

# QUALITY OF LIFE IN PATIENTS WITH ULCERATIVE COLITIS DURING THE COVID-19 OUTBREAK: A CROSS-SECTIONAL STUDY IN A SINGLE CENTRE IN LATVIA

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*Patients with ulcerative colitis (UC), also known as inflammatory bowel disease (IBD), have a higher risk of anxiety and depression compared to healthy individuals. Therefore, it is important to investigate whether the COVID-19 outbreak influenced inflammatory bowel disease-specific quality of life. In total 49 ulcerative colitis (UC) outpatients from Rīga East Clinical University Hospital were included in a cross-sectional study from June to December 2021. The patients were divided according to COVID-19 status (COVID-19 positive vs COVID-19 negative) in the last six months. Patients were interviewed and data from the Short Inflammatory Bowel Disease Questionnaire (SIBDQ), questionnaire about daily life aspects and subjective health evaluation score were collected. Of the 49 patients, 33 (63.3%) were males and 13 (36.7%) were females; median age was 38.0 (IQR = 17) years. Fourteen patients (28.6%) were COVID-19+ within the last six months. The median SIBDQ score was 62 (IQR = 11), for men 63 (IQR = 7.5) and women 58 [(IQR = 13.8),  $p > 0.05$ . SIBDQ score was 63 (IQR = 10) for COVID-19 negative and 60 (IQR = 15.6),  $p > 0.05$  for positive patients. Sleep was not influenced by gender,  $p = 0.008$ . Three (16.7%) female patients reported a great negative impact on working stability ( $p = 0.044$ ) and a slightly negative influence on income ( $p = 0.039$ ). The COVID-19 outbreak may have an influence on daily life aspects by predisposing females more negatively.*

**Keywords:** inflammatory bowel disease, COVID-19 pandemic, health-related quality of life, well-being, SIBDQ.

## INTRODUCTION

Ulcerative colitis (UC), also known as inflammatory bowel disease (IBD), is a chronic intestinal inflammation with unknown aetiology. Inflammatory bowel disease patients experience physical, social, and psychological problems related to disease activity. Many patients in Europe expe-

rience a relapsing disease course and around 20–25% of patients have chronic continuous symptoms (Keeton *et al.*, 2015). Evidence has shown that psychological stress is a trigger factor for UC flares and relapses. Other factors include diet, presence of infection, lifestyle, sleep disorders and smoking (Sun *et al.*, 2019). IBD patients have a higher risk of anxiety and depression compared to healthy indi-

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viduals. Depression has been associated with increased pain perception and a poor quality of life (QOL), which is a common concern reported by people living with IBD. Mental health comorbidity in adults with IBD is associated with poorer quality of life and more time off work (Cooney *et al.*, 2024). Concerns not only impact the quality of life, but constant stress could also be associated with exacerbations, disease course and become more intense as the symptoms continue (Faust *et al.*, 2012; Keeton *et al.*, 2015; Marrie *et al.*, 2018).

IBD and psychological disorders share multiple pro-inflammatory pathways. Neuroscience studies focus on activated immune-inflammatory and oxidative pathways, autoimmune mechanisms, and gut-brain pathways (Leonard and Maes, 2012; De Sousa *et al.*, 2022). Stress might break the tolerance and activate immune responses in chronic intestinal diseases (Sun *et al.*, 2019).

Chronic disease activity is related to disability and employment. About half of the patients respond that their life is affected by IBD. It affects working behaviour and career development. Data shows that patients had lost or had had to quit a job because of IBD. A significant negative effect on health-related quality of life (HRQoL) has been shown in the severity of current symptoms and work status (Høivik *et al.*, 2012). Previous studies also have shown that women have lower HRQoL scores than men regarding inflammatory bowel disease (Bernklev *et al.*, 2004; de Bock *et al.*, 2021).

In 2021, the European Observatory on Health Systems and Policies and the Organisation for Economic Co-operation and Development (OECD) jointly developed Country Health Profiles for all European States, including Latvia. Less than a half of the Latvian population reported being in good health in 2019. Self-reported health by income level shows a great gap between people with high income and low income, meaning that there is a difference between poor and rich, which indicates one of the greatest income inequalities in the Europe (EU). More than 40% of adults had at least one chronic condition and the prevalence of condition varied between income groups having more than 60% of Latvian adults in the lowest income group having at least one chronic condition, compared to only 24% of those in the highest income group in 2019 (Latvia: Country Health Profile 2019, 2019). Cardiovascular diseases (ischaemic heart disease and stroke) are the leading cause of death in Latvia. The most frequent cause of death by cancer is lung cancer followed by colon cancer. Mental health is a significant issue in the EU, including Latvia. Records show the fifth-highest suicide rate in the EU in 2018, particularly amongst men. According to OECD data, the economic burden of mental ill health can rise to 4% of EU gross domestic product annually. In 2023, the EU launched substantial initiatives to enhance mental healthcare and address the escalating issues (Mental Health in the EU, European Parliament, 2023). Also, a plan for improving the mental health care in Latvia for 2023 to 2025 was approved by the government in December 2022.

Many chronic health problems increased the risk of severe complications from COVID-19 infection (Latvia: Country Health Profile 2019, 2019; State of Health in the EU. The Country Health Profile Series, n.d.). In the European Union, the Belgian health presidency team and the European Observatory on Health Systems and Policies in 2024 selected key priorities regarding European country's health profiles, which included promoting mental health and prevention of non-communicable diseases (NCDs). The initiative proposes concrete actions until 2027 to support European Member States to tackle health determinants with the overarching aim of helping countries to reach World Health Organisation (WHO) targets on prevention of non-communicable diseases (2023 Eurohealth (29.3)).

Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) was first identified in China at the end of 2019 and Europe was the first region to be affected by the pandemic. The spread of infection in Latvia started in March 2020 when the infection spread rapidly and placed stress on the healthcare system. Although the risk of SARS-CoV-2 infection was not higher in patients with IBD than among the general population (Attuabi *et al.*, 2021), patients reported the opposite and believed they were at higher risk of COVID-19 infection, and their depression, anxiety and stress levels increased during the pandemic and lockdowns. Interestingly, patients who reported depression, stress, and anxiety had significantly higher rates of flare-ups during the lockdown (Hernández Camba *et al.*, 2022).

The COVID-19 global pandemic significantly altered daily life due to periods of isolation and quarantine and changed health care access. In a recent review, it was concluded that during the pandemic an increase in clinically significant mental health symptoms was observed in people with IBD as well as in the general population (Shaffer, 2024).

Our study aim was to assess the COVID-19 pandemic's influence on daily life aspects of ulcerative colitis patients. It is important to investigate whether the COVID-19 outbreak influenced inflammatory bowel disease-specific quality of life, daily life aspects, and if it was a significant stressor to UC patients during the pandemic.

## MATERIALS AND METHODS

In this single-centre cross-sectional study, we included 49 ulcerative colitis patients who attended the Outpatient Clinic of Rīga East Clinical University Hospital from June 2021 to December 2021. All patients were divided into two groups according to their history of COVID-19 (positive/negative) and into two groups according to their gender (male/female). Patients were assigned to the COVID-19 positive group if they had a documented positive SARS-CoV-2 test during the last six months. Data on self-reported COVID-19 impact on quality of life were collected during an interview and answered on a Likert-type response scale. Patients were asked to evaluate sleep habits and quality, personal learning, and creation possibilities during the lock-

down, diet habits, working stability by evaluating termination of employment or on the contrary more opportunities in career, exercise habits, income level changes, impact on relationships with partner, friends, and parents and how children's education, grades were affected during COVID-19 pandemic. The impact could be rated as a great negative, a negative, a little negative, no impact, a little positive, a positive and a great positive impact on daily life aspects. We used a health-related quality of life (HRQoL) tool Short Inflammatory Bowel Disease Questionnaire (SIBDQ) to measure physical, social, and emotional status during the last two weeks because of inflammatory bowel disease (Fig.

1). The score ranges between 10 and 70 points. According to points gained, the quality of life is slightly (60–70 points), moderately (45–60 points), or severely impaired (10–45 points). Health evaluation was used to assess subjective well-being ranging from zero to hundred — zero represents the worst well-being now and hundred is the best.

**Statistics.** Data were analysed using R 4.2.1 (R Core Team (2022), R Foundation for Statistical Computing, Vienna, Austria). Categorical variables were expressed as numbers (n) and percentages (%). A binomial test was used to compare two categorical proportions. Independent groups were

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## Short Inflammatory Bowel Disease (IBD) Questionnaire

Patient Name \_\_\_\_\_ Date \_\_\_\_\_

This questionnaire is designed to find out how you have been feeling during the last 2 weeks. You will be asked about symptoms you have been having as a result of your inflammatory bowel disease, the way you have been feeling in general, and how your mood has been. Please check the box of your choice below each question.

- How often has the feeling of fatigue or being tired and worn out been a problem for you during the past 2 weeks?**
  - All of the time
  - Most of the time
  - A good bit of the time
  - Some of the time
  - A little of the time
  - Hardly any of the time
  - None of the time
- How often during the last 2 weeks have you delayed or canceled a social engagement because of your bowel problem?**
  - All of the time
  - Most of the time
  - A good bit of the time
  - Some of the time
  - A little of the time
  - Hardly any of the time
  - None of the time
- As a result of your bowel problems, how much difficulty did you experience doing leisure or sports activities during the past 2 weeks?**
  - A great deal of difficulty; activities made impossible
  - A lot of difficulty
  - A fair bit of difficulty
  - Some difficulty
  - A little difficulty
  - Hardly any difficulty
  - No difficulty; the bowel problem did not limit sports or leisure activities
- How often during the past 2 weeks have you been troubled by pain in the abdomen?**
  - All of the time
  - Most of the time
  - A good bit of the time
  - Some of the time
  - A little of the time
  - Hardly any of the time
  - None of the time
- How often during the past 2 weeks have you felt depressed or discouraged?**
  - All of the time
  - Most of the time
  - A good bit of the time
  - Some of the time
  - A little of the time
  - Hardly any of the time
  - None of the time
- Overall, in the past 2 weeks, how much of a problem have you had with passing large amounts of gas?**
  - A major problem
  - A big problem
  - A significant problem
  - Some problem
  - A little trouble
  - Hardly any trouble
  - No trouble
- Overall, in the past 2 weeks, how much of a problem have you had maintaining or getting to the weight you would like to be?**
  - A major problem
  - A big problem
  - A significant problem
  - Some problem
  - A little trouble
  - Hardly any trouble
  - No trouble
- How often during the past 2 weeks have you felt relaxed and free of tension?**
  - All of the time
  - Most of the time
  - A good bit of the time
  - Some of the time
  - A little of the time
  - Hardly any of the time
  - None of the time

Irvine, E. J., et al. The short inflammatory bowel disease questionnaire: A quality of life instrument for community physicians managing inflammatory bowel disease. Am J Gastroenterology. 1996; 91(8): 1571-8 Aug. Version 2

Fig. 1. Short Inflammatory Bowel Disease (IBD) Questionnaire (Irvine et al., 1991)

analysed using Pearson's chi-square test (if expected frequencies > 5) and Fisher's exact test (if expected frequencies < 5). The odds ratio (OR) calculation was used to evaluate the 2x2 tables. A 95% confidence interval (95% CI) was calculated to evaluate the accuracy of statistical parameters. In all statistical analyses, *p*-value 0.05 was considered statistically significant.

## RESULTS

**Patient characteristics.** In six months, 49 patients with UC were enrolled in the study. Of the 49 patients, 31 (63%) were male and 18 (37%) were female. Fourteen patients (28.6%: 7(50%) in each gender) were COVID-19 positive within the last six months. The characteristics of the study sample are presented in Table 1. Regarding self-reported monthly income levels, none of the respondents reported the highest or the lowest income. High levels of income were reported in seven (14.3%) of patients, normal income in 36 (73.5%) and six (12.2%) reported low-income levels (Table 2). Short inflammatory bowel disease questionnaire (SIBDQ) scores represent men having higher scores unlike women: 63 versus 58, respectively (*p* = 0.186). Scores for COVID-19 negative and COVID-19 positive were 63 and 60, respectively (*p* = 0.362) (Table 3). According to subjective health evaluation, the median results for men were 72 points, 77.5 points for women (*p* = 0.453); COVID-19

Table 1. Characteristics of patients

Parameters	
Patients	n = 49
Gender	
Male	n = 31 (63.3%)
Female	n = 18 (36.7%)
Age, Md (Q1; Q3)	38.0 (34.0;50.0)
IBDQ score Md (Q1; Q3)	62.0 (53.0;64.0)
Health evaluation score Md (Q1; Q3)	75.0 (60.0;85.0)
COVID-19 infection in last six months:	
No	n = 35 (71.4%)
Yes	n = 14 (28.6%)

negative patients had 75 points and COVID-19 positive — 72.5 points (*p* = 0.964).

Fifty percent of women responded that they were not worried about COVID-19 infection and 80.6% of men reported no worries regarding virus spread (*p* = 0.055). Twenty-six (74.3%) COVID-19 negative patients during the last six months reported no worries regarding virus spread, but eight (57.1%) COVID-19 positive patients reported that they were concerned regarding reinfection with the virus (*p* = 0.309) (Table 4).

**COVID-19 pandemic influence on sleep quality.** The COVID-19 pandemic did not impact sleep quality between

Table 2. Income comparison between genders and COVID-19 status

	Male	Female	OR (95% CI)	<i>p</i>	COVID 19 neg.	COVID 19 pos.	OR (95% CI)	<i>p</i>
The highest income, n (%): No	31 (100%)	18 (100%)	Ref.	.	35 (100%)	14 (100%)	Ref.	.
High income, n (%):				0.99				0.65
No	26 (83.9%)	16 (88.9%)	Ref.		29 (82.9%)	13 (92.9%)	Ref.	
Yes	5 (16.1%)	2 (11.1%)	0.68 (0.08; 3.75)		6 (17.1%)	1 (7.14%)	0.42 (0.01; 2.92)	
Normal income, n (%):				0.99				0.297
No	8 (25.8%)	5 (27.8%)	Ref.		11 (31.4%)	2 (14.3%)	Ref.	
Yes	23 (74.2%)	13 (72.2%)	0.90 (0.24; 3.63)		24 (68.6%)	12 (85.7%)	2.58 (0.55; 20.4)	
Low income, n (%):				0.656				0.659
No	28 (90.3%)	15 (83.3%)	Ref.		30 (85.7%)	13 (92.9%)	Ref.	
Yes	3 (9.68%)	3 (16.7%)	1.84 (0.28; 11.9)		5 (14.3%)	1 (7.14%)	0.51 (0.02; 3.81)	
The lowest income, n (%): No	31 (100%)	18 (100%)	Ref.	.	35 (100%)	14 (100%)	Ref.	.

Table 3. Short Inflammatory Bowel Disease (IBD) Questionnaire (SIBDQ) and health evaluation

	Male	Female	OR (95% CI)	<i>p</i>	COVID 19 neg.	COVID 19 pos.	OR (95% CI)	<i>p</i>
SIBDQ score Md (Q1–Q3)	63.0 (56.5; 64.0)	58.0 (50.0; 63.8)	0.97 (0.90; 1.03)	0.186	63.0 (55.0; 64.0)	60.0 (48.2; 63.8)	0.96 (0.89; 1.03)	0.362
Health evaluation, Md (Q1–Q3)	72.0 (55.0; 85.0)	77.5 (70.0; 80.0)	1.02 (0.98; 1.06)	0.453	75.0 (60.0; 85.0)	72.5 (62.5; 80.0)	1.01 (0.97; 1.04)	0.964

Table 4. Patients worrisome towards COVID-19 infection

	Male	Female	OR (95% CI)	<i>p</i>	COVID 19 neg.	COVID 19 pos.	OR (95% CI)	<i>p</i>
Worried about CoV-19, n (%):				0.055				0.309
No	25 (80.6%)	9 (50.0%)	Ref.		26 (74.3%)	8 (57.1%)	Ref.	
Yes	6 (19.4%)	9 (50.0%)	4.00 (1.11; 15.6)		9 (25.7%)	6 (42.9%)	2.13 (0.55; 8.14)	

men (29; 93.5% of men) and women (11; 61.1% of women) ( $p = 0.008$ ). None of the male patients reported any negative impact on sleep quality, compared to a total of five female patients in the negative answer categories. Sleep quality was affected evenly negatively and little negatively between COVID-19 positive (1; 7.14%) and COVID-19 negative patients (1; 2.86%) ( $p = 0.494$ ). Twenty-nine (82.9%) COVID-19 negative patients had no impact on sleep quality compared to eleven (78.6%) COVID-19 positive patients ( $p = 0.702$ ). COVID-19 negative patients reported more frequently a positive impact on sleep quality compared to none of the COVID-19 positive patients ( $p = 1.00$ ) (Table 5).

**COVID-19 pandemic influence on diet.** Neither group reported a great negative, negative or a great positive impact on dietary aspects. One COVID-19 positive patient (7.14%) reported a little negative impact on diet ( $p = 0.285$ ). No impact was reported in 80% of COVID-19 negative patients and 78.6% of positive patients ( $p = 1.00$ ). A positive impact was reported in two (5.71%) of COVID-19 negative patients and one (7.14%) of positive patients ( $p = 1.00$ ).

**COVID-19 pandemic influence on exercise.** From a total of 49 patients, no impact on exercise and physical activity was reported by 28 (57.1%) of patients. In the COVID-19 negative patients, eight (22.9%) reported a little negative impact on exercising compared to one (7.14%) patient from the COVID-19 positive group ( $p = 0.415$ ). No COVID-19 positive patients reported a great positive impact on exercising habits compared to two (5.71%) patients in the COVID-19 negative group ( $p = 1.00$ ). No impact on exercising habits was reported in 80.6% of male patients and 83.3% of female patients. A great negative impact appeared in two (11.1%) women but none in men ( $p = 0.130$ ). From

any positive influence, only a great positive impact was reported by one woman (5.56%) compared to two men (6.45%) in the little positive group, two (6.45%) in the positive impact category ( $p = 0.526$ ) and one (3.23%) in the great positive category ( $p = 1.00$ ).

**COVID-19 pandemic influence on working stability.** Three female patients (16.7%) admitted that working stability was greatly negatively affected compared to none of the male patients ( $p = 0.044$ ). A little negative impact was seen in four male patients (12.9%) compared to one female patient ( $p = 0.639$ ). A positive impact was reported in two male patients (6.45%) and none of the female patients ( $p = 0.526$ ). No impact was reported by 13 (37.1%) COVID-19 negative patients and six (42.9%) COVID-19 positive patients ( $p = 0.963$ ). In general, it was observed that the COVID-19 positive patient group had a greater positive impact on working stability than COVID-19 negative patients. A little positive impact was reported by two (14.3%) COVID-19 positive patients and one COVID-19 negative patient (2.86%) (Table 6).

**COVID-19 pandemic influence.** There were no male patients who reported a great negative or negative impact on personal learning and creation compared to two (11.1%) female patients who were affected ( $p = 0.130$ ). There were no female patients who reported a little positive and positive impact compared to four (12.9%) male patients in the little positive answer category ( $p = 0.282$ ) and five (16.1%) in the positive answer category ( $p = 0.143$ ). There were only five (35.7%) COVID-19 positive patients who reported no impact on personal learning and creation compared to 24 (68.6%) in the COVID-19 negative group ( $p = 0.073$ ).

Table 5. COVID-19 influence on sleep

	Male	Female	OR (95% CI)	$p$	COVID 19 neg.	COVID 19 pos.	OR (95% CI)	$p$
Sleep: great negative, n (%):				0.367				0.286
No	31 (100%)	17 (94.4%)	Ref.		35 (100%)	13 (92.9%)	Ref.	
Yes	0 (0%)	1 (5.56%)	NA		0 (0%)	1 (7.14%)	NA	
Sleep: negative, n (%)				0.130				0.494
No	31 (100%)	16 (88.9%)	Ref.		34 (97.1%)	13 (92.9%)	Ref.	
Yes	0 (0%)	2 (11.1%)	NA		1 (2.86%)	1 (7.14%)	2.56 (0.06; 105)	
Sleep: little negative, n (%):				0.130				0.494
No	31 (100%)	16 (88.9%)	Ref.		34 (97.1%)	13 (92.9%)	Ref.	
Yes	0 (0%)	2 (11.1%)	NA		1 (2.86%)	1 (7.14%)	2.56 (0.06; 105)	
Sleep: no impact, n (%):				0.008				0.702
No	2 (6.45%)	7 (38.9%)	Ref.		6 (17.1%)	3 (21.4%)	Ref.	
Yes	29 (93.5%)	11 (61.1%)	0.12 [0.01; 0.60]		29 (82.9%)	11 (78.6%)	0.75 (0.16; 4.31)	
Sleep: little positive, n (%):				0.526				0.99
No	29 (93.5%)	18 (100%)	Ref.		33 (94.3%)	14 (100%)	Ref.	
Yes	2 (6.45%)	0 (0.00%)	NA		2 (5.71%)	0 (0%)	NA	
Sleep: positive, n (%): No	31 (100%)	18 (100%)	Ref.		35 (100%)	14 (100%)	Ref.	.
Sleep: great positive, n (%):				0.130				0.99
No	31 (100%)	16 (88.9%)	Ref.		33 (94.3%)	14 (100%)	Ref.	
Yes	0 (0%)	2 (11.1%)	NA		2 (5.71%)	0 (0%)	NA	

Table 6. COVID-19 Influence on working stability

	Male	Female	OR (95% CI)	<i>p</i>	COVID 19 neg.	COVID 19 pos.	OR (95% CI)	<i>p</i>
Working stability: great negative, n (%):				0.044				0.99
No	31 (100%)	15 (83.3%)	Ref.		33 (94.3%)	13 (92.9%)	Ref.	
Yes	0 (0%)	3 (16.7%)	NA		2 (5.71%)	1 (7.14%)	1.34 (0.04; 17.8)	
Working stability: negative, n (%):				0.99				0.659
No	27 (87.1%)	16 (88.9%)	Ref.		30 (85.7%)	13 (92.9%)	Ref.	
Yes	4 (12.9%)	2 (11.1%)	0.87 (0.10; 5.33)		5 (14.3%)	1 (7.14%)	0.51 (0.02; 3.81)	
Working stability: little negative, n (%):				0.639				0.99
No	27 (87.1%)	17 (94.4%)	Ref.		31 (88.6%)	13 (92.9%)	Ref.	
Yes	4 (12.9%)	1 (5.56%)	0.44 (0.02; 3.53)		4 (11.4%)	1 (7.14%)	0.66 (0.02; 5.34)	
Working stability: no impact, n (%):				0.99				0.963
No	12 (38.7%)	7 (38.9%)	Ref.		13 (37.1%)	6 (42.9%)	Ref.	
Yes	19 (61.3%)	11 (61.1%)	0.99 (0.30; 3.42)		22 (62.9%)	8 (57.1%)	0.79 (0.22; 2.95)	
Working stability: a little positive, n (%):				0.99				0.193
No	29 (93.5%)	17 (94.4%)	Ref.		34 (97.1%)	12 (85.7%)	Ref.	
Yes	2 (6.45%)	1 (5.56%)	0.91 (0.03; 12.0)		1 (2.86%)	2 (14.3%)	5.14 (0.38; 171)	
Working stability: a positive, n (%):				0.526				0.494
No	29 (93.5%)	18 (100%)	Ref.		34 (97.1%)	13 (92.9%)	Ref.	
Yes	2 (6.45%)	0 (0%)	NA		1 (2.86%)	1 (7.14%)	2.56 (0.06; 105)	
Working stability: a great positive, n (%): No	31 (100%)	18 (100%)	Ref.		35 (100%)	14 (100%)	Ref.	

**COVID-19 pandemic influence on income.** The COVID-19 pandemic had little negative impact on income between men (2; 6.45% of men) and women (6; 33.3% of women) ( $p = 0.039$ ). A great negative impact was reported in only one male (3.23%) patient compared to three (16.7%) female patients ( $p = 0.134$ ). It was observed that 20 (64.5%) male patients reported no impact compared to nine (50.0%) female patients ( $p = 0.487$ ). No women reported any positive impact on income levels during the pandemic. A little positive impact was reported in two men (6.45%) ( $p = 0.526$ ), a positive impact in five men (16.5%) ( $p = 0.143$ ) and a great positive impact in one man (3.23%) ( $p = 1.00$ ). No impact was reported on 22 (62.9%) COVID-19 negative patients and seven (50.0%) COVID-19 positive patients ( $p = 0.613$ ). A great positive impact was reported in only one (2.86%) COVID-19 negative patient ( $p = 1.00$ ) (Table 7).

**COVID-19 pandemic influence on relationship with parents.** Of the 49 UC patients in total, 74.2% of male patients and 77.8% of female patients reported no impact on relationships with parents ( $p = 1.00$ ). There were no COVID-19 positive patients who reported a negative impact compared to three (8.57%) in the COVID-19 negative group ( $p = 0.548$ ). There were no COVID-19 positive patients who reported any form of positive impact in the answer categories compared to four patients in total in the COVID-19 negative patient group.

**COVID-19 pandemic influences on relationships with friends.** No female patients reported any form of positive impact compared to one (3.23%) male patient in each positive answer category. There were six (19.4%) male patients and five (27.8%) female patients who reported a little negative impact ( $p = 0.503$ ). There were no COVID-19 positive patients who reported any positive impact compared to four patients in total in the positive answer categories in the COVID-19 negative group.

**COVID-19 pandemic influence on relationship with partner.** 80.6% of male patients and 83.3% of female patients reported no impact on their relationship with their partner ( $p = 1.00$ ). No female patients reported any form of positive impact compared to one (3.23%) male patient in each positive answer category. There were 82.9% COVID-19 negative and 78.6% COVID-19 positive patients who reported no impact on their relationship with their partner ( $p = 0.702$ ). There were no COVID-19 positive patients who reported any form of positive impact compared to one (2.86%) COVID-19 negative patient in each positive answer category.

**COVID-19 pandemic influence on children's education.** Of the 49 patients, 48.4% male and 50% female patients reported no impact on children's education during the pandemic. Regarding COVID-19 groups, no impact was reported on 17 (48.6%) COVID-19 negative and seven (50%)

Table 7. COVID-19 pandemic influence on income

	Male	Female	OR (95% CI)	<i>p</i>	COVID 19 neg.	COVID 19 pos.	OR (95% CI)	<i>p</i>
Income: great negative, n (%):				0.134				0.99
No	30 (96.8%)	15 (83.3%)	Ref.		32 (91.4%)	13 (92.9%)	Ref.	
Yes	1 (3.23%)	3 (16.7%)	5.34 (0.57;163)		3 (8.57%)	1 (7.14%)	0.89 (0.03;8.47)	
Income: negative, n (%):	31 (100%)	18 (100%)	Ref.	.	35 (100%)	14 (100%)	Ref.	.
Income: a little negative, n (%):				0.039				0.202
No	29 (93.5%)	12 (66.7%)	Ref.		31 (88.6%)	10 (71.4%)	Ref.	
Yes	2 (6.45%)	6 (33.3%)	6.65 (1.27;55.9)		4 (11.4%)	4 (28.6%)	3.01 [(0.58;15.8)	
Income: no impact, n (%):				0.487				0.613
No	11 (35.5%)	9 (50.0%)	Ref.		13 (37.1%)	7 (50.0%)	Ref.	
Yes	20 (64.5%)	9 (50.0%)	0.56 (0.16;1.85)		22 (62.9%)	7 (50.0%)	0.60 (0.16;2.16)	
Income: a little positive, n (%):				0.526				0.99
No	29 (93.5%)	18 (100%)	Ref.		33 (94.3%)	14 (100%)	Ref.	
Yes	2 (6.45%)	0 (0%)	NA		2 (5.71%)	0 (0%)	NA	
Income: a positive, n (%):				0.143				0.616
No	26 (83.9%)	18 (100%)	Ref.		32 (91.4%)	12 (85.7%)	Ref.	
Yes	5 (16.1%)	0 (0.00%)	NA		3 (8.57%)	2 (14.3%)	1.79 (0.19;13.2)	
Income: a great positive, n (%):				0.99				0.99
No	30 (96.8%)	18 (100%)	Ref.		34 (97.1%)	14 (100%)	Ref.	
Yes	1 (3.23%)	0 (0%)	NA		1 (2.86%)	0 (0%)	NA	

in the positive group ( $p = 1.00$ ). None of the respondents reported a great positive impact, on the opposite, a great negative influence on education was reported in four (12.9%) men and four (22.2%) women ( $p = 0.443$ ) and in the COVID-19 positive group two (14.3%) and COVID-19 negative group six (17.1%) patients ( $p = 1.00$ ).

## DISCUSSION

Pre-pandemic studies suggested a higher risk of depression and anxiety, regardless of gender, in IBD patients, including ulcerative colitis patients (Choi *et al.*, 2019). Isolation and fear referred to the unpredictability of IBD was prevalent, but it was more prevalent in females than males and concerns about quality-of-life were significantly reported in females more than in men (Keeton *et al.*, 2015). Also, women patients reported concerns more frequently than men and had significantly lower quality-of-life scores (Rubin *et al.*, 2004). In our study, the SIBDQ score from the short IBD questionnaire had a median value of 62.0 (IQR 11). In a study done in Hungary during the first pandemic wave, the mean score of SIBDQ was reported lower — 54.48 (IQR 11.2) (Dávid *et al.* 2023). In our study, the male patient median score was 63 (IQR 7.5), which represents a slightly impaired quality of life, and in female patients – 58 (IQR 13.8), which corresponds to a moderately impaired quality of life. Although the difference was not statistically significant ( $p = 0.186$ ) we might see a trend towards results reported in other studies. Although men present slightly better results regarding SIBDQ, their subjective health evaluation shows a non-significant lower median score than women did, for men 72.0 (IQR 30) and for women 77.5 (IQR 10). We can explain this finding by the fact that in 2023, a narra-

tive review concluded that women suffering from IBD present a lower quality of life than men, but also women tend to be more proactive to solving their problems (de Bock *et al.*, 2021; Lungaro *et al.*, 2023). We believe that it could be that women value themselves better than the objective indicators show.

An observational, multicentre, cross-sectional, study with 693 IBD (ulcerative colitis diagnosis 61%) patients, mostly women (67%) was conducted to assess the psychosocial impact of the COVID-19 pandemic on patients with IBD across Spain (Hernández Camba *et al.*, 2022). IBD patients were evaluated by the Depression Anxiety and Stress Scale (DASS). Patients in the IBD group had more concerns about viral infection and severe manifestation of COVID-19 because of the diagnosis (Hernández Camba *et al.*, 2022). Our study did not evaluate patients after the DASS score system, but overall, we see a trend that half of women were worried about contracting the virus, compared to six (19.4%) men ( $p = 0.055$ ). In the study conducted in Spain, physical activity levels and sleep habits were adversely affected in 78% and 67% of respondents (Hernández Camba *et al.*, 2022). Our study did not obtain results suggesting a negative impact on sleep habits or its quality. Data showed that COVID-19 did not impact sleep between men (29; 93.5% of men) and women (11; 61.1% of women) ( $p = 0.008$ ).

Regarding physical activities, no impact was reported in a total of 28 respondents (57.1%) from whom 18 were men (58.1% of men) and 10 were women (55.6% of women). Only one woman (5.56%) reported a great positive impact on physical activities. In the COVID-19 positive group

there was one patient (7.14%) who reported a positive impact on exercise. Our study did not find a significant impact on exercise and physical activity between genders and COVID-19 statuses.

The Spanish study also found that 39% of respondents reported a decrease in income, but the reduction of income level was not significant in the groups (anxiety, depression, stress) (Hernández Camba *et al.*, 2022). A study done in Canada reported that COVID-19 negatively impacts household income for those patients who experience elevated mental health symptoms such as anxiety or depression (Dolovich *et al.*, 2023). Our study found statistically significant results that the COVID-19 outbreak had a little negative impact on income between men (2; 6.45% of men) and women (6; 33.3% of women), affecting more women ( $p = 0.039$ ), and not only income was affected but also working stability such as termination of employment. Our data suggested that the COVID-19 outbreak had a great negative impact on working stability, particularly in women ( $p = 0.044$ ).

The nationwide study in Spain reported that being a woman was associated with higher stress scores (Hernández Camba *et al.*, 2022). Another meta-analysis confirmed a higher prevalence of anxiety and depression in patients with active IBD, especially in women (Barberio *et al.*, 2021) and the findings were compatible with studies looking at the psychological burden of COVID-19 in general populations (Mazza *et al.*, 2020; Wang *et al.*, 2020). In our study, we found that men reported more frequently than women that the COVID-19 pandemic had no impact on daily life aspects. Also, regarding personal learning and creation aspects, more frequently female patients were negatively affected but the results were statistically non-significant. Male patients more frequently reported that relationships with friends were negatively affected, but relationships with partners responded more positively, compared to female patients who did not report any positive impact on relationships with a partner during a pandemic. In our research it was found that different quality of life characteristics were more impacted in the women patient group, although many of them were not statistically significant. We suggest including a control group to obtain more convincing data regarding differences between women patients affected by inflammatory bowel disease during the COVID-19 outbreak.

## LIMITATIONS

Our study did not evaluate patients after the DASS-42 score system, which is a 42-item self-report scale designed to measure the negative emotional states of depression, anxiety, and stress. The study did not include disease activity, which is an important factor in interpreting disease specific quality of life score results (Armuzzi *et al.*, 2020; Mavroudis *et al.*, 2022).

## CONCLUSIONS

The fact of virus infection did not show an influence on daily life aspects in ulcerative colitis patients. COVID-19 pandemic may have had an influence on daily life aspects by predisposing females more negatively. Women patients more frequently reported any form of negative impact on their daily life compared to men. The major impact was documented regarding female patient income level and working stability during the pandemic. Quality of life was moderately impaired in ulcerative colitis female patients. It is necessary to include in the IBD patient's management and treatment plan mental health evaluation by evaluating depression, anxiety and stress scores and should be referred to for further corresponding treatment.

## ETHICS

Ethical approval for this study was obtained from the Riga East Clinical University Hospital Medical and Biomedical Research Ethical Committee (No. 14/2021).

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## DZĪVES KVALITĀTE PACIENTIEM AR ČŪLAINO KOLĪTU COVID-19 UZLIESMOJUMA LAIKĀ, ŠĶĒRSGRIEZUMA PĒTĪJUMS VIENĀ CENTRĀ LATVIJĀ

Čūlainais kolīts (ČK) ir iekaisīga zarnu slimība (IZS), un ir zināms, ka tās pacientiem ir lielāks trauksmes un depresijas risks salīdzinājumā ar veselīgiem indivīdiem. Ir būtiski noskaidrot, vai Covid-19 uzliesmojums ietekmēja slimības specifisko dzīves kvalitāti. Šķērsgriezuma pētījumā no 2021. gada jūnija līdz decembrim no Rīgas Austrumu klīniskās universitātes slimnīcas tika iekļauti 49 ČK pacienti. Pacienti tika sadalīti grupās pēc Covid-19 statusa (Covid-19 pozitīvs vai negatīvs) pēdējo sešu mēnešu laikā. Intervijas laikā tika iegūti dati no īsās iekaisīgo zarnu slimības aptaujas (*Short Inflammatory Bowel Disease Questionnaire, SIBDQ*), vērtējums par ikdienas dzīves aspektiem un subjektīvs veselības vērtējuma rezultāts. Dati tika analizēti, izmantojot R 4.2.1 programmatūru. No 49 pacientiem 33 (63,3%) bija vīrieši un 13 (36,7%) sievietes, vidējais vecums 38,0 (IQR = 17) gadi. Pēdējo sešu mēnešu laikā ar Covid-19 bija inficēti 14 pacienti (28,6%). Vidējais *SIBDQ* rādītājs bija 62 (IQR = 11), vīriešiem 63 (IQR = 7,5) un sievietēm 58 (IQR=13,8),  $p > 0,05$ . *SIBDQ* starp COVID-19 negatīviem — 63 (IQR = 10) un pozitīviem — 60 (IQR = 15,6),  $p > 0,05$ . Netika novēroti miega traucējumi dzimumu starpā,  $p = 0,008$ . Trīs (16,7%) sievietes ziņoja par būtiski negatīvu ietekmi uz stabilitāti darbā,  $p = 0,044$  un nelielu negatīvu ietekmi uz ienākumiem,  $p = 0,039$ . COVID-19 pandēmija varēja ietekmēt ikdienas dzīves aspektus, ietekmējot sievietes negatīvāk.