

# Stress: A Factor For Ulcerative Colitis Flareups And Its Management

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## **ABSTRACT**

*Stressful life events always create a disturbance in the normal life of any organism and thus is a threat to the homeostasis. This triggers off a physiological response which needs adaptation and response. Mild stress may subside over a period of time but if stress continues, it can cause damage and exacerbation of disease process. One such disease related to stress is ulcerative colitis. It was first described in mid-1800s. Ulcerative colitis is an idiopathic disease with chronic inflammation of the colonic mucosa. It commonly involves the rectum and can extend in a proximal and continuous fashion and other parts of the colon are affected. Though there is still a controversy over the role of psychosocial factors in the development and modulation of common gastrointestinal disorders, but researches do establish bidirectional interactions between the brain and gut, and that certain stressful life events frequently precede exacerbation of symptoms in gastrointestinal disorders.*

## **Keywords:**

*Stressful, homeostasis, triggers, physiological, adaptation, ulcerative colitis, idiopathic, bidirectional, exacerbation.*

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Ulcerative colitis (UC) is an autoimmune disorder that causes inflammation and ulcers in the colon and rectum. It is a kind of inflammatory bowel disease (IBD) along with Crohn's disease and microscopic colitis.<sup>(1)</sup> The symptoms can vary, depending on the severity of inflammation and where it occurs. Signs and symptoms may include: diarrhea, usually with blood or pus, pain in abdomen, cramps, rectal pain, rectal bleeding, patient also passes small amount of blood with stool, urgency to defecate, unable to defecate despite urgency, loss of weight, fatigue, fever, and in children -failure to grow. Most people with ulcerative colitis are seen with mild to moderate symptoms. The course of ulcerative colitis may vary in individuals along with periods of remission. The disease is classified according to the extent of involvement of colon, proctitis (rectal inflammation), left sided colitis (inflammation extending to descending colon), and extensive colitis (inflammation proximal to the descending colon).<sup>(2)</sup>



Endoscopic image of a colon affected by ulcerative colitis. The internal surface of the colon is blotchy and broken in places. Mild-moderate disease.

The risk of colorectal cancer significantly increases in people with ulcerative colitis who have had more than 10 years of involvement beyond the splenic flexure. <sup>(3)</sup> Another complication is that the ulcers in intestines can open up and lead to bleeding. Lot of blood loss can lead to anemia. Constant diarrhea and inflammation can lead to water and nutrient loss along with no absorption of fluids and vitamins. Inflammation can be found in other body parts other than digestive tract – joints, eyes, skin or organs like liver. Rarer complication is toxic megacolon. People can go into shock, needs treatment fast. The risk of blood clots is about three fold higher in individuals who have IBD. <sup>(4)</sup> The risk of venous thromboembolism is also high in ulcerative colitis patients. This is due to hypercoagulability which results from inflammation, especially with active or extensive disease. <sup>(5)</sup>

The report of 2015 showed that world-wide about 11.2 million people were affected with ulcerative colitis and Crohn's disease. <sup>(6)</sup> Ulcerative Colitis is more common in Europe and North America than other regions. <sup>(7)</sup> Commonly affected are people in the age group of 15 to 30 years, or those over 60 years. <sup>(1)</sup> Males and females appear to be affected in equal proportions. <sup>(8)</sup>

#### **What causes Ulcerative Colitis:**

It was earlier thought that diet and stress are the causative factors for ulcerative colitis. Today, though the exact cause of UC is still largely unknown, the theories involve immune system dysfunction, genetics, changes in the normal gut bacteria, and environmental factors. <sup>(9)</sup> Experts believe that diet and stress can aggravate the condition.

#### **Stress and Ulcerative Colitis:**

Stress is a universal phenomenon experienced by people of all ages. It is produced by change in environment which requires an adjustment or response. It affects all aspects of human dimensions – physical, emotional, intellectual, social and spiritual. How people perceive stress and respond to it are highly individualized, not only from person-to-person but also from one time to another in the same person. Stress can be caused by catastrophic events, important life events (personal stressors), and even daily hassles of life known as background stressors. Selye (1956) has defined stress as 'non-specific response of the body to any kind of demand made upon it' Thus stress is the arousal of mind and body in response to demands made upon them. Stress can be negative or positive. Our body reacts to stressors by initiating a complex sequence of responses. These responses will subside if the perceived threat is resolved quickly. In case the stressful condition continues, a different set of internal responses will occur which may finally deplete the body's resources and make it vulnerable to illness. Studies of experimental stress in animals have shown increased intestinal mucosal permeability and also alterations in bacterial-host interactions.

Related Studies: According to a study, acute stress in rats increases mast cell numbers and mucosal PAR2 (proteinase-activated receptor-2) expression in the colon. These effects of stress seem to be mediated by release of CRF(Corticotrophin-releasing Factor). Increased mast cells observed in a subset of IBS patients without history of previous GI infection may be attributed to stress-induced alterations mediated by CRF.<sup>(10)</sup>

A study done by Mawdsley, J. E., & Rampton, D. S. (2005) has reported psychological stress as a factor to increase disease activity in inflammatory bowel disease (IBD), and states other studies which confirm that adverse life events, chronic stress, and depression definitely increases the likelihood of relapse in patients who have quiescent IBD. This evidence is now also supported by studies of experimental stress seen in animal models of colitis. With the concept of psychoneuroimmunology which is evolving in recent times, the mechanisms by which the immune system is affected by nervous system at both systemic and gut mucosal levels are gradually becoming apparent. Psychological stress does contribute to the risk of relapse of IBD. This study further shows that a laboratory research has indicated a variety of mechanisms by which stress can affect both the systemic and gastrointestinal immune and inflammatory responses.<sup>(11)</sup>

2. A study by Brown, C.H.( 1963) conducted on 7 patients with ulcerative colitis show that psychogenic factors, emotional disturbances, and personality deviations are present more consistently. It also shows the onset of ulcerative colitis after certain types of traumatic emotional shock, thus suggesting that psychogenic factors may be etiologic in some patients.<sup>(12)</sup>

3. Sixty-two patients with known ulcerative colitis were enrolled into a prospective cohort study while in clinical remission. Their perceived stress, symptoms of depressive, and stressful life events were monitored, along with potential confounders, for about 45 months. At the same time, exacerbation status was monitored for about 68 months. The results showed that short-term stress did not trigger exacerbation in ulcerative colitis patients, but long-term perceived stress increases the risk of exacerbation over a period of months to years.<sup>(13)</sup>

### **Management of Stress:**

People with ulcerative colitis should learn to identify their stress triggers and also work up on their coping strategies. Every person may have some specific triggers of stress in their life. This trigger can be a person, a situation, a thought, something in social life etc. Identifying this is very important step, as this is the starting phase of stress symptoms. It is also recommends to keep a journal of thoughts when such events happen. Some people may go into a negative thought process which causes self-harm. Stopping the thought process and diverting the mind with some relaxation techniques will stop the progression of stress. Sometimes even unrealistic goals may cause harm. Set small goals in your personal and professional life, achieve this and go on further. Every night preparation can be done for the next day, to decrease early morning stress. Use a diary or a calendar to keep track of daily activities or appointments. This frees your mind from unwanted tensions.

Love and take care of yourself. Build a high self-esteem, so that you are not affected by things and people around you. A minimum of seven to eight hours of sleep at night is necessary. Sometimes we need to say no to extra responsibilities which we cannot handle. Understand your priorities. Do work outs and exercise. The brain releases neurotransmitters that affect the mood and this helps in relieving stress. Yoga can also help manage stress and anxiety.<sup>(14)</sup> It is a combination of deep breathing with stretching and strengthening poses. A study was done to assess the efficacy and safety of yoga for improving quality of life in patients with ulcerative colitis. It showed that yoga can be considered as a safe and effective ancillary intervention for patients with ulcerative colitis and impaired quality of life.<sup>(15)</sup>

A small study which was published in the Journal of Psychosomatic Research (March 2020) found that people who did yoga for 12 weeks got an improvement in their quality of life and also experienced less UC activity.<sup>(16)</sup>Diaphragmatic breathing which is activation of the diaphragm, also allows for a gentle massage of the internal organs, including the intestines and stomach. This helps with abdominal pain, urgency, bloating, and constipation.

Another method is meditation, which helps to relax the mind, reduce physical discomfort, make better decisions, and enhance coping skills. Research shows that at least 20 minutes of meditation every day can reduce levels of the stress hormone cortisol. Try 10 minutes in the morning and 10 minutes before you go to bed. People should build a good support system. Mental support can come from friends, parents, siblings, children or spouse. Cultivate these relationships well. Talk and share experiences whether good or bad and let your mind be free of these thoughts. Ask for help and accept help when needed. Take out some time from your busy schedule and do something you really enjoy. Spend sometime in the garden or park, read a book, listen to music, chat with a friend, help somebody and so on. If you still feel stressed out, meet a psychologist for some therapies like CBT to identify and change your negative thought patterns and behaviours contributing to the stress. Research in gut-directed hypnotherapy also shows positive results such as longer remission periods and reduced inflammation.

Ulcerative colitis may come and go throughout life. Take medications properly, follow your doctor's plan, avoid certain foods as suggested by your doctor, but also find ways to reduce your stress. Stress is a part of our life. You should learn to deal effectively with it, by following a positive attitude. Positive thinking can free you from unwanted things stored in your mind. Build up a healthy mind and body, enjoy each moment as it comes instead of worrying. A number of studies from Global burden of disease study reflect on this condition<sup>(17-20)</sup>. Khatibet. al. reported on Yoga for improving functional capacity and quality of life<sup>(21-23)</sup>.

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