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QUALITY OF LIFE OF PATIENTS WITH INFLAMMATORY BOWEL DISEASES


Jakość życia pacjentów z nieswoistymi chorobami zapalnymi jelit

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A - Koncepcja i projekt badania, B - Gromadzenie i/lub zestawianie danych, C - Analiza i interpretacja danych, D - Napisanie artykułu, E - Krytyczne zrecenzowanie artykułu, F - Zatwierdzenie ostatecznej wersji artykułu

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Abstract (in Polish):

Cel pracy: Celem badań była ocena jakości życia pacjentów leczonych z powodu nieswoistych chorób jelit

Materiał i metody: Badanie zostało przeprowadzone w grupie 103 osób leczonych z powodu nieswoistych chorób jelit. Badania były prowadzone od listopada 2021 do stycznia 2022 roku.

Narzędziem badawczym był autorski kwestionariusz ankiety, zmodyfikowaną skalę Mayo oraz Kwestionariusz do oceny jakości życia SF-36. W opracowaniu wykorzystano test Manna-Whitney'a oraz

test Kruskala-Wallisa, po wcześniejszym sprawdzeniu rozkładów zmiennych testem Kołmogorowa-Smirnowa oraz równości wariancji testem Levene'a. Ponadto wykorzystano test t dla jednej próby. Przyjęto poziom istotności $p < 0,05$

Wyniki: Jakość życia chorych była obniżona w wymiarze zdrowia fizycznego. Chorzy leczeni z powodu nieswoistych chorób jelit na średnim poziomie oceniali jakość życia w domenie funkcjonowania fizycznego, społecznego oraz zdrowia psychicznego. Jakość życia była na niskim poziomie u osób w starszym wieku, u kobiet, u osób z niższym wykształceniem oraz u mieszkańców miast do 50 tys. Nasilenie objawów miało wpływ na ogólną ocenę jakości życia. Osoby chorujące krócej lepiej oceniały jakość życia w wymiarze zdrowia psychicznego, funkcjonowania społecznego oraz problemów emocjonalnych.

Wnioski: Ogólna jakość życia chorych była obniżona. Na poziom akceptacji choroby i jakość życia respondentów mają wpływ czynniki socjodemograficzne oraz przebieg kliniczny choroby. Edukacja zdrowotna pacjentów z nieswoistymi chorobami zapalnymi jelit dotycząca choroby, samoopieki i umiejętnego wspierania w sytuacjach trudnych jest podstawą do zwiększenia oceny jakości życia i poziomu akceptacji choroby.

Abstract (in English):

Aim: The aim of this paper was to assess the quality of life of patients treated for inflammatory bowel diseases.

Material and methods: The study was conducted in a group of 103 people treated for inflammatory bowel diseases. The research was conducted from November 2021 to January 2022 after obtaining the consent of the Bioethics Committee

The research tool was the author's questionnaire, the modified Mayo scale and the SF-36 questionnaire for assessing the quality of life. The significance level of $p < 0.05$ was adopted in the study.

Results: Patients' quality of life was reduced in the dimension of physical health. Patients treated for inflammatory bowel disease rated quality of life at an average level in the domains of physical functioning, social functioning and mental health. Quality of life was at a low level in the elderly, in women, in those with lower education and in residents of cities. The severity of symptoms affected the overall assessment of quality of life.

Conclusions: The overall quality of life of the patients was reduced. The level of acceptance of the disease and the quality of life of the respondents are influenced by socio-demographic factors and the clinical course of the disease. The severity of symptoms affected the overall assessment of quality of life. Health education of patients with inflammatory bowel diseases regarding the disease, self-care and skilful support in difficult situations is the basis for increasing the assessment of the quality of life and the level of acceptance of the disease.

Keywords (in Polish): jakość życia, choroba Leśniowskiego – Crohna, wrzodziejące zapalenie jelita

Keywords (in English): Quality of life, Crohn's disease, ulcerative colitis.

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Nieswoiste choroby zapalne jelit

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Authors (short)

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Introduction

Inflammatory bowel diseases are a group of chronic conditions whose symptomatology accompanies patients for the rest of their lives. The most common are Crohn's disease and ulcerative colitis. The aforementioned diseases are characterized by periods of exacerbation and remission. It is estimated that ulcerative colitis is increasingly common, especially in Northern European countries, the United Kingdom, Canada or Australia. In Poland, the highest number of patients is reported in Lower Silesia region. Ulcerative colitis (UC) is diagnosed least frequently in South America, Asia and Japan, in these regions the incidence is up to 10-fold lower than in other European countries [1-3]. Crohn's disease occurs regardless of country and race. The highest increase in incidence is in developing countries, while the lowest is in Africa and Asia. The peak incidence of inflammatory bowel disease is between the ages of 15 and 35. The symptoms associated with Crohn's disease, as well as ulcerative colitis, affect limitations related to daily functioning, as well as patients' quality of life. Both conditions have a negative impact on patients' mental state and social functioning [4-6].

The quality of life of people treated for chronic diseases is itself marked by the presence of anxiety, fear and uncertainty about the future. Uncertainty is primarily associated with the risk of complications arising from the ongoing disease process, such as the risk of developing colorectal cancer or the need, in some cases, for a stoma [7,8]. Symptoms that occur in the course of the disease, which include abdominal pain, diarrhea with admixture of blood and mucus or fever significantly limit daily social functioning, including professional activity. Sometimes patients, due to exacerbation of the disease, are forced to use sick leave, some require hospitalization thus increasing their absenteeism from work. The consequence of this is a worsening economic situation for patients, which is also due to the treatment implemented or the need for diet [9,10].

The need to undergo regular endoscopic examinations and the fear associated with the possibility of complications significantly affects the psychological sphere of patients. In addition, it is important to emphasize the fact of the impact of the disease on the social life of patients treated for inflammatory bowel diseases, who often give up social contacts and various leisure activities due to the exacerbation of symptoms. Factors that affect the overall assessment of quality of life

include satisfaction with the overall quality of life related to the degree of pain, the number of bowel movements per day, and feelings of fatigue and weakness [11,12].

The level of life satisfaction of patients treated for ulcerative colitis or Crohn's disease depends on the level of support received, acceptance of the disease or the severity of symptoms associated with disease exacerbations [13].

The aim of this paper was to assess the quality of life of patients treated for inflammatory bowel diseases.

Material and methods

The study was conducted in a group of 103 respondents treated for inflammatory bowel diseases. The following were considered: ulcerative colitis, Crohn's disease and other inflammatory bowel diseases. The study was conducted from November 2021 to January 2022 at the Medical Care Center in Jarosław and the Independent Public Health Care Center in Przeworsk. The study used a diagnostic survey method, in which the technique used was a survey questionnaire. Among the research tools used were: author's survey questionnaire, which included 6 questions on sociodemographic data; a modified Mayo scale, which assesses the degree of exacerbation of the disease based on symptoms: frequency of bowel movements, colonic bleeding and endoscopic image of the colonic mucosa, as well as general medical evaluation. Based on the points collected, the form is distinguished: 0 - remission, 1-4 - mild disease, 5-8 - moderately active disease, 9-12 - severe disease. The third part was a standardized questionnaire for assessing quality of life SF-36, which contains a total of 11 questions with 36 statements. The use of this questionnaire allows assessment of physical functioning, emotional functioning, social functioning, pain perception, general sense of health and mental health. In interpreting the questionnaire, the number of scores is taken into account. The higher the score, the lower the quality of life assessment. The Mann-Whitney test and the Kruskal-Wallis test were used in the study, after first checking the distributions of variables with the Kolmogorov-Smirnov test and equality of variance with the Levene's test. In addition, a one-sample t-test was used. A significance level of $p < 0.05$ was adopted, and calculations were performed with the SPSS 25 program.

Results

The survey included a group of 103 patients with inflammatory bowel diseases. The respondents included 10.7% of those aged 18-25 and 23.3% of those aged 26-35. Almost one in three patients belonged to the 36-45 age group (33.0%). From 46 to 55 years old were 22.3% of the subjects, and above 55 years old were 10.7% of the subjects. The female group comprised 43.7% of the subjects, and the male group 56.3% of the respondents. Most respondents had a high school education (56.3%). Tertiary education was had by 33.0% of respondents, while 10.7% of patients received only primary education. Rural residents accounted for 38.8% of the respondents. Nearly half of the respondents (44.7%), were residents of a city of up to 50,000 residents, while 16.5% of patients lived in cities of more than 50,000 residents.

Ulcerative colitis was diagnosed in 37.9% of the subjects. A group of 27.2% of respondents were those with Crohn's disease. Other unspecified inflammatory bowel disease was diagnosed in 35.0% of respondents. Most of the respondents (67.0%) had been suffering from inflammatory bowel disease for 1-5 years. From 6 to 10 years, 22.3% of respondents had the disease diagnosed, and above

11 years, 10.7% of people had the disease. Based on the modified Mayo scale, disease remission was present in 4.9% of respondents. A mild form of the disease was present in 28.2% of people. Moderate disease affected 55.3% of respondents, and severe UC flare was observed in 11.7% of respondents.

The quality of life of patients with inflammatory bowel disease was significantly reduced in the physical health dimension (45.79 ± 12.24 points; $p=0.0007$). For the mental health dimension, patients' quality of life was at the average level (48.28 ± 15.79 points; $p=0.2716$) - **Figure 1**.

Patients with inflammatory bowel disease had an intermediate level of quality of life related to role-limiting physical problems (50.63 ± 18.85 points; $p=0.7347$), social functioning (50.97 ± 16.89 points; $p=0.5610$), mental health (48.66 ± 16.50 points; $p=0.4119$). Quality of life was significantly reduced in terms of pain (44.31 ± 25.16 points; $p=0.0237$), general health (33.20 ± 13.85 points; $p<0.0001$) and vitality (39.51 ± 15.63 points; $p<0.0001$). It was also found that quality of life was above average for two scales. This concerned physical functioning (53.59 ± 9.97 points; $p=0.0004$) and role limitation - emotional problems (57.54 ± 18.10 points; $p=0.0001$) - **Table 1**.

It was shown that the quality of life of patients with inflammatory bowel disease decreased significantly with age in the domains of physical functioning ($p=0.0216$), social functioning ($p=0.0089$) and mental health ($p=0.0309$). As patients aged, their quality of life in the mental health dimension decreased significantly ($p=0.0397$). In the physical health dimension, quality of life did not depend significantly on the age of the subjects ($p=0.1592$). Women had significantly reduced quality of life compared to men in physical functioning ($p<0.0001$), pain ($p=0.0238$), general health ($p<0.0001$), vitality ($p=0.0030$), social functioning ($p<0.0001$), emotional problems ($p=0.0011$) and mental health ($p<0.0001$). It was found that women had a significantly reduced quality of life in the physical health dimension (39.77 points; $p=0.0003$) and mental health dimension (41.11 points; $p=0.0001$) compared to men. Patients with ulcerative colitis had reduced quality of life related to physical functioning ($p=0.0018$), role-limiting physical problems ($p=0.0062$), and pain ($p<0.0001$) compared to other patients. Those with Crohn's disease had a reduced quality of life in terms of general health ($p=0.0065$). Patients with other unspecified inflammatory bowel disease, on the other hand, had better quality of life in terms of vitality ($p=0.0444$) - **Table 2**.

It was noted that in the physical health dimension, patients with ulcerative colitis (40.58 points) had a reduced quality of life, those with Crohn's disease (44.39 points) had a slightly better quality of life, and patients with other unspecified inflammatory bowel disease (52.52 points) had a significantly better quality of life ($p=0.0003$). Quality of life in the mental health dimension did not depend significantly ($p=0.1991$) on the type of disease diagnosed in the patients.

Patients with a mild form of the disease had better quality of life in terms of physical problems ($p=0.0041$). The more active the form of the disease, the more patients' quality of life was reduced in the domains of pain ($p=0.0005$), vitality ($p=0.0173$) and mental health ($p=0.0293$). Patients in disease remission (50.00 points) and with mild disease (51.72 points) had better quality of life in the physical health dimension than those with moderate or severe disease ($p=0.0081$). Quality of life in the mental health dimension decreased slightly ($p=0.0601$) as disease activity increased **Table 3**.

It was found that the shorter the duration of inflammatory bowel disease, the worse the quality of life related to pain perception ($p=0.0029$). Those with 6-10 years of illness had better quality of life in terms of social functioning ($p=0.0460$) and role limitation - emotional problems ($p=0.0044$). Those suffering from inflammatory bowel disease for 6-10 years had better quality of life in the mental health dimension ($p=0.0389$) than other respondents (54.78 points). Quality of life in the physical health dimension did not depend significantly ($p=0.6405$) on the period of illness.

Table 1. Quality of life by domain.

	Avg	SD	Me	Min	Max	t	p
Physical functioning (PF)	53.59	9.97	53.33	30.00	66.67	3.655	0.0004
Role limitation - physical problems (RP)	50.63	18.85	50.00	15.00	80.00	0.340	0.7347
Pain (BP)	44.31	25.16	54.55	0.00	81.82	-2.296	0.0237
General health (GH)	33.20	13.85	32.00	8.00	56.00	-12.304	<0.0001
Vitality (VT)	39.51	15.63	45.00	15.00	65.00	-6.807	<0.0001
Social functioning (SF)	50.97	16.89	40.00	20.00	80.00	0.583	0.5610
Role limitation - emotional problems (RE)	57.54	18.10	60.00	13.33	80.00	4.228	0.0001
Mental health (MH)	48.66	16.50	44.00	20.00	80.00	-0.824	0.4119

Source: own.

Table 2. Domain-specific quality of life vs. type of disease.

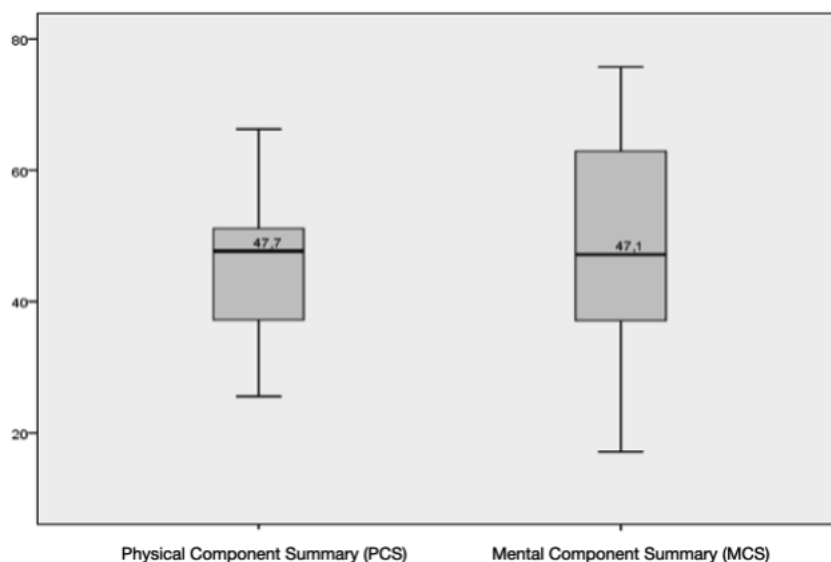
Type of disease	Ulcerative colitis		Crohn's disease		Other unspecified inflammatory bowel disease		P
	Me	SD	Me	SD	Me	SD	
Physical functioning (PF)	49.06	11.34	53.81	8.50	58.33	6.97	0.0018
Role limitation - physical problems (RP)	42.31	21.08	52.32	15.78	58.33	14.83	0.0062
Pain (BP)	28.67	22.42	45.13	24.93	60.61	16.55	<0.0001
General health (GH)	34.26	15.99	26.43	11.17	37.33	11.39	0.0065
Vitality (VT)	36.41	18.78	36.79	13.28	45.00	12.07	0.0444
Social functioning (SF)	49.49	16.38	50.00	18.66	53.33	16.21	0.5270
Role limitation - emotional problems (RE)	55.38	22.38	53.10	14.46	63.33	13.94	0.0692
Mental health (MH)	48.51	18.86	47.14	9.20	50.00	18.40	0.5603

Source: own.

Table 3. Overall quality of life in the dimension of physical and mental health vs. disease activity.

Disease activity	Remission		Mild disease		Moderate disease		Severe disease		P
	Me	SD	Me	SD	Me	SD	Me	SD	
Physical Component Summary (PCS)	50.00	0.00	51.72	10.61	42.86	10.83	43.60	18.82	0.0081
Mental Component Summary (MCS)	58.57	0.00	52.51	12.24	46.97	15.24	40.00	23.87	0.0601

Source: own.



Discussion

The lives of patients with chronic diseases especially of the gastrointestinal tract that manifest themselves with unpleasant symptoms affect patients' daily functioning and overall quality of life. Crohn's disease and ulcerative colitis are most often manifested by complaints of pain, diarrhea and general weakness. Patients' quality of life and acceptance of the disease affect the patients' further life. The following study attempts to assess the quality of life of patients and factors affecting the lives of patients treated for inflammatory bowel diseases. In the present study, the largest group consisted of patients treated for ulcerative colitis (37.9%). 27.2% of the respondents were treated for Crohn's disease. The largest group of respondents were, those patients who had been treated for 1 - 5 years (67%). On the basis of the modified Mayo scale, it was shown that the disease had a moderate degree of activity in most of the respondents (55.3%), a severe cast was present in 11.7% of the respondents.

In the study group of respondents, the majority of respondents rated quality of life in the physical dimension low, at an average level respondents rated life in the mental dimension. Patients with inflammatory bowel disease had an average level of quality of life related to role-limiting physical problems ($p=0.7347$), social functioning ($p=0.5610$), and mental health ($p=0.4119$). Quality of life was reduced in terms of pain ($p=0.0237$), general health ($p<0.0001$), and vitality ($p<0.0001$). Quality of life was also found to be above average for two scales. This was true for physical functioning ($p=0.0004$) and role limitation - emotional problems ($p=0.0001$). In a study conducted by Zielinska-Więczkowska et al. in a group of patients treated for Crohn's disease and ulcerative colitis, overall satisfaction with life was at an average level in 41.1% and at a low level in 31.1% of the subjects. In contrast, the author showed that better quality of their lives was assessed by those patients who accepted the disease [14]. A study by Have et al. showed that low quality of life depended in patients on abstinence from work, number of hospitalizations and treatment with corticosteroids [15]. A study by Stapersman et al. showed that low quality of life was found in patients treated for inflammatory bowel disease with comorbid depression [16]. In turn, Pittet et al. showed that the level of anxiety in a group of respondents treated for inflammatory bowel diseases significantly reduced quality of life [17]. A study by Kozłowska et al. showed that patients treated for ulcerative colitis rated social role functioning and limitations related to their complaints, especially pain, low. In contrast,

physical functioning, general health and physical functioning were rated high in the patient group [18]. Chrobak - Bień et al. showed that the quality of life of patients treated for Crohn's disease is at a low level in the mental and physical dimensions [19]. In a group of subjects in a study conducted by Marcinkowska et al. it was shown that patients who adapted to the changes associated with the disease show better functioning in all spheres of life [20]. A study conducted by other authors among patients treated for inflammatory bowel diseases showed that patients rated their quality of life low in terms of intestinal complaints and emotional functioning, while the overall quality of life in the objective dimension was also rated low by patients [21-25].

The quality of life of patients with inflammatory bowel disease decreased with age in the domains of physical functioning ($p=0.0216$), social functioning ($p=0.0089$) and mental health ($p=0.0309$) which was confirmed by other studies [22,23]. Studies by other authors have not shown a relationship between sociodemographic factors and quality of life of respondents [16,17,24,25].

Women had reduced quality of life compared to men in physical functioning ($p<0.0001$), pain ($p=0.0238$), general health ($p<0.0001$), vitality ($p=0.0030$), social functioning ($p<0.0001$), emotional problems ($p=0.0011$) and mental health ($p<0.0001$) and physical health ($p=0.0003$). Other authors have shown no such correlations in their studies [18-20].

Those with primary education had a reduced quality of life in all domains except vitality ($p=0.0891$) than respondents with secondary or higher education. A study conducted by Zielinska-Więczkowska et al. did not show that education level had a significant impact on patients' quality of life [14]. Kozłowska et al. in their study conducted among patients with ulcerative colitis showed in terms of sociodemographic factors only a correlation in terms of education. The author showed that those declaring a higher education at an average level rated their quality of life, while those with vocational education rated their quality of life better [18]. A study by Chrobak - Bień et al. showed that patients with higher education rated their quality of life higher compared to patients declaring secondary and vocational education [19], which was confirmed by studies by other authors [22-25].

Patients with ulcerative colitis had reduced quality of life related to physical functioning ($p=0.0018$), physical problems ($p=0.0062$) and pain ($p<0.0001$) compared to other patients. Those with Crohn's disease had a reduced quality of life in terms of general health ($p=0.0065$). A study by Kozłowska et al. among patients treated for ulcerative colitis found that these individuals rated their quality of life at an average level [24], which was not confirmed by other studies. [18,20,21].

Patients with a mild form of the disease had better quality of life in terms of physical problems ($p=0.0041$). The more active the form of the disease, the more the patients' quality of life was reduced in the domains of pain ($p=0.0005$), vitality ($p=0.0173$) and mental health ($p=0.0293$) which was confirmed by other studies [25-27].

Patients in disease remission (50.00 points) and with mild disease (51.72 points) had better quality of life in the physical health dimension than those with moderate or severe disease ($p=0.0081$). Quality of life in the mental health dimension decreased slightly ($p=0.0601$) as disease activity increased. The study among patients showed that the severity of symptoms especially in the last 4 months had an impact on the quality of life of the subjects. In the period of remission, as well as in patients without disease symptoms, greater satisfaction with life was shown [50]. The results obtained in our study are confirmed by reports from studies conducted by other authors [17,19,24,28].

On the basis of our study, it can be concluded that patients treated for inflammatory bowel diseases at an average level rate their quality of life in each domain. Quality of life assessment can be

extremely useful in a group of these patients and can lead to the provision of better care for patients by understanding the problems of patients treated for inflammatory bowel diseases.

Conclusions

Respondents' level of acceptance of the disease and quality of life are influenced by sociodemographic factors and the clinical course of the disease. The severity of symptoms affected the overall quality of life assessment. Health education of patients with inflammatory bowel disease about the disease, self-care and skillful support in difficult situations is the basis for increasing the assessment of quality of life and the level of acceptance of the disease. Further research in this area involving a much larger group of respondents is warranted.

References

1. Gonciarz M, Szkudłapski D, Mularczyk A, Radwan P, Kłopocka M., Bartnik W, Rydzewska G. Wytyczne postępowania z chorymi na nieswoiste choroby zapalne jelit w praktyce lekarza rodzinnego. *Lekarz POZ* 2017; 1: 1-11.
2. Rahier JF, Magro F, Abreu C, Armuzzi A, Ben-Horin S, Chowers Y, Cottone M, de Ridder L, Doherty G, Ehehalt R, Esteve M, Katsanos K, Lees CW, Macmahon E, Moreels T, Reinisch W, Tilg H, Tremblay L, Veereman-Wauters G, Viget N, Yazdanpanah Y, Eliakim R, Colombel JF. European Crohn's and Colitis Organisation (ECCO). Second European evidence-based consensus on the prevention, diagnosis and management of opportunistic infections in inflammatory bowel disease. *J Crohns Colitis*. 2014 Jun;8(6):443-68. doi: 10.1016/j.crohns.2013.12.013. Epub 2014 Mar 6. PMID: 24613021.
3. Van Assche G, Lewis JD, Lichtenstein GR, Loftus EV, Ouyang Q, Panes J, Siegel CA, Sandborn WJ, Travis SP, Colombel JF. The London position statement of the World Congress of Gastroenterology on Biological Therapy for IBD with the European Crohn's and Colitis Organisation: safety. *Am J Gastroenterol*. 2011 Sep;106(9):1594-602; quiz 1593, 1603. doi: 10.1038/ajg.2011.211. Epub 2011 Aug 16. PMID: 21844919.
4. Eder P, Łodyga M, Łykowska-Szuber L, Bartnik W, Durlik M, Gonciarz M, Kłopocka M, Linke K, Małecka-Panas E, Radwan P, Rydzewska G. Guidelines for the management of ulcerative colitis. Recommendations of the Working Group of the Polish National Consultant in Gastroenterology and the Polish Society of Gastroenterology. *Gastroenterology Review/Przegląd Gastroenterologiczny*. 2013;8(1):1-20. doi:10.5114/pg.2013.34176.
5. Hagelund LM, Stallknecht SE, Jensen HM. Quality of life and patients preferences among Danish patients with ulcerative colitis – results from a survey study. *Curr Med Res Opin*. 2020; 36(5): 771–779.
6. Mahadevan U, Cucchiara S, Hyams JS, Steinwurz F, Nuti F, Travis SP, Sandborn WJ, Colombel JF. The London Position Statement of the World Congress of Gastroenterology on Biological Therapy for IBD with the European Crohn's and Colitis Organisation: pregnancy and pediatrics. *Am J Gastroenterol*. 2011 Feb;106(2):214-23; quiz 224. doi: 10.1038/ajg.2010.464. Epub 2010 Dec 14. PMID: 21157441.
7. Miniszewska J, Chodkiewicz J, Zalewska-Janowska A. Jakość życia w zdrowiu i chorobie – czym jest, jak i po co ją oceniać. *Prz Lek* 2012; 69(6): 253–259

8. Alabiso ME, Iasiello F, Pellino G, Iacomino A, Roberto L, Pinto A, Riegler G, Selvaggi F, Reginelli A. 3D-EAUS and MRI in the Activity of Anal Fistulas in Crohn's Disease. *Gastroenterol Res Pract.* 2016;2016:1895694. doi: 10.1155/2016/1895694. Epub 2015 Dec 27. PMID: 26819596; PMCID: PMC4706885.
9. Prabha GS, Srinivasan N, Aravindh S, Manisenthil Kumar K.T. Study on quality of life in patients with inflammatory bowel diseases (IBD): impact of sociodemographic factors. *Int J Pharm Sci Res.* 2020; 34: 2823–2827.
10. Herrle F, Sandra-Petrescu F, Weiss C, Post S, Runkel N, Kienle P. Quality of Life and Timing of Stoma Closure in Patients With Rectal Cancer Undergoing Low Anterior Resection With Diverting Stoma: A Multicenter Longitudinal Observational Study. *Dis Colon Rectum.* 2016, 59(4):281–90.
11. Wnuk M, Zielonka D, Purandare B, Kaniewski A, Klimberg A, Ulatowska-Szostak. E, Palicka E, Zarzycki A, Kaminiarz E. Przegląd koncepcji jakości życia w naukach społecznych, *Hygeia Public Health* 2013;48:10-16.
12. Scharl M, Rogler G. Pathophysiology of fistula formation in Crohn's disease. *World J Gastrointest Pathophysiol* 2014; 5: 205-212.
13. Wnuk M, Marcinkowski J. Jakość życia jako pojęcie pluralistyczne o charakterze interdyscyplinarnym, *Probl Hig Epidemiol* 2012;93:21-26.
14. Zielińska – Więzkowska H, Mirolta P. Ocena akceptacji choroby i satysfakcji z życia pacjentów z nieswoistymi chorobami zapalnymi jelit z uwzględnieniem czynników socjodemograficznych i klinicznych, *Medycyna Ogólna i Nauki o Zdrowiu* 2021;3:306–311.
15. van der Have M, van der Aalst KS, Kaptein AA, Leenders M, Siersema PD, Oldenburg B, Fidder HH. Determinants of health-related quality of life in Crohn's disease: a systematic review and meta-analysis. *J Crohns Colitis.* 2014 Feb;8(2):93-106. doi: 10.1016/j.crohns.2013.04.007. Epub 2013 Jun 5. PMID: 23746864.
16. Stapersma L, van den Brink G, van der Ende J, Bodelier AG, van Wering HM, Hurkmans PC, Mearin ML, van der Meulen-de Jong AE, Escher JC, Utens E. Illness perception and depression are associated with health-related quality of life in youth with inflammatory bowel disease. *Int J Behav Med.* 2019; 26: 415–426.
17. Pittet V, Vaucher C, Froehlich F, Burnand B, Michetti P, Maillard MH; Swiss IBD Cohort Study Group. Patient self-reported concerns in inflammatory bowel diseases: A gender-specific subjective quality-of-life indicator. *PLoS One.* 2017 Feb 10;12(2):e0171864. doi: 10.1371/journal.pone.0171864. PMID: 28187201; PMCID: PMC5302448.
18. Kozłowska K, Bączyk G, Krokowicz P. Quality of life in patients with ulcerative colitis treated surgically. *Prz Gastroenterol.* 2014; 9(4): 220–226.
19. Chrobak-Bień J, Gawor A, Paplaczyk M, Gąsiorowska A. Analysis of factors affecting the quality of life of those suffering from Crohn's disease. *Pol Przegl Chir.* 2017; 89(4): 16–22.
20. Marcinkowska E, Grzymisławski M, Swora – Cwynar E, Dobrowolska – Zachwieja A. Wpływ stanu odżywienia pacjentów z nieswoistymi zapalnymi chorobami jelit na jakość ich życia, *Piel. Zdr. Publ.* 2013;3:241-248.
21. Bączyk G, Karoń J, Krokowicz P. Obiektywny i subiektywny wymiar jakości życia osób z nieswoistym zapaleniem jelit leczonych na oddziale chirurgii, *Przegląd Gastrologiczny* 2011;6:170 – 175.

22. Stanisławska J, Zubrzycka R, Talarska D. Jakość życia z wrzodziejącym zapaleniem jelita grubego z uwzględnieniem czynników demograficznych, *Problemy Pielęgniarstwa* 2015;3:373 – 379.
23. Glińska J, Ogrodniczka M, Dziki Ł, Dziki A. Satysfakcja z życia osób z chorobą Leśniowskiego – Crohna, *Problemy Pielęgniarstwa* 2017;4:233-238.
24. Gurková E, Soósová MS. Illness Cognitions and Health-Related Quality of Life of Patients With Inflammatory Bowel Disease., *Gastroenterol Nurs.* 2018 Jan/Feb;41(1):29-37.
25. Gawor A, Lelek D, Ścisło L, Chrobak-Bień J. The impact of socio-demographic and clinical factors on the quality of life and disease acceptance in patients with Crohn's disease, *Pol Przegl Chir*, 2021 Sep 23;94(1):34-40.
26. Matos R, Lencastre L, Rocha V, Torres S, Vieira F, Barbosa MR, Ascensão J, Guerra MP. Quality of life in patients with inflammatory bowel disease: the role of positive psychological factors. *Health Psychol Behav Med.* 2021 Nov 26;9(1):989-1005. doi: 10.1080/21642850.2021.2007098. PMID: 34868738; PMCID: PMC8635588.
27. Keller R, Mazurak N, Fantasia L, Fusco S, Malek NP, Wehkamp J, Enck P, Klag T. Quality of life in inflammatory bowel diseases: it is not all about the bowel. *Intest Res.* 2021 Jan;19(1):45-52. doi: 10.5217/ir.2019.00135. Epub 2020 Feb 27. PMID: 32093437; PMCID: PMC7873402.
28. Min Ho PY, Hu W, Lee YY, Gao C, Tan YZ, Cheen HH, Wee HL, Lim TG, Ong WC. Health-related quality of life of patients with inflammatory bowel disease in Singapore. *Intest Res.* 2019 Jan;17(1):107-118. doi: 10.5217/ir.2018.00099. Epub 2018 Nov 12. PMID: 30419638; PMCID: PMC6361019.