Health Related Quality of Life and Associated Factors of Inflammatory Bowel Disease Outpatient Unit in Dr. Cipto Mangunkusumo Hospital

Muhammad Fikri Afistianto, Marcellus Simadibrata**, Rudi Putranto***, Murdani Abdullah**, Siti Setiati****, Wismandari Wisnu*****, Dono Antono******, Adityo Susilo********

*Department of Internal Medicine, Dr. Cipto Mangunkusumo National General Hospital, Faculty of Medicine Universitas Indonesia, Jakarta, Indonesia

**Division of Gastroenterology, Pancreatobiliary and Gastrointestinal Endoscopy, Department of Internal Medicine, Dr. Cipto Mangunkusumo National General Hospital, Faculty of Medicine Universitas Indonesia, Jakarta, Indonesia

***Division of Psychosomatic and Palliative Care, Department of Internal Medicine, Dr. Cipto Mangunkusumo National General Hospital, Faculty of Medicine Universitas Indonesia, Jakarta, Indonesia

****Division of Geriatric, Department of Internal Medicine, Dr. Cipto Mangunkusumo National General Hospital, Faculty of Medicine Universitas Indonesia, Jakarta, Indonesia

*****Division of Endocrinology and Metabolism, Department of Internal Medicine, Dr. Cipto Mangunkusumo National General Hospital, Faculty of Medicine Universitas Indonesia, Jakarta, Indonesia

******Division of Cardiology, Department of Internal Medicine, Dr. Cipto Mangunkusumo National General Hospital, Faculty of Medicine Universitas Indonesia, Jakarta, Indonesia

*******Division of Tropical Infection, Department of Internal Medicine, Dr. Cipto Mangunkusumo National General Hospital, Faculty of Medicine Universitas Indonesia, Jakarta, Indonesia

Corresponding author:
Muhammad Fikri Afistianto, Department of Internal Medicine, Dr. Cipto Mangunkusumo National General Hospital, Faculty of Medicine Universitas Indonesia, Jakarta, Indonesia, Phone: +62 812-9872-246, E-mail: fikriafis@gmail.com

ABSTRACT

***Background**: Inflammatory Bowel Disease (IBD), encompassing ulcerative colitis (UC) and Crohn's disease (CD), is an inflammatory digestive tract condition with unknown causes. Its unpredictable symptoms affect quality of life. In Indonesia, the quality of life of IBD patients remains unreported. Factors such as advanced age, long disease duration, active disease, corticosteroid use, comorbidities, unemployment, and poor sleep quality may reduce quality of life. This study aims to assess the quality of life profile of IBD patients and its associated factors.*

***Methods**: This cross-sectional study collected data from October to November 2024 through interviews at the outpatient unit of Dr. Cipto Mangunkusumo Hospital (RSCM). Quality of life was measured using the Inflammatory Bowel Disease Questionnaire 9 (IBDQ-9), and sleep quality was assessed with the Pittsburgh Sleep Quality Index (PSQI). Both tools were validated in Indonesian. Eligible participants met inclusion and exclusion criteria. Bivariate and multivariate logistic regression analyses identified factors associated with quality of life.*

***Results**: Among 201 participants, 95% reported a good quality of life. Multivariate analysis identified active disease (PR 4.072 [1.133–14.633], p = 0.031) and combination therapy (PR 12.803 [1.423–115.147], p = 0.023) as factors associated with poor quality of life. Age, disease duration, comorbidities, employment status, and sleep quality showed no significant associations.*

***Conclusion**: Most IBD patients (95%) in the RSCM outpatient unit reported a good quality of life. Active disease and combination therapy were linked to poorer quality of life.*

***Keywords**: Crohn's disease, inflammatory bowel disease, quality of life, ulcerative colitis,*

ABSTRAK

***Latar belakang:** Inflammatory Bowel Disease (IBD), yang mencakup kolitis ulseratif (UC) dan penyakit Crohn (CD), adalah kondisi inflamasi pada saluran cerna dengan penyebab yang belum diketahui. Gejalanya yang tidak terprediksi memengaruhi kualitas hidup. Di Indonesia, kualitas hidup pasien IBD belum pernah dilaporkan. Faktor seperti usia lanjut, durasi penyakit lama, penyakit aktif, penggunaan kortikosteroid, komorbiditas, pengangguran, dan kualitas tidur yang buruk dapat menurunkan kualitas hidup. Penelitian ini bertujuan untuk menilai profil kualitas hidup pasien IBD dan faktor-faktor yang berhubungan.*

***Metode:** Penelitian ini menggunakan desain potong lintang dengan data dikumpulkan pada Oktober hingga November 2024 melalui wawancara di unit rawat jalan Rumah Sakit dr. Cipto Mangunkusumo (RSCM). Kualitas hidup diukur menggunakan Inflammatory Bowel Disease Questionnaire 9 (IBDQ-9), dan kualitas tidur dinilai dengan Pittsburgh Sleep Quality Index (PSQI). Kedua alat ukur telah divalidasi dalam bahasa Indonesia. Partisipan yang memenuhi kriteria inklusi dan eksklusi diikutsertakan. Analisis regresi logistik bivariat dan multivariat dilakukan untuk mengidentifikasi faktor-faktor yang berhubungan dengan kualitas hidup.*

***Hasil:** Dari total 201 subjek, didapatkan 95% pasien memiliki kualitas hidup baik. Analisis multivariat menunjukkan penyakit aktif (PR 4,072 [1,133-14,633] p = 0,031) dan terapi kombinasi (PR 12,803 [1,423-115,147] p = 0,023) berhubungan dengan kualitas hidup tidak baik. Tidak didapatkan hubungan bermakna antara usia, durasi penyakit, komorbid, status pekerjaan, dan kualitas tidur.*

***Kesimpulan:** Proporsi kualitas hidup baik pasien IBD di unit rawat jalan RSCM adalah 95% dengan faktor yang berhubungan dengan kualitas hidup tidak baik adalah penyakit aktif dan terapi kombinasi.*

***Kata kunci:** Penyakit crohn, penyakit radang usus, kualitas hidup, kolitis ulseratif*

INTRODUCTION

Inflammatory Bowel Disease (IBD) is an inflammatory condition involving the digestive tract with unclear causes. It is classified into two main types: Ulcerative Colitis (UC) and Crohn's Disease (CD), with a small percentage categorized as indeterminate colitis (IC) when the two types are difficult to distinguish.[1] IBD results from complex interactions between genetic factors, environmental exposures, and immune responses to gut microbiota.[2] The peak incidence of IBD occurs in young adults (20-29 years) and increases in the seventh to ninth decades. Urban areas and higher socioeconomic groups tend to have higher prevalence rates.[3]

In the United States, about 1.3% of adults were diagnosed with IBD in 2015, an increase from 1999.[4] The incidence of IBD is rising in developed countries and also in developing countries, including Asia, where it was previously rare.[5] In Indonesia, the incidence of IBD has increased, with cases rising from 8.3% in 2001-2006 to 11.2% in 2017-2018.[6,7] While IBD is not among the top ten diseases in terms of healthcare costs (Jaminan Kesehatan Nasional/JKN), it significantly impacts patients' quality of life, particularly in terms of productivity for those who are breadwinners.

IBD symptoms fluctuate between relapse and remission, impacting patients' quality of life due to unpredictable digestive issues, medication side effects, and psychological conditions like depression and anxiety.[8] Health-Related Quality of Life (HRQoL) is influenced by factors such as disease severity, duration, comorbidities, socioeconomic status, and sleep quality.[9-13] To assess HRQoL in IBD patients, tools like the Inflammatory Bowel Disease Questionnaire-9 (IBDQ-9) are used.[14] This questionnaire, already validated in Indonesia, effectively measures HRQoL,[15] though data on its influencing factors within the Indonesian healthcare system remain limited. This study at RSCM aims to assess HRQoL in IBD patients by examining variables like age, disease duration, disease activity, pharmacotherapy modalities, comorbidities, employment status, and sleep quality, with the goal of optimizing patient care and improving quality of life in the Indonesian healthcare context.

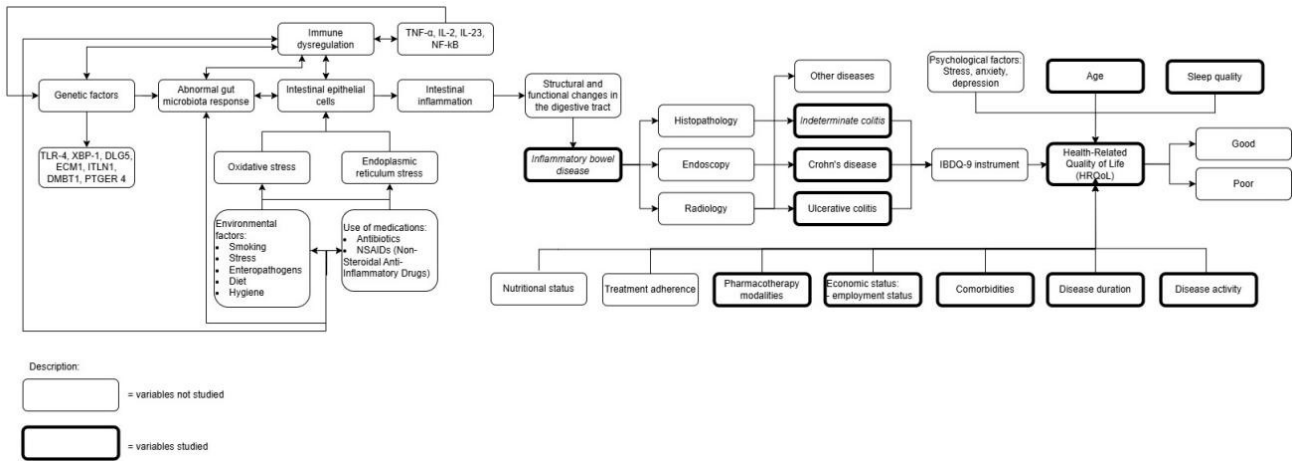

Figure 1. Theoretical Framework

METHODS

This study is a descriptive study with a cross-sectional design. The study was conducted in the Gastroenterology Outpatient Unit of RSCM Jakarta from October to November 2024 with approval from the Health Research Ethics Committee of the Faculty of Medicine, Universitas Indonesia/Rumah Sakit Cipto Mangunkusumo under ethical clearance number KET-1306/UN2.F1/ETIK/PPM.00.02/2024, issued on September 20, 2024. The inclusion criteria were IBD patients (UC or CD) diagnosed based on endoscopy and histopathology, aged ≥18 years, experiencing IBD for more than 2 weeks, and willing to participate in the study by signing informed consent. The exclusion criteria were patients with acute infections within 6 weeks, active tuberculosis, other gastrointestinal disorders (IBS or malignancy), non-gastrointestinal malignancies, dementia, cognitive impairments, psychiatric disorders (based on medical records), or those with decreased consciousness, seizures, or severe dependency.

Of the 224 IBD patients (UC and CD) visiting the Gastroenterology outpatient clinic at RSCM, 201 met the inclusion criteria for the study. All potential subjects were informed about the study procedures and provided written consent. Participants filled out demographic data (age, gender, employment status, education, disease duration, surgical history, comorbidities, and current therapy), as well as the PSQI and IBDQ-9 questionnaires in Indonesian. Disease activity was assessed using the CDAI score for CD and MSUC score for UC.

Data were analyzed using SPSS. Bivariate analysis was conducted to examine the relationship between factors (age, disease duration, disease activity, pharmacotherapy modality, comorbidities, employment status, and sleep quality) and quality of life in IBD patients. Chi-square test was used if the conditions were met; otherwise, Fisher's test was applied. Adjusted analysis was performed using logistic regression with backward stepwise method in STATA, automatically eliminating non-significant variables when the p-value in bivariate analysis was <0.25.

RESULT

Table 1 shows that most of the study subjects were female (60.7%), with 40.8% having a diploma or bachelor's degree and 62.2% being unemployed. The majority had a disease duration of 0-5 years (83.1%), with 64.2% in remission, 30.3% having mild disease activity, and 5.5% having moderate disease activity. Mesalazine was the most commonly used medication (60.7%). Most subjects had comorbidities (86.1%), with gastrointestinal diseases being the most common (34.3%), and the majority had no history of surgery related to IBD (95.5%).

The median sleep quality score, based on the PSQI, was 6 (range 5-8), indicating that 58.7% of subjects had poor sleep quality. The median quality of life score, based on the IBDQ-9, was 64.7 (range 60.8-69.6), with 95% of the subjects having a good quality of life.

Table 1. Basic characteristics of research subjects

Characteristic	Total (n = 201)
Age, n (%)	
18 - 40 years	60 (29.9)
> 40 years	141 (70.1)
Gender, n (%)	
Men	79 (39.3)
Women	122 (60.7)
IBD type, n (%)	
Crohn's disease (CD)	80 (39.8)
Ulcerative colitis (UC)	121 (60.2)
Disease activity, n (%)	
Remission	129 (64.2)
Mild degree	61 (30.3)
Moderate degree	11 (5.5)
Severe degree	0 (0.0)
Education, n (%)	
Primary School	14 (7.0)
Middle School	20 (10.0)
High School	71 (35.3)
Diploma/Bachelor	86 (40.8)
Masters/Doctoral	10 (5.0)
Employment status, n (%)	
Unemployed	125 (62.2)
Employed	76 (37.8)
Disease duration, n (%)	
0 – 5 years	167 (83.1)
6 – 10 years	26 (12.9)
11 – 15 years	6 (3.0)
>15 years	2 (1.0)
Pharmacotherapy modality, n (%)	
Mesalamin	122 (60.7)
Sulfasalazine	60 (29.9)
Corticosteroids	1 (0.5)
Combination	18 (8.9)
Comorbidities, n (%)	
No	28 (13.9)
Yes	173 (86.1)
Autoimmune	12 (6.0)
Extraintestinal manifestations of IBD	40 (19.9)
Diabetes Mellitus	16 (8.0)
Hipertension	59 (29.4)
Asthma	8 (4.0)
Liver disease	6 (3.0)
Gastrointestinal disease	69 (34.3)
Chronic kidney disease	2 (1.0)
Chronic heart failure	3 (1.5)
Osteoarthritis	18 (9.0)
Anemia	15 (7.5)
Orthers	54 (26.9)
Post-diagnosis surgical history, n (%)	
No	192 (95.52)
Yes	9 (4.47)
Incision, excision and anastomosis of the intestinal	3 (33.3)
Colon resection	3 (33.3)
Perianal and rectal operations	1 (11.1)
Stoma (ileostomy and colostomy)	2 (22.2)

The relationship between independent variables and the quality of life of IBD patients based on bivariate analysis **(Table 2)** shows that most UC (94.2%) and CD (9.3%) patients have good quality of life, but the type of IBD does not significantly affect quality of life. Patients with active disease or mild-to-moderate disease severity tend to have lower quality of life compared to those in remission (PR 16.125, $p < 0.001$), with a more significant difference in UC (PR 25.109, $p < 0.001$) compared to CD (PR 3.962, p 0.262). Combination therapy is also associated with poorer quality of life (PR 6.777, $p = 0.007$). No significant differences were found regarding age, employment status, disease duration, comorbidities, and sleep quality.

Multivariate logistic regression was conducted on variables with $p < 0.25$, including disease activity, pharmacotherapy modality, and sleep quality **(Table 3).** The final model showed that only disease activity and pharmacotherapy modality were significantly associated with quality of life in IBD patients. Patients with active disease were 4.072 times more likely to have poor quality of life compared to those in remission (95% CI, 1.133–14.633). Additionally, combination therapy was associated with poor quality of life, with a 12.8 times higher likelihood compared to monotherapy (PR 12.803, 95% CI, 1.423–115.147).

Table 2. The relationship between independent variables and the quality of life of IBD patients.

Variables	Quality of life n (%)		PR (95% CI)	p-value
	Poor (n=10)	Good (n=191)		
IBD type				
Ulcerative Colitis (UC)	7 (5.8)	114 (94.2)	1.543 (0.411-5.791)	0.743
Crohn's Disease (CD)	3 (3.8)	77 (96.3)		
Age				
> 40 years	7 (4.9)	134 (95.1)	0.993 (0.269-3.711)	1.000
18-40 years	3 (5.0)	57 (95.0)		
Disease activity				
Mild-moderate	9 (12.5)	63 (87.5)	16.125 (2.085-124.728)	<0.001
Remission	1 (0.8)	128 (99.2)		
Crohn's Disease (CD)				
Mild-moderate	2 (7.4)	25 (92.6)	3.962 (0.372-41.384)	0.262
Remission	1 (1.9)	52 (98.1)		
Ulcerative Colitis (UC)				
Mild-moderate	7 (15.6)	38 (84.4)	25.109 (1.468-429.48)	<0.001
Remission	0 (0.0)	76 (100)		

Variables	Quality of life n (%)		PR (95% CI)	p-value
	Poor (n=10)	Good (n=191)		
Employment status				
Unemployed	5 (4.0)	120 (96.0)	0.608 (0.182-2.032)	0.508
Employed	5 (6.6)	71 (93.4)		
Disease duration				
> 5 years	2 (5.9)	32 (94.1)	1.228 (0.273-5.531)	0.678
0 – 5 years	8 (4.8)	159 (95.2)		
Pharmacotherapy modality				
Combination therapy	4 (22.2)	14 (77.8)	6.777 (2.099-21.876)	0.007
Monotherapy	6 (3.3)	177 (96.7)		
Comorbidities				
Yes	10 (5.7)	164 (94.3)	3.360 (0.202-55.747)	0.364
No	0 (0.0)	27 (100)		
Sleep Quality				
Poor	10 (8.5)	108 (91.5)	14.823 (0.881-249.52)	0.061
Good	0 (0.0)	83 (100)		

Fisher's test. Variables that were continued for multivariate analysis

Table 3. Results of the multivariate analysis of factors related to the quality of life of IBD patients

Variables	p-value	PR (95% CI)
Initial Model		
Disease activity	0.032	10.102 (1.131-90.203)
Pharmacotherapy modality	0.064	3.294 (0.934-11.605)
Sleep quality	0.996	89741466.137
Final Model		
Disease activity	0.031	4.072 (1.133-14.633)
Pharmacotherapy modality	0.023	12.803 (1.423-115.147)

DISCUSSION

Out of 201 IBD patients in the RSCM Gastroenterology outpatient unit, 10 subjects (5%) had poor HRQoL, while 95% had good HRQoL. Of the 10 patients with poor HRQoL, 7 had UC (5.8%) and 3 had CD (3.8%). This differs from a study in Boston, USA, which found that CD patients had lower HRQoL scores than UC patients.[11]

The relationship between age and HRQoL in IBD patients remains controversial. Some studies show older patients have lower scores,[9,16] while other studies find no significant relationship, including in this study, which showed no significant results. The PR approaching 1 indicates that the risk of poor HRQoL is nearly the same for both age groups (>40 years and 18-40 years).

This study found no significant difference in HRQoL based on disease duration (0–5 years vs. >5 years. This aligns with previous research suggesting that disease duration does not worsen HRQoL, possibly due to patients adapting with improved coping strategies,[17] better care access, and treatment adherence.

Disease activity significantly impacts the HRQoL of IBD patients, with UC showing a greater difference than CD. Moderate UC has notably lower IBDQ scores than mild UC,[18] and active UC or CD significantly reduces HRQoL due to symptoms like abdominal pain, diarrhea, and fatigue.[9,10,] Severe disease further lowers HRQoL, increases healthcare visits, costs, and disrupts productivity.[19] Poor psychological health, including stress, depression, and anxiety, worsens disease activity and HRQoL.[20]

This study found a significant relationship between combination therapy and poor HRQoL in IBD patients. Previous research shows lower IBDQ scores with 5-ASA + corticosteroid compared to 5-ASA alone,[18] with corticosteroid use linked to lower HRQoL.[9] However, some studies highlight better mucosal healing with infliximab + azathioprine than azathioprine alone.[21] Long-term corticosteroid use, whether combined or alone, causes adverse effects impacting HRQoL.[18] Variations in individual treatment responses make it challenging to generalize the impact of combination therapy on HRQoL, and bivariate analysis may not fully reflect the true relationship.

Comorbidities were not statistically linked to HRQoL in IBD patients in this study. This aligns with previous findings that disease activity, social support, and psychological status have greater influence than the number of comorbidities.[22] Uneven distribution between groups with and without comorbidities may have contributed to the non-significant results. Psychological stress and disease activity often have a more direct impact on physical and emotional well-being, and not all comorbidities significantly affect HRQoL, with conditions like anemia having a greater impact.[22,23]

Employment status in this study showed no significant statistical relationship with HRQoL in IBD patients. This is consistent with other studies

where most working patients experienced decreased productivity due to IBD symptoms, but no direct link between employment status and HRQoL was found.[24] However, other studies showed that full-time or part-time workers had significantly higher HRQoL scores due to better financial support.[9] In Indonesia, employment status may not directly affect HRQoL due to uniform access to healthcare at RSCM and the JKN system, which alleviates treatment and examination costs. Family and social support also reduce the impact of employment status on HRQoL.

This study found no significant relationship between sleep quality and HRQoL in IBD patients, unlike other studies where poor sleep was significantly linked to worse HRQoL.[10,12,] Sleep apnea and insomnia are associated with worse HRQoL after 4 weeks.[25] The wide confidence intervals in this study led to high variability and uneven sample distribution. Other factors, such as psychosocial issues (stress, anxiety, depression), medications like corticosteroids,[26] and psychological adaptation, could affect sleep quality but were not included as variables. Some patients with poor sleep or night shifts may still manage daily activities well, maintaining good HRQoL.[27]

This study is the first in Indonesia to examine factors related to the quality of life of IBD patients using the IBDQ-9, which has been translated and validated. The results are expected to represent a broader population and serve as a reference for long-term research.

This study has limitations, including its cross-sectional design, which does not capture causality or changes in HRQoL over time. It lacks systematic screening for anxiety, depression, physical function, or social support, and excludes confounding factors like psychosomatic disorders, nutritional status, and smoking history. The uneven sample distribution, with most patients in remission and none with severe disease, limits representation of active or severe cases. Further research with a cohort study design is recommended to better understand the effects of time-related changes on each sample characteristic and its relationship with HRQoL. Despite these, the study adds valuable insights into the HRQoL of IBD patients in Indonesia.

CONCLUSION

This study concludes that 95% of IBD patients at the Outpatient Unit of Dr. Cipto Mangunkusumo Hospital have a good quality of life. A significant association was found between active disease and combination therapy with poor quality of life.

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