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Predicting Perceived Social Support based on Perceived Stress and Cognitive Emotion Regulation in Patients with Ulcerative Colitis

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Abstract

Objective: The aim of present study was to predict perceived social support based on perceived stress mediated by cognitive emotion regulation in patients with ulcerative colitis.

Method: The method of study was correlational, structural equation modeling type. The statistical population of the present study included all patients with ulcerative colitis, referred to gastroenterology clinics in Districts 4 and 7 of Tehran in 2019. Among them, 261 people were selected through purposeful sampling method. The research tools included perceived social support scale (Zimet et al., 1998), perceives stress scale (Cohen et al., 1983), and cognitive emotion regulation scale (*Garnefski* and Kraaij, 2006).

Results: The results revealed a negative relationship between perceived stress and perceived social support (β=-0.13, t=2.04) and negative relationship between perceived stress and cognitive emotion regulation (β=-0.21, t=2.96) in patients with ulcerative colitis. A positive relationship was also found between cognitive emotion regulation and perceived social support (β= 0.47, t=7.18) but cognitive emotion regulation had no mediating role between perceived stress and perceived social support in patients with ulcerative colitis (β= 0.09, p>0.05).

Conclusions: Although there were direct relationships between perceived stress, perceived social support and cognitive emotion regulation but the results revealed no indirect relationship between perceived stress and perceived social support mediated by cognitive emotion regulation in patients with ulcerative colitis. Thus, paying attention to these variables helps researchers and therapists in design of appropriate therapy for Ulcerative Colitis patients.

Keywords: Mediating, Perceived Social Support, Perceived Stress, Cognitive Emotion Regulation, Ulcerative Colitis.

Introduction

Gastrointestinal disorders have a high prevalence in all communities and socio-economic groups, so that they have been reported at around 10 to 20 percent among adolescents and adults and more in women

Agostini, Spuri Fornarini, Ercolani, & Campieri,) 2016). This disorder is often associated with other gastrointestinal disorders and causes absenteeism, social isolation and financial problems, and imposes a heavy economic pressure on the community (Aldao & Nolen-Hoeksema, 2010). About three and a half millions of visits and two million prescriptions in the United States are due to gastrointestinal disease, and about $ 8 billion in medical expenses and $ 25 billion annual expenses belong to irritable bowel syndrome and ulcerative colitis (Cassel, 1979). Ulcerative colitis is the second leading cause of absenteeism after cold and has the highest rate of medical visits among gastrointestinal disorders. Irritable bowel disorder and ulcerative colitis are referred to as a disease of adolescence because they occur in most people before the age of

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45 (Dalgleish, Yiend, Schweizer, & Dunn, 2009). Many patients with gastrointestinal disorders, especially ulcerative colitis, have reported significant changes in their vital functions such as difficulty in sleeping, reduced energy levels, changes in appetite and body weight, which can affect the efficiency level of people (Delonge, Takis, Kompler, & Houtman, 2004). The causes of inflammatory bowel disease are largely unknown. However, the accepted hypothesis is that the disease is caused by an interaction between genetic and environmental .factors

Significant progresses have been made in identifying the genes responsible for this disease, but the environmental factors responsible for early onset of this disease and its frequent recurrences are less well known (Ditzen, Schmid, & Bernhard, 2008). Perceived stress is one of the most important environmental factors associated with inflammatory bowel disease activities and has been investigated in many studies. The term stress was first proposed by Hans Selieh, who argued that the gastrointestinal tract and immune system in people are particularly responsible for life stresses (Anglers et al., 2018). However, in studies conducted by Selieh, physical events, including physical injuries and harms, cold, and electric shock were defined as stressors. Wolf was the first person, who used socio-psychological formulation to explain stress. He argued that humans react not only to real experiences of dangers, but also to threat and danger signs, and in fact, during stress, psychosocial and physiological variables interact with each other and cause disorder (Gangster & Victor, 1988). Stress means pressure, coercion, and hardship, used in different languages under this title. In Persian language, the word physiological pressure is used as the equivalent of stress, which is not compatible with the exact meaning of stress, since stress affects not only psychological components, but also affects physical components. The degree to which stressful situations are present in the lives of individual is defined perceived stress (federenko, 2006). Research has shown there is a significant deference between perceived stress among Gastrointestinal patients and healthy people .((Pasandideh & Saulekmahdi, 2019

Cognitive assessments of stress and having supportive resources that enable people to cope with .environmental stress are called perceived stress

Support and good social relationships have a significant contribution in enhancing health (Farahbakhsh, Mehrinejad, & Moazedian, 2019). It especially affects the health of patients dealing with disorders such as ulcerative colitis, since social support is very helpful in creating and fulfilling the real and emotional needs of people and belonging to the social networks of the community and mutual requirements make people feel respect, value, and affection (Glozah & Pevalin, 2014). Perceived social support causes reassurance and competencies for new experiences in people and is effective in life satisfaction. It also promotes survival and improves psychological well-being in individuals (Hood et al., 2018). However, perception of support is more important than receiving it. In other words, the perception and attitude of patients with ulcerative colitis towards received support is a more important factor than the level of support provided (Kemp et al., 2018). Perceived social support theorists believe that not all relationships people have with others are considered as social support. In other words, relationships are not sources of social support, unless people perceive them as available or appropriate resources to meet their needs (Kemp et al., 2018). Some evidence suggests that sometimes the supports given to people are either disproportionate or not provided at appropriate situations, or they provided for people in contrast to their willingness. Thus, people perception of support is more important than support itself. Scales related to perceived social support also focus on people cognitive assessments of the environment and people levels of confidence that they will be available when needed (Larsson, Lööf, & Nordin, 2017).

Results of some studies suggest that the perception of social support can prevent difficult physiological complications of the disease in people, improve self-care and self-confidence, have a positive effect on the psychological, social and physical condition of people instead and can improve performance and interpersonal communication among people (Latefa, Dardas, & Muayyad, 2015). Studies have also shown

that one of the most important factors that can affect social support and quality of life is chronic diseases. Hence, the goal of treatment of diseases, especially chronic diseases, has shifted from merely the control of the disease and promoting people health to strengthening social support by reducing the effects of disease on the process of patients' lives (Lazarus, 2000). Research have shown that perceived stress in patients with ulcerative colitis is higher than that in the general population, leading to reduced emotional regulation in these people. Cognitive emotion regulation is one of the most obvious constructs that has been studied to investigate problems related to emotion processing and regulation. Cognitive emotion regulation refers to strategies used to reduce, increase, or maintain emotional experiences (Lee & Kim, 2016). Cognitive emotion regulation is an intrinsic aspect of tendencies related to emotional responses. Cognitive emotion regulation is the actions used to change or modify an emotional state. Based on the studies, people with ulcerative colitis suppress many of their emotional experiences and display higher negative emotion and social inhibition (Li et al., 2016). Emotional inhibition and negative emotion increase cortisol secretion and increase hypothalamic-pituitary-adrenal axis activity and impair the regulation of physiological responses to stress, all of which cause gastrointestinal symptoms (Melissa et al., 2015). Having a mature personality that has a high level of emotional cognitive regulation and prevents emotional suppression and inhibition can help a person identify the source of their problems and conflicts and try to resolve them and avoid many costs imposed on health care system (Mohamad, Alavi, Mohamad & Aun, 2016). Since the pathology of ulcerative colitis remains unknown and since there are no objective and clinically reliable symptoms and are not sometimes justifiable and understandable for patients, examining the psychological factors such as social support, perceived stress, and cognitive-emotion regulation is crucial to determine the possibility of recovery and therapeutic progress and to determine what factors affect the patient physical, mental, and social functions (Parian & Limketkai, 2016). Since this disorder is complex and multidimensional and affects the physical condition and psychosocial and cognitive functions of these patients, different aspects of life such as social functioning, sexual functioning, physical and mental health and family-work satisfaction decrease dramatically in these patients (Pin & Spini, 2016). Many of these patients have limited daily activities and little social communication. It is due to the fact that the patient has little behavioral and cognitive reservoir in relation to his or her digestive condition and does not have the necessary flexibility to manage the condition.

Hence, anxiety caused by waiting and uncertainty are often a serious barrier to their activities. For this reason, anxiety and mood disorders are among the most common psychiatric disorders in these patients, which can highly influence the perception of disease and affect the quality of life of these patients. Moreover, since pharmacological treatment alone does not have much effect on reducing symptoms and increasing the function of gastrointestinal patients and ulcerative colitis is a functional disorder that has no specific organic cause, and given its close association with mental symptoms, one of the interventions to improve the symptoms and increase the effect of treatment and reduce treatment costs is effective psychological interventions based on the effective and modifying variables for the patient. The aim of the present study was to predict perceived social support based on perceived stress mediated by cognitive emotion regulation in patients with ulcerative colitis.

Method

Ethical Statement

This research has been approved by the research ethics committee of Hormozgan University of Medical Sciences with IR.HUMS.REC.1398.315 code.

Participating in this research was optional and all participants were free to quit any time. The identities of the participants in this research were ethically confidential.

Participants and procedure

The present study is descriptive-correlational, type of structural equation modeling. The statistical population of this study consisted of all patients with ulcerative colitis referred to gastrointestinal clinics in districts 4 and 7 of Tehran in 2019. Purposeful sampling method was used in this study. In structural equation modeling, the sample size can be determined between 5 and 15 observations per measured variable: 5q<=n<=15q, where q is the number of observed variables or the number of items (questions) of the questionnaire and n is the sample size (Hooman, 2005).

In the present study, the sample size for each question was considered to be 5 people and a total of 241 people were considered in this study. However, since many of the questionnaires might be answered incompletely, 270 participants were included in the study, and finally 261 questionnaires completed by the participants were fully returned to the researcher. Inclusion criteria of the study included 1) having the minimum literacy to understand the questions of the questionnaire, 2) diagnosis of ulcerative colitis based on the opinion of a gastroenterologist and according to the results of endoscopic, histological and radiological examinations. Exclusion criteria also included 1) not answering more than 10% of the questions of the questionnaires 2) unwillingness of patients to continue to participate in the study.

Instruments

The Multidimensional Scale of Perceived Social Support (Zimet et al., 1988): It provides a subjective assessment of the level of social support in individuals. This scale was designed by Zimet et al. (1988) to assess the level of perceived social support by friends, family members, and important individuals in one's life. It is a self-report tool used in situations, where subjects are faced with time constraints or when a researcher wants to determine a limited time for answering. The whole scale includes 12 items scored on a 7-point Likert scale from strongly disagree to strongly agree. The total score of the questionnaire is obtained by summing up of the scores of the items. In this scale, higher scores of the subjects indicate higher perceived social support. In addition, by summing up of the subjects' scores in the items of each subscale, the scores of each person in each of the three subscales of support of friends, support of family and support of important people in life are determined. In this scale, the minimum score is 12 and the maximum score is 84. High scores indicate a high level of perceived social support (Rezaie et al., 2017). Rothrock et al. (2010) reported the Cronbach's alpha coefficient of three dimensions of social support received from family, friends and important people in life at 0.89, 0.86 and 0.82, respectively. In this research Cronbach's alpha has been reported between 0.79 to 0.89.

Cohen Perceived Stress: This questionnaire was developed by Cohen in 1983 and has 3 versions, including 4-item, 10-item, and 14-item versions. It is used to assess general perceived stress over the past month. This form assesses thoughts and feelings about stressful events, controlling, overcoming, coping with stress, and experiencing stress by examining the answers. A score of 0 (never), 1(almost never), sometimes (2), often (3), or 4 (most of the time) is given to each item of it on a five-point Likert scale. Questions 4, 5, 6, 7, 9, 10 and 13 are scored reversely (never = 4 to most of the time = 0). A cut-off score of 21.8 and a higher score indicate higher perceived stress. Cronbach's alpha for this scale was obtained at 0.84, 0.85 and 0.86 in three studies (Singh et al., 2015). In current study Cronbach's alpha was 0.77.

The Garnefski and Kraaij Cognitive Emotion Regulation Questionnaire: Garnefski and Kraaij Cognitive Emotion Regulation Questionnaire

(2006) is an 18-item tool that assesses self-regulatory strategies in response to life-threatening and stressful events on a five-point scale ranging from never to always in terms of the following 9 subscales: self-blame, blaming others, rumination, catastrophizing, positive focusing, refocusing on planning, positive reappraisal, putting into perspective, and acceptance. A higher score in each subscale indicates that the person uses more cognitive strategy. The alpha coefficient for the subscales of this questionnaire ranged from 0.71 to 0.81 and the reliability coefficient of its subscales was reported was reported at 0.48 to 0.61 using test-retest method with 4-month interval (Strazdins & Broom, 2008). In Iran, the alpha coefficient for subscales of this test has been reported in the range of 0.62 to 0.91 (Tortella-Feliu, Balle, & Sese, 2010). In this study Cronbach's alpha was 0.79.

The data obtained from the implementation of the questionnaires were analyzed using Spss-V23 and Amos-V8.8 software. Structural equation modeling .was also used to test the research hypotheses

Results

Demographic variables of the samples are presented in Table 1.

The results of Table 2 show that among the dimensions of cognitive emotion regulation, the highest mean belonged to planning. The results of implementation of the model in the standardized mode and non-standardized mode along with some of the most important initial model path analysis fit indices are presented in the following figure and table.

The results of Table 3 show that perceived stress had a direct effect on perceived social support, the relationship between perceived stress and perceived social support was direct ($t = 2.04$ and $\beta = -0.13$). Thus, the direct effect of perceived stress on perceived social support of patients with ulcerative colitis is confirmed with 95% confidence. The effect of perceived stress on cognitive emotion regulationvwas direct and the relationship between perceived stress and cognitive emotion regulation was also direct ($t = 2.96$ and $\beta = -0.21$). Thus, the direct effect of perceived stress on cognitive emotion regulation in patients with ulcerative colitis is confirmed with 95% confidence. Cognitive emotion regulation factors have a direct effect on perceived social support and the relationship between cognitive emotion regulation and perceived social support is direct ($t = 7.18$ and $\beta = 0.47$). Therefore, the direct effect of cognitive emotion regulation on perceived social support of patients with ulcerative colitis is confirmed with 95% confidence.

The results of Table 4 show that the relationship despite the indirect effect of perceived stress on the perceived social support of patients with ulcerative colitis mediated by cognitive emotion regulation is rejected with 95% confidence ($P < 0.5$).

Table 1. Frequency and percentage of frequency of individual and demographic characteristics of samples

Individual and demographic characteristics	Sub-group	n	%	Mode
Gender	Female	147	56.32	Female
	Male	114	43,68	
Age group	35-45 years	76	29.12	46-55 years
	46-55 years	102	39.08	
	56-65 years	83	31.80	
Education	Diploma	109	41.76	Diploma and Bachelor
	Associate	59	22.61	
	Bachelor	78	29.89	
	Master and higher	15	5.75	

Table 2. Descriptive results of subscales of perceived stress, cognitive emotion regulation, and perceived social support.

Scale statistical indices	Mean	SD	Skewness	Kurtosis
Perceived stress	20.36	4.11	0.67	6.41
Self-blame	5.67	1.48	0.50	-0.79
Blaming others	6.02	1.33	-1.27	0.59
Catastrophizing	6.87	1.64	-0.28	-1.08
Rumination	6.34	1.08	-2.54	7.36
Acceptance	6.06	1.33	-0.74	0.58
Positive refocusing	6.19	1.48	-0.37	-0.99
planning	6.74	1.52	-.094	-0.43
Positive reappraisal	5.54	1.07	2.90	8.85
Putting to perspective	6.10	1.30	-1.86	2.01
Support of family	12.70	3.69	-1.14	0.09
Support of friends	14.68	1.19	-2.75	2.95
Support of important people in life	13.44	2.77	-1.63	1.89
Perceived social support	40.82	5.66	-1.24	1.69

Figure 1. Model in non-standardized coefficients mode.

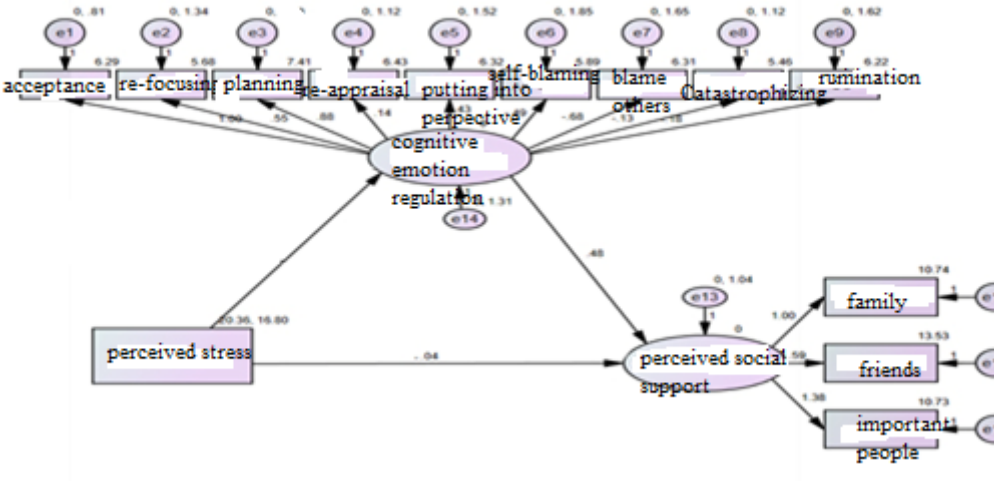
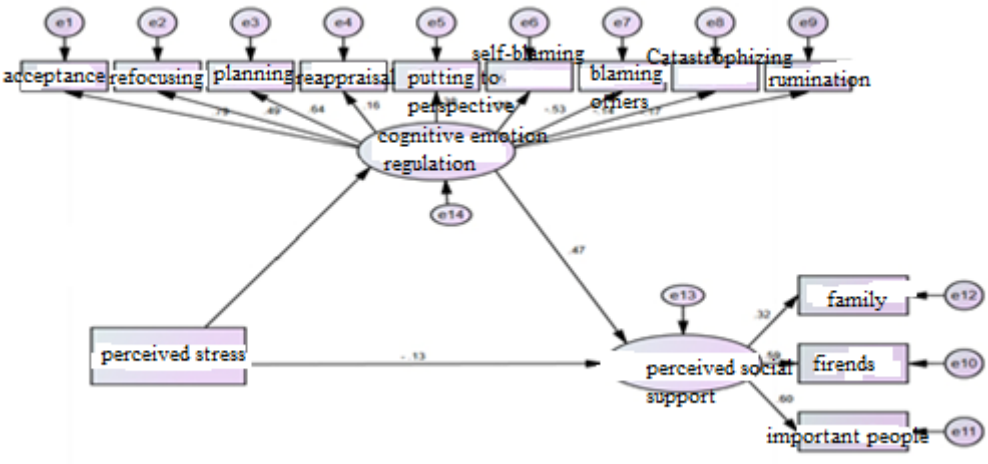


Figure 2. Model in standardized coefficients mode.



Discussion and Conclusion

The aim of present study was to develop a structural model for predicting perceived social support based on perceived stress with a mediating role of cognitive emotion regulation in patients with ulcerative colitis. The results showed that the hypothesis of perceived stress has a direct effect on perceived social support of patients with ulcerative colitis was confirmed with 95% confidence. Stress refers to a wide range of problems that disrupt a person's mental and physical system, but this response depends on how the person interprets or evaluates the significance of the harmful, threatening, or challenging event (Trindade, Ferreira, & Pinto-Gouveia, 2015). Many researchers believe that people who are member of an extensive social support network are less likely to be harmed by stressful events. In this regard, it is generally believed that existing supportive and natural systems, such as families, work groups, and communities, facilitate coping strategies. It has been assumed that social support to act as a mediator between the life pressures and physical condition. In the present study, results revealed that social support is effective in reducing stress in patients with ulcerative colitis and with increasing social support, the level of stress in these people decreases. Results of the present study are in line with those of the studies conducted by Strazdins and Broom (Wang & Saudino, 2011). These results can be explained by the fact that patients with ulcerative colitis experience increased emotion when faced with daily stressful situations, which increases their stress. The strategies used by patients with ulcerative colitis to reduce their negative emotions can exacerbate the emotions and lead to a kind of emotional dysregulation.

Wang and Saudino argue that emotion regulation is responsible for regulating the arousal and manifestation of emotions that arise when facing an internal and external environmental stresses. Accordingly, patients with ulcerative colitis try to reduce their emotions, especially their negative emotions. However, suppressing and preventing the expression of emotions, especially negative emotions, exacerbate them (Wang et al., 2016). Theories of emotional regulation of psychological traumas claim that the inability to apply emotion regulation strategies leads to negative emotions that are uncontrollable, severe, and chronic and they might result in psychological traumas. Also, researchers have stated that emotion expression is associated with improved psychological stress. Some experts believe that reviewing emotions over a period of time makes events more meaningful, and help them better process the desired experience and related emotions (Wong, Wu, Gregorich, & Pérez-Stable, 2014). Perceived social support plays a major role in emotional regulation and also the support of family, friends, peers and others plays an important role in the lives of these patients. The results revealed that despite the indirect effect of perceived stress on perceived social support meditated by cognitive emotion regulation in patients with ulcerative colitis is

Table 3. Coefficients and significance of the direct effect of perceived stress on perceived social support.

Criterion variable	Predictor variable	Effect type	Non-standardized coefficients	β standardized	Significance statictic	Sig.
Perceived social support	Perceived stress	direct	-0.04	-0.13	2.04	0.03
Cognitive-emotion regulation	Perceived stress	direct	-0.06	-0.21	2.96	0.002
Perceived social support	Cognitive-emotion regulation	direct	0.48	0.47	7.18	0.001

Table 4. Coefficients and significance of the non-direct effect of perceived stress on perceived social support.

Criterion variable	Predictor variable	Effect type	Non-standardized coefficients	β standardized	Significance statictic	Sig.
Perceived social support	perceived stress	mediated by cognitive emotion regulation	-0.03	-0.09	1.72	0.09

rejected with 95% confidence.

Consistent with the results of present study, Wongpakaran, Wongpakaran, and Ruktrakul (2011) carried out a study entitled "investigating the relationship between stress and irritable bowel syndrome". The results revealed a significant relationship between stress and irritable bowel syndrome. The level and severity of life stress in the group of patients with irritable bowel syndrome was higher, compared to control group.

Other results showed that spouse death caused the highest stress among the 65 stressful life events of patients with irritable bowel syndrome and the lowest stress belonged to incidence of mild physical illness. Also, the highest frequency of stress in this group belong to an increase in living costs, as 50% of patients reported an increase in living costs as one of the most common stresses in their lives. Thus, negative psychological stress and stressful life events are an important component in patients with irritable bowel syndrome, which should be considered in planning and treatment strategies. The results of some studies have also shown that lack of support makes a person vulnerable to psychological consequences such as stress. Perceived support, as an important variable of the social system in critical situations, helps a person reduce stress and causes emotional regulation, so that the lack of support in these stressful situations and disease impose much pressure on the person and cause psychological consequences such as stress and reduced emotional regulation and make a person highly vulnerable to stress. Perceived social support and perceiving the grief and condition of patients make it easier for people to cope with their problem and accept their condition. This acceptance and perception by family, friends and others reduces negative thoughts, isolation, and rumination, and stress (Xie et al., 2017). Eventually, the results of this research in line with the research literature indicate that perceived social support, perceived stress and emotional regulation in patients with ulcerative colitis are related to each other directly but emotional regulation has no mediating role between perceived stress and perceived social support among ulcerative colitis patients. Increasing perceived social support and cognitive emotion regulation can lead to improved interpersonal relationships of patients with ulcerative colitis with others and thus enhance their perceived support. In addition, regulating emotions can improve individual experiences such as reducing physical symptoms and improving physical health by improving bodily emotions and managing negative emotions.

limitations

One of the limitations of the present study is the use of self-report questionnaires that may result in biased answers. Also, variables such as socioeconomic status, interpersonal and family conflicts, and participants' other diseases are among the factors that might be influential factors, which were not controlled in this study. Thus, based on the results of this study and confirmed relationship between stress and ulcerative colitis and the undeniable role and influence of psychological factors and psychiatric disorders in functional gastrointestinal diseases, it is recommended for these patients visit psychologists or counselors, whenever the symptoms in patients with functional gastrointestinal diseases last or their body does not respond well to medications. Also, the use of stress

reduction techniques such as relaxation, social support, breathing exercises, regular exercise, meditation, hypnosis and biofeedback is recommended in this regard.

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