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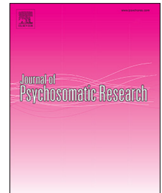
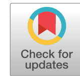


Perceived stress and inappropriate coping behaviors associated with poorer quality of life and prognosis in patients with ulcerative colitis



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ABSTRACT

Objective: To explore the effect of perceived stress and coping behaviors on quality of life and clinical outcomes in patients with ulcerative colitis.
Methods: This is a prospective cohort study in a tertiary inflammatory bowel disease center in China. A total of 263 ulcerative colitis patients were enrolled consecutively between June 2013 and February 2015. The Perceived Stress Scale, the Medical Coping Modes Questionnaire, and the Inflammatory Bowel Disease Questionnaire were used to assess perceived stress, medical coping and quality of life at baseline. Patients were followed up for hospitalization due to relapse over a one-year period. Multivariate analyses were performed to identify whether perceived stress and medical coping behavior were related to quality of life and hospitalization.
Results: Patients with invalid questionnaires ($n = 6$) and those lost to follow-up ($n = 28$) were excluded. A total of 229 ulcerative colitis patients (mean age 40.4 ± 12.6, 50.7% male) were included in the final analysis, and 23 patients had been hospitalized during the one-year follow-up period. After adjusting other associated variables, perceived stress (OR: 1.13; 95% CI: 1.07 to 1.19) and acceptance-resignation behavior (OR: 1.41; 95% CI: 1.21 to 1.65) were independently associated with poor quality of life. Patients scoring highly for acceptance-resignation behavior (OR: 1.23; 95% CI: 1.04 to 1.46) were more likely to be hospitalized during the one-year follow-up period.
Conclusion: In patients with ulcerative colitis, identifying those who adopted more acceptance-resignation behavior and improving their medical coping behavior by psychotherapy could be helpful to achieve better quality of life and disease control.

1. Introduction

Stress is conceptualized as the sum of a person's nonspecific responses to either external or internal stimuli [1]. Coping is defined as a reaction to a stressor. While general coping is the reaction to general stressor we encounter in daily life, medical coping is the reaction to disease. Based on the biopsychosocial model described in 1977, the importance of stress and coping behaviors in organic disease has increasingly been recognized [2]. Ulcerative colitis (UC), a type of inflammatory bowel disease (IBD) that causes chronic relapsing inflammation of the colon, imposes significant impairment of quality of life on patients. Several studies have demonstrated that stressful events, anxiety and depression all worsen quality of life for UC patients [3], and are possibly associated with the onset [4] and poorer prognosis [5, 6] of the disease. However, the number of stressful events does not directly represent the level of stress. Perceived stress which focuses on subjective feelings and emotional responses to stressful events has been considered to better reflect the impact of stress [7]. Indeed, psychological outcomes, including anxiety, depression and quality of life, were also predicted by general coping behaviors [8].But medical coping behaviors, which are specific to the disease, would be more feasible for physicians to evaluate when patients visit the doctor. Also, the impact of medical coping behaviors on patients' prognosis has been little studied. Thus we conducted this cross-sectional survey combined with a prospective study, using internationally validated questionnaires to assess the roles of perceived stress and medical coping behaviors in quality of life and the prognosis of UC.

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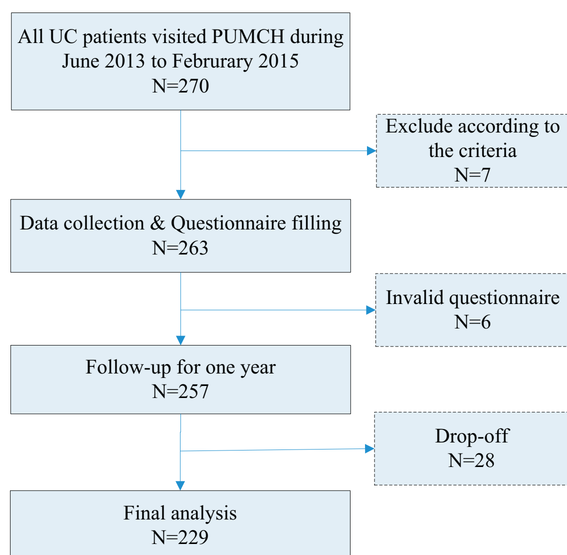

Fig. 1. Patient inclusion and exclusion flow chart.

2. Method

This study was performed in Peking Union Medical College Hospital (PUMCH), which is a tertiary IBD center in China. Ethical approval (number S-577) was granted by the ethics committee of PUMCH.

Consecutive UC patients who presented to gastroenterology department of our hospital between June 2013 and February 2015 were recruited according to the following criteria. Inclusion criteria: (1) age between 16 and 80 years old; (2) UC diagnosis confirmed by gastroenterology physicians of PUMCH; (3) recent colonoscopy examination performed within one month; (4) signed informed consent. Exclusion criteria: (1) past total colorectal resection; (2) comorbidity with severe physical or mental illness, such as heart failure, chronic kidney disease, chronic obstructive pulmonary disease, liver cirrhosis, schizophrenia and major depressive disorder; (3) self-reported difficulties in reading or understanding.

The process for patient selection is presented in Fig. 1. Questionnaires were considered invalid if responses to every question were identical or if any question was unanswered. Patients who filled questionnaires validly were followed up over a one-year period. The questionnaire response rate was 97.7% (257/263).

3. Questionnaires

We created a standard sociodemographic questionnaire to obtain data regarding age, gender, ethnicity, residence, working status (unemployed or laid-off), health insurance, smoking and drinking status.

3.1. Perceived stress scale (PSS)

Version PSS-14 [9] of the Perceived Stress Scale [10] was used to evaluate perceived stress. PSS-14 is a 14-item questionnaire, focusing on the feelings of stress and handling of stress during the preceding month. Each item is scored on a 5-point scale. For example, "how often have you been upset because of something that happened unexpectedly": from 0 (never) to 4 (very often). The higher the PSS score, the greater the perceived stress. Its psychometric properties have been validated in a Chinese population [9].

3.2. Medical coping modes questionnaire (MCMQ)

The Medical Coping Modes Questionnaire [11] was adopted to identify UC coping behaviors. A Chinese version of the MCMQ has also been proven to have good psychometric properties [12]. It is a 20-item questionnaire, each item scored on a 4-point scale. The results of this assessment can be stratified into three dimensions: confrontation (8 items, scored 8 to 32), avoidance (7 items, scored 7 to 28) and acceptance-resignation (5 items, scored 5 to 20). Confrontation refers to searching for disease information, participating actively in treatment decision making and being willing to discuss details related to the disease and its management with others. Avoidance refers to a preference of talking about other things and doing unrelated activities as distraction from thinking about the disease. Acceptance-resignation refers to losing hope for recovery and feeling incapable of doing anything to help manage the disease. Subscale scores reflect the patient's tendency to use each behavioral coping skill. MCMQ has been widely used in China [13]. Among patients with stomach, colon or rectal cancer from a gastrointestinal study, the range of the mean confrontation score was 19.0–20.4, avoidance score 17.4–18 and acceptance-resignation score 13.8–14.2 [14].

3.3. Inflammatory bowel disease questionnaire (IBDQ)

The Inflammatory Bowel Disease Questionnaire [15] was applied to measure quality of life. The Chinese edition has been validated to have good psychometric properties [16]. It provides evaluation across four domains: bowel symptoms (10 items), systemic symptoms (5 items), emotional function (12 items) and social function (5 items). Each item is scored with a 7-point scale, from 1 (worst) to 7 (best). Total scores range from 32 to 224. Higher scores indicate better quality of life.

4. Clinical data collection

The medical information was collected from clinical charts by gastroenterology physicians. It regarded duration of UC, type of disease (initial onset, relapsing course or continuous active), extra-intestinal manifestations, complications (toxic megacolon, intestinal perforation, massive hemorrhage of gastrointestinal tract or colon cancer), recurrence of active disease, hospitalization for active disease in the past year, regular clinic attendance, corticosteroid and immunosuppressive therapy, clinical disease activity as evaluated by modified Mayo score. Regular clinic attendance refers to visiting the clinic more frequently than every 6 months after the first consultation according to outpatient records. According to the Chinese consensus on the diagnosis and management of IBD [17], steroid-refractory patients are those who have active disease despite prednisolone up to 0.75 mg/kg/day over a period of 4 weeks. Steroid dependence refers to either patient who is unable to reduce corticosteroid below the equivalent of prednisolone 10 mg/day within 3 months of starting steroids without recurrence, or who has a relapse within 3 months of stopping steroids. The Montreal classification was adopted to stratify disease extent of UC by the results of recent colonoscopy. Using the modified Mayo score, clinical disease activity was divided into four stages [remission (≤ 2), mild (3–5), moderate (6–10), severe ($11-12$)] [17].

5. Follow-up

In outpatient clinic or through telephone appointments, we followed up those participants for one year after questionnaires were completed. We ascertained whether the patients were hospitalized due to UC recurrence within one year of baseline. 229 patients replied no later than January 2016, with 28 patients (10.9%) lost to follow up.

6. Statistical analysis

Characteristics of study participants at baseline were described in mean ± SD or median (IQR) for continuous variables, and percentages for categorical variables in the overall population and in subgroups of hospitalization. Differences between subgroups were examined by

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