# FACTORS PREDICTING HEALTH-RELATED QUALITY OF LIFE IN PATIENTS WITH INFLAMMATORY BOWEL DISEASE

HAIXIA ZHAO

A THESIS SUBMITTED IN PARTIAL FULFILLMENT OF
THE REQUIREMENTS FOR MASTER DEGREE OF NURSING SCIENCE
(INTERNATIONAL PROGRAM)
IN ADULT NURSING PATHWAY
FACULTY OF NURSING
BURAPHA UNIVERSITY
2024

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The Thesis of Haixia Zhao has been approved by the examining committee to be partial fulfillment of the requirements for the Master Degree of Nursing Science (International Program) in Adult Nursing Pathway of Burapha University

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This study aimed to describe health-related quality of life and its influencing factors among patients with inflammatory bowel diseases in Wenzhou, China. Using simple random sampling, 150 patients with IBD were recruited from the Department of Gastroenterology in the First Affiliated Hospital of Wenzhou Medical University, Wenzhou, China. Research tools included a demographic data questionnaire and a 22-item IBD quality-of-life questionnaire, Short Health Scale, Body Image Scale, Perceived Stress Scale and the Multidimensional Scale of Perceived Social Support. Data analyses were performed using descriptive statistics and multiple linear regression analysis.

The results of this study showed that the average score of health-related quality of life in patients with IBD was 86.43 (SD=12.89), indicating relatively moderate level. Social support, body image dissatisfaction, perceived health status and perceived stress significantly explained 30.0 % of the variance in the health-related quality of life (Adjust $R^2$ = .300, $F$ = 16.939, $p$ < .001). The strongest influencing factor was perceived health status ($\beta$ = -.0.341, $p$ < .001), followed by perceived stress ($\beta$ = -.205, $p$ < .01), and then body image dissatisfaction ($\beta$ = -.218, $p$ < .05) and the least was social support ($\beta$ = .147, $p$ < .05). Clinical nurses could promote IBD patients' health-related quality of life by improving their perceived health status, reducing stress, and helping them find social support systems, so as to change the way they look at their body image. These can certainly help improve their quality of life.

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Haixia Zhao

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# CHAPTER 1
# INTRODUCTION

## Background and significance

Inflammatory bowel disease (IBD) is an umbrella term used to describe the disorders that involve chronic inflammation of digestive tract. Ulcerative colitis and Crohn disease are two subtypes of IBD which are commonly found (Harbord et al., 2016). Ulcerative colitis involves inflammation and sores (ulcers) along the superficial lining of large intestine (colon) and rectum. Crohn's disease is characterized by inflammation of the lining of digestive tract, which often can involve the deeper layers of the digestive tract. Both IBD's subtypes are usually characterized by the symptoms of diarrhea, rectal bleeding, abdominal pain, fatigue and weight loss. IBD is different from irritable bowel syndrome (IBS). IBS is a functional heterogenous disease with a multifactorial pathogenesis. It is characterized by abdominal pain, discomfort, and alteration in gut motility (Szalwinska et al., 2020). IBS is a disorder of the gastrointestinal (GI) tract. Whereas, IBD is inflammation or destruction of the bowel wall, which can lead to sores and narrowing of the intestines. Both are chronic conditions that cause abdominal pains, cramping, and urgent bowel movements. Both pathologies alter the quality of life, in many cases in a similar way. The social cost is very important in both cases as well as the economic cost, although much higher in medication cost for IBD (Mearin et al., 2022).While traditionally IBD occurred in younger ages, the number of adults suffered from IBD is rising rapidly (Kochar et al., 2021). Although IBD is a chronic lifelong disease that most often happens among adults 20 to 40 years of age (Chi, 2016). In some relevant literature it is shown that the IBD's median age is 43.3 years (Meijboom et al., 2021). A study conducted in China showed a total of 280 participants with IBD with the mean age of $47.6 \pm 15.9$ years (Zhang et al., 2023).

The two common subtypes of IBD including Crohn's disease and ulcerative colitis are chronic debilitating conditions that afflict individuals with substantial morbidity and challenge healthcare systems worldwide (Jukic et al., 2021). In 2017, there were 6·8 million (95% UI 6·4–7·3) cases of IBD globally. The age-standardized prevalence rate increased from 79·5 (75·9–83·5) per 100,000 population in 1990 to

84·3 (79·2–89·9) per 100, 000 population in 2017 (Alatab et al., 2020). Although incidence is stabilizing in western countries, burden remains high as prevalence surpasses 0·3%. These data highlight the need for research into prevention of IBD and innovations in health-care systems towards management of this complex and costly disease (Ng et al., 2017).

Inflammatory bowel disease (IBD) has become common in Asia over the past few decades. Some countries/areas are experiencing a more rapid increase than in Western countries, which has been attributed to rapid urbanization and industrialization (Ng et al., 2016). The incidence of inflammatory bowel diseases (IBD) emerged with Westernization of dietary habits worldwide. The highest incidence has been reported in East Asia (Korea, Japan, and China) and South Asia (India). Also, differences in the clinical manifestations of IBD between the East and West have been noted: in Asia, there is a higher male predominance of Crohn's disease (CD); more perianal involvement in CD; and fewer extraintestinal manifestations and worse clinical outcomes among older-onset patients with ulcerative colitis (UC) (Ng et al., 2016).

IBD has become a global disease. Evidence from systematic reviews points to a changing epidemiology of IBD, with stable or decreasing incidence in North America and Europe, but increasing incidence in newly industrialized countries (Alatab et al., 2020). Historically, IBD has been considered a condition of high-income countries (Malik, 2015). Recent results from population-based studies indicated high prevalence of IBD in high-income regions (Ng et al., 2017). It is found that the region of high-income in North America, especially USA, makes a prominent contribution to the global number of patients with IBD (Alatab et al., 2020). In addition, many found cases have recently been reported in newly industrialized countries with a rapidly increasing incidence, but no such large-scale population-based epidemiological study has been conducted in China.

Between 1990 and 2017, the number of patients with IBD in China increased from 654,000 to 1.035 million, incidence rate is 58.36%. The number of cases increased from 1.048 million to 2.66 million (Jin & Zhang, 2021). The increased incidence of IBD may be related to improved socioeconomic status, dietary and other lifestyle changes, hygienic conditions, changes in the microbiome and

environmental factors in China. It is suggested that IBD has become a common and frequently occurring disease in China. The natural course of IBD, low fatality rate and high survival rate will lead to an increase in the prevalence of IBD, which will have an important impact on the health and economy of Chinese people (Jin & Zhang, 2021). China is one of the developing countries facing a steady increase in patients with Crohn's disease, and the incidence rate ranges from 0.07 to 1.31 per 100,000 persons (Li et al., 2017). The publications utilized in the current review were predominantly from Western Europe and North America, merely few studies from other areas such as Eastern Europe, South America, Asia, and Africa (Knowles, Keefer, et al., 2018).

IBD can be debilitating and sometimes leads to life-threatening complications. The symptoms of IBD is varied, depending on the severity of inflammation and where it occurs. Its symptoms may range from mild to severe. Patients are likely to have periods of active illness followed by periods of remission Because of the characteristics of the disease, both the individuals and the countries can be affected. The increasing incidence of IBD has imposed heavy financial burdens for Chinese patients (Yu et al., 2021). Characterized by a relapsing and remitting course, patients with IBD need more close monitoring and therapeutic adjustment for an optimal disease (Hudesman et al., 2020). A considerable proportion of IBD patients in China delayed optimal treatment due to medical difficulties or the high medical costs and transportation accommodation, and this inevitably affects disease prognosis (Peng et al., 2022). So, the quality of life of individual patients is greatly affected. In addition, patients also suffer from physical discomfort such as gastrointestinal symptoms which included abdominal pain, diarrhea, blood, anaerobic vomiting, and anal spasm. This kind of patients are also affected by non-gastrointestinal symptoms such as fever, fatigue, anemia, joint pain, rash, and ulcers and many emotions such as loneliness, alienation, feeling different from others, vulnerability, anxiety, fear of reactions of others, fear of developing cancer, self-blame, guilt, physical frustration, changes in personal image, social (fear of social interaction, decreased desire, sexual interaction, concern about pregnancy and childbirth. The embarrassment of having to go to the bathroom frequently, the pressure of going out to dinner) and financial problems (such as the impact of hospitalization and medical treatment on work and

income, the burden of medical expenses), need more help to improve the HRQOL (Zhou, 2006). The quality of life for patients with IBD can be substantially affected by these extraintestinal manifestations (Rogler et al., 2021). Therefore, early detection of this disease is a great significance for the treatment of this disease, which can effectively prevent complications and therefore improve prognosis as well as patients' quality of life (Gomollon et al., 2017); (Magro et al., 2017).

Inflammatory bowel disease (IBD) has a substantial impact on patients' quality of life. It causes considerable personal, emotional, and social burdens. Numerous studies have shown that health-related quality of life is impaired in patients living with IBD as compared with the general population. IBD has an impact on physical and mental health–related quality of life. The patients may experience psychological distress even during clinical remission. Reduced quality of life can impact persons living with IBD as they pursue employment, family planning and personal milestones. Further, the impact of IBD extends to the patient influencing the quality of life of those around them, including their caregivers (Jones et al., 2019). Therefore, enhancing HRQOL of patients could help improve the self-care ability of patients, help these patients get timely and effective treatment of the disease, and appropriately reduce the use of medical and health services and reduce the economic pressure of the country.

Health related quality of life (HRQOL) refers to the individual's health status under the influence of illness and injury, medical intervention, aging, and social environment change, as well as the subjective satisfaction related to its economic and cultural background and value orientation (Zhou et al., 2020). This term was intended to narrow the focus to the effects of health, illness, and treatment on quality of life. This term excludes aspects of quality of life that are not related to health, such as cultural, political, or societal attributes. Examples are the quality of the environment, public safety, education, standard of living, transportation, political freedom, or cultural amenities. Unfortunately, the distinction between health-related and non-health-related quality of life cannot always be clearly made (Ferrans et al., 2005). In addition, in chronic illness almost all areas of life are affected by health, and so become "health-related (Guyatt et al., 1993). Because IBD is a chronic disease, it is associated with HRQOL. And as the literature review shows that Health-related

quality of life (HRQOL) is an important measure of the global impact of IBD on a person's physical, mental and emotional well-being (Jones et al., 2019).

The revised conceptual model of Ferrans and colleagues' conceptual model (FCM) could be applied to any health care discipline. It was a revision of Wilson and Cleary's model and appeared to have the greatest potential to guide future HRQOL research and practice. The literatures revealed that there are indications of associations between health-related quality of life (HRQOL) in inflammatory bowel disease and disease activity or potentially reversible aspects of a disease, psychological status, coping, stressful life events, and social support (van der Eijk et al., 2004). In addition, people living with IBD may also be at risk of body image dissatisfaction (BID). Understanding the impact of BID, its relationship with their health-related quality of life, and which patients may be at greater risk, would ultimately lead to the development of interventions to prevent or treat BID and to develop better patient care (Beese et al., 2018). According to psychological aspect in IBD patients, they are highly burdened in terms of quality of life, psychiatric comorbidities, and may receive less attention into routine care in comparison with physical aspect (Balestrieri et al., 2023). Furthermore, if these patients have the correct perception of the disease, the treatment and intervention of IBD can be timely provided , which also greatly helps patients to improve their quality of life. Therefore, it is promising to conduct this study in order to describe the IBD health related quality of life and its predictors including perceived health status, perceived stress, social support and body image dissatisfaction.

In terms of health status, people with IBD were more likely to experience fair or poor general health (Tang et al., 2008). Inflammatory bowel disease (IBD) has a substantial impact on quality of life, because the disease activity and severity is an important driver of physical and mental health-related quality of life (Jones et al., 2019). The first thing can be seen is that the quality of life is affected by the disease, because IBD is a group of chronic inflammatory diseases that affect the gastrointestinal tract and have a low mortality rate. The more serious disease usually means more hospitalizations and lower HRQOL (Liu et al., 2018). However, the worldwide incidence of IBD is rising every year, putting a heavy burden on global health care systems (Kaplan et al., 2019). IBD is incurable, and current treatment

strategies mainly include the use of anti- inflammatory steroids or immune suppressants to reduce inflammation, dietary changes to try to remove environmental irritants, or surgery to remove damaged parts of the intestine to control the progression of IBD, but the efficacy of these strategies is not very satisfactory (de Lange & Barrett, 2015). The treatment of patients with Crohn disease depends on disease severity, patient risk stratification, patient preference, and clinical factors, including age of onset and penetrating complications, and includes treatment with steroids, monoclonal antibody therapies, immunomodulators, and surgery (Cushing & Higgins, 2021). Inflammatory bowel disease (IBD) is frequently associated with a variety of problematic symptoms, including abdominal pain and bowel habit changes, which are associated with poor patients quality of life and significant healthcare expenditure (Coates & Binion, 2021). Most patients who come to the hospital are willing to be treated because of the benefits of treatment, CD patients with active perianal fistulas experience body image dissatisfaction, low self-esteem and poor quality of life. Treatment of these patients with infliximab could improve their body image, self-esteem and quality of life (Hong et al., 2020).

In terms of perceived stress, various lifestyle factors including physical activity and stress may contribute to the risk of developing inflammatory bowel diseases (IBDs), similarly, stress, particularly perceived stress rather than major life events, may trigger symptomatic flare in patients with IBD, although its impact on inflammation is unclear (Rozich et al., 2020). The medical treatment will produce a greater social and economic burden, and because the young and middle-aged are in the peak of their career, IBD disease often brings a greater impact on social productivity and personal life quality (Zhu, 2019). So, IBD patients have higher perceived stress, lower levels of social support, which may increase the risk of HRQOL (A. Moradkhani et al., 2013). Psychological symptoms acted as a mediator in the relationship between disease activity, social support and HRQOL. Interventions to improve HRQOL in patients with IBD should take into account the mediation effect of psychological symptoms (H. Fu et al., 2020). With regard to the psychological burden of anxiety and depression, the direction of (neuro-) inflammatory processes and disease activity in CD/UC seems to be bidirectional – with patients with anxiety symptoms developing more often disease flares, and patients with disease activity

developing more anxiety (Gracie et al., 2018). It is not just the illness itself that affects a patient's quality of life, it's also the financial stress that comes with treatment, and the stress that the patient perceives from all aspects. According to the review of literatures, Chinese patients with IBD have enormous financial burdens and difficulties in accessing health care, which have increased their financial concern and inevitably influenced their disease outcomes. Early purchase of private insurance, thereby increasing the reimbursement ratio for medical expenses, and developing the use of telemedicine would be effective strategies for saving on health care costs (Yu et al., 2021).

In terms of social support, previous studies have indicated that social support was associated with health-related quality of life (HRQOL) in patients with inflammatory bowel diseases (IBD), and the result showed social support was positively correlated with HRQOL ($\beta = 1.38$, $P < .01$) (H. Fu et al., 2020). Social support and economic status are linked to UC and CD patients' well-being. Interventions addressing these issues should be part of management (Slonim-Nevo et al., 2018). Social factors are essential considerations in inflammatory bowel disease (IBD) patient management, but existing research is limited. Social interaction variables are associated with IBD-QoL, but patients' experience of helplessness acts to reduce their ability to benefit from social support. Patient care should consider supportive social and cognitive factors to improve IBD-QoL (Katz et al., 2016). However, literatures on the relationships between social support and IBD-related HRQOL were relatively lacking (H. Fu et al., 2020). A Study conducted in China confirmed that social support was positively related to HRQOL among the IBD patients, therefore, enhancing social support which can be provided by family member, friends, coworkers and health professions should be valued as an important source to alleviate psychological symptoms and thereby improve HRQOL in IBD patients (H. Fu et al., 2020).

In terms of body image dissatisfaction, the evidence suggests that body image dissatisfaction can negatively impact patients, and certain factors are associated with increased body image dissatisfaction. Greater body image dissatisfaction was also associated with poorer quality of life (S. E. Beese et al., 2019). IBD patients have a significant problem of impaired self-image. For enteral nutrition requires indwelling

nasogastric (intestinal) tubes, which can lead to a decrease in self-image. Patients feel that their appearance is different from normal people, and this difference in appearance brings patients the psychological pressure, and patients will loss of confidence, and reduce social activities (Zhu, 2019). When patients have impaired self-image, their mood, social, relationship, sleep quality, exercise style, self-efficacy and so on are affected, Patients have impaired self-image, and some patients have negative self-evaluation, such as feeling unattractive (Wu, 2018). A Korean study showed that negative self-image can affect the quality of life of patients with CD (Lee & Oh, 2014). Lower health-related quality of life (HRQOL) is associated with greater BID among adults with IBD. The higher the disease activity, the more physical changes such as weight loss and malnutrition patients are likely to have during the disease activity period, resulting in more dissatisfaction with their body image (Chen & Ma, 2020). And the negative coping style, will make patients eating disorders, the quality of life decline (Cash & Grasso, 2005) (Koff & Sangani, 1997). Clarifying associations with body image dissatisfaction in specific chronic disease populations, such as IBD, could help better tailor early disease-specific interdisciplinary treatment strategies to improve HRQOL (Claytor et al., 2020).

In conclusion, the literature review identified body image dissatisfaction, perceived health status, perceived stress, and social support seem to be reliable predictors since they are supported by both theoretical base and are quite consistent with research findings. These factors are modifiable by nurses, making them more important in nursing practice regarding improve patients' quality of life. A better understanding about those factors promises an effective nursing strategy to understand patients’ behaviors and help them avoid the drawbacks of these factors to build confidence and promote quality of life at last.

Currently, there was no study which examine health related quality of life and its predictors in Chinese context. Possible reasons include: First, on the one hand, due to the backward economy in the past, China's eating habits have not caused many IBD. Second, due to the underdeveloped network, the database is difficult to recommend, so the related research is very limited. Third, China is a country with a large land area and a large floating population, and the population is relatively scattered, so the data collection is difficult. Fourth, in the past, patients' awareness of

seeking medical treatment was weak, and they were more likely to choose traditional Chinese medicine treatment when seeking medical treatment, so there was a lack of relevant IBD treatment records, and patients often refused to participate in research because of their lack of knowledge about research. Finally, it is only in the last few years that we have really seen an increase in the population of IBD patients under financial burden and have begun relevant research. Moreover, as chronic diseases require long-term treatment, China's aging population is aggravated, and the problem of young people as the main labor force needs to be studied, so the study of these factors becomes important. And at present, there are few studies about IBD and the quality of life among these patients. Especially the studies of relationship between quality of life and body image dissatisfaction, perceived health status, perceived stress, and social support among patients with IBD which has not been studied in Wenzhou. In the face of increasing IBD, more financial support and medical support are needed to help them work and live better and improve their well-being and social stability. It is vital to establish a relationship with the patients and foundation for development of proper nursing interventions for these patients.

## Research objectives

1. To describe health-related quality of life among patients with IBD.
2. To examine the influence of predictors including body image dissatisfaction, perceived health status, perceived stress, and social support on health-related quality of life among patients with IBD.

## Research hypothesis

Body image dissatisfaction, perceived health status, perceived stress, and social support could combinedly predict health-related quality of life of patients with inflammatory bowel disease (IBD).

## Conceptual framework

The conceptual framework of this study is based on Ferran’s model and literature reviews. Ferrans and colleagues' conceptual model (FCM) consists of five

core components including biological function, symptoms, functional status, general health perception, and overall quality of life. In addition, they described individual and environmental characteristics associated with these five components (Ferrans et al., 2005). Biological factors include body mass index, skin color, and family history related to genetically linked disease and disease risk. Demographic factors that commonly have been linked to the incidence of illness are sex, age, marital status, and ethnicity (Ferrans et al., 2005). HRQOL is basing on the personal biological factor of IBD patients, which is related to individual characteristics, and related to the disease condition of IBD patients. Alterations in biological function directly or indirectly affect all components of health, including symptoms, functional status, perceptions of health, and overall quality of life. Functional capacity is defined as one's maximal capacity to perform a specific task in the physical, social, psychological or cognitive domains, established measures of this dimension are available. So, the IBDQ can measure the HRQOL of patients with IBD, and SHS is used in the study to measure perceived health status. Characteristics of the environment are categorized as either social or physical. Social environmental characteristics are the interpersonal or social influences on health outcomes, including the influence of family, friends, and healthcare providers, physical environment characteristics are those settings such as the home, neighborhood, and workplace that influence health outcomes either positively or negatively (Ferrans et al., 2005). So, the characteristic of the environment affects patients' social support, prognosis and perception of the disease, and then it is related to patients' perceived health status, stress, social support and image, and it can affect health-related quality of life (HRQOL) of patients with inflammatory bowel disease (IBD). Symptoms refers to physical, emotional, and cognitive symptoms perceived by the patients (Ferrans et al., 2005). In this context, it related to the factors of HRQOL namely perceived health status, and perceived stress. And overall quality of life can undoubtedly represent HRQOL in this model. This is the link and relationship between the factors associated with HRQOL in this model.

So, this framework can be used to explain the relationships between these factors and health related quality of life. The study conceptual framework is shown in Figure 1.

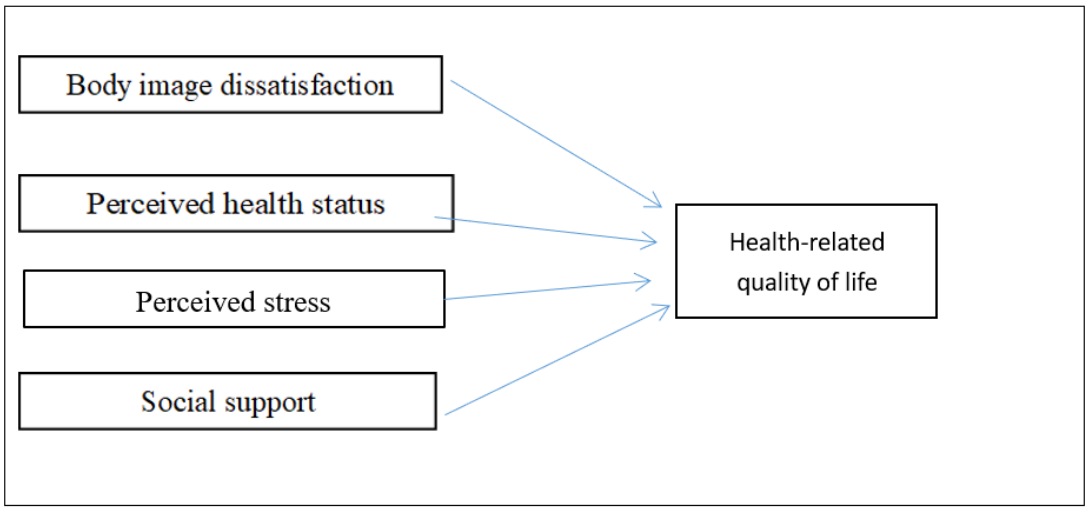


Figure 1 Conceptual framework

## Scope of research

This study is aimed to examine quality of life and its predicting factors among 150 patients with IBD who came to the Gastroenterology outpatient and inpatient department of the First Affiliated Hospital of Wenzhou Medical University. The data collection period was from November 2022 to April, 2023.

## Definition of terms

Inflammatory bowel diseases (IBD) are non-communicable disease characterized by a chronic inflammatory process of the gut both currently without definitive pharmacological treatment and cure. Crohn's disease and ulcerative colitis are both subtypes commonly found and served as the target in this study.

Health-related quality of life (HRQOL) refers to the patients' subjective perceptions of illness, the impacts on daily life and the physical, mental and social aspects of well-being. In this study, the health-related quality of life of IBD was measured by the Chinese version of the Inflammatory Bowel Disease Questionnaire (Zhou et al., 2010). As the items of the IBDQOL not only reflected the illness experiences of Chinese patients living with IBD, but also simplify (Ruan et al., 2017), the version of IBDQOL-22 was used in the study. The questionnaire was used to

investigate symptoms, general feelings, and mood due to IBD. The condition of IBD patients in the past 2 weeks was reflected.

Perceived health status refers to the subjective assessment of the adults with IBD towards their health condition. Perceived health status was measured by the Short Health Scale (SHS) questionnaire (XU, 2017). It is used to measure the perceived health status of IBD patients.

Body image dissatisfaction (BID) refers to the perception of adults with IBD by having a negative subjective evaluation of the weight and shape of their own body. BID was assessed by using Body Image Scale (BIS). BIS has been sinicized and applied in China, and the results show good internal consistency, but has not been applied in the field of IBD (Chen et al., 2020).

Social support refers to subjective social support how the IBD patients perceived regarding the support they received from family, friends, and others. It is identified as a factor for increased HRQOL across IBD (Katz et al., 2016). Social support of IBD patients was measured by Chinese version of the Multidimensional Scale of Perceived Social Support (MPSSS) (Jiang, 2001).

Perceived stress refers to the perception of adults with IBD have feelings or thoughts that an individual has about how much stress they are under at a given point in time or over a given time period. Perceived stress was assessed by using the Perceived Stress Scale (PSS), which measures the degree to which situations in one's life are appraised as stressful, with higher scores indicating higher levels of stress (Cohen et al., 1983).

# CHAPTER 2
# LITERATURE REVIEW

This chapter reviews the research literature on quality of life, focusing on four parts to provide an understanding relevant to the present study. The first part describes an overview of inflammatory bowel disease (IBD), including definitions of inflammatory bowel disease (IBD), classification, etiology, and guidelines for slowing IBD progression in China and worldwide. The second part focuses on quality-of-life theory. The third part presents the influencing factors such as body image dissatisfaction, perceived health status, perceived stress, and social support, the empirical findings which support the relationships between the proposed factors and quality of life.

The literature review is presented in following parts:

1. Overview of IBD.
    1.1 Definition, Classification and Etiology of IBD
    1.2 Characteristics of IBD include Symptoms, Causes Risk factors and Complication
    1.3 Treatment of IBD and the Guidelines
2. Health-related quality of life among IBD patients.
    2.1 Theories related to IBD quality of life.
3. Factors associated with health-related quality of life in IBD patients.

## Overview of IBD

The incidence and prevalence of inflammatory bowel disease have been increasing for decades and IBD has become a worldwide disease. Epidemiology studies demonstrated higher incidence rates in the more westernized countries. The change of habitual diets in these countries is perceived as the reason for the development of IBD (Hsieh et al., 2020). The epidemiological data in China showed that the standardized incidence of IBD in Daqing City of Heilongjiang Province was 1.77/100,000, and that in Zhongshan city of Guangdong Province was 3.14/100,000. It is not hard to see that IBD is still a rare disease in China, but the number of patients has been increasing rapidly in the past 20 years (Wu et al., 2018). Westernized dietary

habits and obesity, and work-related stress, might contribute to the increased risk of IBD in China. In addition, the preliminary results showed that urbanization and Westernized dietary habits might induce significant changes in gut microbiota profile that are possibly to increase the risk for IBD in Chinese (Ng et al., 2016). IBD is associated with significant psychosocial burden (Knowles, Keefer, et al., 2018). It has been well established that the cycles of damage and repair associated with relapse and remission can result in long-term complications, such as stricturing, fistulization, and malignancy. Therefore, defining the optimal endpoint for remission to avoid such complications is paramount (Khanna et al., 2021).

**Definition, Classification and Etiology of IBD**

Definition. IBD, which includes Crohn's disease (CD) and ulcerative colitis (UC), is a chronic condition of the gut and is accompanied by an impaired innate mucosal immune function, usually in young individuals. A histological feature of CD is noncaseating granulomas, and cryptitis and/or crypt abscesses are common findings in UC (Lee et al., 2021).

Classification of IBD. Inflammatory bowel disease (IBD) is an umbrella term used to describe disorders that involve chronic inflammation of the digestive tract. Types of IBD include:

Crohn's disease refers to a subtype of inflammatory bowel disease, is a chronic and relapsing disease affecting the entire gastrointestinal tract with systemic manifestations. This type of IBD is characterized by inflammation of the lining of the digestive tract, which often can involve the deeper layers of the digestive tract.

Ulcerative colitis (UC) is a chronic and nonspecific intestinal inflammatory disease that has a prolonged duration. Its clinical features include diarrhea, abdominal pain, and bloody stools. UC is characterized by consecutive and diffuse enteric mucosal damage, which involves both mucosa and submucosa of colon or rectum. The pathogenesis of UC is not fully clarified, which might be due to the imbalance of hereditary factors, immune responses, gut microbial homeostasis and epithelial barrier (Xiong et al., 2021). This condition involves inflammation and sores (ulcers) along the superficial lining of the large intestine (colon) and rectum.

Etiology of IBD. The prevailing theory of IBD suggests that the T cell is inappropriately activated due to an unfortunate confluence of genetic and

environmental factors, which generate an immune imbalance, leading to the inflammation characteristic of these diseases. While critical to understanding and treatment of IBD, this increasingly sophisticated picture fails to provide information concerning the proximal events, which set the process in motion and would be considered the fundamental etiology of the disease (Korzenik, 2005). Although the exact pathophysiology of rosacea is debated, present theories implicate dysregulation of innate and adaptive immunity, aberrant neurovascular signaling, chronic inflammation, and the overgrowth of commensal skin organisms (Daou et al., 2021).

**Characteristics of IBD**

The characteristics of IBD presented in this part include Symptoms, Causes Risk factors and complication.

Characteristics of IBD. Inflammatory bowel disease (IBD) is a chronic immune mediated disease affecting the gastrointestinal tract. IBD consists of 2 subtypes: ulcerative colitis and Crohn disease (Glassner et al., 2020).

Crohn's disease (CD) is a chronic inflammatory bowel disease of unknown etiology associated with an impaired immune response, with periods of activity and remission. It is characterized by patchy and transmural lesions which can affect the entire gastrointestinal tract, from the mouth to the anus. The most frequent symptoms are abdominal pain and diarrhea, which can seriously affect patients' quality of life. Crohn's disease (CD), a subtype of inflammatory bowel disease, is a chronic and relapsing disease affecting the entire gastrointestinal tract with systemic manifestations. The etiology of CD is incompletely understood, although multiple factors have been reported to contribute to the onset of disease. Symptoms of CD can be severe, including abdominal pain, diarrhea, gastrointestinal bleeding, abdominal distension, weight loss, malnutrition and several extra-intestinal manifestations and complications (Roda et al., 2020). One of the most frequent complications of CD is perianal fistula (PF), which is strongly associated with increased rates of hospitalization, intestinal resection, and disease recurrence (Sun et al., 2020), making PF a predictor of poor long-term outcomes in CD patients. The etiology of the disease is unknown, which may be related to infection, humoral immunity and cellular immunity.

Ulcerative colitis (UC) is a chronic inflammatory bowel disease that can involve any aspect of the colon starting with mucosal inflammation in the rectum and extending proximally in a continuous fashion. Typical symptoms on presentation are bloody diarrhea, abdominal pain, fecal urgency, and tenesmus. In some patients, extraintestinal manifestations may predate the onset of gastrointestinal symptoms. A diagnosis of UC is made on the basis of presenting symptoms consistent with UC as well as endoscopic evidence showing continuous and diffuse colonic inflammation that starts in the rectum. Biopsies of the colon documenting chronic inflammation confirm the diagnosis of UC. Most cases are treated with pharmacological therapy to first induce remission and then to maintain a corticosteroid-free remission. There are multiple classes of drugs used to treat the disease (Feuerstein et al., 2019).

Both ulcerative colitis and Crohn's disease usually are characterized by diarrhea, rectal bleeding, abdominal pain, fatigue and weight loss. IBD can be debilitating and sometimes leads to life-threatening complications.

Symptoms of IBD. Inflammatory bowel disease symptoms vary, depending on the severity of inflammation and where it occurs. Symptoms may range from mild to severe and are likely to have periods of active illness followed by periods of remission.

Signs and symptoms that are common to both Crohn's disease and ulcerative colitis include: Diarrhea, Fatigue, Abdominal pain and cramping, Blood in the stool, Reduced appetite, Unintended weight loss.

Causes of IBD. The exact cause of inflammatory bowel disease remains unknown. Previously, diet and stress were suspected, but now doctors know that these factors may aggravate but aren't the cause of IBD.

One possible cause is an immune system malfunction. When the immune system tries to fight off an invading virus or bacterium, an abnormal immune response causes the immune system to attack the cells in the digestive tract, too. Heredity also seems to play a role in that IBD is more common in people who have family members with the disease. However, most people with IBD don't have this family history.

Risk factors of IBD.

Age. Most people who develop IBD are diagnosed before they're 30 years old. But some people don't develop the disease until their 50s or 60s.

Race or ethnicity. Although whites have the highest risk of the disease, it can occur in any race.

Family history. It will be at higher risk if people have a close relative — such as a parent, sibling, or child - with the disease.

Cigarette smoking. Cigarette smoking is the most important controllable risk factor for developing Crohn's disease.

Smoking may help prevent ulcerative colitis. However, its harm to overall health outweighs any benefit, and quitting smoking can improve the general health of the digestive tract, as well as provide many other health benefits.

Nonsteroidal anti-inflammatory medications. These include ibuprofen (Advil, Motrin IB, others), naproxen sodium (Aleve), diclofenac sodium and others. These medications may increase the risk of developing IBD or worsen the disease in people who have IBD.

Complications of IBD. Ulcerative colitis and Crohn's disease have some complications in common and others that are specific to each condition.

Complications found in both conditions may include:

Colon cancer. Having ulcerative colitis or Crohn's disease that affects most of colon can increase the risk of colon cancer. Screening for cancer begins usually about eight to 10 years after the diagnosis is made.

Skin, eye, and joint inflammation. Certain disorders, including arthritis, skin lesions and eye inflammation (uveitis), may occur during IBD flare-ups.

Medication side effects. Certain medications for IBD are associated with a small risk of developing certain cancers. Corticosteroids can be associated with a risk of osteoporosis, high blood pressure and other conditions.

Primary sclerosing cholangitis. In this condition, inflammation causes scarring within the bile ducts, eventually making them narrow and gradually causing liver damage.

Blood clots. IBD increases the risk of blood clots in veins and arteries.

Complications of Crohn's disease may include:

Bowel obstruction. Crohn's disease affects the full thickness of the intestinal wall. Over time, parts of the bowel can thicken and narrow, which may block the flow

of digestive contents. People may require surgery to remove the diseased portion of the bowel.

Malnutrition. Diarrhea, abdominal pain, and cramping may make it difficult to eat or for intestine to absorb enough nutrients to keep the nourished. It's also common to develop anemia due to low iron or vitamin B-12 caused by the disease.

Fistulas. Sometimes inflammation can extend completely through the intestinal wall, creating a fistula - an abnormal connection between different body parts. Fistulas near or around the anal area (perianal) are the most common kind. In some cases, a fistula may become infected and form an abscess. Anal fissure. This is a small tear in the tissue that lines the anus or in the skin around the anus where infections can occur. It's often associated with painful bowel movements and may lead to a perianal fistula.

Complications of ulcerative colitis may include:

Toxic megacolon. Ulcerative colitis may cause the colon to rapidly widen and swell, a serious condition known as toxic megacolon.

A hole in the colon (perforated colon). A perforated colon most commonly is caused by toxic megacolon, but it may also occur on its own.

Severe dehydration. Excessive diarrhea can result in dehydration.

**Treatment of IBD and the Guidelines**

The goal of inflammatory bowel disease treatment is to reduce the inflammation that triggers signs and symptoms. In the best cases, this may lead not only to symptom relief but also to long-term remission and reduced risks of complications. IBD treatment usually involves either drug therapy or surgery. Anti-inflammatory drugs are often the first step in the treatment of inflammatory bowel disease. Anti-inflammatories include corticosteroids and aminosalicylates, such as mesalamine (Asacol HD, Delzicol, others), balsalazide (Colazal) and olsalazine (Dipentum). Which medication to take depends on the area of the colon that's affected.

These drugs work in a variety of ways to suppress the immune response that releases inflammation-inducing chemicals into the body. When released, these chemicals can damage the lining of the digestive tract. Some examples of

immunosuppressant drugs include azathioprine (Azasan, Imuran), mercaptopurine (Purinethol, Purixan) and methotrexate (Trexall).

Biologics are a newer category of therapy in which therapy is directed toward neutralizing proteins in the body that are causing inflammation. Some are administered via intravenous (IV) infusions and others are injections that give themselves. Examples include infliximab (Remicade), adalimumab (Humira), golimumab (Simponi), certolizumab (Cimzia), vedolizumab (Entyvio) and ustekinumab (Stelara).

Antibiotics may be used in addition to other medications or when infection is a concern- in cases of perianal Crohn's disease, for example. Frequently prescribed antibiotics include ciprofloxacin (Cipro) and metronidazole (Flagyl).

Other medications and supplements. In addition to controlling inflammation, some medications may help relieve signs and symptoms.

Anti-diarrheal medications. A fiber supplement - such as psyllium powder (Metamucil) or methylcellulose (Citrucel) - can help relieve mild to moderate diarrhea by adding bulk to stool. For more-severe diarrhea, loperamide (Imodium A-D) may be effective.

Pain relievers. For mild pain, doctor may recommend acetaminophen (Tylenol, others). However, ibuprofen (Advil, Motrin IB, others), naproxen sodium (Aleve) and diclofenac sodium likely will make symptoms worse and can make disease worse as well.

Vitamins and supplements. If it is not absorbing enough nutrients, doctor may recommend vitamins and nutritional supplements.

Nutritional support. When weight loss is severe, doctor may recommend a special diet given via a feeding tube (enteral nutrition) or nutrients injected into a vein (parenteral nutrition) to treat IBD. This can improve overall nutrition and allow the bowel to rest. Bowel rest can reduce inflammation in the short term.

If patients have a stenosis or stricture in the bowel, doctor may recommend a low-residue diet. This will help to minimize the chance that undigested food will get stuck in the narrowed part of the bowel and lead to a blockage.

Surgery. If diet and lifestyle changes, drug therapy, or other treatments don't relieve IBD signs and symptoms, doctor may recommend surgery.

Surgery for ulcerative colitis. Surgery involves removal of the entire colon and rectum and the production of an internal pouch attached to the anus that allows bowel movements without a bag. In some cases, a pouch is not possible. Instead, surgeons create a permanent opening in the abdomen (ileal stoma) through which stool is passed for collection in an attached bag.

Surgery for Crohn's disease. Up to two-thirds of people with Crohn's disease will require at least one surgery in their lifetime. However, surgery does not cure Crohn's disease. During surgery, the surgeon removes a damaged portion of the digestive tract and then reconnects the healthy sections. Surgery may also be used to close fistulas and drain abscesses. The benefits of surgery for Crohn's disease are usually temporary. The disease often recurs, frequently near the reconnected tissue. The best approach is to follow surgery with medication to minimize the risk of recurrence.

Guidelines and scores are necessary to make sure the treatment of IBD is universal and comparable. The main differences in the evaluated guidelines were in diagnosis and treatment specifications. The diagnosis of IBD was similar amongst the four guidelines, but some were more specific about limiting the number of interventions necessary to confirm a diagnosis (Okobi et al., 2021). And there is a table from the literature. (AGA: American Gastroenterology Association; anti-TNF: anti-tumor necrosis factor; BSG: British Society of Gastroenterology; CAG: Canadian Association of Gastroenterology; WGO: World Gastroenterology Organization; 5-ASA: 5-aminosalicylic acid)

Table 1 Comparison of the BSG, CAG, WGO and AGA Diagnosis, Diet, Treatment, and other Recommendations

| Category | BSG | CAG | WGO | AGA |
|---|---|---|---|---|
| diagnosis | Recommends ileocolonoscopy,including segmental colonic and ileal biopsies, if small bowel disease is suspected; follow-up with CT enterography. | Recommends endoscopy and biopsy, using the Crohn's Disease Activity Index (CDAI) as a predictor | Recommends colonoscopy and sigmoidoscopy for the diagnosis using the Mayo endoscopic score and the Ulcerative Colitis Endoscopic Index of Severity (UCEIS) | Recommends endoscopic evaluation. Special emphasis on pathology evaluation. |
| Location and behavior | Used the Montreal classification | | | |
| Severity Grading | They recommended that disease severity should be based on a combination of symptoms and objective measures of inflammation. They further recommended using Crohn's Disease Activity Index (CDAI), the Ulcerative Colitis Endoscopic Index of Severity (UCEIS), and the modified Mayo endoscopic score. | | | |
| Dietary changes | Diet should meet nutritional requirements. Multidisciplinary management with nutritionists. In patients where nutritional requirements cannot be met, enteral or parenteral nutrition is indicated. Patients should be monitored for nutritional parameters, including hemoglobin, proteins, vitamins, and electrolytes. | Recommends against the use of enteral nutrition to prevent remissions, but with a low level of recommendation. | Dietary management with the aid of nutritionists and monitoring to prevent malnourishment.Recommended use of enteral nutrition to preventremissions. | An anti-inflammatory diet with probiotics and prebiotics, avoid lactose, wheat, and refined sugars;combine vegetables and healthy fats in every meal. |
| Medical treatment | They recommended 5-ASA. For moderate IBD, they recommended 5-ASA orally, with the addition of 5-ASA enemas. They also recommended corticosteroids used in low to moderate cases only when 5-ASA induction therapy fails. | They recommended 5-ASA for any IBD severity and using oral 5-ASA to induce or maintain complete remission. Also, they recommended corticosteroids use from the beginning as firstline therapy. | They recommended 5-ASA orally, combined with rectaland/or topical treatment. They also recommended corticosteroids use in low to moderate cases only when 5ASA induction therapy fails. | |
| | Corticosteroids can be used orally or topically. In patients where 5-ASA and corticosteroids failed, treatment escalation with thiopurine, antiTNF therapy, vedolizumab, or tofacitinib was recommended. | | | |
| Surgical treatment | In patients that have become medically resistant, have intolerable side effects, or have life-threatening conditions. | | | |
| Altemative treatment | Fecal microbial transplantation, probiotics, prebiotics, and marijuana | None | The same as BSG | None |

And there's also an article here that guides nurses in their work (Kemp et al., 2018), such as: The Advanced IBD Nurse's role in the planned review, care and follow-up of stable patients. The Advanced IBD Nurse caring for complex patients. The Advanced IBD Nursing assessment. The Advanced IBD Nursing role in managing advice lines. Patient information and education. E-health nursing and so on.

## Health-related quality of life among IBD patients

Quality of life (QOL) is an important concept in the field of health and medicine. QOL is a complex concept that is interpreted and defined diferently within and between disciplines, including the felds of health and medicine (Haraldstad et al., 2019). "Quality of life" has been used to mean a variety of different things, such as health status, physical functioning, symptoms, psychosocial adjustment, well-being, life satisfaction, and happiness (Ferrans et al., 2005). In addition, in chronic illness almost all areas of life are affected by health, and so become "health-related" (Guyatt et al., 1993). So, the term refers to all of life, and not just physical health status. The

World Health Organization (WHO) expounds on QOL to place it in a holistic cultural context that is meaningful for individuals, families, and communities (Bakas et al., 2012). Quality of life has been frequently used interchangeably with HRQOL in the literature. However, HRQOL assesses QOL as it relates to an individual's state of health or illness over time (Bakas et al., 2012).

The HRQOL is impaired in this Asian cohort of IBD. The magnitude of HRQOL impairment was similar in UC and CD. Clinical characteristics were better determinants of patients' HRQOL than socio-demographic factors (Min Ho et al., 2019). Psychological disorders and malnutrition are two main complications of IBD patients and thereby affect the general well-being of IBD patients (Cao et al., 2019). Crohn's disease is chronic, requires prolonged treatment, affects the physical and psychosocial health of patients, and may alter their routine, quality of life and well-being. Recent studies recommend monitoring the health of these patients considering physical, psychological and psychosocial aspects, because they are directly related to the disease activity (Acciari et al., 2019). Several factors, including reduced oral food intake, malabsorption, chronic blood and proteins loss, and intestinal bacterial overgrowth, contribute to malnutrition in IBD patients. Poor nutritional status, as well as selective malnutrition or sarcopenia, is associated with poor clinical outcomes, response to therapy and, therefore, quality of life. The nutritional assessment should include a dietetic evaluation with the assessment of daily caloric intake and energy expenditure, radiological assessment, and measurement of functional capacity. It is known that a reduced oral food intake is a main determinant of malnutrition in patients with IBD (Balestrieri et al., 2020). Given the nature of the disease as an issue that can require constant physician supervision and often immediate familial support (Britt, 2017). Psychological distress increases morbidity in ulcerative colitis (UC) and Crohn's disease (CD). Social support and economic status are linked to UC and CD patients' well-being. Interventions addressing these issues should be part of management (Slonim-Nevo et al., 2018).

## 2.1 Theories related to health-related quality of life in IBD patients

The conceptual framework in this study based on the reviews of relevant literatures and the concept conceptual model of quality of life by Ferran (1996). This model was developed based on the adoption of an individualistic ideology, which recognizes that quality of life depends on the unique experience of life for each person. Individuals are the only proper judge of their quality of life because people differ in what they value. Consistent with this ideology, quality of life was defined in terms of satisfaction with the aspects of life that are important to the individual. The model was developed using qualitative methodology. Factor analysis of patient data was used to cluster related elements into domains of quality of life. The resulting model identifies four domains of quality of life: health and functioning, psychological/spiritual, social and economic, and family (Ferrans, 1996). The health and functioning domain includes the factors such as usefulness to others, physical independence, ability to meet family responsibilities, own health, pain, energy (fatigue), stress or worries, control over own life, leisure time activities, potential for a happy old age/retirement, ability to travel on vacations, potential for a long life, sex life, health care. The psychological/spiritual domain includes factors such as satisfaction with life, happiness in general, satisfaction with self, achievement of personal goals, peace of mind, personal appearance, faith in God. The social and economic domain includes the factors such as standard of living, financial independence, home (house, apartment), neighborhood, job/unemployment, friends, emotional support from others, education. The family domain includes the factors such as family happiness, children, relationship with spouse, family health.

And in 2005 Ferrans and his colleagues revised the Wilson and Cleary model of health-related quality of life (HRQOL), with suggestions for applying each of the components, and to facilitate the use of HRQOL in nursing and health care. It consists of five core components including biological function, symptoms, functional status, general health perception, and overall quality of life. In addition, they described individual and environmental characteristics associated with those five components (Ferrans et al., 2005).

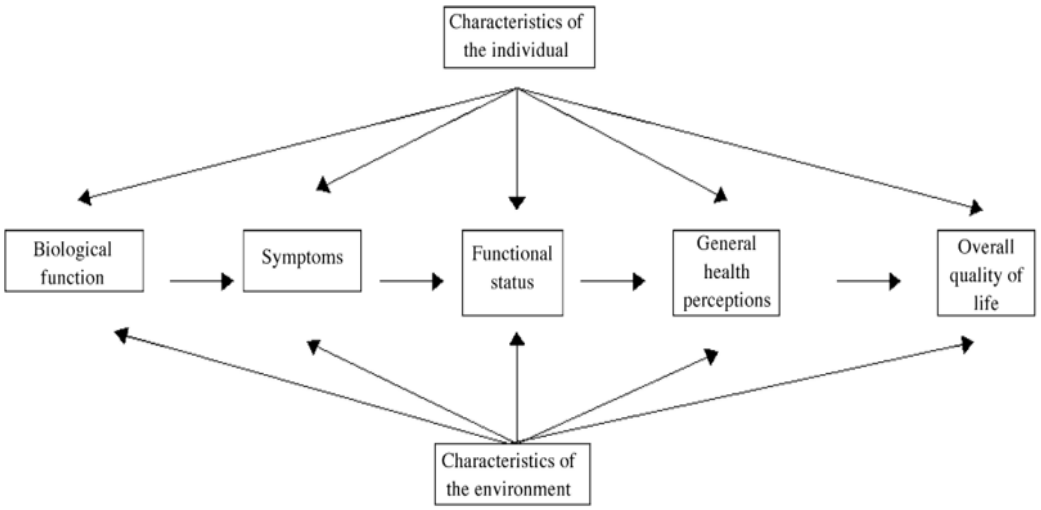


Figure 2 Revised Wilson and Cleary model for health-related quality of life. Adapted from "Linking Clinical Variables with Health-Related Quality of Life: A Conceptual Model of Patient Outcomes,"
by I.B. Wilson and P.D. Clearly, 1995. Copyright by JAMA (Ferrans et al., 2005).

Our primary focus was the five boxes in the center of the model, which are five types of measures of patient outcomes. First, biological function (originally biological and physiological variables) is described as focusing on the function of cells, organs, and organ systems. Biological function would be assessed through such indicators as laboratory tests, physical assessment, and medical diagnoses. Second, symptoms (originally symptom status), refers to physical, emotional, and cognitive symptoms perceived by a patient. Functional status, the third component, is composed of physical, psychological, social, and role function. Fourth, is general health perceptions, which refers to a subjective rating that includes all of the health concepts that precede it. Fifth, overall quality of life, is described as subjective well-being, which means how happy or satisfied someone is with life as a whole. They define symptoms as "a patient's perception of an abnormal physical, emotional, or cognitive state", which can be categorized as physical, psychological, or psychophysical. The most consistent predictors of general health perceptions are physiological processes, symptoms, and functional ability. overall quality of life, the final component of the

model, was characterized by Wilson and Cleary (1995) as subjective well-being related to how happy or satisfied someone is with life as a whole (Ferrans et al., 2005).

The Wilson and Cleary model demonstrated good features suitable for evaluating health-related quality of life in chronic diseases (Ojelabi et al., 2017). Based on the Ferran's model, body image dissatisfaction, perceived health status, perceived stress, and social support are the factors predicting the quality of life of patients with inflammatory bowel disease in this study.

## Factors associated with health-related quality of life in IBD patients

The course of IBD can be chronic and unpredictable with embarrassing and painful symptoms that can leave individuals worried about many aspects of life, such as bowel control, fatigue, social isolation, and a fear of developing cancer or needing surgery (Sajadinejad et al., 2012). Previous studies have indicated that disease activity, psychological symptoms and social support were associated with health-related quality of life (HRQOL) in patients with inflammatory bowel diseases (IBD) (H. Fu et al., 2020).

Patients with IBD often seek medical support when their symptoms worsen or complications develop, but there is a lack of medical care in remission (Zhu, 2019). Therefore, it is observed that there is often psychological stress due to the disease in IBD patients, and this also affects the patients' dissatisfaction with their appearance. Demographic, disease-related, and psychosocial factors are associated with BID in youth newly diagnosed with IBD. Given associations between BID and adverse health outcomes in healthy youth, these findings highlight a unique opportunity to improve screening and interventions for BID in patients with IBD (Cushman et al., 2021). The factors that influence the various aspects of received social support, providing the foundation for future work to enhance self-management health behaviors, such as diet and medication adherence (Kamp et al., 2020). The administration of medication and diet affects the treatment and status of the disease, so does social support. Age and marital status were related to increased emotional received social support. Currently taking immunomodulators and biologics, when controlling for time since diagnosis and symptom prevalence, were associated with increased tangible received social

support. Social support interventions could be targeted towards individuals at-risk of lower social support levels (e.g., emerging adults closer to the older end of the age range, unmarried, and unemployed individuals) (Kamp et al., 2020).

1. Perceived health status

Self-perceived health is an important indicator of illness and mortality (Shaaban et al., 2022). Inflammatory bowel disease (IBD) is a debilitating chronic disease characterized by inflammation and ulceration of the gastrointestinal tract. It is a chronic inflammatory condition with a significant impact on patients' general health perception (Lopez-Vico et al., 2021). Some scholars pointed out in the article that IBD patients perceived a discreet health condition, and no patient had an excellent or fine perception of the general state of health (Chimenti et al., 2020). It is associated with a range of debilitating symptoms and reduced quality of life. The more serious disease usually means more hospitalizations and lower HRQOL (Liu et al., 2018). Health-related quality of life (HRQOL) is multidimensional and is composed of, at a minimum, self-perceived health status, physical functioning, and psychological well-being (Su et al., 2021). According to the literature that younger or male cancer patients, as well as those with less than a high school education, low- or middle-income, functional limitation, pain, or poor perception of mental health were more likely to perceive their health as poor. Respondents aged 18–44 years perceived their health significantly poorer than those above 65 years with increasing number of comorbidities. And for patients with the additional strain of pain, functional limitation, or poor perception of their mental health, the cumulative distress from juggling these with cancer can account for poorer outcomes, feelings of helplessness, and potentially leave them thinking their general health as poor (Obeng-Kusi et al., 2022). So, it is crucial to understand patients' subjective experiences and perceptions, of both those who have undergone and those who may undergo surgery, as these may shape patients' behaviors. It is important in providing adequate counselling and empowering patients in the decision-making process (Spinelli et al., 2021).

Perceived availability and quality of social support influences health status (Jones et al., 2006). And the health related quality of life (HR-QoL) construct was introduced as a requirement to assess the subjective health status in an article (Verissimo, 2008).

Crohn's disease (CD) is a chronic inflammatory disease of the gastrointestinal tract that leads to substantial suffering for millions of patients. In some patients, the chronic inflammation leads to remodelling of the extracellular matrix and fibrosis. Fibrosis, in combination with expansion of smooth muscle layers, leaves the bowel segment narrowed and stiff resulting in strictures, which often require urgent medical Intervention (Alfredsson & Wick, 2020). Stricturing and penetrating complications account for substantial morbidity and health-care costs in paediatric and adult onset Crohn's disease (Kugathasan et al., 2017). The incidence of perianal fistula and fecal incontinence was high, and the latter had a great effect on patients' QoL (Litta et al., 2021).

Therefore, by promoting patients with a correct perception of the disease, this can help patients obtain impatient examination and treatment, reduce the pain caused from the disease, reduce the complications of the disease. Thus, improve the quality of life of patients.

2. Perceived stress

Perceived stress can be viewed as an outcome variable—measuring the experienced level of stress as a function of objective stressful events, coping processes, personality factors, and so on (Cohen & Williamson, 1988). Relevant literature showed that perceived stress correlated significantly with health-related quality of life and disease activity at week 24 (Koch et al., 2020). Psychological disorders and malnutrition are two major complications of IBD patients, which jointly affect the overall health status of IBD patients. Patients with IBD exhibit an increased risk of psycho-psychiatric disorders, such as anxiety and depression. In addition, the nutritional status of IBD patients is often significantly reduced, even during remission (Vidarsdottir et al., 2016). Malnutrition in patients with IBD leads clinical consequences, such as lower immunity, delay the recovery time of intestinal mucosa, increased frequency of infection and postoperative complications, so as to extend the length of hospital stay, higher medical costs, increase the rate of death and the risk of cancer, the serious influence the patient's prognosis and quality of life (Tinsley et al., 2016). Anxiety and depression are significantly associated with and may contribute to malnutrition in IBD patients (Addolorato et al., 1997). A large number of studies have

shown that both malnutrition and psychological disorders may significantly affect the quality of life of IBD patients (Zhang et al., 2013).

Psychological stress is an important factor in ulcerative colitis and Crohn's disease, and therefore coping strategies and support needs should be considered in routine clinical practice. Faecal urgency and the fear of losing bowel control are important stressors for patients with inflammatory bowel disease (Larsson et al., 2017). Psychological distress increases morbidity in ulcerative colitis (UC) and Crohn's disease (CD). Social support and economic status are linked to UC and CD patients' well-being. Interventions addressing these issues should be part of management (Slonim-Nevo et al., 2018).

Psychological symptoms acted as a mediator in the relationship between disease activity, social support and HRQOL. Interventions to improve HRQOL in patients with IBD should take into account the mediation effect of psychological symptoms (H. Fu et al., 2020). Both psychologist-led and self-directed stress management in inactive Crohn's disease reduced pain (Norton et al., 2017). (Anxious patients are more likely to have seizures) With regard to the psychological burden of anxiety and depression, the direction of (neuro-)inflammatory processes and disease activity in CD/UC seems to be bidirectional – with patients with anxiety symptoms developing more often disease flares, and patients with disease activity developing more anxiety (Gracie et al., 2018).

Effect of psychological stress on treatment compliance Our data indicate that patients with IBD have a higher level of psychological burden and are more limited in their psychodynamic structural characteristics, while only little differences in mentalization and attachment were found. It seems reasonable that these limitations can also influence the perceived stress and the therapy adherence and, in addition, may possibly influence the disease activity in IBD (Engel et al., 2021). While the literature is replete with distinctive features of the pathogenesis of IBD, the specific differences in psychological impairments are not well studied. Psychotherapeutic interventions may improve QoL in IBD patients, but current evidence and efficacy outcomes are too ambiguous (Paulides et al., 2021). As IBD is a disease of unknown origin, but stress, anxiety, and depression may be risk factors, it would be beneficial to implement group psychological treatment in the protocol of care for these patients

(Bernabeu et al., 2021). Compared to adolescents and young adults with other chronic illnesses, those with IBD were relatively more at risk of depression, reported worse illness perceptions and felt less in control of their illness. Early recognition and treatment of depression and other psychosocial comorbidities within integrated pathways of care is crucial in adolescents and young adults with IBD and likely to improve the course of IBD and their overall health and wellbeing (Halloran et al., 2021).

As the correlation between health behavior and perceived stress was negative (Yao et al., 2022), we can help patients to adopt healthier behaviors after reducing the perceived stress, thereby improving the quality of life of IBD patients.

3. Social support

Social support denotes the psychological and material resources provided by one's social network to cope with stressful events (Cobb, 1976) (Janicki Deverts et al., 2017)). Social support includes instrumental support (offering a helping hand), emotional support (making older adults feel loved), and informational support (providing older adults with beneficial information) (Gurung et al., 2003).

In terms of clinical factors, studies have reported a significant association between disease activity and lower levels of quality of life. It has been known that higher levels of stress, anxiety, depression, and lower levels of social support are associated with poorer quality of life (Cao, 2020). In the survey conducted by Norton et al., the constant worry about incontinence and the distress of looking for toilets forced them to reduce their time out, which seriously affected daily life and entertainment. They are far away from school and society, thus unable to carry out normal study and work. Their social roles are further degraded, and their quality of life is significantly reduced (Zhang, 2018). Social aspects influenced psychological well-being, resilience and coping in patients with Crohn's disease more strongly than clinical aspects. There were significant differences showing better psychological well-being for male patients, those who without children, were not religious, were employed and were doing complementary activities in addition to clinical treatment (Acciari et al., 2019).

Belonging and disclosing issues deteriorate their self-identity dilemma in Chinese social contexts (Ruan & Zhou, 2019).

Consistently with the literature on psychological morbidity, disease activity and parental stress were also strong predictors of quality of life and psychosocial functioning. New evidence showed that abdominal pain, negative illness perceptions and internalizing symptoms were also common predictors of these outcomes (Touma et al., 2021). Work life can also be adversely affected by the disease, resulting in absenteeism, reduced work hours, and changes in career choice, contributing to financial burden (Restall et al., 2016) (Lonnfors et al., 2014) (Becker et al., 2015). Currently, anti-tumour necrosis factor treatments exist (Brouquet et al., 2018), which would appear to change the course of the disease, yet despite advances in medication in terms of symptomatology, healthcare services do not seem to be providing all the support people with CD require (García-Sanjuán et al., 2018). This means a large part of the burden of attending to those affected falls on their family and within close circles (Garcia-Sanjuan et al., 2019).

Patients can be encouraged to take advantage of outside physicians, dieticians, nurse educators, psychologists and even peers that can provide important information to incorporate into their self-management plan (Keefer et al., 2012). Therefore, helping patients to improve their social support through these social tools and information support, and strengthening their emotional support, can help IBD patients to carry out normal study and work, strengthen their social role, and help them improve their HRQOL.

4. Body image dissatisfaction

Body image refers to the subjective, mental representation one makes regarding their physical appearance (Cushman et al., 2021). BID is a distorted and negative view of the physical self, which in turn can adversely affect mental health and quality of life. To date, there have been no systematic reviews of the evidence on BID in IBD patients (Beese et al., 2018). Patients with IBD will often appear disturbing gastrointestinal symptoms, including abdominal pain, diarrhea, mucous purulent blood, fecal incontinence, etc.) and systemic symptoms, including fatigue, fever, loss of appetite, weight loss, etc.), resulting in frequent hospitalization, absent, unemployment, social communication to reduce, the medical burden, from a rise in surgery and even death. All the above symptoms may lead to adverse physical and psychological clinical outcomes in patients with IBD (Cao, 2020). On the other hand,

immunosuppressive drug treatment can cause bone marrow suppression, liver function impairment, easy to induce infection, patients often show fatigue, gastrointestinal discomfort, and hair loss. Long-term and large doses of hormones are likely to cause metabolic disorders, osteoporosis, infection, and other side effects, leading to changes in the image of patients, such as central obesity, one-moon face, buffalo back. Biological agents can cause a decline in immune function. Studies have shown that it will increase the risk of opportunistic infections in patients, and its high cost often brings huge economic burden to patients, thus causing great pressure to patients. Patients with poor nutrition status have a higher risk of infection and will also affect the body's response to drug treatment and reduce the quality of life of patients. Because the objective of this disease is to induce and maintain clinical remission, promote mucous membrane healing, prevent and treat complications, so effective drug control and good disease management is so important, so as to improve patients' quality of life in the long-term disease management (Zhu, 2019).

Body image dissatisfaction (BID) is quite common in CD patients, with recent studies reporting BID in 21–87% of these patients (Hong et al., 2020). Patients with Crohn's disease (CD) experience physical impairments, poor quality of life and negative body image. These factors are exacerbated in CD patients with active perianal fistulas (Hong et al., 2020). People living with IBD may also be at risk of body image dissatisfaction (BID) (Beese et al., 2018). Older child age, greater patient-reported disease symptoms, and worse depression symptoms were most strongly associated with overall body dissatisfaction when evaluated in a hierarchical regression model (Cushman et al., 2021). Lower health-related quality of life (HRQOL) is associated with greater BID among adults with IBD. The higher the disease activity, the more physical changes such as weight loss and malnutrition patients are likely to have during the disease activity period, resulting in more dissatisfaction with their body image (Chen & Ma, 2020). More details are that demographic, disease-related, and psychosocial factors were all related to higher BID in a newly diagnosed sample with IBD. Older age, greater self-reported disease symptoms, and higher depressive symptoms contributed most to higher BID (Cushman et al., 2021).

Risk factors for body image dissatisfaction include female sex, older age at diagnosis, active disease, current steroid use, greater body mass index, and comorbid mood disorder. Greater body image dissatisfaction was also associated with poorer quality of life (S. E. Beese et al., 2019). Clarifying associations with body image dissatisfaction in specific chronic disease populations, such as IBD, could help better tailor early disease-specific interdisciplinary treatment strategies to improve HRQOL (Claytor et al., 2020).

Patients with IBD remains stable over time despite improvements in disease activity. At all- time points BID remains greater for females compared to males and is associated with lower HRQOL. Symptom burden, disease activity, dermatologic and musculoskeletal manifestations of IBD, and ileocolonic disease location for patients with CD were associated with greater BID while IBD subtype, ocular manifestations, and disease location among patients with UC were not. Importantly, use of steroid-sparing medications was found to modify the detrimental effects of prolonged steroid use on body image satisfaction (Saha et al., 2015). Those endorsing body image dissatisfaction were significantly more likely to have ever had an IBD-related hospitalization (68% vs 54% P = .027) (Claytor et al., 2020).

Therefore, helping patients to reduce the use of medications and the number of hospital stays after symptom relief, thus helping patients to reduce financial stress and the risk of depression, can help to establish a better image, and thus lead to better HRQOL in IBD patients.

## Summary

It can be seen from the above literatures, IBD disease is a chronic disease, which can make patients have negative comment on their own, and will form a negative emotion, which also resulted in patients on their health status have poor awareness. Patients tend to experience more stress than the general population because of the perceived dissatisfaction with social inconveniences associated with their illness and the financial pressure of treatment. With the stress patients often need all aspects of social support and understanding, whether work or family life and interpersonal relationships, which are intuitively reflected in Health-related quality of life. Therefore, by knowing about HR-QOL and its predictors among IBD patients,

this would be beneficial to further development of nursing interventions to enhance their QOL.

# CHAPTER 3
# RESEARCH METHODOLOGY

This chapter elucidated the study design and methods used in this study including description of population and sample, the research setting, instruments, protection of human subjects, data collection procedure and data analysis.

## Research design

A predictive correlational study design was used to examine the influence of body image dissatisfaction, perceived health status, perceived stress, and social support on quality of life among patients with IBD.

## Population of the study

Population in this study included patients diagnosed with IBD based on the Chinese criteria released in 2018 (Committee of Inflammatory Bowel Disease and Chinese Society of Gastroenterology, 2018) who received health service at the First Affiliated Hospitals of Wenzhou Medical University in the digestive department.

**Sample of the study**

The sample included the patients with IBD admitted in the gastroenterology and out-patient department for physical examination and regular medication, such as colonoscopy and blood tests and treatment, specifically with Crohn's disease (CD) and ulcerative colitis (UC). Both the inpatient and outpatient patients were recruited. For China's national conditions and in-hospital reimbursed for most of the medicine and treatment costs, they will choose to be admitted for hospital review, because there is no reimbursement of outpatient service. So, with inpatients people can reduce their economic pressure. Another part of the treatment of ulcerative colitis patients also have drugs and periodic review, and choosing for admitting at the hospital, they can submit an expense account most of the costs, they are often in order to comply with the conditions of the reimbursement, need to be hospitalized with 24 hours, therefore, of IBD patients treated in our hospital in the average hospitalization time is 1 to 2 day. The Gastroenterology outpatient department and inpatient department are in the First

Affiliated Hospital of Wenzhou Medical University. The following inclusion criteria were applied to the sample as follows:

1. Adult men and women (aged 18-60)
2. Able to speak, understand, and write Chinese
3. Not having severe IBD related symptoms.
4. Not have serious side effects from receiving medical treatment.
5. Willing to participate in this study.

The exclusion criteria included:

1. Patients with severely impaired organ function.
2. Patients have critical illness, tumor.
3. Patients have mental illness.
4. Pregnancy patients.

**Sample size**

The sample size in this study was calculated by G*Power 3.1 program. Regression was chosen as type of statistical test with an alpha of 0.05, a power of test 0.90, a medium effect size of 0.13 (Polit & Beck, 2017), and the number of independent variables as 4. It generates sample size of 124 subjects. To compensate for possible missing data, this study will add more 20%=124*20/100=25. So total cases needed=124+25=149. In this study, 150 cases of patients with IBD who met the inclusion criteria were recruited. The target sample was recruit from OPD for 50% (n=75) and from IPD for 50% (n=75).

## Sampling technique

The IBD patients were randomly selected from the list of patients who were at the enterology department IBD both inpatients and outpatients. The researcher found the list of IPD and OPD in advanced and randomly selected them.
and then later checked whether they met the inclusion criteria. Those who met the inclusion criteria were asked to sign the consent form to participate in this study.

## Setting of the Study

First, because this study population was specifically targeted at the region of Wenzhou, Wenzhou. It is one of the regional central cities in Zhejiang province, it has a population of approximate 9.3 million, and the First Affiliated Hospital of Wenzhou Medical University is representative of center hospital of Wenzhou. The study was conducted in the First Affiliated Hospital of Wenzhou Medical University, which is the largest general hospital in providing services of 300 thousand of people in south of Zhejiang province, and it covers the land area of 355,000 square meters and owns more than 6,000 medical staffs and 3,500 beds.

This study was conducted in the Gastroenterology Department in the First Affiliated Hospital of Wenzhou Medical University, Wenzhou city, Zhejiang Province. The First Affiliated Hospital of Wenzhou Medical University (also known as The First Wenzhou Hospital of Zhejiang Province) was founded in 1919, which is a grade III comprehensive hospital. It has 6 clinical diagnosis and treatment centers, 47 clinical departments, 8 medical technology departments and internal medicine and surgery laboratories. In 2019, the number of outpatient visits in the department of Gastroenterology reached 470,000, and the number of inpatient beds in the department of Gastroenterology was about 150.

The department of Gastroenterology of the First Affiliated Hospital of Wenzhou Medical University hospital has been engaged in the diagnosis and treatment of inflammatory bowel disease for a long time since 2005. In recent years, the population of IBD patients has grown rapidly. By 2021, the total number of registered IBD patients in our hospital is 3968 (CD3045, UC923), ranking first in the Wenzhou and fourth in the Zhejiang province.

In the past three years, the number of IBD patients increased year by year, the number of outpatient IBD patients was about 1000 in 2018, 1160 in 2019, and 1330 in 2020. Six IBD beds were set up in the ward, and the number of inpatient IBD patients was about 490 in 2018, 671 in 2019, and 1119 in 2020.

## Research Instruments

Research instruments used in this study included the patients' general information questionnaire and other 5 questionnaires to gather data regarding health-

related quality of life, body image dissatisfaction, perceived health status, perceived stress, and social support:

**Part I: Demographic data**

A demographic data questionnaire was developed by the researcher. The questionnaire is about the patients' general information. The data included types of disease, gender, age, education background, occupation, marital status, personal income, history of smoking, operation history.

**Part II: Chinese version of the Inflammatory Bowel Disease Questionnaire (IBDQOL-22)**

The health-related quality of life of IBD were measured by the Mainland Chinese version of the Inflammatory Bowel Disease Questionnaire (IBDQ). The original IBDQ was initially developed and validated in Canada in 1989 (Guyatt et al., 1993) and more fully validated later (Irvine et al., 1994). The Chinese version of IBDQ was first translated by Hong Kong scholar (Leong et al., 2003). But its psychometric property was poor when applied in mainland China. Later, Zhou Yunxian and others revised the Simplified Chinese version (Ren et al., 2010; Zhou, 2006) to be applied in mainland China. The Cronbach's α coefficients of each dimension of IBDQ ranged from 0.74 to .88. IBDQ scale of Chinese internal consistency reliability is 0.95. The Chinese version of IBDQ had good reliability and validity (Wei et al., 2006). Then the Chinese version of Inflammatory Bowel Disease Quality of Life -22 (IBDQOL -22) was developed by Ruan in 2017, which is mainly used to measure the quality of life of Chinese inflammatory bowel patients. There were 22 items in 4 dimensions. The four dimensions were social functioning (5 questions), emotional functioning (6 questions), symptoms and discomfort (5 questions), intestinal symptoms and their effects (6 questions). A 5-point Likert type scale and ordering of items according to content relevance were suggested by participants. Each question is scored on a five-point Likert scale, ranging from 1 (represents a very severe problem)–5 (represents no problem at all), reflecting the quality of life of the previous two weeks. The total IBDQ score ranges from 22–110. The higher the score, the better HRQOL. Cronbach's alpha for the 4 domains of the IBDQOL-22 ranged from 0.77 to 0.90 in UC and from 0.76 to 0.89 in CD. Test‐retest

reliability was excellent (intraclass correlation coefficient was 0.88‑0.95 in UC and 0.72‑0.90 in CD) (Ruan et al., 2017). In this study, the statistical reliability analysis showed the Cronbach's α coefficient of 0.90.

**Part III: Short Health Scale (SHS)**

The perceived health status was measured by the Short Health Scale (SHS). Developed by Henrik et al. (2006), and was translated into Chinese by Xu in 2017, SHS consists of four problems, including bowel symptoms and activities of daily living life, disease-related worries and a sense of general well-being. Each question was marked on a visual simulation scale of 0 to 100 mm by the patient in the position they think it will be suitable for their own situation. The score of each question ranged from 0 to 100 points, and the four items were added together to form a total score. The higher the total score, the poor health status as perceived by the IBD patients. The Cronbach'a internal consistency coefficient was used in the reliability analysis of the Chinese version of the scale. The results showed that the Cronbach'a internal consistency coefficient of each item in CD patients was 0.887, and the Cronbach'a internal consistency coefficient of UC patients was 0.914. Comparatively speaking, our study shows good internal consistency reliability. The retest reliability ICC was 0.735-0.830 for Patients with CD in China and 0.918-0.982 for patients with UC (XU, 2017). In this study, the statistical reliability analysis showed the Cronbach's α coefficient of 0.75.

**Part IV: Body Image Scale (BIS)**

Body image dissatisfaction (BID) was measured by using the Body Image Scale (BIS) developed by Hop-wood et al. (2001) to assess the self-image of cancer patients. McDermott et al. (2014) improved it in 2014 and verified it in IBD population, and the results showed good internal consistency (Cronbach's α= 0.93). This item finally forms 9 items covering emotion, behavior, and cognition dimensions (McDermott et al., 2014). This instrument uses a 4-point Likert scale (0 = not at all, 1 = a little, 2 = quite a bit, 3 = very much) to evaluate dissatisfaction with appearance changes related to cancer or its treatment. Each item is rated on a 4-point Likert scale (0 to 3). Higher scores represent more body image-related distress or body image concerns. The 4-level scoring method was adopted, with a total score of 0 - 27. The higher the score, the higher the degree of self-image dissatisfaction (McDermott et al.,

2014). In China, the BIS has the results show good internal consistency, if it is used in patients with head and neck cancer (Cronbach's α = .90) (Gong, 2018), intestinal Cronbach's α = .801 (Cronbach's α = .801) (Peng, 2018), it has Chinese language already, but it has not been used field of IBD. In this study, the statistical reliability analysis showed the Cronbach's α coefficient of 0.88.

**Part V: Perceived Stress Scale (PSS)**

Perceived Stress was measured by using Perceived Stress Scale (PSS), which is a classic stress assessment instrument, while originally developed in 1983, The scale was revised by Yang and Yanzhong et al. (2003) with a total of 14 items, which can be used to evaluate the stress perception degree of a variety of people caused by unpredictable, uncontrollable, or overloaded life in the past month. Likert grade 5 scoring method was used for each item, with 0-4 indicating never or sometimes, respectively the total score is 0-56 points. The score is 0~28 points, indicating normal pressure. A score of 29-42 indicates high pressure, and 43-56 indicates excessive pressure. The higher the score is, the higher the pressure perceived by the individual is. PSS has been widely used in multiple groups of people. The Cronbach's α coefficient of internal consistency in this study is .853 (Li, 2018). In 2010, Professor Liang Baoyong and others in China developed and verified the stress and distress scale suitable for the effective assessment of domestic culture, and being used by scholars (Luo, 2015). In this study, the statistical reliability analysis showed the Cronbach's α coefficient of 0.81.

**Part VI: The Multidimensional Scale of Perceived Social Support**

Perceived Social Support was measured by The Multidimensional Scale of Perceived Social Support. The Perceived Social Support Scale is a concise and widely used measure of social support developed by Blumenthal and Zimet (1988) to assess individuals' self-understanding and self-perception of social support (CHEN et al., 2018). The main assessment is the individual's perception and evaluation of support from significant others, family members and friends (Zimet et al., 1990). Huang Li et al revised the Chinese version of perceived social support in 1996 and applied it to the correlation study of social support in cancer patients (Wang, 1999). It is a 12-item measure of perceived adequacy of social support from three sources: family, friends, & significant others; using a 5-point Likert scale (0 = strongly disagree, 5 = strongly

agree). There is already a Chinese version being used by scholars (Wang, 2019). The Cronbach's α coefficient between the total scale and three subscales were 0.840,0.818,0.820, and 0.813 with the binary reliability 0.741~0.791, showed that a good reliability. The reliability and validity of PSSS were ideal. In this study, the statistical reliability analysis showed the Cronbach's α coefficient of 0.92.

## Psychometric properties of the instruments

### Validity

Since all the instruments used in this study were already validated and regarded as standardized instruments. Therefore, the validity tests were not conducted in this study.

### Reliability

The reliability of the instruments used in this study was tested with 30 IBD patients who were not the actual sample in the study. These 30 participants for this pilot study were recruited form the outpatient and inpatient Department of Gastroenterology of the First Affiliated Hospital of Wenzhou Medical University. Data collection for this pilot study was from 10th November 10$^{th}$ , 2022 to December 3$^{rd}$, 2022. The Cronbach alpha coefficient analysis is considered acceptable if it yields a value of at least .70 (Taber, 2018). The Cronbach's alpha coefficients test yielded the following results: perceived stress (.694), perceived social support (.919), body image dissatisfaction (.877), perceived health status (.890), health-related quality of life (.896).

## Human subject protection

Human subject's approval was obtained from the Institutional Review Board (IRB) of Burapha university and the First Affiliated Hospital of Wenzhou Medical University. And the IRB code from BUU was G-HS047/2565 and the IRB code from WMU was KY2022-160. The purpose, procedures, benefits, and safety related to risk of the study were explained to the research participants. The consent form was given to the participants to review and sign by the participant. Patients were assured that they had the right to refuse to participate or to withdraw from the study at any time.

Anonymity and confidentiality of patients were assured, and no personal information was disclosed to any other persons. All data were stored in a secure place and only utilized for the purpose of the research. The result was reported as group data and Cronbach's α coefficient was used to assessment reliability.

## Data collection procedures

The data collection procedures in this study were conducted by the researcher as follows:

1. After acquired permission of the Burapha University Ethics Committee on Human Research (G-HS047/2565) and the institutional review board (IRB) of the First Affiliated Hospital of Wenzhou Medical University (KY2022-160), the researcher contacted the director of the hospital, head nurse and nurse staff to introduce briefly about the study and asked for the cooperation of data collection.

2. The researcher knew the list of IBD patients who made appointment for their visits at this setting in advanced before the dates that they came for the visit in this unit. The researcher went to the inpatient and outpatient departments and checked for a list of outpatients and inpatients for each day. In each day, there were about 5-10 cases, so the researcher randomly selected the eligible patients by using simple random sampling technique. By looking at the hospital identification numbers that represented the patients who came for follow up in the next day in the computer and then the researcher draw certain number of these numbers. Later, the researcher checked whether these cases met the inclusion criteria or not.

3. The researcher met with the participants in order to collect data. The researcher took good personal protection during the COVID-19 by wearing mask and keeping a safe distance and washing hand. Then introduced and informed them about the purpose and process of the study. In addition, human right protection was explained, and participants were allowed to drop out anytime as their willing, whilst assured them about anonymity and confidentiality. After acquired informed consent, participants were given consent forms and asked to sign their names and date.

4. Data were collected individually. Participants were allowed to complete the questionnaire alone in the private room provided. The whole process of data collection in each case took around 30 minutes, and the researcher checked

completion after taking back questionnaires. And then the main study data collections were collected every day between November 10th in 2022 to April 30th in 2023. About 3-5 participants per day were approached until reaching the number of required sample size (n=150).

## Data analysis

All data was analyzed by statistical software. The alpha level for statistical significance will be set at .05. Data analyses were divided into two major parts.

1. Descriptive analysis including frequency. percentage. mean. and standard deviation (SD) were used to describe demographic data. Body image dissatisfaction, Perceived health status, perceived stress, and social support affect patients' quality of life.

2. Standard multiple regression analysis was used to determine the influence of body image dissatisfaction, perceived health status, perceived stress, and social support on patient's quality of life. Prior to this analysis, the assumption testing prior to the use of analysis was firstly tested which included: 1) Having linear relationship, 2) No Multicollinearity, 3) Independence, 4) Homoscedasticity, and 5) Multivariate normality.

# CHAPTER 4
# RESULTS

This study aimed to study health-related quality of life and its predictive factors among patients with IBD. These predictive factors consisted of body image dissatisfaction, perceived health status, perceived stress, and social support. The data were collected from 150 patients with IBD who came to the Gastroenterology outpatient and inpatient department of the First Affiliated Hospital of Wenzhou Medical University located in Zhejiang Province. This chapter presents findings which are organized into four parts as follows:

Part I: Description of demographic characteristics of the sample

Part II: Description of the health-related quality of life

Part III: Description of factors associated with the health-related quality of life

Part IV: Correlation results of all studied variables

Part V: The influence of factors predicting the health-related quality of life

## Part 1 Description of demographic characteristics of the sample

Among the patients with IBD, Crohn's disease accounted for 87.3% (n=131) from the total of 150 cases. These Inflammatory Bowel Disease patients had an average age of 32.37 years. The age group of 29-39 years old were 45.30% (n=68), followed by 18-28 years old which accounted for 36% (n=54). Males were dominant (76.70%) (n=115). Almost half of participants were single 54 %(n=81). The majority had university degree or above education (63.30%) (n=95) that college and undergraduate accounted for the largest proportion of 62.60% (n=94). The proportion of employees is the largest (58.70%) (n=88). The personal income is medium level (76.70%) (n=115), indicated not so good. Most patients (83.30%) (n=125) had no history of smoking. The rates of those with and without a history of relevant surgery were the same (50.00%) (n=75). Details were listed in Table 2.

Table 2 Demographic background of the sample (N = 150)

| Demographic characteristics | Frequency | Percentage (%) |
|---|---|---|
| **Types of disease** | | |
| UC (ulcerative colitis) | 19 | 12.70 |
| CD (Crohn's disease) | 131 | 87.30 |
| **Gender** | | |
| Female | 35 | 23.30 |
| Male | 115 | 76.70 |
| **Years Min = 18, Max = 60, Mean = 32.37, SD = 9.628** | | |
| 18-28 | 54 | 36.00 |
| 29-39 | 68 | 45.30 |
| 40-50 | 18 | 12.00 |
| >50 | 10 | 6.70 |
| **Education background** | | |
| Primary school | 8 | 5.30 |
| Junior high school | 19 | 12.70 |
| High school or technical secondary school | 28 | 18.70 |
| Junior college | 47 | 31.30 |
| Undergraduate education | 47 | 31.30 |
| Graduate degree or above | 1 | 0.70 |
| **Occupation** | | |
| Employee | 88 | 58.70 |
| Farmer | 3 | 2.00 |
| Freelance work | 22 | 14.70 |
| Student | 22 | 14.70 |
| Unemployed | 15 | 10.00 |

Table 2 (Continued)

| Demographic characteristics | Frequency | Percentage (%) |
|---|---|---|
| **Marital status** | | |
| Single | 81 | 54.00 |
| Married | 63 | 42.00 |
| Divorced | 6 | 4.00 |
| Widowed | 0 | 0.00 |
| **Personal income** | | |
| Poor | 35 | 23.30 |
| general | 115 | 76.70 |
| Good | 0 | 0.00 |
| **History of smoking** | | |
| Yes | 25 | 16.70 |
| No | 125 | 83.30 |
| **Operation History** | | |
| Related surgical history | 75 | 50.00 |
| No related surgical history | 75 | 50.00 |

## Part II: Description of the health-related quality of life

IBD Patients' health-related quality of life included 4 dimensions: Bowel symptoms and its influence, Symptoms and discomfort, Emotional function and Social function. The higher the score, the better the health-related quality of life. The average score of bowel symptoms and its influence is 25.47 (SD= 3.54), and its actual score is from 11 to 30, the average score of symptoms and discomfort and its influence is19.42 (SD= 3.62), and its actual score is from 10 to 25. The average score of emotional function and its influence is 21.65 (SD= 4.36), and its actual score is from 10 to 30, and the average score of social function and its influence is 19.88 (SD= 4.77), and its actual score is from 5 to 25. From the above analysis, the quality of life of IBD patients is relatively high, which is medium or above. The total score of each dimension and the total score of the scale were scored by the sum of each item score

and the sum of each dimension item score and the mean in percent, respectively. More details can be found in the following Table 3.

Table 3 Description of health-related quality of life and its four-dimensions.(N=150)

| Variables | Possible Range | Actual Range | Mean | (SD) | Mean (percent) |
|---|---|---|---|---|---|
| Bowel symptoms | 6-30 | 11-30 | 25.47 | 3.54 | 84.90 |
| Symptoms discomfort | 5-25 | 10-25 | 19.42 | 3.62 | 77.68 |
| Emotional function | 6-30 | 10-30 | 21.65 | 4.36 | 72.17 |
| Social function | 5-25 | 5-25 | 19.88 | 4.77 | 79.52 |
| Health-related quality of life (Total) | 22-110 | 42-110 | 86.43 | 12.89 | 78.57 |

## Part III: Description of factors associated with the health-related quality of life

In this study, there were 4 factors associated with the health-related quality of life, namely the body image dissatisfaction, perceived health status, perceived stress, and social support. The results showed that perceived stress had mean score of 25.11 (SD=7.16) which is less than the central value of the possible score (Median= 26), social support had mean score of 53.96 (SD=12.24) which is less than the central value of the possible score (Median=55.5), body image dissatisfaction had mean score of 7.84 (SD= 5.16) which is lower than the central value of the possible score (Median=7), perceived health status had mean score of 182.54 (SD=79.79) which is more than the central value of the possible score (Median=182.5). In consideration of the mean percents all factors they all are above 70 percents. All details are presented in Table 4.

Table 4 Mean and Standard Deviation (SD) of the factors related to health-related quality of life (N = 150)

| Variables | Mean | SD | Median (actual scores) | Possible scores | Actual scores |
|---|---|---|---|---|---|
| Perceived stress | 25.11 | 7.16 | 26 | 0-56 | 4-44 |
| Social support | 53.96 | 12.24 | 55.5 | 12-84 | 12-84 |
| Body image dissatisfaction | 7.84 | 5.16 | 7 | 0-30 | 0-30 |
| Perceived health status | 182.54 | 79.79 | 182.5 | 0-400 | 10-360 |

## Part IV: Correlation results of all studied variables

From the correlation matrix, social support, body image dissatisfaction, perceived health status, perceived stress were significantly correlated with health-related quality of life as follows: social support was positively correlated with health-related quality of life $r = .234$, $p < .01$; body image dissatisfaction was negatively correlated with health-related quality of life, $r = -.293$, $p < .01$, perceived health status was negatively correlated with health-related quality of life, $r = -.405$, $p < .01$, for perceived health status higher score means poor health perception, perceived stress was also negatively correlated with health-related quality of life, $r = -.399$, $p < .01$), as presented in Table 5.

Table 5 Pearson correlation between factors and health-related quality of life (N = 150)

| Variables | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| 1 Health-related quality of life | 1 | | | | |
| 2 Social support | .234** | 1 | | | |
| 3 Body image dissatisfaction | -.293** | -.024 | 1 | | |
| 4 Perceived health status | -.405** | -.031 | .032 | 1 | |
| 5 Perceived stress | -.399** | -.352** | .274** | .239** | 1 |

** p< .01

## Part V: The influence of factors predicting the health-related quality of life

Through the use of multiple regression analysis with enter method, the preliminary assumption testing was conducted first, it was found that these complied the assumption in using multiple regression statistics as follows:

The independent variables and the dependent variable consisted of an Interval or ratio measures. In this study, there were 4 variables used in this study which included 1) social support, 2) body image dissatisfaction 3) perceived health status, 4) perceived stress. All variables were evaluated using questionnaires and all were interval measures, 2) All independent variables were independent (without multicollinearity) by considering the tolerances values approaching zero while the VIF values in this study did not exceed 5 which indicated multicollinearity. In this study, the tolerance values of all 4 variables were: social support= 1.155; body image dissatisfaction= 1.093; perceived health status =1.065; perceived stress =1.324. All results of assumption testing were presented in appendix A.

For Multiple regression analysis, all the factors examined including social support, body image dissatisfaction, perceived health status, and perceived stress were entered simultaneously into regression model. It can be seen in the Table 6 through the use of multiple regression analysis, it was indicated that social support, body image dissatisfaction, perceived health status and perceived stress significantly could explain 30.0 % of the variances in the health-related quality of life ($R^2$ = .318, Adjust

$R^2$ = .300, $F$ = 16.939, $p$ < .001). The strongest predictor was perceived health status ($\beta$ = -.341, $p$ < .001), followed by perceived stress ($\beta$ = -.205, $p$ < .01), and then body image dissatisfaction ($\beta$ = -.218, $p$ < .05). and the least was social support ($\beta$ = .147, $p$ < .05). The results of this multiple regression analysis were presented in Table 6.

Table 6 Summary of multiple regression analysis of factors influencing the health-related quality of life (N = 150)

| **Predicting factors** | **B** | **SE** | **β** | **t** | **p** | **VIF** |
|---|---|---|---|---|---|---|
| Perceived health status | -0.055 | 0.011 | -0.341 | -4.824 | .000 | 1.065 |
| Perceived stress | -0.370 | 0.142 | -0.205 | -2.601 | .010 | 1.324 |
| Body image dissatisfaction | -0.545 | 0.179 | -0.218 | -3.043 | .003 | 1.093 |
| Social support | 0.155 | 0.078 | 0.147 | 1.999 | .047 | 1.155 |
| Constant=101.682, R= .564, $R^2$= .318, Adjusted $R^2$ = .300, F=16.939, p< .001 | | | | | | |

# CHAPTER 5
# CONCLUSION AND DISCUSSION

This chapter presents the summary and discussion of the study findings. Implications of the study findings, limitations, and recommendations for future research are addressed.

## Summary of the results

The sample included 150 patients with IBD who came for admitted in the gastroenterology and out-patient department. Both the inpatient and outpatient patients were recruited. The Gastroenterology outpatient department and inpatient department are in the First Affiliated Hospital of Wenzhou Medical University. Self-report questionnaires were used to collect data, including a demographic data questionnaire and IBDQOL-22, Short Health Scale (SHS), Body Image Scale (BIS), Perceived Stress Scale (PSS) and the Multidimensional Scale of Perceived Social Support.

For the health-related quality of life, the results showed that among the patients with IBD (N=150), Crohn's disease accounted for 87.3%. The sample had an average age of 32.37 years.

From multiple regression analysis revealed that social support, body image dissatisfaction, perceived health status, and perceived stress significantly explained 30.00% of the variances in the health-related quality of life ($R$ 2 = .318, Adjust $R$ 2 = .300, $F$ = 16.939, $p$ < .001). The best influencing factor was perceived health status ($\beta$ = -.341, $p$ < .001), followed by perceived stress ($\beta$ = -.205, $p$ < .01), and then body image dissatisfaction ($\beta$ = -.218, $p$ < .05), and the last was social support ($\beta$ = .147, $p$ < .05).

Four influencing factors of health-related quality of life included the body image dissatisfaction (Mean= 7.84, SD= 5.16), perceived health status (Mean=182.54, SD= 79.79), perceived stress (Mean= 25.11, SD= 7.16), and social support (Mean=53.96, SD=12.24).

## Discussion

In this part, the discussion was present in accordance with the objectives of this study: 1) to examine health-related quality of life and its influencing factors including perceived health status, body image dissatisfaction, social support, perceived stress among patients with inflammatory bowel diseases (IBD) and 2) to examine its influencing factors.

**Health-related quality of life among patients with inflammatory bowel diseases**

The first objective of this study is to examine the health-related quality of life of the IBD patients in Wenzhou. To the best of our knowledge, this is the first study on HRQOL conducted with IBD patients in Wenzhou, China, Asia. According to the quality of life of IBD patients in China and abroad, the quality of life of patients is generally low (Knowles, Graff, et al., 2018). From the results, we can see that the HRQOL of the patients was relatively in moderate level or above, because IBDQ-22 is specifically for patients in mainland China, so there is no international data to support it, but in terms of the overall scores and levels, the HRQOL of IBD patients was merely above the moderate level, which is consistent with a Dutch study (Paulides et al., 2022) showing the average quality of life of the patients is above the moderate level, which is consistent with the results of this study. The HRQOL was in the moderate level, which was related to the fact that the patients we selected were not in the severe stage of the disease but in the remission stage of the disease. In a study in Guangzhou, it was found that the quality of life of patients in the remission stage was higher (Zhou et al., 2006). A moderate-to-upper level of quality of life was also associated with author Knowles as there was robust confirmation that QoL for individuals with IBD was poorer than for healthy individuals, for both adults and children (Knowles, Graff, et al., 2018). The results showed that although the quality of life of IBD patients was above the medium level, it was lower than that of normal people. This is all shown to be consistent with the results of this study.

In this result, it is seen that the proportion of males is higher, accounting for 76.70%, as mentioned in the article of Zhou Jian (Zhou, 2012) that the quality of life of men is generally higher than that of women, which is also consistent with the results of this study, because the overall quality of life of the subjects in this study is

above the medium level. In this study population, the largest proportion of age was 29-39 years old, accounting for about 45.30%, and mean of the age was 32.37 years old showing that the young people are the majority in IBD group, which is consistent with the age of onset of the disease is mostly found in young adults. This is in accordance with the age division of Chinese population data: young age (20-35 years old, middle age (35-60 years old), old age (60 years old and above). It can also be seen that age is positively correlated with quality of life, which is related to the young adults in this age group experiencing the rising stage of life and facing the pressure of work, family and study in the article of Zhou's. It was mentioned in an article in Korea that the mean age was 45.96 +/- 17.58 years, and 97 (61.4%) patients were men (Kim et al., 2021), and with a study in China which recruited 1,013 patients with a median age of 35.0 years, 58.5% of them had CD, and 61.4% of all patients were male (Liu et al., 2022), it is consistent, showing that IBD is more prevalent in younger age groups and males. In this study, the proportion of college and undergraduate education was 62.60%, indicating that most IBD patients have higher education, and related studies have shown that the quality of life of IBD patients with higher education level is higher than that of patients with lower education level (Zhou, 2012), this may be related to the better cognition and understanding of the disease in patients with higher education level than those with lower education level, and it may also be related to the more channels and ways of acquiring IBD related knowledge in patients with higher education level. This is also consistent with the results of this study. The quality of life of most IBD patients is not bad, but it still needs to be improved.

In this study, mean value of each dimension of patients' quality of life is different. Among them, the mean value of bowel symptom is the largest (25.47), and the mean value of symptoms discomfort is the smallest (19.42) and social function mean score is 19.88, so it can be seen that in terms of quality of life, we can improve patients' symptoms discomfort and social function.

**The factors predicting the health-related quality of life**

The second objective of this study is to examine the predictive factors that influence health-related quality of life. With the use of multiple regression analysis (Enter method), in which all factors entered simultaneously. The results of the

multiple regression analysis indicated that body image dissatisfaction, perceived health status, perceived stress, and social support significantly accounted for 30.00 % of the variance in health-related quality of life, which had a significant positive impact on patients' health-related quality of life (Adjust $R$ 2 = .300). The regression equation was statistically significant (F=16.939, p< .001) which could prove to be a significant predictor of health-related quality of life. The findings of the present study indicated that all the factors are significant predictors of health-related quality of life in patients with IBD.

The findings of this study provide empirical support for the research hypothesis that perceived health status exerts a significant positive influence on health-related quality of life ($\beta$ = -.341, $p$ < .001), and serves as one of the influencing factors of such behaviors. This indicates that a one-unit decrease in perceived health status standard deviation (SD=79.79) is associated with a 0.341 standard deviation increase in health-related quality of life score (SD=12.89). As a study showed that the severity of the disease was negatively correlated with HRQOL (Li et al., 2012). As a study showed that the more severe the disease, the worse the quality of life of the patients (Zhu et al., 2013). This may relate to the point that poor perception towards patients' health status could be one of indicators that reflect the low ability for patients to cope with the disease and may link to the decline of patients' quality of life. This is consistent with the study conducted by Zhang et al. ( 2016) (Zhang et al., 2016). The perceived health status of the population in this study is below medium level as mean=182.54, whereas the study conducted in a Germa showed that the mean score was in a moderate (Demmer et al., 2023). The results of this study also showed that 76.70% of the patients had a medium or above economic level, indicating that the economic income of most patients was quite good. Another article also mentioned that the score of body pain dimension was positively correlated with the economic status (Zhou, 2014). This may be related to the ease of seeking medical services and timely pain control in patients with better economic conditions. In the study, 62.60% of the patients had an education background of junior college and undergraduate education, indicating that a high degree of education can also help patients better understand and perceive the health status, and help patients get a better quality of life, as mentioned in Zhou's article (Zhou, 2012). Therefore, health care providers should focus on

improving patients' perception of disease to help patients better perceive their health status and obtain a better quality of life.

Perceived stress emerged as a significant influencing factor of health-related quality of life ($\beta$ = -.205, $p$ < .01). The findings of the present study revealed that patients with IBD had a mean score of 25.11 (±7.16) on their perceived stress. There is a strong negative correlation between perceived stress and quality of life because higher total PSS scores on the questionnaire indicate greater perceived stress, and in this study, it was seen that the total PSS score of the patients was relatively above the moderate level, meanwhile the quality of life was above the moderate level. As seen in a literature that analyses revealed significantly lower HRQOL in individuals who reported higher perceived stress (Anilga Moradkhani et al., 2013). And high levels of stress were found to be associated with low levels in all quality of life (Iglesias-Rey et al.), this prediction relationship was also verified in another study conducted by (Anilga et al., 2015). In the study which collected data in China (Luo, 2023), it was found that perceived stress are associated with the quality of life, and in that study also found that the mean score of PSS was 22.6 ± 9.6. This result was slightly lower than our current result which showed that patients' stress perception is above the medium level. Psychosocial adaptation is directly proportional to the quality of life. There is no radical cure for this kind of disease at present, and it can reverse recurrence. Patients often suffer from the repeated pain of the course of the disease (Qi & Wang, 2020). Social stressors' affected male more than female (Ersan et al., 2018), and a higher level of stress was reported by those who were not married, women and those who experienced an increase in IBD-related symptoms (Refaie et al., 2022), as in this study, the number of men was the majority (76.70%), and unmarried people accounted for 54.00%, which also showed that the overall perceived stress was above the moderate level, which is consistent with the data obtained by the study. In a study in 2019 the patients considered stress [84.1%], altered immunity [69.32%], family problems [49.4%], and emotional status [40.9%] as the main causes of IBD (Vegni et al., 2019). This implies that during the process of disease treatment and education, nurses should focus on enhancing patients' confidence in managing their illness, instructing them on how to effectively cope with health issues arising from the disease, and promote the ability of dealing with stress.

Body image dissatisfaction was also a significant influencing factor of health-related quality of life ($\beta$ = -.218, $p$ < .05). As the result showed that the body image dissatisfaction score of IBD patients was negatively correlated with the quality of life. As validated in the literature that greater body image dissatisfaction was also associated with poorer quality of life (Sophie Elizabeth Beese et al., 2019). In the literature review, it was showed that the most significant predictors of QoL in patients with IBD were body appreciation (Matos et al., 2021), this is also consistent with this study. According to the scale, the total score ranged from 0 to 30, with higher scores indicating more dissatisfaction with body image, 1-10 indicating mild dissatisfaction with self-image, and 11-20 indicating moderate dissatisfaction with self-image. When the total score of BIS >10, that the patient has self-image problems. However, the body image dissatisfaction's mean in this study was 7.84±5.16, so the study showed that the self-image of patients is between mild dissatisfaction and moderate dissatisfaction, it was relatively low level. McDermott et al. (2015) showed that females ($p < .001$) and those who had undergone either stoma or nonstoma forming surgery experienced more body image dissatisfaction (McDermott et al., 2014). It was consistent with this study, because the proportion of women in this study was only 23.30%, which reduced the overall score of image dissatisfaction in this study. And in this study the mean value of emotional dimension was 3.36 (SD=2.17), the mean value of behavioral dimension was 1.29 (SD=1.30), and the mean value of cognitive dimension was 3.19 (SD=2.28), it can be concluded that the highest score was the emotional dimension, followed by the cognitive dimension and the last was the behavioral dimension. Then the emotional dimension is the most problematic, indicating that we can provide guidance and help to patients from this direction. A study showed that body image dissatisfaction was also associated with low levels IBD-specific ($p < .001$) quality of life, and a negative body image self-evaluation may result in psychosocial dysfunction, and body image dissatisfaction is common in patients with IBD, was associated with significant psychological dysfunction. Its measurement is warranted as part of a comprehensive patient centered IBD assessment (McDermott et al., 2015). Therefore, psychological interventions aiming to target body dissatisfaction should be implemented in the health care of IBD, independently of patients' operative status as mentioned in Trindade's study (Trindade

et al., 2017). At present, the domestic research on body image in IBD patients is very limited and has not been verified. In this study, 54.00% of the population is single, but at the same time, 42.00% of the population is married, and very few patients are divorced, which shows that most young single groups have image pressure to enter marriage. This may be related to the psychological stress they have in response to malnutrition caused by the disease and frequent toileting due to intestinal reactions. In this case, we need to help patients and their families understand and realize that diarrhea, abdominal pain, and frequent toileting are caused by the disease itself, and this phenomenon is common in patients with inflammatory bowel disease, to reduce the emotional stress of patients. Then to improve the patient's self-image satisfaction and improve the HRQOL of patients.

Social support emerged as a significant influencing factor of health-related quality of life ($\beta = .147$, $p < .05$). A study shows what strongly associated with HRQOL were perceived stress ($p< .001$) and perceived social support ($p< .05$) (Anilga Moradkhani et al., 2013). It was also verified in another article that social support was positively correlated with HRQOL ($\beta = 1.38$, $P < .01$) (Hanlin Fu et al., 2020). The findings of the present study revealed that patients with IBD had a mean score of 53.96 (±12.24) on their ability to comprehend social support, with family support being the highest dimension at 19.51(±4.86), followed by other forms of support such as relatives and colleagues at 17.36 (±4.28), and friend support at 17.09 (±4.90). Which showed the IBD patients in this study demonstrate above medium level of social support comprehension. Related studies have shown that the quality of life of married patients is higher than that of unmarried and divorced patients (Zhou, 2012), which may be related to the fact that patients can get more family support and care, so it can also help them better integrate into the society. In this study, 58.7% of the participants were employed, indicating that employed patients were better able to cope with financial stress, cope with psychological stress better, and achieve better quality of life. Other studies have shown that the quality of life of patients who are working and studying is higher than that of patients who are unemployed, unemployed, retired or retired (Qi & Wang, 2020). The reason for this phenomenon may be related to the social support and socioeconomic status of patients, and relatively good economic conditions can help patients get better

treatment and take the initiative to seek medical treatment. Boise et al (Boise et al., 1996) suggest that social support may improve the quality of life of people with chronic disease by helping them adapt to their disease and change the way they cope with it. Patients with high social support have a strong resistance to disease and can cope with disease activity in a positive way. Compared with patients with high social support, patients with low social support have a relatively higher prevalence, a relatively longer course of disease, and a relatively severe illness. Good social support can make patients feel the respect, understanding and support of others, so as to make patients happy and willing to accept the kind help of others, so as to improve their quality of life (Pan et al., 2012). Therefore, the work we can do is to improve the support of the patient's family, help the patient's family to give the patient more understanding and support, which can help the patient smoothly through the psychological pressure, and more actively face the disease, have a higher quality of life. Of course, the help of the patient's friends and others is also important. We need to help the patient take the initiative to establish a reliable and friendly relationship and establish a good social support.

The findings from this study would be useful for nursing practice, nursing education, and nursing research. With a better understanding of the quality of life of IBD patients, nurses can provide better clinical care and disease follow-up to help patients improve their quality of life, improve the health status, increase their life satisfaction, reduce the use of medical resources, and reduce the economic burden of the society. The research results can also better predict the future quality of life of IBD patients, obtain a better understanding of the quality of care, access to care, make the nursing planning work more comprehensive, improve doctor-patient relationship, connect the relevant factors affecting the quality of life in nursing education, and provide better guidance and help.

## Strength and limitations

The strength of this study is that this study had response rate of 100%, this would support for the generalizable interpretation of the findings. Another strength is that this predictive correlational study was the first study of its kind in Wenzhou, China and no previous studies on this topic in Wenzhou. This could provide baseline

information for health care providers, nurses in particular. It can be applied to enhance patients' quality of life.

In this study, some limitations could be considered. This study is based on participants' self-reported data, results obtained from this study might be over or underestimated due to the personal factors. Secondly, this study was conducted in only one hospital in Wenzhou, this may limit generalizable to a larger population. Third, for the scale used for perceived health status is rarely used in mainland China. Finding the suitable scale for assessing this aspect in Chinses context needed further verification.

**Implication of this study**

The results showed that the health-related quality of life of IBD patients was at a moderate level, which is affected by the influencing factors like the general demographic characteristics, and perceived health status, body image dissatisfaction, social support, perceived stress. General demographic characteristics primarily comprise, gender, age, education background and income of the patient and so on. By modifying, enhancing, and strengthening these factors, the quality of life of IBD patients can be improved. The results of this study will also be helpful for nursing staff and other healthcare professionals working with patients with IBD in the future. Clarifying the factors affecting the quality of life can help to create a better quality of medical and living environment for patients in various situations, help patients better understand the disease, establish a suitable self-image to cope with pressure, and use the appropriate social support around to help them live a more quality of life.

The results of this study suggested that perceived stress, perceived health status, body image dissatisfaction, and social support are significant predictors of health-related quality of life. Through the publicity and explanation of some knowledge to help patients have a correct understanding of the disease, so that patients can correctly perceive the disease, can help patients get their own health status at the first time, to choose a timely medical treatment. Helping patients to reduce stress can help patients better through the disease, so that patients can concentrate more on work, have a better state of study, and can bring more happiness to their families. In terms of social support, whether from family, friends, relatives and leaders, if patients can get positive support, they can strengthen their confidence

in facing the disease, so as to better seek medical treatment and establish a correct lifestyle. It can help patients to establish a better body image, even in the face of surgery or other or even inconvenient, patients can still face it well, with less psychological stress and shame. The results of this study can be used for further research. Apart from paying attention to the patient's medication treatment and surgical treatment, health care providers, nurses in particular also need to pay attention to provide patient's psychological counseling and social support. When necessary, Multidisciplinary cooperation can be conducted, psychological professionals can be equipped to provide psychological counseling for patients and start from the patient's accompanying (whether family members, friends, or other close relationships) to communicate with them. To reduce the patient's own anxiety and interpretation concerns. Nurses can help patients establish a support system like network contact or wechat contact to provide patients with relevant knowledge needs and basic image care needs. Or by establishing patient associations to provide communication channels for IBD patients to share with each other how to relieve stress and improve the quality of life in life and work.

## Recommendation for future research

In recommendation for future nursing research, more and indepth studies towards factors associated with IBD should be conducted and should place more focus in young adults with IBD, and working adults with IBD whom are more likely to be affected by the IBD related conditions. It would be more convincing if the future study carry out by pooling IBD patients from multiple hospitals in Wenzhou. Intervention studies to enhance significant predictors of health related quality of life among these IBD patients are also recommended.

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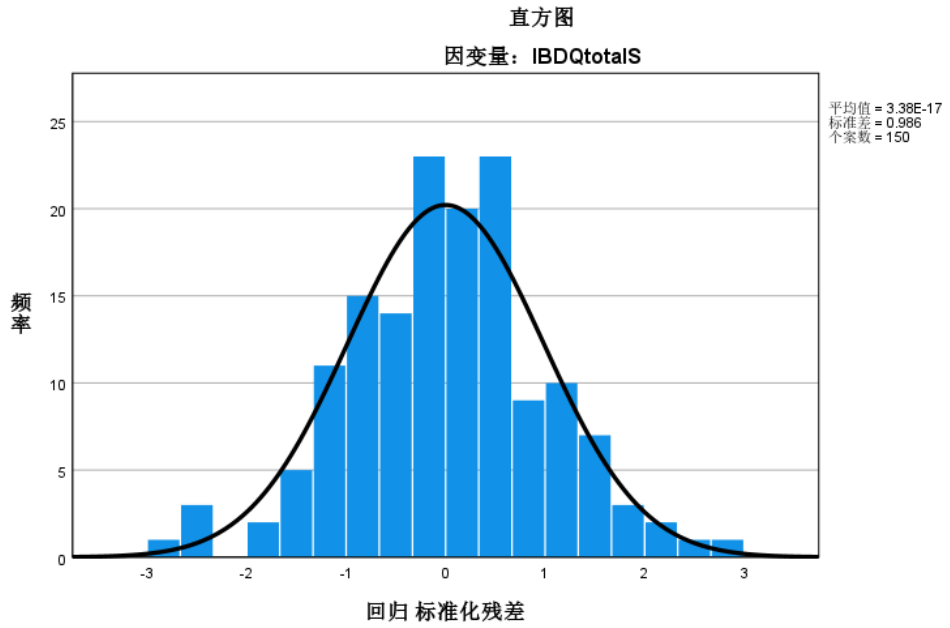
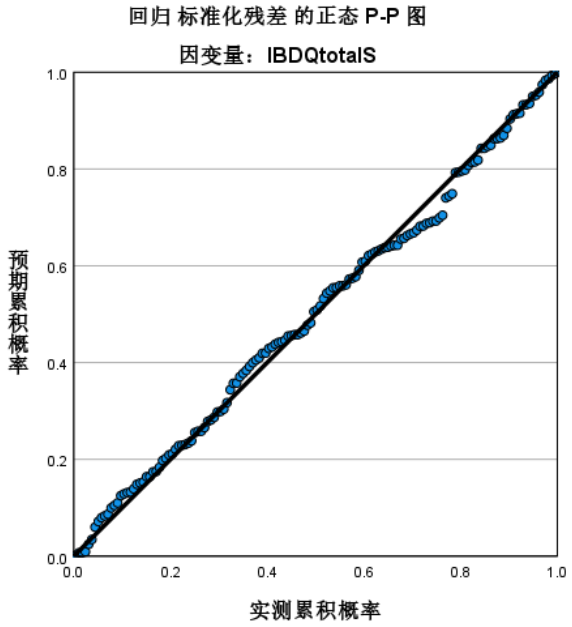
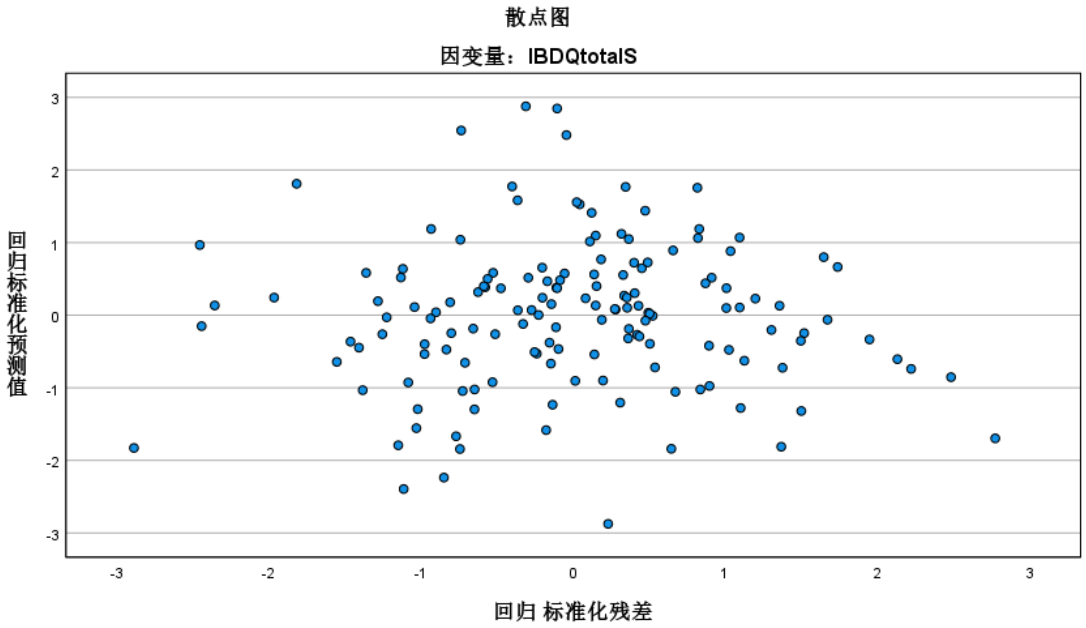
# APPENDIX

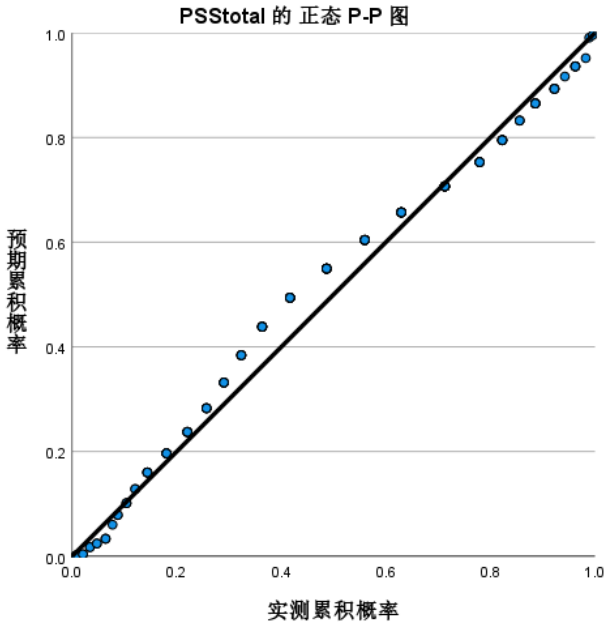
# APPENDIX A

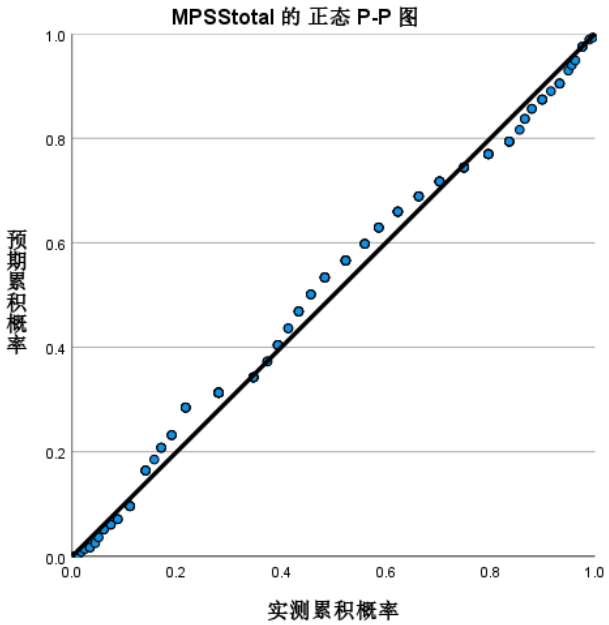
Assumption testing

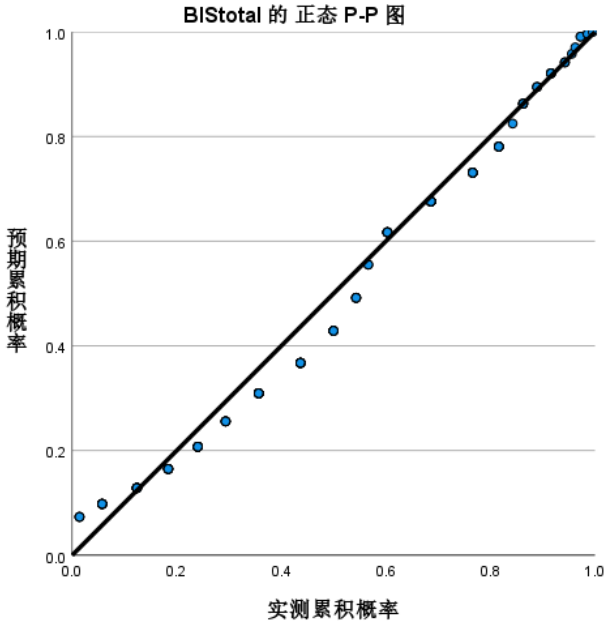

直方图
因变量：IBDQtotalS
平均值 = 3.38E-17
标准差 = 0.986
个案数 = 150
频率
回归 标准化残差

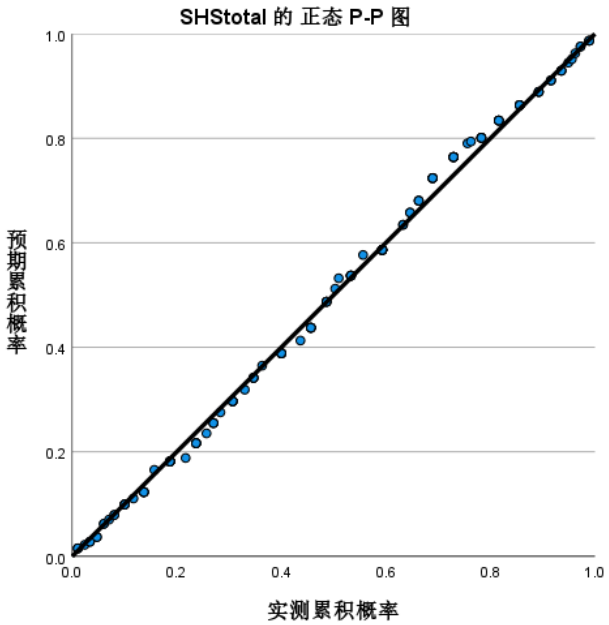

回归 标准化残差 的正态 P-P 图
因变量：IBDQtotalS
预期累积概率
实测累积概率


散点图
因变量：IBDQtotalS
回归标准化预测值
回归 标准化残差
3
2
1
0
-1
-2
-3


PSStotal 的 正态 P-P 图
预期累积概率
实测累积概率
1.0
0.8
0.6
0.4
0.2
0.0


MPSStotal 的 正态 P-P 图
预期累积概率
实测累积概率
0.0
0.2
0.4
0.6
0.8
1.0


BIStotal 的 正态 P-P 图
预期累积概率
实测累积概率
0.0
0.2
0.4
0.6
0.8
1.0




| | | | Statistics | Standard error |
|---|---|---|---|---|
| MPSStotalS | Mean value | | 53.9600 | .99964 |
| | Average 95% confidence interval | lower limit | 51.9847 | |
| | | Upper limit | 55.9353 | |
| | Mean value after 5% pruning | | 54.2741 | |
| | Median | | 55.5000 | |
| | Variance | | 149.891 | |
| | Standard deviation | | 12.24300 | |
| | The minimum value | | 12.00 | |
| | maximum value | | 84.00 | |
| | The whole distance | | 72.00 | |
| | The interquartile range | | 14.00 | |
| | Partial degrees | | -.494 | .198 |
| | kurtosis | | .776 | .394 |
| SHStotalS | Mean value | | 182.5400 | 6.51470 |
| | Average 95% confidence interval | lower limit | 169.6669 | |

| | | | | |
|---|---|---|---|---|
| | | Upper limit | 195.4131 | |
| | Mean value after 5% pruning | | 182.6222 | |
| | Median | | 182.5000 | |
| | Variance | | 6366.196 | |
| | Standard deviation | | 79.78845 | |
| | The minimum value | | 10.00 | |
| | maximum value | | 360.00 | |
| | The whole distance | | 350.00 | |
| | The interquartile range | | 121.75 | |
| | Partial degrees | | -.013 | .198 |
| | kurtosis | | -.496 | .394 |
| PSStotalsum | Mean value | | 25.1067 | .58383 |
| | Average 95% confidence interval | lower limit | 23.9530 | |
| | | Upper limit | 26.2603 | |
| | Mean value after 5% pruning | | 25.3667 | |
| | Median | | 26.0000 | |
| | Variance | | 51.129 | |
| | Standard deviation | | 7.15049 | |
| | The minimum value | | 4.00 | |
| | maximum value | | 44.00 | |
| | The whole distance | | 40.00 | |
| | The interquartile range | | 8.00 | |
| | Partial degrees | | -.593 | .198 |
| | kurtosis | | .718 | .394 |
| BIStotalsum | Mean value | | 7.8400 | .42104 |
| | Average 95% confidence interval | lower limit | 7.0080 | |
| | | Upper limit | 8.6720 | |
| | Mean value after 5% pruning | | 7.5407 | |
| | Median | | 7.0000 | |
| | Variance | | 26.592 | |
| | Standard deviation | | 5.15671 | |
| | The minimum value | | .00 | |
| | maximum value | | 30.00 | |
| | The whole distance | | 30.00 | |

| | | | |
|---|---|---|---|
| | The interquartile range | 7.00 | |
| | Partial degrees | .896 | .198 |
| | kurtosis | 1.481 | .394 |

**APPENDIX B**

Questionnaire

Dear participants with IBD

I'm a graduate student of Burapha University & Wenzhou Medical University, am conducting research entitled "Influencing factors of health-related quality of life in patients with inflammatory bowel Disease" is ongoing. IBD has become a global disease. Evidence from systematic review, the epidemiology of IBD are changing, stability or decline in North America and Europe, and the incidence of newly industrialised countries on the rise. In order to better understand the influencing factors of patients' health-related quality of life, we will conduct relevant investigations. Now, If you volunteer for this study, you will need to fill out six questionnaires, about need to take your precious time 25 to 30 minutes. These questionnaires include:

1. Demographic data questionnaire
2. The Chinese version of inflammatory bowel disease questionnaire (IBDQ-22)
3. Short Health Scale (SHS)
4. Body image scale (BIS)
5. Chinese version of Perceived Stress Scale (PSS)
6. Chinese Version of Multidimensional Scale of Perceived Social Support (MPSS)

Haixia Zhao
Master’s degree student
Adult NursingPathway
Faculty of Nursing, Burapha University, Thailand in collaboration with
School of Nursing, Wenzhou Medical University, China

Questionnaire number: .....

**Questionnaire**

**Influencing factors of health-related quality of life in patients with inflammatory bowel Disease**

**Questionnaire includes the following six parts:**

1. Demographic data questionnaire with 10 items.
2. Chinese version of Perceived Stress Scale (PSS) with 10 items.
3. Chinese Version of Multidimensional Scale of Perceived Social Support (MPSS) with 4 items.
4. The Chinese version of inflammatory bowel disease questionnaire (IBDQ-22) with 14 items.
5. Body image scale (BIS) with 22 items.
6. Short Health Scale (SHS) with 12 items.

**Please read each question carefully and then chose the answer that you think suitable on your conditions.**

1. **General information questionnaire**

**Inflammatory bowel disease general information questionnaire number please tick or fill in the blank according to your actual situation, thank you for your cooperation!**

1. Disease type: Ulcerative colitis____; Crohn's disease____.
2. Admitted in the hospital for IBD treatment ____ Yes _____NO (OPD)
    a. If yes for hospitalization (item 2) what kind of treatment received: _____.
    b. If no how often do you come to the clinic: _____.
3. Sex: Male____ Female____
4. Age: ____years old.
5. Education: Primary school/ Junior middle school/ Senior high school or Technical secondary school/ Junior college/ Undergraduate/ graduate or above.
6. Occupation: _____
7. Marital Status: Single____ Married____ Divorced____ Widowed____
8. Economic status: poor-, equal-, good –
9. Smoking history: no previous smoking, current smoking
10. Surgical history: The patient has never had surgery for this disease before _or not_?

一：一般信息调查表

炎症性肠病一般信息调查表编号请根据您的实际情况勾选或填写，谢谢合作!

1. 疾病类型:溃疡性结肠炎——;克罗恩病——

2. 因 IBD 治疗入院

A 如果是住院治疗，接受何种治疗:

B 如果没有，你多久来一次门诊:

3. 性别:女性——男性——

4. 年龄:——岁。

5. 学历:小学/初中/高中或中专/大专/本科/研究生或以上学历。

6. 职业:——

7. 婚姻状况:未婚、已婚、离异、丧偶。

8. 家庭经济状况:贫穷——；一般——；富裕——

9. 吸烟史:既往吸烟史——，目前吸烟状况——

10. 手术史:患者既往是否有过本病相关手术史?

2. **Chinese version of Perceived Stress Scale**

**This questionnaire is designed to assess how you feel and think in the past month. Each question asks how often you feel or think in a certain way. Although some questions look similar, they are actually different, so each question needs to be answered. It is best to answer as soon as possible. You don't have to count the number of feelings, just give a reasonable number.**

**There are five choices for each question :**

**0: never 1: occasionally 2: sometimes 3: often 4: always**

| Please think about how often the following situations occurred in the last month | never | occasionally | sometimes | often | always |
|---|---|---|---|---|---|
| 1. due to some unexpected things happen upset | 0 | 1 | 2 | 3 | 4 |
| 2. feel unable to control the important things in your life | 0 | 1 | 2 | 3 | 4 |
| 3. feel nervous and stressed | 0 | 1 | 2 | 3 | 4 |
| 4. ……. | 0 | 1 | 2 | 3 | 4 |
| 5. ……. | 0 | 1 | 2 | 3 | 4 |
| 6. ……. | 0 | 1 | 2 | 3 | 4 |

| | | | | | |
|---|---|---|---|---|---|
| 7. ……. | 0 | 1 | 2 | 3 | 4 |
| 8. ……... | 0 | 1 | 2 | 3 | 4 |
| 9. …… | 0 | 1 | 2 | 3 | 4 |
| 10. …… | 0 | 1 | 2 | 3 | 4 |
| 11. ……. | 0 | 1 | 2 | 3 | 4 |
| 12. ……. | 0 | 1 | 2 | 3 | 4 |
| 13. …… | 0 | 1 | 2 | 3 | 4 |
| 14. You feel that obstacles are piling up that you can't overcome | 0 | 1 | 2 | 3 | 4 |

Scoring method: Reverse scoring item: (included in the total score with a 4-point value) The higher the total score of PSS, the greater the subjective perceived stress

To calculate mean scores:

Significant Other Subscale: Sum across items 1, 2, 5, & 10, then divide by 4.

Family Subscale: Sum across items 3, 4, 8, & 11, then divide by 4.

Friends Subscale: Sum across items 6, 7, 9, & 12, then divide by 4.

Total Scale: Sum across all 12 items, then divide by 12.

## Perceived Stress Scale 中文版

指导语：这份问卷是用以了解您最近一个月来的感受和想法，每个问题都是询问您以某种方式感受或思考的频率。虽然有些题目看似相似，其实它们有所差异，所以每一题均需作答。最好能尽快填答，不必计算出现某一感受的具体数目，只要给出一个合理的估计即可。

每题皆有下列五种选择：

0：从不　1:偶尔　2:有时　3:常常　4:总是

| 请回想最近一个月来，<br>发生下列各种状况的频率 | 从不 | 偶尔 | 有时 | 常常 | 总是 |
|---|---|---|---|---|---|
| 1)因一些意外事情的发生而感到心烦意乱 | 0 | 1 | 2 | 3 | 4 |
| 2)感到无法掌控自己生活中的重要事情 | 0 | 1 | 2 | 3 | 4 |
| 3)感到精神紧张和有压力 | 0 | 1 | 2 | 3 | 4 |
| 4)…….. | 0 | 1 | 2 | 3 | 4 |
| 5)…….. | 0 | 1 | 2 | 3 | 4 |
| 6)…….. | 0 | 1 | 2 | 3 | 4 |
| 7)…….. | 0 | 1 | 2 | 3 | 4 |
| 8)…….. | 0 | 1 | 2 | 3 | 4 |
| 9)…….. | 0 | 1 | 2 | 3 | 4 |
| 10)…….. | 0 | 1 | 2 | 3 | 4 |
| 11)…….. | 0 | 1 | 2 | 3 | 4 |
| 12)…….. | 0 | 1 | 2 | 3 | 4 |
| 13)…….. | 0 | 1 | 2 | 3 | 4 |
| 14)感到困难堆积如山，致使自己无法克服 | 0 | 1 | 2 | 3 | 4 |

计分方法：反向评分项：4\5\6\7\9\10\13　(以 4-分值计入总分)

PSS 总分越高，主观感知的压力越大

3. **Chinese Version of Multidimensional Scale of Perceived Social Support**

**Multidimensional Scale of Perceived Social Support (MPSS)**

**Instructions: We are interested in how you feel about the following statements. Read each statement carefully. Indicate how you feel about each statement. Please select the option you think fits best on the right of the option and mark "√".**

| | Very Strongly Disagree | Strongly Disagree | Mildly Disagree | Neutral | Mildly Agree | Strongly Agree | Very Agree |
|---|---|---|---|---|---|---|---|
| 1. There is a special person who is around when I am in need. | | | | | | | |
| 2. There is a special person with whom I can share joys and sorrows. | | | | | | | |
| 3. My family really tries to help me. | | | | | | | |
| 4. …… | | | | | | | |
| 5. ……. | | | | | | | |
| 6. …… | | | | | | | |
| 7. …… | | | | | | | |
| 8. …… | | | | | | | |
| 9. …… | | | | | | | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 10. …… | | | | | | | |
| 11. …… | | | | | | | |
| 12. I can talk about my problems with my friends. | | | | | | | |

## 领悟社会支持量表

每个句子有 7 个答案，请根据自己的实际情况在每句后面选择一个答案(请在所选答案对应的"0" 上打" √ ")。例如选择"极不同意"表示您的实际情况与这一句子极不相符,"极同意"表示您的实际情况与这一句子极相符；选择"中立"则表示中间状态。

| | 极不同意 | 很不同意 | 稍不同意 | 中立 | 稍同意 | 很同意 | 极同意 |
|---|---|---|---|---|---|---|---|
| 1.在我遇到问题时有些人(领导、亲戚、同事)会出现在我的身旁： | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2.我能够与有些人(领导、亲戚、同事)共享快乐与忧伤： | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 3.我的家庭能够切实具体地给我帮助： | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 4. ……： | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5. ……： | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6. ……： | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 7. ……： | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 8. ……： | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 9. ……： | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 10. ……： | 0 | 0 | 0 | 0 | 0 | o | 0 |
| 11. ……： | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12.我能与朋友们讨论自己的难题： | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

4. **Chinese version of the Inflammatory Bowel Disease Questionnaire (IBDQ-22).**

**Inflammatory Bowel Disease Quality of Life Questionnaire (IBDQ-22)**

**Hello! This questionnaire is used to survey the symptoms caused by inflammatory bowel disease, overall feelings and emotions. Please read each question carefully, select the answer that best reflects your situation in the past 2 weeks, and tick "√". This survey is anonymous and the information you provide will be kept strictly confidential. Thank you for your support and cooperation!**

1. Have you had diarrhea or loose stools in the past 2 weeks?

① Almost every time ② more often ③ sometimes ④ less often ⑤ not at all

2. In the past 2 weeks, have you ever had a bad stool and still want to pull it?

① Almost every time ② more often ③ sometimes ④ less often ⑤ not at all

3. Have you had any bleeding in your stools in the past 2 weeks?

① Almost every time ② more often ③ sometimes ④ less often ⑤ not at all

4. ……?

① All of the time ② more of the time ③ some of the time ④ less of the time ⑤ None at all

5. ……?

① All of the time ② more of the time ③ some of the time ④ less of the time ⑤ None at all

6. ……?

① All of the time ② more of the time ③ some of the time ④ less of the time ⑤ None at all

7. ……?

① All of the time ② more of the time ③ some of the time ④ less of the time ⑤ None at all

8. ……?

① All of the time

② More time

③ Sometimes

④ Less often

⑤ Not at all

9. ……?

① All of the time ② more of the time ③ some of the time ④ less of the time ⑤ None at all

10. ……?

① All of the time ② more of the time ③ some of the time ④ less of the time ⑤ None at all

11. ……?

① All of the time

② More time

③ Sometimes

④ Less often

⑤ Not at all

12. ……?

① All of the time

② More time

③ Sometimes

④ Less often

⑤ Not at all

13. ……?

① Very worried ② somewhat worried ③ somewhat worried ④ not too worried ⑤ Not worried

14. ……?

① Very worried ② somewhat worried ③ somewhat worried ④ not too worried ⑤ Not worried

15. ……?

① Very worried ② somewhat worried ③ somewhat worried ④ not too worried ⑤

Not worried

16. ……?

① All of the time ② more of the time ③ some of the time ④ less of the time ⑤ None at all

17. ……?

① All of the time

② More time

③ Sometimes

④ Less often

⑤ Not at all

18. ……?

① All of the time ② more of the time ③ some of the time ④ less of the time ⑤ None at all

19. ……?

① All of the time

② More time

③ Sometimes

④ Less often

⑤ Not at all

20. ……?

① great difficulty, bowel problems that prevent leisure activities or exercise;

② great difficulty;

③some difficulty

④ Minor difficulties

⑤ No difficulties, bowel problems did not interfere with leisure activities or exercise

21. ……?

① Serious impact ② great impact ③ some impact ④ small impact ⑤ no impact

22. To what extent has bowel illness affected or limited your sexual activity over the past 2 weeks?

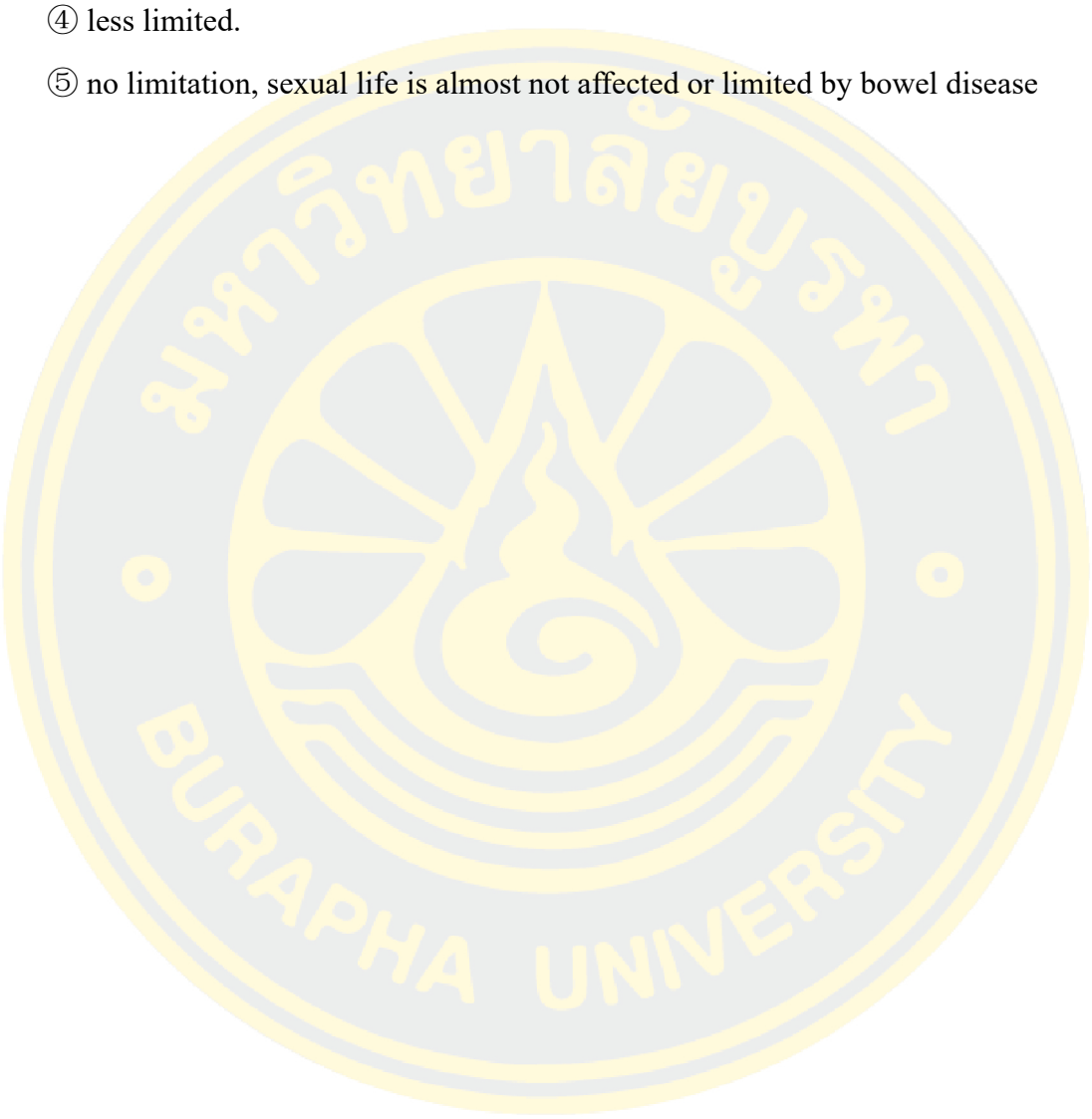
① severely limited, with no sexual life due to enteropathy;

②more limited;

③ some limited;

④ less limited.

⑤ no limitation, sexual life is almost not affected or limited by bowel disease



# 炎症性肠病生活质量问卷

您好！本问卷用于**调查您因炎症性肠病而引起的症状、总体感觉和情绪**。请您仔细阅读每个问题，选择其中最能反映您**过去 2 周**情况的**一个答案**，并打“√”。本调查不记名，您所提供的资料将严格保密。感谢您的支持与配合！

1.**过去 2 周**，您有拉肚子或解稀便的情况吗？

①几乎每次　②较多时候　③有些时候　④较少时候　⑤完全没有

2.**过去 2 周**，您有大便拉不干净，拉了还想拉的情况吗？

①几乎每次　②较多时候　③有些时候　④较少时候　⑤完全没有

3.**过去 2 周**，您有大便出血的情况吗？

① 几乎**每**次　②较多时候　③有些时候　④较少时候　⑤完全没有

4..……？

① 所有时间　②较多时间　③有些时间　④较少时间　⑤完全没有

5..……？

① 所有时间　②较多时间　③有些时间　④较少时间　⑤完全没有

6..……？

① 所有时间　②较多时间　③有些时间　④较少时间　⑤完全没有

7..……？

① 所有时间　②较多时间　③有些时间　④较少时间　⑤完全没有

8..……？

① 总是这样　②较多时候　③有些时候　④较少时候　⑤完全没有

9..……？

① 所有时间　②较多时间　③有些时间　④较少时间　⑤完全没有

10..……？

① 所有时间　②较多时间　③有些时间　④较少时间　⑤完全没有

11..... ?

① 总是这样 ②较多时候 ③有些时候 ④较少时候 ⑤完全没有

12..... ?

① 总是这样 ②较多时候 ③有些时候 ④较少时候 ⑤完全没有

13..... ?

① 非常担心 ②比较担心 ③有些担心 ④不太担心 ⑤不担心

14..... ?

① 非常担心 ②比较担心 ③有些担心 ④不太担心 ⑤不担心

15..... ?

① 非常担心 ②比较担心 ③有些担心 ④不太担心 ⑤不担心

16..... ?

① 所有时间 ②较多时间 ③有些时间 ④较少时间 ⑤完全没有

17..... ?

① 总是这样 ②较多时候 ③有些时候 ④较少时候 ⑤完全没有

18..... ?

① 所有时间 ②较多时间 ③有些时间 ④较少时间 ⑤完全没有

19..... ?

① 总是这样 ②较多时候 ③有些时候 ④较少时候 ⑤完全没有

20..... ?

①极大困难，肠道问题使休闲活动或运动锻炼无法进行 ②较大困难 ③有些困难 ④较小困难 ⑤没有困难，肠道问题没有影响休闲活动或运动锻炼

21..... ?

①严重影响 ②较大影响 ③有些影响 ④较小影响 ⑤没有影响

22.**过去 2 周**，肠病多大程度上影响或限制了您的性生活？

① 严重受限，因肠病的原因而没有性生活 ②较大受限 ③有些受限 ④较少

受限 ⑤没有受限，性生活几乎不受肠病的影响或限制

**5.** (BIS) **Modified body image scale.**

Please answer the following questions about how you feel about your body.

| | Not at all | A little | Quite a bit | Very much |
|---|---|---|---|---|
| Have you been feeling self-conscious about your appearance? | | | | |
| Have you felt less physically attractive as a result of your disease or treatment? | | | | |
| Have you been dissatisfied with your appearance when dressed? | | | | |
| ……? | | | | |
| ……? | | | | |
| ……? | | | | |
| ……? | | | | |
| ……? | | | | |
| ……? | | | | |
| Have you ever felt scar appearance is not satisfied for you? | | | | |

## 自我形象量表

最近一周在对外表的感觉及疾病和治疗所导致的任何改变回答下列问题

| 1. 您曾特别注意自己的外表吗? | 一点也不关注 | 稍微关注 | 相当关注 | 非常关注 |
|---|---|---|---|---|

| | | | | |
|---|---|---|---|---|
| 2. 您曾感觉您的疾病或治疗 使您外表吸引力减少了吗? | 一点也不关注 | 稍微关注 | 相当关注 | 非常关注 |
| 3. 您曾感觉穿衣后对您的外<br>表不满意吗? | 一点也不关注 | 稍微关注 | 相当关注 | 非常关注 |
| 4. .....? | 一点也不关注 | 稍微关注 | 相当关注 | 非常关注 |
| 5. .....? | 一点也不关注 | 稍微关注 | 相当关注 | 非常关注 |
| 6. .....? | 一点也不关注 | 稍微关注 | 相当关注 | 非常关注 |
| 7. .....? | 一点也不关注 | 稍微关注 | 相当关注 | 非常关注 |
| 8. .....? | 一点也不关注 | 稍微关注 | 相当关注 | 非常关注 |
| 9. .....? | 一点也不关注 | 稍微关注 | 相当关注 | 非常关注 |
| 10. 您曾感觉对您的疤痕外观 感到不满意吗? | 一点也不关注 | 稍微关注 | 相当关注 | 非常关注 |

**6. Short Health Scale (SHS)**

| |
|---|
| **How severe are the symptoms you suffer from your bowel disease?** |
| No symptom……Severe symptoms |
| (100) |

| |
|---|
| **Do your bowel problems interfere with your activities in daily life?**<br>Not at all……Interfere to a very high degree<br>(0) (100) |
| **……?**<br>No worry……...…Constant worry<br>(0) (100) |
| **How is your general feeling of well-being?**<br>Very good……...……Dreadful<br>(0) (100) |

# 简明健康量表中文版翻译稿

本问卷用于调查炎症性肠病患者的生存质量状况，请您仔细阅读以下每个问题，根据自身情况在下面每一条横线上作一标记，标记越往右代表越严重。

例子：您的肠道问题影响您的日常生活吗?

没有影响 ○_____○严重影响

上面的标记表明自己略微担心。

（如果您更加担心或不那么担心可以在横线相应位置进行标记）

1. 您肠道疾病的症状有多严重?

无症状 0 _____〇症状非常严重

2. 您的肠道问题影响您的日常生活吗?

没有影响 0 _____0 严重影响

3. ……?

没有担忧 0 _____〇经常担忧

4. 您的自觉健康状况如何?

很好 0_____〇很糟糕

**APPENDIX C**

IRB Approval

AF 06-03

Consent Form

Research Code Number:G-HS047/2565

(Issued by the Office of Human Ethic Committee, Burapha University)

Research title: INFLUENCING FACTORS OF HEALTH-RELATED QUALITY OF LIFE IN PATIENTS WITH INFLAMMATORY BOWEL DISEASE

Signing Consent: Date_____ Month_____Year_____

Before giving my signature below, I have been informed by researcher, Mrs. Haixia Zhao, about the purposes, method, procedures, benefits and possible risks associated with participation in this study thoroughly, and I understood all of the explanations. I consent voluntarily to participate in this study. I understand that I have the right to leave the study any time I want, without fearing that it might affect the medical services I will receive.

The researcher Mrs. Haixia Zhao has explained to me that all data and information of the participants will be kept confidential and only be used for this study. I have read and understood the information related to participation in this study clearly and I am signing this consent form.

Signature ……Participant

(……)

MHESI 8137/1633

Graduate School, Burapha University
169 Longhaad Bangsaen Rd.
Saensuk, Muang, Chonburi
Thailand, 20131

November 10th, 2022

To The director of the First Affiliated Hospital of Wenzhou Medical University,

Enclosure: 1. Certificate ethics document of Burapha University
2. Research Instruments (Try out)

On behalf of the Graduate School, Burapha University, I would like to request permission for Mrs. Haixia Zhao to collect data for testing the reliability of the research instruments.

Mrs. Haixia Zhao, ID 63910141, a graduate student of the Master of Nursing Science program (International Program) in Adult Nursing Pathway, Faculty of Nursing, Burapha University, Thailand, was approved her thesis proposal entitled: "Influencing factors of health-related quality of life in patients with inflammatory bowel disease" under supervision of Assoc. Prof. Dr. Pornpat Hengudomsub as the principle advisor. She proposes to collect data from 30 IBD patients who came for follow up at the Department of Gastroenterology of the First Affiliated Hospital of Wenzhou Medical University. The participants will be recruited from adult men and women who aged 18 - 60 years old, be able to speak, understand, and write Chinese, not having severe IBD related symptoms, not have serious side effects from receiving medical treatment at the OPD and IPD, and have been willing to participate in this study. For patients with completely asymptomatic (normal number of defecations without bloody stool or tenesthesia) and mucosal healing (normal intestinal mucosa or no active inflammation) observed by endoscopic review.

The data collection will be carried out from November 10 to December 3, 2022. In this regard, you can contact Mrs. Haixia Zhao via mobile phone +86-1599-0757-096 or E-mail: 1138282349@qq.com

Please do not hesitate to contact me if you need further relevant queries.

Sincerely yours,

(Assoc. Prof. Dr. Nujjaree Chaimongkol)
Dean of Graduate School, Burapha University

**CC: Mr. Chen Tanzhou**
**The director of Gastroenterology**

Graduate School Office
Tel: +66 3810 2700 ext. 701, 705, 707
E-mail: grd.buu@go.buu.ac.th
http://grd.buu.ac.th

MHESI 8137/1634

Graduate School, Burapha University
169 Longhaad Bangsaen Rd.
Saensuk, Muang, Chonburi
Thailand, 20131

November 10th, 2022

To The director of the First Affiliated Hospital of Wenzhou Medical University,

Enclosure: 1. Certificate ethics document of Burapha University
2. Research Instruments

On behalf of the Graduate School, Burapha University, I would like to request permission for Mrs. Haixia Zhao to collect data for conducting research.

Mrs. Haixia Zhao, ID 63910141, a graduate student of the Master of Nursing Science program (International Program) in Adult Nursing Pathway, Faculty of Nursing, Burapha University, Thailand, was approved her thesis proposal entitled: "Influencing factors of health-related quality of life in patients with inflammatory bowel disease" under supervision of Assoc. Prof. Dr. Pornpat Hengudomsub as the principle advisor. She proposes to collect data from 150 patients with inflammatory bowel disease from OPD and IPD who came for follow up at the Department of Gastroenterology of the First Affiliated Hospital of Wenzhou Medical University. The participants will be recruited from adult men and women who aged 18 - 60 years old, be able to speak, understand, and write Chinese, not having severe IBD related symptoms, not have serious side effects from receiving medical treatment at the OPD and IPD, and have been willing to participate in this study. For patients with completely asymptomatic (normal number of defecations without bloody stool or tenesthesia) and mucosal healing (normal intestinal mucosa or no active inflammation) observed by endoscopic review.

The data collection will be carried out from December 5, 2022 to April 30, 2023. In this regard, you can contact Mrs. Haixia Zhao via mobile phone +86-1599-0757-096 or E-mail: 1138282349@qq.com

Please do not hesitate to contact me if you need further relevant queries.

Sincerely yours,

(Assoc. Prof. Dr. Nujjaree Chaimongkol)
Dean of Graduate School, Burapha University

CC: **Mr. Chen Tanzhou**
**The director of Gastroenterology**

Graduate School Office
Tel: +66 3810 2700 ext. 701, 705, 707
E-mail: grd.buu@go.buu.ac.th
http://grd.buu.ac.th

Please type or write with readable hand writing

GRD-109 (Eng)
(Try out)

**Graduate School Burapha University**

**Request form for issuing a requesting letter for data collection (Try out)**

---

**To Dean of Graduate School**

I am (Mr./Mrs./Ms.) Haixia Zhao Student ID #.....63910141.....

☑ Doctoral degree ☐ Master degree - plan ○ A ☑ B Study type ☑ Full-time ○ Part-time

Program Master of Nursing Science Major/Pathway.....Adult Nursing.....

Faculty Faculty of Nursing Telephone +8615990757096 E-mail 1138282349@qq.com

Doctoral dissertation/ Master thesis/ IS **Title:** Influencing factors of health-related quality of life in patients with inflammatory bowel disease

Principal advisor' name.....Assoc. Prof. Dr. Pornpat Hengudomsub.....

I would like to request for issuing **a requesting letter for data collection (Try out)**:

By issuing to (name of the director of Institute/ University/ Organization)

Mr. Chen Tanzhou, The director of Gastroenterology of The First Affiliated Hospital of Wenzhou Medical University, Zhejiang province, China.

Institute/ University/ Organization/ Department/ Division

The Gastroenterology Department of the First Affiliated Hospital of Wenzhou Medical University, Zhejiang province, China.…

To collect data from (details of participants and sample size)

Participants included 30 cases of IBD patients who came for follow up at the Department of Gastroenterology of the First Affiliated Hospital of Wenzhou Medical University. Adult men and women (aged 18-60). Able to speak, understand, and write Chinese. Not having severe IBD related symptoms. Patients with completely asymptomatic (normal number of defecations without bloody stool or tenesthesia) with mucosal healing (normal intestinal mucosa or no active inflammation) observed by endoscopic review. Not have serious side effects from receiving medical treatment at the OPD and IPD. Willing to participate in this study.

Duration of data collection: from date.....10 th November , 2022….to……3 th December , 2022…

My contact information: # cellphone :+8615258693539, E-mail:1138282349@qq.com.....

**With this request, I have enclosed documents ..... copies**

1) A copy of proof of ethical approval from Burapha university, and
2) Research instruments

Please be informed accordingly,

Student's name .....Haixia Zhao.....

(.....Mrs.Haixia Zhao .....)

Date…3… Month…November……Year…2022…..

| Principal advisor acknowledged | Dean of Faculty/College acknowledged | Dean of Graduate School approved |
|---|---|---|
| -Approved<br>(Signed)<br>(Assoc. Prof. Dr. Pornpat Hengudomsub)<br>Date.....3 NOV 2022..... | (Signed).....<br>(Asst. Prof. Dr. Pornchai Jullamate)<br>Date.....3 NOV 2022..... | (Signed).....<br>(Assoc. Prof. Dr.Nujjaree Chaimongkol)<br>Date.....16 November 2022..... |

Please type or write with readable hand writing

GRD-109 (Eng)
(Main Study)

**Graduate School Burapha University**

**Request form for issuing a requesting letter for data collection (Main Study)**

---

**To Dean of Graduate School**

I am (Mr./Mrs./Ms.) Haixia Zhao Student ID #.....63910141.....

☑ Doctoral degree ☐ Master degree - plan ○ A ☑ B Study type ☑ Full-time ○ Part-time

Program Master of Nursing Science Major/Pathway.....Adult Nursing.....

Faculty Faculty of Nursing Telephone +8615990757096 E-mail 1138282349@qq.com

Doctoral dissertation/ Master thesis/ IS **Title**: Influencing factors of health-related quality of life in patients with inflammatory bowel disease

Principal advisor' name.....Assoc. Prof. Dr. Pornpat Hengudomsub.....

I would like to request for issuing **a requesting letter for data collection (Main Study)**:

By issuing to (name of the director of Institute/ University/ Organization)

...Mr. Chen Tanzhou, The director of Gastroenterology of The First Affiliated Hospital of Wenzhou Medical University, Zhejiang province, China.

Institute/ University/ Organization/ Department/ Division ...The Gastroenterology Department of the First Affiliated Hospital of Wenzhou Medical University, Zhejiang province, China.

To collect data from (details of participants and sample size) ...

The target participants will include 150 cases of patients with inflammatory bowel disease from OPD for 50% ( n=75) and from IPD for 50% ( n=75). These patients came for follow up at the Department of Gastroenterology of the First Affiliated Hospital of Wenzhou Medical University. Adult men and women (aged 18-60). Able to speak, understand, and write Chinese. Not having severe IBD related symptoms. Patients with completely asymptomatic (normal number of defecations without bloody stool or tenesthesia) with mucosal healing (normal intestinal mucosa or no active inflammation) observed by endoscopic review. Not have serious side effects from receiving medical treatment at the OPD and IPD.

Duration of data collection: from date.....5th December, 2022 ...to... 30th April, 2023.....

My contact information: # cellphone and E-mail ...# cellphone:+8615258693539,

E-mail:1138282349@qq.com.....

**With this request, I have enclosed documents ...1... copies**

1) A copy of proof of ethical approval from Burapha university, and
2) Research instruments

Please be informed accordingly,

Student's name .....Haixia Zhao.....

(.....Mrs.Haixia Zhao .....)

Date...3... Month...November.....Year...2022.....

| Principal advisor acknowledged | Dean of Faculty/College acknowledged | Dean of Graduate School approved |
|---|---|---|
| -Approved<br><br>(Signed)<br>(Assoc. Prof. Dr. Pornpat Hengudomsub)<br>Date.....3 NOV 2022..... | Agreed Pornchai<br><br>(Signed).....<br>(Asst. Prof. Dr. Pornchai Jullamate)<br>Date.....3 NOV 2022..... | <br><br>(Signed).....<br>(Assoc. Prof. Dr.Nujjaree Chaimongkol)<br>Date.....10 November 2022 |

# 温州医科大学附属第一医院临床研究伦理委员会审查批件

**（Review of Ethics Committee in Clinical Research (ECCR) of the First Affiliated Hospital of Wenzhou Medical University）**

受理编号 Acceptance Number：KY2022-160　批件号：临床研究伦审 Issuing Number（2022）第（160）号

| | | | |
|---|---|---|---|
| 项目名称 Project | 炎症性肠病患者健康相关生活质量的影响因素研究<br>INFLUENCING FACTORS OF HEALTH-RELATED QUALITY OF LIFE IN PATIENTS WITH INFLAMMATORY BOWEL DISEASE | | |
| 申办者 Applicant | 温州医科大学附属第一医院 | 试验目的 Objective | 临床科研 Clinical research |
| 试验科室 Department | 消化内科 | | |
| 试验项目负责人 Principal Investigator | 赵海霞 | | |
| 审查方式和时间 Form and Date | ☐ 会议审查 Review Conference，时间：_____<br>☑ 快速审查 Fast track，时间：2022 年 10 月 17 日 | | |
| 审查地点 Review Site | 新院 1-4A22 会议室 | | |
| 审查材料 Documents for Review | 1、医学临床科研项目及伦理审查申请表，v1.0 版；<br>2、临床研究方案，v1.0 版，2022.5.22；<br>3、受试者知情同意书，v1.0 版，2022.5.31；<br>4、研究者团队成员目录（职责）；<br>5、主要研究者、团队成员简历及 GCP 证书，v1.0 版；<br>6、研究者责任声明；<br>7、CRF/临床观察表，v1.0 版。 | | |
| 审查意见 Comments | 根据国家卫健委《涉及人的生物医学研究伦理审查办法》(2016)、WMA《赫尔辛基宣言》和 CIOMS《人体生物医学研究国际道德指南》的伦理原则，经本伦理委员会审查，同意该项目开展。<br>According to the Regulations and Rules of "Ethical Reviews for Biomedical Research Involving Human Subjects" (2016) the National Health Commission of PRC , "Declaration of Helsinki" of WMA, and "International Ethical Guidelines for Human Biomedical Research" of CIOMS , the project was **approved** by **ECCR** . | | |
| 主任委员/副主任委员签字 Signature of the **ECCR** Chair | 陈学忠 | 签发日期 Date | 2022.10.20 |
| 温州医科大学附属第一医院临床研究伦理委员会（盖章） Ethics Committee in Clinical Research of the First Affiliated Hospital of Wenzhou Medical University (Seal) | | | |

附注（Note）：

1. 临床研究应在批准之日起 1 年内实施，逾期未实施，本批件自行废止。临床研究过程中将接受伦理委员会的跟踪审查，审查频度为自批准之日起每 12 个月一次。（伦理委员会有权根据临床试验实际开展情况改变跟

踪审查频度）

The clinical study shall be implemented within 1 year from the date of approval. If overdue, the approval for this project shall be revoked. During the implementation of clinical research, tracking review will be conducted by **ECCR** every 12 months from the effective date of the initial approval (the ethics committee has the right to change the frequency of tracking review according to the actual implementation of clinical trials)

2. 请严格遵从已批准的研究方案，如果方案修改需以书面形式报告伦理委员会，经伦理委员会批准后方可执行。
Please strictly follow the approved research protocol. Any revisions of the protocol must be reported to **ECCR** in written form. It can be conducted only after the modification was approved by **ECCR**.
3. 发生严重不良事件以及影响研究风险受益比的非预期不良事件，须在 24 小时内报告本伦理委员会。
Serious adverse events and unanticipated adverse events that affect the risk-to-benefit ratio of the project must be reported to **ECCR** within 24 hours.
4. 暂停、方案违背或提前终止临床研究，请及时上报本伦理委员会。
Any suspension, project violation or early termination of the clinical research, should be reported to **ECCR** promptly.
5. 完成临床研究，须提交研究完成报告给本伦理委员会。
Please submit a completion research report to **ECCR** after completion of the project.

# 温州医科大学附属第一医院临床研究伦理委员会委员签到表

会议时间：2022 年 10 月 17 日

会议地点：新院 1-4A22 会议室

审查内容：炎症性肠病患者健康相关生活质量的影响因素研究 INFLUENCING FACTORS OF HEALTH-RELATED QUALITY OF LIFE IN PATIENTS WITH INFLAMMATORY BOWEL DISEASE

| 姓 名 | 性别 | 工作单位 | 专 业 | 职 称 | 伦理委员会职务 | 签到 |
|---|---|---|---|---|---|---|
| 陈容苗 | 男 | 温州医科大学附属第一医院 | 内分泌科 | 副主任医师 | 主 任 | |
| 黄晓颖 | 女 | 温州医科大学附属第一医院 | 呼吸内科 | 教授/主任医师 | 副主任 | |
| 蔡雪黎 | 女 | 温州医科大学附属第一医院 | 心内科 | 副教授/副主任医师 | 委 员 | |
| 徐 卫 | 男 | 温州医科大学附属第一医院 | 预防医学 | 副主任医师 | 委 员 | |
| 孙彩霞 | 女 | 温州医科大学附属第一医院 | 护 理 | 主任护师 | 委 员 | |
| 卢明芹 | 男 | 温州医科大学附属第一医院 | 感染科 | 主任医师 | 委 员 | |
| 陈 雷 | 男 | 温州医科大学附属第一医院 | 骨 科 | 教授/主任医师 | 委 员 | |
| 郑祥武 | 男 | 温州医科大学附属第一医院 | 放射影像 | 教授/主任医师 | 委 员 | |
| 林观样 | 男 | 温州医科大学附属第一医院 | 药 学 | 主任药师 | 委 员 | |
| 俞 康 | 男 | 温州医科大学附属第一医院 | 血液内科 | 教授/主任医师 | 委 员 | |
| 陈永平 | 男 | 温州医科大学附属第一医院 | 感染科 | 教授/主任医师 | 委 员 | |
| 张秀华 | 女 | 温州医科大学附属第一医院 | 临床研究中心 | 主任药师 | 委 员 | |
| 苏小芳 | 女 | 浙江震颐律师事务所 | 法 律 | 律 师 | 委 员 | |
| 胡建芬 | 女 | 退 休 | 统计学 | 高级统计师 | 委 员 | |
| 方 耀 | 男 | 温州理工学院 | 伦理学 | 讲 师 | 委 员 | |

**伦理委员会声明：**

★ 温州医科大学附属第一医院临床研究伦理委员会组成及工作程序遵循中国 GCP、ICH-GCP 及相关法律法规，其审查过程不受伦理委员会以外任何组织及个人影响。

★ 本伦理委员会各委员已签署保密协议，所有标准操作规程文件、机密信息、会议记录等及其副本的所有权均归伦理委员会。

地址：浙江省温州市瓯海区南白象温州医科大学附属第一医院新院区 邮编：325000
联系电话：0577-55578055 传真：0577-55578033 E-mail:wyyyclinical@126.com

AF 06-02

**Participant Information Sheet**

Research code number: G-HS047/2565

Research title: INFLUENCING FACTORS OF HEALTH-RELATED QUALITY OF LIFE IN PATIENTS WITH INFLAMMATORY BOWEL DISEASE

Dear participants

I am Mrs. Haixia Zhao, a student in Master of Nursing Science (International Program) Faculty of Nursing, Burapha University Thailand. My study is "INFLUENCING FACTORS OF HEALTH-RELATED QUALITY OF LIFE IN PATIENTS WITH INFLAMMATORY BOWEL DISEASE ". The objectives of this study are to describe health-related quality of life among patients with IBD and to examine the influence of predictors including body image dissatisfaction, perceived health status, perceived stress, and social support on health-related quality of life among patients with IBD.

This study will be a survey study. Participating in this study is voluntary. If you agree to participate in this study, you will be asked to answer the following questionnaires, which will take approximately 30-minutes. During the data collection period, the researcher will clarify any questions posed by the participants for clarity regarding the language or content. You will not get any direct benefits by participating in this study. However, the information you provide will be valuable to identify factors influencing health-related quality of life and help the other IBD patients to understand the body image dissatisfaction, perceived health status, perceived stress, and social support and improve quality of life. There will be no identified physical and psychological risk to the person participating in the study and no risk to the society.

During the study, you have the right not to answer questions, and you also have the right to change your minds and refuse to participate in this study at any time, and the refusal would not affect the medical services you would receive. Any information collected from this study, including your identity, will be kept confidential. A coding number will be assigned to you and your name will not be used. Findings from the study will be presented as a group of participants and no specific information from any individual participant will be disclosed. All data will be accessible only to the researcher which will be destroyed one year after publishing the findings. You will receive a further explanation of the nature of the study upon its completion, if you wish.

The research will be conducted by Mrs. Haixia Zhao under the supervision of my major-advisor, Associate Professor Dr. Pornpat Hengudomsub. If you have any questions, please contact me at mobile number: + 8615258693539 or by email 1138282349@qq.com and/or my advisor's e-mail address pornpath@buu.ac.th. Or you may contact Burapha University Institutional Review Board (BUU-IRB) telephone number 038 102 620. Your cooperation is greatly appreciated. You will be given a copy of this consent form to keep.

Haixia Zhao

**APPENDIX D**

Permission for using instruments

**Re: 回复： apply for the permission of Short Health Scale (SHS)** ★

发件人：**hemulc** <hemulc@hotmail.com>
时　间：2022年8月1日（星期一）下午4：31
收件人：Helen 海霞 <1138282349@qq.com>

纯文本 |

标记：已将此邮件标记为星标邮件。 取消星标

邮件可翻译为中文 立即翻译 ×

Hi Helen
I don't have the Chinese version of the Short Health Scale. You do not need permission to use it. There is no copyright on any Short Health Scale.
Kind regards
Hugh Mulcahy

Get Outlook for Android

---

**From:** Helen 海霞 <1138282349@qq.com>
**Sent:** Monday, August 1, 2022 8:02:15 AM
**To:** hugh mulcahy <hemulc@hotmail.com>
**Subject:** 回复： apply for the permission of Short Health Scale (SHS)

**Re: 申请PSSS量表的使用许可（社会领悟支持量表 permission）** ★

发件人：**jqj** <jqj@zj.com>
时　间：2022年6月13日（星期一）下午3：06
收件人：Helen 海霞 <1138282349@qq.com>

纯文本 |

标记：已将此邮件标记为星标邮件。 取消星标

同意

> -----原始邮件-----
> **发件人:**"Helen 海霞" <1138282349@qq.com>
> **发送时间:**2022-05-10 16:56:50 (星期二)
> **收件人:** jqj <jqj@zj.com>
> **抄送:**
> **主题:** 申请PSSS量表的使用许可（社会领悟支持量表 permission）
>
> 姜教授：
> 　　姜老师，您好！我是一名来自温州医科大学和泰国东方大学合作的在读护理研究生，因为硕士毕业论文中需要用到您翻译的PSSS量表，因此联系您，希望得到您的授权，去使用这份社会领悟支持量表。
> 万分感谢。
> 盼望收到您的邮件。

**RE: 回复: Automatic reply: [External] Permission of Multidimensional Scale of Perceived Social Support** ★

发件人: **Gzimet** <gzimet@iu.edu>
时　间: 2022年5月10日（星期二）下午9：43
收件人: Helen 海霞 <1138282349@qq.com>
附　件: 4 个 (0732 Zimet - MSPSS - Chapter 1998.pdf...)

纯文本 |

标记: 已将此邮件标记为星标邮件。 取消星标

邮件可翻译为中文 立即翻译

Dear Haixia Zhao,

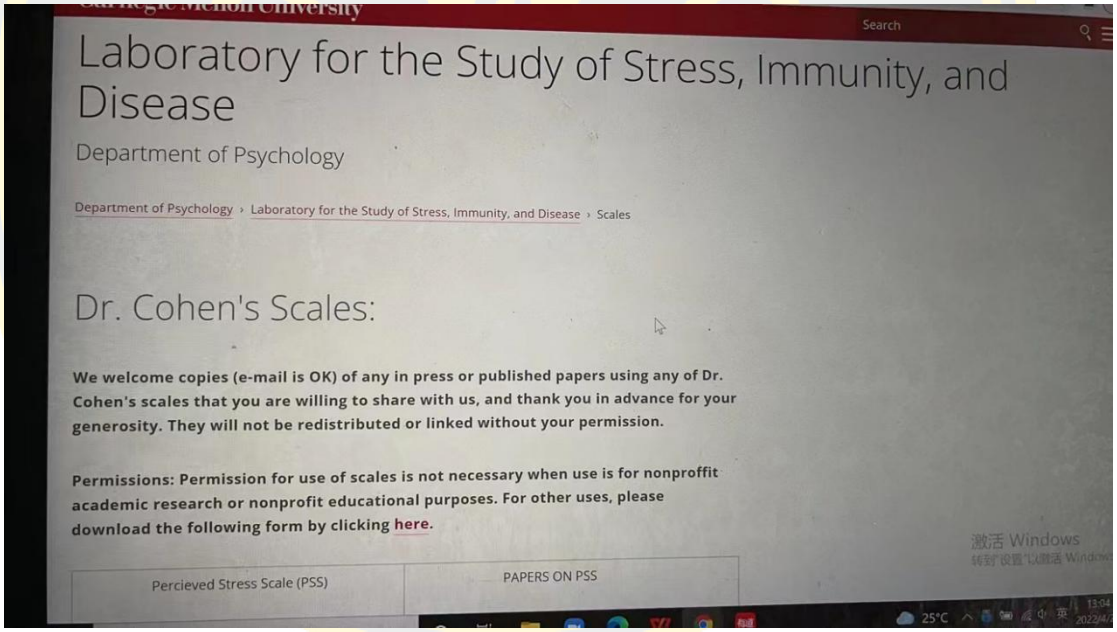
You have my permission to use the Multidimensional Scale of Perceived Social Support (MSPSS) in your research. I have attached the original English language version of the scale (with scoring information on the 2nd page), a document listing several of the articles that have reported on the reliability and validity of the MSPSS, and a chapter that I wrote about the scale.

Also attached is a simplified Chinese translation of the MSPSS, which you may find helpful.

I hope your research goes well.

Best regards,
Greg Zimet





**Re: 中文版 Perceived Stress Scale 的使用权限** ☆

发件人：**tingzhongyang** <tingzhongyang@zju.edu.cn>
时　间：2022年4月27日（星期三）上午5：08
收件人：Helen 海霞 <1138282349@qq.com>
附　件：2 个 (知觉心理压力量表.doc...)

标记：已将此邮件标记为星标邮件。 取消星标

邮件可翻译为中文 立即翻译

海霞,你好,
欢迎使用知觉心理压力量表(CPSS),

Please see the attahced,

Regards,


03:17
周云仙
哦哦，我自己的可以发你
谢谢老师 🌹 🌹 🌹
2022年4月26日 22:03
1138282349@qq.com,老师，这是我的邮箱，如果不方便微信，也可以邮箱发送😊
2022年5月4日 22:28
周老师，五一节假日即将进入尾声了，祝节日快乐🌹 🌹 🌹
盼望您有时间的时候可以将您的IBDQ量表permission发一份给我哦，非常感谢😊😊😊
2022年5月5日 21:09
重要-IBDQOL-周云仙教授中国版.docx
18KB
W
微信电脑版

**RE: （BIS）Modified body image scale量表使用的授权** ☆

发件人：**laiyhwk** <laiyhwk@ntu.edu.tw>
时　间：2022年7月12日（星期二）下午4：11
收件人：Helen 海霞 <1138282349@qq.com>
抄　送：Fang Yuan-Yuan <dicircle@hotmail.com>

纯文本 |

邮件可翻译为中文 立即翻译

No problem to use it. You have my permission to use the BIS Chinese version. Maybe , you also asked the original scale developer to receive the permission.

Good luck to your study.

~YH

.....

賴裕和, 台大 護理學系, 教授 兼 醫學院 研發處 副主任
台大癌醫中心醫院 護理部 主任
*Journal of Nursing Research* 主編

# BIOGRAPHY

| | |
|---|---|
| **NAME** | Haixia Zhao |
| **DATE OF BIRTH** | 16 December 1991 |
| **PLACE OF BIRTH** | China |
| **PRESENT ADDRESS** | Wenzhou, Zhejiang Province, China |
| **POSITION HELD** | student |