating endometriosis of the rectum that may require a radical or conservative approach, the effectiveness of which is continuously discussed in the medical environment [7].

The disease may also result in the development of extra-abdominal lesions, *e.g.*, nasal endometriosis, an uncommon extra-pelvic implantation of the endometriotic tissue [8].

The effects of endometriosis, in most cases, considerably influence the quality of life of patients struggling with the disease [3, 9, 10]. Despite the rapid development of medical science, the factors and causes of endometriosis are still not fully elucidated. However, the disease is known to be a series of consecutive estrogen-dependent inflammatory processes.

Not all cases of endometriosis are detected quickly, which is commonly due to the asymptomatic course of the disease in some patients [11]. Consequently, it prolongs the diagnostic stage and affects the duration of the treatment process. The European Society of Human Reproduction and Embryology (ESHRE) developed the latest guidelines for the care of women with endometriosis, *i.e.*, a document that includes changes in the diagnostic process. Until now, laparoscopy with histopathological examination has been considered the standard of diagnosis. Currently available data indicate that laparoscopy is now recommended only in patients with negative imaging results and/or in whom empirical treatment proved ineffective or inadequate [12].

Aim

The aim of the research is to determine the factors affecting the quality of life of women with endometriosis.

MATERIAL AND METHODS

The study was conducted from September 2019 to January 2020. It was a cross-sectional study using a diagnostic survey method and included female residents of the Masovian Province in Poland (650 respondents). The group with the diagnosis of endometriosis encompassed 361 women. The diagnosis of endometriosis was the inclusion criterion. The endometriosis group was recruited from outpatient clin-

ic patients who had undergone a full diagnosis confirming the disease (histological diagnosis, diagnostic laparoscopy or transvaginal ultrasound). The group without endometriosis consisted of 289 women without endometriosis or other gynecological diseases and symptoms. The assumption of group similarity in terms of sociodemographic characteristics was not fully possible, as the nature of this disease is correlated with certain variables. In the second part of the study, an additional division was made in patients suffering from endometriosis. The classification was based on the duration of endometriosis treatment. The first subgroup consisted of 141 patients who had been treated for 0-3 years, while the second subgroup consisted of 220 patients who had been undergoing treatment for over 3 years.

The following research tools were used: the authors' questionnaire and a short version of the WHOQOL-BREF quality of life questionnaire [13]. A total of 49 questions were included in the research tools, including 8 general questions, 1 question only for patients with reproductive plans, 26 questions from the WHOQOL-BREF questionnaire, 12 questions addressed only to patients suffering from endometriosis, 2 questions addressed only to patients undergoing pharmacological or surgical treatment. The Likert scale of responses was used.

The analysis of the obtained data was performed with the use of SPSS Statistics 21.0 statistical package. The chi-squared test was used to test the statistical dependence around the analyzed characteristics. The obtained results were statistically analyzed using the chi-squared test in terms of independent samples. We assumed a 5% level for the risk of inference error. The p value ≤ 0.05 was considered statistically significant. Only non-parametric tests were used, which, in principle, do not require the condition of normal distribution.

The survey was conducted both electronically and with a paper-and-pencil method at the Medical Center (with the consent of the administration). The respondents were informed about the purpose of the study and their voluntary participation. They received additional information on the rules of completing the questionnaire and were ensured of the anonymity of the collected data. The actual study was preceded by a pilot study in a group of 10 women. Its purpose was to verify the research tool and the correctness of the research procedure. Its results were not included in the research material.

The study was approved by the Bioethics Committee of the Medical University of Warsaw (No. AKBE/161/17).

RESULTS

The characteristics of the studied population indicated that the mean age was significantly higher in the group of women diagnosed with endometriosis (31.87 vs 24.99).

The majority of women in the endometriosis group (59.17%) were in relationships as opposed to the non-endometriosis group where 71.72% were single (the result was statistically significant). Nulliparous women constituted slightly over half of the first group (52.22%), while the respective percentage in the second group was 70%. Difficulties with becoming pregnant turned out to be statistically significant — 51.67% of the respondents in the group with endometriosis declared such problems compared to 5.52% in the

group without endometriosis. It is worth noting that 26.67% of patients in the group with endometriosis were not trying to conceive, as compared to 68.62% of the second group, which led to an even greater polarization of the result indicating difficulties with conceiving. More information is presented in Table 1.

The situation of the group declaring reproductive plans was subjected to an in-depth analysis, 1/3 of the group with endometriosis did not report any problems with conceiving.

Table 1. Characteristics of the population (n = 650)				
	Group with endometriosis n (%) M ± SD	Group without endometriosis n (%) M ± SD	All n (%) M ± SD	p value
Age [years]	31.87 ± 6.06*	24.99 ± 5.92*	28.79 ± 6.90*	0.000
Marital status				
In a relationship	213 (59.17)	78 (26.90)	291 (44.77)	0.000
Divorced	22 (5.83)	4 (1.38)	25 (3.85)	
Single	126 (35.00)	207 (71.72)	334 (51.38)	
Education				
Higher education	253 (69.92)	147 (50.69)	399 (61.33)	0.000
Secondary education	93 (25.91)	140 (48.62)	234 (36.06)	
Vocational schools	12 (3.34)	2 (0.69)	14 (2.16)	
Junior high school	2 (0.56)	–	2 (0.31)	
Primary education	1 (0.28)	–	1 (0.15)	
Place of residence				
City (over 500 000 residents)	94 (25.83)	76 (26.21)	169 (26.00)	0.002
City (101 000–500 000 residents)	72 (20.00)	70 (24.14)	142 (21.85)	
Town (51 000–100 000 residents)	56 (15.56)	18 (6.21)	74 (11.38)	
Town (below 50 000 residents)	55 (15.28)	38 (13.10)	93 (14.31)	
Village	84 (23.33)	87 (30.34)	172 (26.46)	
Parity				
0	189 (52.22)	202 (70.00)	391 (60.15)	0.000
1	88 (24.44)	32 (11.03)	120 (18.46)	
2	61 (16.94)	27 (9.31)	88 (13.54)	
3	19 (5.28)	19 (6.55)	38 (5.85)	
Over 3	4 (1.11)	9 (3.10)	13 (2.00)	
Miscarriages				
0	309 (85.56)	265 (91.72)	574 (88.31)	0.032
1	42 (11.67)	21 (7.24)	63 (9.69)	
2	10 (2.78)	2 (0.69)	12 (1.85)	
Over 3	–	1 (0.34)	1 (0.15)	
Difficulty conceiving				
Yes	187 (51.67)	16 (5.52)	202 (31.08)	0.000
No	78 (21.67)	75 (25.86)	153 (23.54)	
Did not try to get pregnant	96 (26.67)	198 (68.62)	295 (45.38)	

M — mean; SD — standard deviation

The remaining respondents tried to conceive for the period of 1 to 3 years (26.50%) and over 3 years (26.14%). As regards the group without endometriosis, the vast majority (79.37%) had no difficulty with conception. The result was statistically significant ($p = 0.000$).

A comparative analysis of the data obtained from the quality-of-life study clearly showed that, in each of the studied areas, the quality of life of women with endometriosis was significantly lower than that of the group without endometriosis (Tab. 2).

The experience of pain in the course of the disease was analyzed in two subgroups of patients with endometriosis, divided based on the duration of their treatment. Group A consisted of patients undergoing treatment for 0 to 3 years, and group B — patients undergoing treatment for > 3 years. The symptoms that occurred significantly more commonly in group B included dyspareunia ($p = 0.048$), bladder pain ($p = 0.01$) and sacral pain ($p = 0.029$). The moment of the onset of pain was a characteristic result for group B, *i.e.*, it occurred significantly more commonly than in group A both before menstruation ($p = 0.022$), during ($p = 0.011$) and after menstruation ($p = 0.017$). In terms of the frequency of pain, constant pain occurred more commonly in group B (30.05% vs 28.79%). Similar proportions, although at a higher frequency, were calculated for intermittent pain (63.38% vs 60.28%). Pain intensity was rated lower in group A: pain rated at 1–3 points — 9.23% vs 5.63%, pain rated at 4–7 points — 45.39% vs 40.00%. The highest pain intensity (7–10 points) was characteristic of group B (54.55% vs 45.39%). The need for pharmacological pain relief turned out to be the highest in group B (62.27% vs 59.57%). Group A more frequently indicated no need for pain medication (9.22% vs 4.72%). An attempt to assess the degree of endometriosis in the group with endometriosis allowed the conclusion that the degree that was difficult to define was more common in group A (34.97% versus 29.51%), while in group B, level 3 was the most observed (32.79%). In group A, surgery was the most frequent treatment modality (39.60% vs 27.10%), while group B patients most commonly underwent surgical and pharmacological treatment (53.27% vs 30.70%). The evaluation of the effectiveness of treatment did not show statistical significance. More information is presented in Table 3. Only statistically significant results are presented in the table.

DISCUSSION

The diagnosis of endometriosis is increasingly more common in women of all ages. In recent years, numerous new articles have been published that aim to investigate and explain the etiology of this disease. Regrettably, in addition to its adverse health effects, the disease often carries a number of psychological consequences that influence the psychosocial well-being of the affected women.

The main results of our own research indicated that the mean age was significantly higher in the group of women with endometriosis (31.87 vs 24.99). Difficulties with conceiving were significantly more common (51.67%) in the endometriosis group compared to 5.52% in the non-endometriosis group. In each area, the quality of life of women with endometriosis was found to be significantly lower ($p = 0.000$). Women who had been ill for over 3 years significantly more often complained of dyspareunia ($p = 0.048$), bladder pain ($p = 0.01$) and low back pain ($p = 0.029$).

The present research demonstrated that one of the most important results were associated with the significant differences in the WHOQOL-BREF survey, relating directly to the quality of life of the surveyed women. In the questionnaire, all the determined parameters remained at a lower level than in the group without endometriosis. However, it should be emphasized that some women in the non-endometriosis group may have had undiagnosed endometriosis and may still develop symptoms.

Similar observations were also presented in a study by Sims et al. (2021) [14] arguing that the stigma associated with endometriosis was poorly researched and rarely discussed in currently available literature.

The present study showed a decrease in each of the examined areas of the quality of life in women with endometriosis. Significant differences (over 1.0 point of the mean difference) were noted for questions concerning: the assessment of the quality of life (3.23 vs 4.20); the impact of physical pain on daily activities (3.40 vs 1.81); the need for pharmacological treatment in everyday life (3.31 vs 1.45) and the current condition indicated by the patient (2.75 vs 3.79). The obtained results are consistent with the observations of other authors, including Andysz et al. (2018) [4], who analyzed the effect of endometriosis on women in the workplace. The research showed, among others, pain-related difficulties at work (up to 66% of the respondents in a publication by Fourquet et al.), and the deterioration of performance at work (59% in a study by Hansen et al. [4]). According to Andysz et al. (2018) [4], absenteeism was one of the reasons for productivity loss. It was then established that a sick leave of 25–100 days was reported by over 20% of women suffering from endometriosis, and 8% of healthy women. As many as 69% of the women surveyed at that time also admitted that they continued to work despite their pain [4]. This fact was also confirmed by our research, *i.e.*, patients suffering from endometriosis obtained a result much higher compared to that of the group without endometriosis (3.4 vs 1.81) as regards the question concerning the impact of physical pain on daily work.

In the present study, the patients suffering from endometriosis were divided into two groups: A — including patients treated for less than 3 years, and B — including

Table 2. Women's quality of life (WHOQOL-BREF) (n = 650)				
	Group with endometriosis M ± SD	Group without endometriosis M ± SD	All M ± SD	p value
Quality of life	3.23 ± 0.93	4.20 ± 0.66	3.66 ± 0.95	0.000
Life satisfaction	3.25 ± 0.97	3.96 ± 0.69	3.57 ± 0.92	0.000
Impact of physical pain on daily work	3.40 ± 1.13	1.81 ± 0.95	2.69 ± 1.31	0.000
Need for treatment for daily functioning	3.31 ± 1.23	1.45 ± 0.79	2.49 ± 1.40	0.000
Level of joy in life	3.23 ± 0.94	3.91 ± 0.77	3.53 ± 0.94	0.000
Assessment of the meaning of life by the respondents	3.57 ± 1.06	4.09 ± 0.84	3.80 ± 1.00	0.000
Concentration assessment	3.22 ± 0.91	3.71 ± 0.78	3.44 ± 0.89	0.000
How safe do you feel in everyday life?	3.11 ± 0.95	3.88 ± 0.72	3.45 ± 0.93	0.000
To what extent is your environment beneficial to your health?	2.90 ± 1.04	3.45 ± 0.82	3.14 ± 0.99	0.000
Amount of energy in everyday life	2.61 ± 1.07	3.42 ± 0.91	2.97 ± 1.08	0.000
Acceptance of one's physical appearance	3.16 ± 1.26	3.50 ± 1.11	3.31 ± 1.21	0.001
Enough money for personal use	3.04 ± 1.20	3.51 ± 1.04	3.25 ± 1.16	0.000
To what extent is the information you may need in everyday life accessible?	3.34 ± 0.98	4.10 ± 0.78	3.68 ± 0.98	0.000
The possibility of pursuing your interests	3.11 ± 1.06	3.68 ± 0.93	3.37 ± 1.04	0.000
Finding oneself in a specific situation	2.75 ± 0.91	3.79 ± 0.77	3.21 ± 1.00	0.000
Sleep satisfaction	2.84 ± 1.10	3.48 ± 1.01	3.13 ± 1.11	0.000
To what extent are you satisfied with your everyday performance?	2.70 ± 1.00	3.50 ± 0.83	3.06 ± 1.01	0.000
To what extent are you satisfied with your capacity (readiness) to work?	2.88 ± 1.01	3.57 ± 0.90	3.18 ± 1.02	0.000
Are you satisfied with yourself?	3.09 ± 1.00	3.59 ± 0.87	3.31 ± 0.97	0.000
Are you satisfied with your personal relationships with people?	3.28 ± 1.04	3.78 ± 0.87	3.50 ± 1.00	0.000
Satisfaction with intimate life	2.74 ± 1.24	3.64 ± 1.10	3.14 ± 1.26	0.000
Are you satisfied with the support you receive from your friends?	3.25 ± 1.87	3.93 ± 0.91	3.56 ± 1.12	0.000
Satisfaction with living conditions	3.67 ± 1.13	3.99 ± 0.90	3.81 ± 1.05	0.001
To what extent are you satisfied with health care facilities?	2.14 ± 1.06	2.87 ± 1.00	2.46 ± 1.09	0.000
Are you satisfied with transport?	3.11 ± 1.05	3.33 ± 0.97	3.21 ± 1.02	0.013
Frequency of experiencing negative feelings such as depression, despair, anxiety, distress	2.93 ± 0.85	3.39 ± 0.80	3.13 ± 0.86	0.000

M — mean; SD — standard deviation

Table 3. Questions asked to patients with endometriosis (n = 361)

	Treatment of endometriosis 0–3 years (Group A) n = 141 (%)	Treatment of endometriosis > 3 years (Group B) n = 220 (%)	All n = (%)	p value
Symptoms of endometriosis (multiple answers)				
Dyspareunia	83 (57.24)	131 (59.55)	214 (59.44)	0.048
Bladder pain	42 (28.97)	80 (36.36)	122 (33.89)	0.010
Sacral pain	107 (73.79)	169 (76.82)	278 (77.00)	0.029
Asymptomatic	–	2 (0.91)	2 (0.56)	0.024
Onset of pain (multiple answers)				
Before menstruation	62 (44.29)	106 (48.18)	168 (46.54)	0.022
During menstruation	89 (63.57)	145 (65.91)	234 (63.99)	0.011
After menstruation	28 (20.00)	55 (25.00)	83 (22.99)	0.017
Frequency of pain				
Constant	42 (28.79)	64 (30.05)	106 (30.79)	0.019
Intermittent	85 (60.28)	135 (63.38)	220 (63.84)	
Rare	2 (1.42)	3 (2.13)	5 (1.41)	
Very rare	12 (5.63)	2 (0.94)	14 (3.95)	
Pain intensity				
1–3	13 (9.22)	12 (5.63)	25 (7.06)	0.022
4–7	64 (45.39)	88 (40.00)	152 (42.66)	
7–10	64 (45.39)	120 (54.55)	184 (50.28)	
Need for the use of painkillers				
No need for painkillers	13 (9.22)	10 (4.72)	23 (6.50)	0.023
Mainly non-pharmacological methods, rarely pharmacological	44 (31.21)	73 (33.18)	117 (33.05)	
Always pharmacological methods	84 (59.57)	137 (62.27)	221 (58.45)	
The severity of endometriosis (n = 204)				
Stage 1	9 (6.29)	1 (1.64)	10 (4.90)	0.018
Stage 2	18 (12.59)	5 (8.20)	23 (11.27)	
Stage 3	28 (19.58)	20 (32.79)	48 (23.53)	
Stage 4	38 (26.57)	17 (27.87)	55 (26.96)	
Indefinite	50 (34.97)	18 (29.51)	68 (33.33)	
Please indicate your previous treatment (n = 208)				
Surgical	40 (39.60)	29 (27.10)	69 (33.17)	0.043
Pharmacological	19 (18.81)	17 (15.89)	36 (17.31)	
Surgical + pharmacological	31 (30.70)	57 (53.27)	88 (42.31)	
No treatment	11 (10.89)	4 (3.74)	15 (7.21)	

patients treated for over 3 years. This division made it possible to compare those two groups in terms of reported symptoms, as well as the effectiveness of the diagnosis and treatment.

Surrey et al. (2020) [15] proposed a slightly different division. It was a retrospective cohort study with the patients being assigned to three groups depending on the time which passed between the diagnosis of endometriosis and the initiation of treatment. The patients were assigned to

cohorts with short (≤ 1 year), intermediate (1–3 years) or long (3–5 years) delay in disease diagnosis (from the first symptom to the diagnosis) [15].

Such a division made it possible to notice the consequences of delayed diagnosis, while the division according to the duration of treatment allowed for the assessment of an improvement or lack thereof over the course of treatment in relation to selected variables.

In the present study, a significantly higher frequency of bladder pain was observed in the group treated for a shorter period. It was also found that about 10% more patients in the group treated for over 3 years (54.55 vs 45.39) rated the pain associated with endometriosis at 7–10 points (on a 10-point scale). Pain management in the studied population was as follows: about 60% of the patients indicated the use of pharmacological forms of pain relief during each episode of pain; nearly 1/3 of women indicated that they used mainly non-pharmacological methods, while 7% stated that non-pharmacological methods of pain relief were sufficient.

The above-mentioned question concerning the impact of physical pain on everyday work turned out to be one of the most significant questions in the WHOQOL-BREF quality of life survey, due to the large difference between the endometriosis and non-endometriosis group (3.4 vs 1.81, respectively). Slightly smaller differences, although still significant, appeared as regards questions relating to efficiency in everyday life (2.7 vs 3.50) and satisfaction with intimate life (2.74 vs 3.64). Facchin et al. (2021) [16] analyzed the experiences of women reporting dyspareunia during endometriosis. The authors described how the surveyed women perceived and described their pain, how they dealt with it and, importantly, how it affected their mental health and intimate life. The results clearly showed a huge impact of the disease on the quality and sexual satisfaction of women with endometriosis. The surveyed patients reported that the pain they experienced during and/or after intercourse could persist for hours or even days (Jones et al.) and was most often described as cramps, a stinging sensation or severe muscle tension [16].

Sims et al. (2021) [14] also indicated numerous negative consequences experienced by the suffering patients, including reduced emotional well-being, more frequent and intensified symptoms of depression and anxiety, as well as symptoms such as dyspareunia and a lower level of sexual desire. The authors of the study also emphasized the impact of the lack of support from the family and relatives on the mental state of the suffering women. The respondents reported that their spouses and family members perceived pain during menstruation as something normal for women, so they neglected and even ridiculed the pain complaints reported by the patients. Study participants reported that they felt the pressure to bear the pain of endometriosis and accept it as normal, while feeling the pressure to be socially active and perform family responsibilities [14].

Warzecha et al. (2020) [17] also wrote about the impact of endometriosis on the quality of life and the frequent occurrence of depression. The article also dealt with the occurrence of pain, its location and the impact of the delayed diagnosis of the disease [17].

Similarly, Della Corte et al. (2020) [18] confirmed a significant reduction in the quality of life among patients diagnosed with endometriosis. They claimed that pain and infertility due to endometriosis, either alone or in combination, and lower quality of life affected all aspects of a woman's life such as daily activities, employment, job performance, mood, social, sexual relationships and family planning [18]. Lagana et al. (2017) [19] reported that pelvic pain experienced by patients suffering from endometriosis could significantly affect their emotional functioning. They also showed that high levels of anxiety and depression could aggravate the pain. The researchers emphasized that pain appeared to be independent of the stage of endometriosis, which suggested that patients with mild endometriosis might experience more intense pelvic pain than women with more severe endometriosis. The authors suggested that it might be influenced by psychological factors that additionally affected the patients' perception of pain. Research also confirmed, similarly to the present study, that pelvic pain had a significant negative impact on the mental health and quality of life of women with endometriosis [19].

This confirms the observations included the present study, where most women diagnosed with endometriosis reported pelvic pain (constant in over 30% of the respondents, periodic in over 60%). It also revealed reduced quality of life indicators in the questions regarding the level of happiness of the surveyed patients (3.23 vs 3.91) or the perceived meaning of life (3.57 vs 4.09).

The topic of endometriosis-related pain was also discussed by Leuenberger et al. (2022) [20]. It was a multicenter, cross-sectional, case-controlled study that investigated the relationship between chronic pain associated with endometriosis and everyday activities in 510 women with endometriosis. The results indicated that chronic pain had a negative effect on almost all (12/14) aspects of everyday life studied, including moving around, bowel movements, sleeping, various activities, everyday duties (family, work), sexuality, or the joy of life [20].

The present study also analyzed treatment modalities used in the group with endometriosis. It demonstrated that surgical treatment was used more commonly in case of patients treated for a shorter period (less than 3 years), but the combination of surgical and pharmacological treatment was more frequent in patients treated > 3 years.

Endometriosis-induced urinary and digestive disorders, as well as prior surgeries, influence quality of life. Endometriosis infiltrating the bladder wall was found to be associated with painful bladder symptoms and urinary disturbances due to the impaired inferior hypogastric plexus [21]. Roman et al. [22] indicated that in case of DIER (deep infiltrating endometriosis of the rectum), both conservative treatment

and segmental resection could reduce pelvic pain and gastrointestinal disorders, as well as improve the quality of life.

A study presented by Mettler et al. (2014) [23] analyzed three different treatment strategies (hormonal drugs, surgery, or combination therapy) and discussed the impact of the procedure used on the treatment of endometriosis and pain relief. The collected data focused on the recurrence of symptoms and pain in the studied patients. It was found that the highest cure rate (60%) was achieved with combination therapy, 55% with hormone therapy only, and 50% with surgery only [23]. In the present study, patients treated for less than 3 years had more often undergone surgical treatment, while combined surgical and pharmacological treatment was most used in women who had been treated for over 3 years. Regarding the results presented by Mettler et al. [23], one should consider why pharmacological treatment was not often implemented in the first 3 years of treatment and whether such a change would not improve the quality of life in patients in the first 3 years after the diagnosis.

Scavone et al. (2020) [24] reached an interesting conclusion by comparing the results of the symptoms of endometriosis (intensity of pain) and lifestyle. The results of the research very clearly showed the positive effect of physical activity and dietary style in combination with appropriately selected combined surgical and pharmacological treatment on reducing pain and improving the quality of life in the patients [24].

With reference to the above research, it should be acknowledged that the weakness of the present study is undoubtedly associated with the lack of such variables as lifestyle elements of the surveyed women. When continuing our research, we plan to include these variables as well, along with the simultaneous expansion of the groups with and without endometriosis in order to obtain fully representative results. Another limitation of this study is the lack of the analysis of the types and locations of endometriosis. Moreover, selecting the WHOQOL-BREF rather than a standard tool for endometriosis is debatable, which was confirmed in a study by Bourdel et al. (2019) [25] who compared scales examining the quality of life in those with endometriosis. For this purpose, they identified scales used to assess the quality of life with endometriosis, reviewed their strengths and weaknesses, and established the features of an ideal scale for assessing the quality of life of patients with endometriosis. The WHOQOL-BREF scale (used in the present study) was also assessed. It was concluded that a shorter version of the original tool might be more convenient to use in larger studies or clinical trials. Other advantages include short completion time (approx. 5 minutes) and the availability of the tool in 19 different languages [25].

In view of the above reports, the use of this universal and respondent-friendly quality of life assessment tool should be considered a strength of our research.

In our future research, we wish to use other tools to verify the obtained findings in order to receive reliable data. The necessity for further studies has also been justified in the work by Škegro et al. [26], who emphasized that the variety of symptoms in endometriosis (also within the mental sphere) required more screening tests, and comprehensive and personalized treatment of the physical and mental aspects of this disease.

CONCLUSIONS

Experiencing endometriosis significantly reduces a woman's quality of life. The most common factors that deteriorate the quality of life of patients suffering from endometriosis are intense pain during menstrual bleeding, abdominal pain, pain in the sacral segment of the spine, infertility, dyspareunia, and reduced satisfaction in various aspects of life (somatic, psychological, social, and environmental). The results of the study show the need for further research on improving the quality of life of patients suffering from endometriosis.

Article information and declarations

Data availability statement

Data available from the authors.

Ethics statement

The study was approved by the Bioethics Committee of the Medical University of Warsaw (No. AKBE/161/17).

Author contributions

GB — conceptualisation, validation, formal analysis, investigation, resources, writing-review and editing, corresponding author, MM — conceptualisation, validation, writing-original draft preparation, JK — resources, analysis and interpretation of data, UTP — resources, validation, ZS — formal analysis, GD — investigation, ADZ — project administration, JTC — supervision, revised article critically.

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Conflict of interest

None.

Supplementary material

None.

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