The Association of Anxiety and Depression with the Quality of Life of Inflammatory Bowel Disease Patients

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ABSTRACT

Background: *Inflammatory Bowel Disease (IBD), which is chronic and often recurrent, causes psychological changes in patients. This puts IBD patients at a higher risk of developing various mental disorders, especially anxiety and depression. IBD patients who had symptoms of anxiety or depression tended to show a lower quality of life than patients without those symptoms.*

Methods: *This research uses a cross-sectional design. Data collection was carried out using primary data obtained through interviews with IBD patients who were undergoing outpatient treatment from October to December 2023. Anxiety and depression were measured using the Hospital Anxiety Depression Scale (HADS) and quality of life for IBD patients was measured using the Inflammatory Bowel Disease Questionnaire 9 (IBDQ-9). These questionnaires have been translated into Indonesian and validated. The research sample is an accessible population that has passed the inclusion and exclusion criteria using unpaired numerical analytical sample calculations. The sample used in this research was 172 subjects.*

Results: *In the multivariate analysis, after controlling for confounding variables, the fully adjusted prevalence ratio (PR) for anxiety symptoms was 1.182 (CI: 1.061–1.317, p = 0.002). Similarly, the fully adjusted PR for depression symptoms was 1.221 (CI: 1.075–1.386, p = 0.002).*

Conclusion: *Anxiety and depression are more strongly associated with a decline in the quality of life of IBD patients based on the IBDQ-9 after controlling for confounding variables.*

Keywords: *Anxiety, depression, IBD, quality of life*

ABSTRAK

Latar Belakang: *Inflammatory Bowel Disease (IBD) terdiri atas kumpulan gejala yang bersifat kronis dan sering kambuh menyebabkan perubahan psikologis pada pasien. Hal ini menyebabkan pasien IBD memiliki risiko lebih tinggi untuk terkena berbagai gangguan jiwa, terutama ansietas dan depresi. Pasien IBD yang memiliki gejala ansietas atau depresi cenderung menunjukkan skor kualitas hidup yang lebih rendah dibandingkan pasien tanpa gejala ansietas atau depresi.*

Metode: *Penelitian ini menggunakan desain potongan lintang. Pengumpulan data dilakukan dengan menggunakan data primer yang diperoleh melalui wawancara dengan penderita yang sudah terdiagnosa IBD dan sedang menjalani rawat jalan di poli Gastroenterologi RSUPN Cipto Mangunkusumo antara bulan Oktober-Desember 2023. Kecemasan dan depresi diukur dengan menggunakan Hospital Anxiety Depression Scale (HADS) dan kualitas hidup pasien IBD diukur dengan menggunakan Inflammatory Bowel Disease Questionnaire 9 (IBDQ-9). Pengukuran ansietas dan depresi menggunakan Hospital Anxiety Depression Scale (HADS) dan pengukuran kualitas hidup pasien IBD menggunakan Inflammatory Bowel Disease Questionnaire 9 (IBDQ-9). Kedua kuesioner ini sudah diterjemahkan ke dalam bahasa Indonesia dan tervalidasi. Sampel penelitian adalah populasi terjangkau yang telah melewati kriteria inklusi dan kriteria eksklusi, dengan menggunakan perhitungan sampel analitik kategorik tidak berpasangan. Sampel yang digunakan dalam penelitian ini sebanyak 172 subjek.*

Hasil: *Pada analisis multivariat, setelah mengendalikan variabel pengganggu, rasio prevalensi (PR) yang disesuaikan sepenuhnya untuk gejala kecemasan adalah 1.182 (CI: 1.061–1.317, p = 0.002). Demikian pula, PR yang disesuaikan sepenuhnya untuk gejala depresi adalah 1.221 (CI: 1.075–1.386, p = 0.002).*

Simpulan: *Kecemasan dan depresi berhubungan lebih kuat dengan penurunan kualitas hidup pasien IBD, berdasarkan IBDQ-9 setelah mengendalikan variabel pengganggu.*

Kata kunci: *Ansietas, depresi, IBD, kualitas hidup*

INTRODUCTION

Inflammatory Bowel Disease (IBD) is a long-term condition that causes inflammation of the gastrointestinal tract, leading to digestive and other symptoms. It includes disorders such as Ulcerative Colitis (UC), Crohn's Disease (CD), and Indeterminate Colitis, all of which cause significant gastrointestinal problems. CD can affect any part of the digestive tract, while UC primarily affects the colon but can affect other organs as well.[1] IBD involves flare-ups and periods of remission, and the symptoms can greatly reduce a person's quality of life.[2] The ongoing nature of the disease also increases the risk of mental health problems, particularly anxiety and depression.[3] Anxiety involves constant worry and fear, while depression causes sadness and a lack of interest in activities.[4, 5] Studies show that people with IBD are twice as likely to experience anxiety and depression compared to the general population, which can worsen their overall well-being.[4]

The association between IBD and mental health disorders is thought to be related to the brain-gut axis, which creates a two-way connection between the central nervous system and the gastrointestinal system.[4] This means that abnormalities in one system, such as mental illness, can negatively affect the other, leading to a vicious cycle that exacerbates both physical and psychological symptoms.[6] As a result, IBD patients with anxiety or depression often experience more frequent disease flare-ups, worse symptom management, and a higher incidence of complications.[7]

Despite the significant impact of anxiety and depression on the lives of IBD patients, these mental health conditions are often underdiagnosed. [8] There is limited research on the relationship between anxiety, depression, and IBD in Indonesia, making this study particularly important. The research aims to investigate the association between anxiety, depression, and quality of life in IBD patients.

METHODS

The research design used was cross-sectional. This research was conducted using primary data through interviews with patients who had been diagnosed with Inflammatory Bowel Disease (IBD) and were undergoing outpatient treatment at the Gastroenterology Polyclinic at Cipto Mangunkusumo National Central General Hospital. It was conducted from 30th of October-11th December 2023.

The research sample is an accessible population that has passed the inclusion criteria: IBD patients who are undergoing outpatient treatment at Cipto Mangunkusumo National Central General Hospital,

are in stable condition, namely patients with compos mentis awareness, good vital signs, and can complete the Indonesian version of the HADS and IBDQ-9 questionnaires correctly and wholly, aged ≥ 18 years - 60 years, willing to be a respondent and fill out informed consent; and exclusion criteria: unwillingness, moderate/history of psychotic psychiatric disorders, moderate/history of other gastrointestinal disorders (IBS and gastrointestinal malignancies), moderate/history of other malignant disorders outside gastrointestinal malignancies, patients with organic disorders who are unable to complete the HADS and IBDQ-9 questionnaires completely and correctly caused by disturbances in vital signs. Sample calculations use unpaired numerical analytics. There were 172 subjects who met the inclusion criteria and were analyzed.

The research was conducted after passing an ethical review from the FKUI Ethics Committee with number KET-1228/UN2.F1/ETIK/PPM.00.02/2023. This research was also carried out after obtaining a research location permit signed by the Head of the RSCM Innovation and Intellectual Property Management Installation with number YR.02.01/D. IX.2.3/0229/2023.

Materials and Equipment

Measurement of Anxiety and Depression

Anxiety and depression were measured using the Hospital Anxiety Depression Scale (HADS), which has been translated into Indonesian and validated. This questionnaire consists of 14 questions, which are divided into 2 subscales, namely HADS-A (anxiety) to assess anxiety in 7 questions and HADS-D (depression) to assess depression in 7 questions as well. Patients also ranked each statement on a 4-rating scale, from 0 (not at all) to 3 (very often). A higher value indicates a problem. Answers are totalled separately, namely assessments for anxiety and assessments for depression, with a minimum and maximum number of 0 and 21 for each scale. From the score results, it is classified if more than 16 is a severe case, 11-15 is a moderate case, 8-10 is a mild case, and less than 7 is not a case of anxiety or depression.[9,10]

Quality of Life Measurement

The quality of life of IBD patients was measured using the Inflammatory Bowel Disease Questionnaire 9 (IBDQ-9), which has been translated into Indonesian and has been tested for reliability and validation. IBDQ-9 consists of nine questions containing abdominal complaints (cramps, bloating, nausea, and abdominal pain), frequency of pain, impact of pain on social life, and perception of feelings of joy.[11,12]

Data Analysis

All the data obtained was recorded in a table using Microsoft Excel software and then processed using the SPSS program on the computer. The basic and clinical characteristics of the research subjects will be presented in tabular form. Numerical data will be displayed in the median (inter-quartile range) if the data is not normally distributed. Categorical data will be displayed in proportion form. Statistical significance testing was carried out on each variable, with a p-value <0.05 considered significant. The data normality test was carried out using the Kolmogorov-Smirnov test. In assessing the relationship between anxiety and depression variables and the quality of life scores of IBD patients, a statistical test was carried out using the Mann-Whitney test because the data was not normally distributed. The quality of life variable will be divided into 2 categories, namely good and bad, based on the results of the IBDQ-9 questionnaire. For multivariate analysis, logistic regression analysis is carried out, and for confounding variables, fully adjusted PR (CI 95%) will be displayed.

RESULTS

The population in this study amounted to 172 people, demographic and clinical characteristics are shown in **Table 1.**

Table 1. Characteristics of IBD Patients

Variable	N=172
IBD type, n (%)	
Crohn's Disease (CD)	88 (51.16)
Ulcerative Colitis (UC)	84 (48.84)
Severity Grade/ Disease Activity	
Remission	114 (66.28)
Mild	40 (23.25)
Moderate	18 (10.47)
Gender, n (%)	
Male	66 (38.37)
Female	106 (61.63)
Age	
18 - 39 years	79 (45.93)
40 - 60 years	93 (54.07)
Education	
Elementary School	5 (2.91)
Junior High School	8 (4.65)
Senior High School	73 (42.44)
Diploma/ Bachelor/ Master/ Doctoral	86 (50.0)
Socioeconomic Status, n (%)	
Unemployed	94 (54.65)
Employed	78 (45.35)

Variable	N=172
Disease Duration	
0 – 5 years	151 (87.79)
6 – 10 years	13 (7.56)
11 – 15 years	6 (3.49)
>15 years	2 (1.16)
Routine IBD Medication	
Mesalazine	82 (47.67)
Sulfasalazine	77 (44.77)
Corticosteroid	15 (8.72)
Immunomodulator	9 (5.23)
Laboratory, n (%)	
CRP, n (%) n=132	
Normal	110 (83.33)
Abnormal	22 (16.67)
ESR, n (%), n=128	
Normal	76 (59.38)
Abnormal	52 (40.63)
Comorbidity, n (%)	
No	24 (13.95)
Yes	148 (86.05)
Autoimmune	16 (9.30)
Extraintestinal IBD Manifestation	37 (21.51)
Diabetes Mellitus	7 (4.07)
Hypertension	29 (16.86)
Anemia	12 (6.98)
Liver Disease	10 (5.81)
Gastrointestinal Disease	120 (69.77)
Obesity	14 (8.14)
History of Post-Diagnosis IBD Surgery, n (%)	
No	124 (72.09)
Yes	48 (27.91)
Incision, excision and anastomosis of the intestine	26 (15.12)
Colon resection	6 (3.49)
Perianal and rectum surgery	12 (6.98)
Stoma (ileostomy and colostomy)	7 (4.07)
Smoking Status, n=170, n (%)	
Yes	21 (12.35)
No	149 (87.65)
HADS Score	
Anxiety median (IQR)	7 (4-10)
Depression median (IQR)	4 (1.5-6)
IBDQ-9 Score	
Quality of Life, median (IQR)	60.68 (56.61-64.07)
Good	161 (93.6)
Bad	11 (6.4)

IBD=inflammatory bowel disease; CD=crohn's disease; UC=ulcerative colitis; CRP= C-reactive protein; ESR= Erythrocyte sedimentation rate; HADS= Hospital Anxiety Depression Scale; IBDQ-9= Inflammatory Bowel Disease Questionnaire 9; IQR=interquartile range

The study included 172 patients with Inflammatory Bowel Disease (IBD), comprising 51.16% with Crohn's Disease (CD) and 48.84% with Ulcerative Colitis (UC). Most patients (66.28%) were in remission, while 23.25% had mild and 10.47% moderate disease severity. The cohort was predominantly female (61.63%) and aged 40–60 years (54.07%), with the remaining 45.93% aged 18–39 years. Educational attainment was high, with 50% having at least a diploma or higher qualification, and 42.44% completing senior high school. Socioeconomic status revealed that 54.65% were unemployed. Disease duration was predominantly short, with 87.79% diagnosed within the past five years. Commonly used medications included mesalazine (47.67%) and sulfasalazine (44.77%), while corticosteroids and immunomodulators were used by 8.72% and 5.23%, respectively. Most subjects showed CRP and ESR test results within normal limits, 83.33% and 59.38% respectively. Comorbidities were prevalent (86.05%), notably gastrointestinal diseases (69.77%) such as GERD, H. pylori infection, and cholelithiasis. Most of the study subjects had no history of surgery related to IBD, reaching 72.09%. Meanwhile, the most common types of surgery related to IBD were incision, excision, and intestinal anastomosis at 15.12%. The majority of patients had non-smoking status (87.65%). The quality of life, as measured by the IBDQ-9, was rated good in 93.6% of patients, while anxiety and depression scores had medians of 7 and 4, respectively.

According to **table 2**, the Mann-Whitney test analysis demonstrated a significant relationship between anxiety, depression, and the quality of life in IBD patients, as measured by IBDQ-9 and HADS. The results revealed a p-value of 0.004 for anxiety and 0.009 for depression (both $p < 0.05$), indicating a clear association between these psychological factors and the quality of life of IBD patients.

Table 2. The Association of Anxiety, Depression on the Quality of Life of Inflammatory Bowel Disease (IBD) Patients based on IBDQ-9 and HADS

Variable	Quality of Life		p
	Good	Bad	
Anxiety, Median (IQR)	7 (4 – 10)	12 (7 – 13)	**0.004**
Depression, Median (IQR)	3 (1 – 6)	7 (4 – 8)	**0.009**

IQR=interquartile range

Based on **table 3**, it was found that the association of confounding variables on the quality of life of IBD patients was significant, namely the severity of IBD, p = <0.0001 (p <0.05), smoking status, p = <0.0001 (p <0.05), and comorbidities, p = 0.032 (p<0.05). For the multivariate analysis of anxiety, depression on the quality of life of IBD patients, as shown in **table 3** (The Association of Confounding Variables on the Quality of Life of Inflammatory Bowel Disease (IBD) Patients based on IBDQ-9), confounding variables with a p-value < 0.250 namely the degree of severity, smoking status, comorbidities, and disease duration were sequentially included, starting with the variable with the smallest p-value. The change in delta PR was then assessed, and if it exceeded 10%, the variable was considered a confounder.

Table 3. The Association of Confounding Variables on the Quality of Life of Inflammatory Bowel Disease (IBD) Patients based on IBDQ-9

Variable	Quality of Life		p
	Good	Bad	
IBD Type			
Crohn's Disease (CD)	82 (93.18)	6 (6.82)	0.817
Ulcerative Colitis (UC)	79 (94.05)	5 (5.95)	
Severity Grade			
Remission	112 (98.25)	2 (1.75)	
Mild	34 (85)	6 (15)	<0.0001
Moderate	15 (83.33)	3 (16.67)	
Crohn's Disease (CD)			
Remission	71 (97.26)	2 (2.74)	0.001
Mild	7 (63.64)	4 (36.36)	
Moderate	4 (100)	0 (0)	
Ulcerative Colitis (UC)			
Remission	41 (100)	0 (0)	<0.0001
Mild	27 (93.10)	2 (6.90)	
Moderate	11 (78.57)	3 (21.43)	
Gender			
Male	61 (92.42)	5 (7.58)	0.619
Female	100 (94.34)	6 (5.66)	
Age			
18 - 39 years	73 (92.41)	6 (7.59)	0.557
40 - 60 years	88 (94.62)	5 (5.38)	
Education			
Elementary School	4 (80)	1 (20)	0.621
Junior High School	7 (87.50)	1 (12.50)	
Senior High School	70 (95.89)	3 (4.11)	
Diploma/ Bachelor/ Master/ Doctoral	80 (93.02)	6 (6.98)	
Socioeconomic Status			
Unemployed	88 (93.62)	6 (6.38)	0.994
Employed	73 (93.59)	5 (6.41)	
Disease Duration			
0 – 5 years	143 (94.70)	8 (5.30)	
6 – 10 years	11 (84.62)	2 (15.38)	0.064
11 – 15 years	6 (100)	0 (0)	
>15 years	1 (50)	1 (50)	
Routine IBD Medication			
Yes	154 (93.90)	10 (6.10)	0.467
No	7 (87.50)	1 (12.50)	
Laboratory			
CRP			
Normal	105 (95.45)	5 (4.55)	1.000
Abnormal	21 (95.45)	1 (4.55)	
ESR			
Normal	73 (96.05)	3 (3.95)	0.635
Abnormal	49 (94.23)	3 (5.77)	
Comorbidity			
Yes	141 (95.27)	7 (4.73)	0.032
No	20 (8.33)	4 (16.67)	
History of Post-Diagnosis IBD Surgery			
Yes	44 (91.67)	4 (8.33)	0.520
No	117 (94.35)	7 (5.65)	
Smoking Status			
Yes	21 (100)	0 (0)	<0.0001
No	138 (92.62)	11 (7.38)	

IBD=inflammatory bowel disease; CD=crohn's disease; UC=ulcerative colitis; CRP= C-reactive protein; ESR= Erythrocyte sedimentation rate

Table 4. Multivariate Analysis of Anxiety Score on the Quality of Life in Inflammatory Bowel Disease (IBD) Patients

Variable	Crude PR (CI 95%)	p	Delta PR
Crude			
Anxiety Score	1.165 (1.073 – 1.265)	<0.0001	
Adjusted	**Adjusted PR (CI 95%)**		
+ Severity Grade	1.136 (1.034 – 1.248)	<0.0001	2.5
+ Smoking Status	1.132 (1.027 – 1.248)	0.013	0.3
+ Comorbidity	1.172 (1.065 – 1.291)	0.001	3.4
+ Disease Duration	1.182 (1.061 – 1.317)	0.002	0.8

PR=prevalence ratio; CI=confidence interval

Based on **table 4**, the multivariate analysis showed after controlling with confounding variables, the fully adjusted PR anxiety score was 1.182 (1.061 – 1.317) with p = 0.002. From the multivariate analysis results, it can be concluded that anxiety has an influence on the quality of life of IBD patients. There were no confounding variables in the multivariate analysis of anxiety scores on the quality of life of IBD patients, as no variable had a delta PR change >10%.

Table 5. Multivariate Analysis of Depression Score on the Quality of Life of Inflammatory Bowel Disease (IBD) Patients

Variable	Crude PR (CI 95%)	p	Delta PR
Crude			
Depression Score	1.194 (1.068 – 1.336)	0.002	
Adjusted	**Adjusted PR (CI 95%)**		
+ Severity Grade	1.189 (1.048 – 1.350)	0.007	0.4
+ Smoking Status	1.192 (1.056 – 1.347)	0.005	0.2
+ Comorbidity	1.209 (1.081 – 1.351)	0.001	1.4
+ Disease Duration	1.221 (1.075 – 1.386)	0.002	0.9

PR=prevalence ratio; CI=confidence interval

Based on **table 5**, the multivariate analysis showed that after controlling for confounding variables, the fully adjusted prevalence ratio (PR) for the depression score was 1.221 (1.075 – 1.386) with p = 0.002. These results indicate that depression significantly influences the quality of life in patients with inflammatory bowel disease (IBD). Additionally, no confounding variables were identified, as no variable demonstrated a change in PR greater than 10%.

DISCUSSION

In this study, the median anxiety score among participants was 7 (range 4 -10), while the median depression score was 4 (range 1.5 - 6). These results align with Avinir's research, where the median anxiety score for IBD patients was 8 ± 8 and the depression score was 3 ± 5.[13] Another study by Navabi et al. found that 44% of IBD patients had significant anxiety or depression, with 39.4% experiencing anxiety and 25% experiencing depression.[4]

The median quality of life score in this study was 60.08 (range 56.61–64.07), with 93.6% **(table 1)** of participants having a good quality of life. Most of the patients in this study experienced an IBD remission phase of 98.25% **(table 3)**, this illustrates that the majority of IBD patients in the remission phase have a good quality of life. Most patients (98.25%) were in remission **(table 3)**, suggesting that remission improves quality of life. This finding aligns with previous research, which shows that reducing disease activity enhances quality of life. However, some patients still experience poor quality of life despite being in remission.[14,15] A 2013 study in Spain found a similar pattern, with IBD remission patients having a median IBDQ-9 score of 68.5.[16]

Health-related quality of life in IBD patients is associated by disease-related factors, psychosocial factors, and demographic factors, although controversial.[17,18] In a study by Garcia et al., it was found that people with Crohn's disease and Ulcerative Colitis had the same quality of life scores, both had poor scores during acute exacerbations and good scores during remission.[19]

In this study, the influence of anxiety on the quality of life of IBD patients based on IBDQ-9 and HADS was found with a p-value = 0.004 ($p < 0.05$). This study is consistent with research by Yamamoto et al.[20], Mitropoulou et al.[21], Garcia-Alanis et al.[19], Hu et al.[22], and Tomazoni El et al.[23], which state that anxiety affects the quality of life of IBD patients. Untreated anxiety in IBD patients can worsen the course of the disease.[7] In IBD, generalized anxiety disorder and existing anxiety symptoms cause more disruptive changes in patients' quality of life, such as a tendency to isolate themselves from social interaction, economic difficulties due to increased medication costs, and disruptions in the patient's adaptation or coping mechanisms, leading to more uncontrolled symptoms and disease progression, increasing the risk of surgical intervention.[22,24]

In this study, the influence of depression on the quality of life of IBD patients based on IBDQ-9 and HADS was found with a p-value = 0.009 ($p < 0.05$). This study is consistent with research by Mitropoulou et al.[21], Farbod et al.[25], Garcia-Alanis et al.[19, 26], Tomazoni El et al.[23], and Gao et al.[7], which state that depression affects the quality of life of IBD patients. In IBD, depression disorders and existing depressive symptoms cause more disruptive changes in patients' quality of life, such as a tendency to isolate themselves from social interaction, financial difficulties due to increased medication costs, and disruptions in the patient's self-adjustment or coping mechanisms. These factors contribute to more uncontrolled symptoms and disease progression, increasing the likelihood of requiring surgery.[22,24]

In this study, confounding variables were found for the quality of life of IBD patients, namely the severity of IBD ($p = <0.0001$), smoking status ($p = <0.0001$), and comorbidities ($p = 0.032$).

Patients with Ulcerative Colitis in remission reported a 100% good quality of life, while those with Crohn's Disease had slightly lower scores (97.26%). In Garcia et al.'s research, both Crohn's Disease and Ulcerative Colitis patients had similar quality of life scores, experiencing poor quality during flare-ups and better quality during remission.[19, 26] More severe cases of IBD tend to have worse quality of life due to increased healthcare needs, financial burdens and disruptiond to daily work productivity.[27]

Comorbidities significantly impact the physical aspect of quality of life, with other studies showing that IBD patients with extraintestinal manifestations face greater limitations in daily activities due to higher symptom burdens, increased medication use, and reduced life satisfaction. A 2019 study by Min Ho et al. in Singapore also found that IBD patients with comorbidities had a lower quality of life.[28]

Additionally, research by Rezaei et al. found a negative correlation between nicotine dependence, quality of life, and mental health issues.[29] Smoking is linked to higher living costs and reduced quality of life in IBD patients, and nicotine use may affect neurochemical systems, such as acetylcholine and catecholamines, which are involved in the development of depression.[30, 31]

Research by Bahler et al. in Switzerland in 2017 showed that 78% of IBD patients had at least one comorbid disease. IBD has been shown to be associated with various chronic comorbidities, with it being assumed that IBD shares pathogenic pathways with other immune-mediated inflammatory diseases. In line with this assumption, several studies have found an increased likelihood of immune-mediated disease in IBD patients. IBD is associated with a wide variety of extraintestinal manifestations. The reported frequency varies from 14% to 47% and accounts for the majority of comorbidities in IBD. Additionally, it has been shown that IBD is associated with an increased likelihood of mental disorders such as generalized anxiety, depression, and other mood disorders compared to the general population. Concomitant chronic comorbid conditions, especially

psychological disorders, have a strong negative impact on the quality of life in IBD patients.[32] Research by Garcia-Alanis et al. and Tomazoni El and Benvegnu DM. stated that anxiety negatively impacts the quality of life in patients with Crohn's Disease and Ulcerative Colitis based on IBDQ-32 ($p < 0.001$).[19, 23, 26] Based on the results of this study, it was found that 86.05% of patients had comorbidities. The type of comorbidity that most patients had was Gastrointestinal Disease (GERD, H. Pylori Infection, and Cholelithiasis) as many as 120 patients (69.77%).

In this study, based on the severity/activity of the disease, the majority of IBD patients experienced a remission phase, amounting to 66.28% of the total respondents. Improved quality of life can be achieved by reducing disease activity or achieving remission. However, there are still a large number of IBD patients who have a low quality of life even though they are in remission.[14,15]

Smoking has a particularly strong association with symptoms of depression and anxiety because it is associated with mood-elevating effects associated with feelings of isolation and dissatisfaction with life.[34] Nicotine use can increase the incidence of depression due to its effect on several neurochemical systems, including the acetylcholine and catecholamine systems which play a role in causing depression.[31] Research by Mitropoulo et al., states that the higher the level of depression, the lower their quality of life in terms of emotional function.[21]

Research from Brink et al. in England in 2018, stated that the duration of the disease was significantly related to the presence of symptoms of anxiety and depression. It was found that patients with a shorter duration of IBD had moderate to severe symptoms of anxiety and depression. This indicates that patients with a longer duration of IBD disease have had time to adapt and implement coping mechanisms.[35] Disease duration can also be a predictor of quality of life. Patients with longer duration had a higher quality of life. Meanwhile, patients who have a shorter duration of IBD are more likely to experience symptoms of anxiety and depression, which means it certainly has an impact on the patient's quality of life. With a longer duration of illness, patients will appreciate and be able to have a more positive attitude towards their bodies.[36]

Based on this research, it was found that the highest duration of IBD disease was in the range of 0-5 years (87.79%). However, more patients in this range did not experience depression, amounting to 77.48%. This is related to the results of research, which found that the majority of IBD patients in this study were in the remission phase, amounting to 66.28%. Furthermore, related to quality of life in this study, the majority of patients had a good quality of life amounting to 93.6%, because the majority of patients were in the remission phase.

CONCLUSION

In this study, it was concluded that anxiety and depression are more strongly associated with a decline in the quality of life of IBD patients, as measured by the Indonesian version of the IBDQ-9 after controlling for confounding variables.

SUGGESTION

Based on the findings of this study, early detection of anxiety and depression in IBD patients is essential. This includes using the Indonesian version of the IBDQ-9 questionnaire to assess their quality of life, as well as identifying risk factors to prevent complications. A holistic approach to care is crucial for IBD patients experiencing anxiety and depression, requiring multidisciplinary management by professionals to effectively address and control these mental health issues. Additionally, managing disease severity and activity is important for maintaining remission and preventing relapses. Educating patients to improve medication adherence and regular monitoring is key. There is also a need to develop guidelines for managing IBD in patients with anxiety and depression. Lastly, further research should be conducted to provide a more comprehensive understanding of the effectiveness of the Indonesian version of the IBDQ-9, taking into account variations in research design and patient populations.

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