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Development of an Internet-delivered Cognitive Behavioral Program for Inflammatory Bowel Disease: A Pilot Study

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Abstract

This pilot study examined a new internet-delivered cognitive behavior therapy program (iCBT) for anxiety, depression and/or stress in adults with inflammatory bowel disease (IBD). Eighteen of 21 participants completed the 9-module program. Measures of anxiety, depression, and stress were administered at baseline, and at 6-, 12-, and 24-weeks post-baseline. The iCBT program resulted in significant decreases in anxiety and stress 12 weeks post enrollment, with no significant changes in depression. Most participants reported good satisfaction with the program. The results demonstrated the feasibility and acceptability of IBD-tailored iCBT and will inform content improvements for a randomized controlled trial.

Keywords

Inflammatory bowel disease, Cognitive behavioral therapy, iCBT, Anxiety, Depression, Stress

Inflammatory bowel disease (IBD), which includes Crohn's disease (CD) and ulcerative colitis (UC), is a chronic condition that affects the gastrointestinal tract [1]. The prevalence of IBD varies worldwide and is rapidly rising, with the highest rates being reported in Europe and North America [2]. The approximately 2 million individuals with IBD in the US and Canada are projected to double over the next decade [3]. The disease has a high burden for patients, with unpredictable, painful symptoms that can interfere with home and work life. There is also a high cost to the health system, related predominantly to biologic medications, hospitalization rates, surgeries, and emergency department visits [4,5].

It is well established that individuals with IBD have significantly higher rates of anxiety and depression than the general population [6-9]. A bidirectional impact of the disease on mental health and mental health on the disease has been identified, with stress notably associated with symptomatic disease flares [10-12]. Persistent high levels of stress predict worsening IBD symptoms, which in turn increases the risk of developing chronic anxiety and depression [13]. Further, large cohort studies demonstrate that symptoms of anxiety and depression are significantly associated with clinical recurrence of disease in IBD [14]. In addition to disease course, health care utilization can be increased by comorbid distress and mental health concerns [15].

There is growing research on psychological treatment for individuals with IBD, providing some evidence that cognitive behavioral therapy (CBT) can be an important adjunct to medical treatments, improving coping and reducing psychological distress in this population [16,17]. CBT is a well-established treatment for anxiety and depressive disorders, [18,19] and is often used as a first line intervention rather than medication. A small number of studies examining the impact of CBT on disease activity and course for IBD patients have had mixed outcomes [20,21]. However, individuals with IBD who also have elevated anxiety or depression tend to benefit more consistently from CBT [22,23]. In a randomized

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controlled trial of 118 participants, 8 sessions of IBD-specific CBT resulted in significant reductions in depression and anxiety and improvements in both disease-specific and general quality of life compared to the waitlist control condition [24].

Despite emerging evidence for psychotherapeutic interventions, the majority of individuals with IBD and comorbid mental health concerns do not receive any kind of psychotherapy to facilitate adjustment to this debilitating chronic disease [25]. Notable barriers to seeking in-person treatment for comorbid anxiety, depression or elevated distress include financial constraints, stigma related to help-seeking, unpredictable IBD symptom flare-ups, lack of access to expertise with this psychological therapy, and lack of accessibility due to geographic location [7,26]. Development of alternate modes of effective treatment delivery is vital to enhance access and facilitate availability, particularly given limited mental health service availability more generally. Internet-delivered CBT (iCBT) can mitigate many of these barriers and thus may be an effective approach for persons with IBD and related stress, anxiety and/or depression [26]. Potential benefits of iCBT include enhanced cost effectiveness, little to no wait time to begin treatment, and increased accessibility [27].

Few studies have examined iCBT programs specifically tailored for mental health issues presenting in IBD populations. McCombie and colleagues [26] found that participants' health-related quality of life significantly improved after an 8-session iCBT intervention as compared to treatment as usual (TAU). While these effects were not maintained at 6 months, it was noted that a particular challenge was the very high drop-out rate in their iCBT condition, with only 26% completers. A study examining CBT delivered either in-person or online (based on participant choice) demonstrated significantly improved quality of life post-CBT at 6 months for a high-risksubset of IBD participants [20]. Of particular interest is that 76% of the sample allocated to the CBT condition in this study opted for the online CBT in comparison to 24% opting for in-person CBT.

To extend this body of research and available clinical tools, our research group developed a new iCBT intervention tailored to adults with IBD who have elevated anxiety, depression, or stress. This intervention was designed to be delivered completely online with no additional therapist support/time. The aim of this pilot study was to examine the feasibility and preliminary effectiveness of this new IBD-tailored iCBT intervention in reducing anxiety, depression, and stress experienced by adults with Crohn's disease or ulcerative colitis.

Methods

Patient Advisory Committee (PAC)

A PAC comprised of 10 adults with lived experience of IBD was closely involved in the initial development of the new online intervention to maximize its relevance for the target population. Members of the PAC were recruited from local gastroenterology clinics. The advisory group participated in an open discussion with members of the study team, describing their personal experiences with IBD and including any barriers and concerns they faced at different stages of the disease (e.g., when first diagnosed). Additionally, the PAC provided feedback on information they would find beneficial for managing stress, anxiety, or depression, as well as module themes that would be most relevant for patients. The main themes and content highlighted by the advisory group were incorporated into standard CBT elements to create the iCBT for IBD program. The PAC reviewed the program prior to the start of the pilot study and provided feedback regarding content, design and engagement. Further adjustments were made to the program based on the feedback received including use and timing of video clips.

iCBT Participants

Adults were recruited from the manitoba sample of the inflammation, microbiome, and alimentation: gastro-intestinal and neuropsychiatric effects (IMAGINE) study, a large cohort of Canadian patients with physician-confirmed IBD [28]. Participants from the Manitoba sample were contacted by email between April and July 2019 and invited to take part in this pilot study; in addition, recruitment posters were circulated in gastroenterology clinics at the province's academic health centre and largest tertiary hospital, Health Sciences Centre.

Inclusion criteria for the pilot study were: (a) Diagnosis of IBD (CD or UC); (b) a score above cutoff (8 or higher) on at least one of the Hospital Anxiety and Depression Scale (HADS) subscales (HADS-Anxiety or HADS-Depression); (c) regular access to a personal computer/mobile device; and (d) ability to read and write in English. Exclusion criteria were (a) CBT within previous six months, and (b) presence in the previous six months of significant suicidal ideation or intent, self-harming behavior, substance use disorder, psychotic disorder, and/or eating disorder.

Primary outcome measures

The *Perceived Stress Scale* (PSS-4) is the 4-item short form version of the 14-item Perceived Stress Scale by Cohen, Kamarck, and Mermelstein [29]. Respondents were asked to report how often they experienced stress within the past month on a 5-point Likert scale. Higher scores on the PSS-4 indicate higher perceived levels of stress. This measure has adequate psychometric properties [30].

The HADS [31] was used to assess anxiety and depression symptoms. This 14-item self-report measure was developed for medical populations to minimize confounding of mental health and physical symptoms. Anxiety and depression items are scored separately, with higher scores indicating greater levels of anxiety or depression respectively. Both the HADS-A (anxiety) and HADS-D (depression) subscales have been shown to have good internal consistency and reliability. The HADS has been validated in an IBD population [32]. Scores between 8 and 10 on both scales are suggestive of a mild disorder while scores of 11 or higher are suggestive of clinically significant anxiety or depressive disorders [31].

To establish feasibility of this new intervention, participants' experience and satisfaction with the intervention, as

well as completion rate, were particularly important outcomes. The *Client Satisfaction Questionnaire* (CSQ-8; Larsen et al., 1979 [33]) consists of 8 items rated on a 4-point scale assessing participant satisfaction with their treatment experience, with higher scores indicating greater satisfaction (maximum score = 32). Items include "How would you rate the quality of service you have received?" and "How satisfied are you with the amount of help you received?" One open-ended question provides an opportunity for participants to give general feedback about the program. Completion rate was defined as the percentage of participants who completed all of the assessments through to and including at 24 weeks.

Secondary outcome measures

The *Inflammatory Bowel Disease Symptom Inventory-Short Form* (IBDSI-SF; Sexton et al., 2019 [34]) is a 24-item validated clinical index consisting of 3 subscales to assess IBD-related symptoms. The subscales assess bowel symptoms, abdominal discomfort and bodily discomfort, and fatigue. The IBDSI-SF has robust psychometric properties, including strong reliability for total score ($\alpha = 0.92$), and for each subscale ($\alpha = 0.85$ for bowel symptoms, $\alpha = 0.87$ abdominal and bodily discomfort, $\alpha = 0.82$ fatigue) [34].

The *Patient-Reported Outcomes Measurement Information System-29* (PROMIS 29; Ader, 2007 [35]) is a well validated questionnaire which assesses health-related quality of life across 7 domains: physical function, anxiety, depression, fatigue, sleep disturbance, ability to participate in social roles and activities, and pain (interference and intensity).

The *Work and Social Adjustment Scale* (WSAS: Mundt et al., 2002 [36]) consists of 5 items regarding functional impairment in daily activities due to an identified health problem. The WSAS has been shown to have acceptable reliability ($\alpha = 0.70$ - 0.94) and validity (Mundt et al., 2002 [36]). Scores above 10 on this measure are suggestive of significant functional impairment but less severe clinical symptomatology and scores above 20 suggest moderately severe or severe functional impairment and clinical symptoms.

The *Clinical Global Impressions Scale-Improvement* (CGI-I; Guy, 1976 [37]) is a 2-item questionnaire adapted to assess (a) levels of perceived stress and (b) confidence in managing stress if IBD symptoms were to worsen. The CGI-I is frequently used as a measure of change with treatment in clinical trials [38,39].

Procedure

The study was approved by the University of Manitoba Research Ethics Board. The pilot was registered at ClinicalTrials.gov: trial identifier #NCT03852745.

A research assistant, supervised by a clinical psychologist, conducted the screening of potential participants via phone. Screening was a two-step process: In the first screening call, participant access to internet and appropriate technology for use with iCBT was determined and informed consent was obtained. In a second phone call, demographic information and specifics of IBD diagnosis were obtained. The *Mini International Neuropsychiatric Interview version 7.0.2* (MINI; Sheehan et al., 1998) [40], a semi-structured clinical interview based on the Diagnostic and Statistical Manual of Mental Disorders, 5th Edition (DSM-5; American Psychiatric Association, 2013 [41]) was administered at this time. Individuals also completed the HADS to establish that they met inclusion criteria for the study. The scores on this measure were used as baseline assessments for enrolled participants.

Once participants were enrolled, they also completed baseline assessments of the PSS-4 and of the secondary outcome measures (CGI, IBDSI-SF, PROMIS-29, WSAS). Primary and secondary outcome measures (PSS-4, HADS, CGI, IBDSI-SF, PROMIS-29, WSAS) were repeated at 6, 12 and 24 weeks after the start of iCBT intervention. The Client Satisfaction Questionnaire was completed at the 12-week assessment point only.

Participants were asked to provide ongoing brief feedback on the intervention through completion of questions at the end of each iCBT module, regarding their familiarity with the content, how helpful they found the unit, and whether the information was understandable and satisfactory in length. Participants were also prompted to provide feedback on aspects they liked and disliked about each unit, as well as to provide suggestions for improvement. Following study completion at 24 weeks, participants completed a post interview to invite additional general and specific feedback about their experience with the iCBT program. They were asked to provide general feedback about the program including what they found helpful/unhelpful, if they were able to complete the program, suggestions on how to improve the program, what type of device they used with the intervention (computer or phone application), and whether they had seen personal change in their stress, anxiety, or depression.

Intervention protocol

The internet-delivered cognitive behavioral therapy (iCBT) intervention tailored for adults with IBD to address stress, anxiety and/or depression is outlined in Table 1. The program included 9 core modules and 1 optional module. Modules took approximately 1-2 hours each to complete and included text, patient videos illustrating learning points, and practice exercises to complete between modules. Participants were encouraged to work at their own pace, potentially working through one or two modules per week, with the recommendation that they spend approximately 2 hours per week on the material. The CBT program was based in the Minddistrict eHealth platform platform [42]. Minddistrict specializes in behavioral health computerized interventions, and offers access flexible access through computer or a phone app, with well-established security protocols.

Engagement strategies were identified a priori and implemented as needed to facilitate participants' progress through the program. A research assistant monitored iCBT login activity on a weekly basis and sent an email prompt to any participant who had not logged into the program for approximately one week. Participants were also encouraged to email or call the research assistant if they had any questions or concerns throughout the program. Additionally, the

Table 1: Overview of intervention modules.

No.	Module	Brief description
1	About the Program	Program description and overall goals Website Navigation
2	IBD and Stress	Definition of Ulcerative Colitis and Crohn's Disease How someone may develop problems with stress Long term effects of stress Coping with symptoms Acceptance
3	Relaxation Strategies	Why should we learn to relax? Breathing Muscle relaxation Other formal relaxation techniques
4	Commitment to Living Life Fully	Immediate response to illness Living with IBD Values and Goals Anxiety Depression
5	The Brain-Gut Connection	IBD and Symptoms Science behind the Brain-Gut connection Mind-Body interaction Your IBD-related anxious thoughts Managing your stressful thoughts and beliefs Developing realistic health beliefs
6	Understanding Anxiety	Anxiety Patterns of anxiety
7	Overcoming Avoidance	Avoidance Keeping your IBD a secret Overcoming avoidance is key to overcoming anxiety Worries
8	Depression	About Depression Depression and IBD
9	Behavioral Activation	Behavioral Activation Activity Journal
Bonus unit	IBD and the Workplace	Staying connected Workplace accommodation Taking a leave from work Short- and long-term disability plans Returning to work

research assistant emailed reminders to prompt completion of the study questionnaires if they were not done by one week after the expected date.

Analyses

Means, standard deviations, and 95% confidence intervals were used for continuous variables as appropriate. IBD subtype between-group differences were examined using chi-square for categorical and t-tests for continuous variables. Effect of the intervention on outcomes over time was assessed using repeated measures ANOVA; posthoc analyses used a Bonferroni correction to adjust for multiple comparisons. Data were analyzed using IBM SPSS statistics (Version 27). All statistical tests of significance were performed at a two-tailed alpha level of 0.05.

Results

Forty-three adults expressed interest in the project and 21 adults met screening criteria and were enrolled in the study. Table 2 provides background and clinical characteristics of the participants, comparing those with UC and CD.

Eighteen (9 UC, 9 CD) of the 21 participants (86%) completed to the 24-week follow-up period. We opted to include three participants with elevated HADS scores that were just below cutoff (i.e., 7). Data were analyzed including and excluding these 3 participants, with no difference in outcomes so results are reported here for all participants. The 18 program completers had a range of experience with the disease, with some having relatively recent diagnosis (n = 4; 1-5 years), 7 having IBD diagnoses for 10-20 years, and 7 for over 20 years.

Participant logins to the program for the 18 completers ranged from 4 to 22 times (M = 10.28, SD = 5.33). At 12 weeks, 16 participants (89%) had accessed at least 7 of the core units of the program, with 10 of them (56%) having accessed all 9 core units. Fourteen participants accessed the program through their computer exclusively, one accessed the program through their mobile device exclusively, and three indicated they used both their computer and mobile devices to access the program.

Modest prompts to enhance engagement in the program were required. Nine participants (50%) received

Table 2: Participant demographics.

	Crohn's Disease (n = 11)	Ulcerative Colitis (n = 10)	Total (n = 21)	t-test or Chi-square
Age, mean (SD)	55.45 (14.42)	46.50 (19.16)	51.19 (17.03)	ns
Age at IBD diagnosis, mean (SD)	36.00 (9.25)	31.44 (15.36)	31.86 (12.54)	ns
Female n (%)	7 (63.6)	6 (60.0)	13 (61.9)	ns
Past surgery for IBD n (%)	8 (72.7)	0	8 (38.0)	$X^2 = 11.748$, p = 0.001
Anxiety disorder dx (MINI) n (%)	4 (36.4)	2 (20.0)	6 (29.0)	ns
Depressive disorder dx (MINI) n (%)	5 (45.5)	4 (40.0)	9 (12.9)	ns
PTSD dx (MINI) n (%)	1 (9.1)	1 (10.1)	2 (9.5)	ns
OCD dx (MINI) n (%)	1 (9.1)	0	1 (4.8)	ns

only one reminder to login to the program (prompts were delivered when at least a week had passed without a login), 3 participants required 2 prompts over the course of the program, and 1 participant required 3. Only 3 participants contacted the research team with questions. Fifty percent of the participants completed the questionnaires without needing any reminders; six participants (33%) received one or two emailed reminders about questionnaire completion, and 3 (17%) required 3 prompts.

Primary outcomes

High levels of anxiety, depression, and stress were reported at baseline. HADS-A scores for 9 participants were suggestive of clinically significant anxiety, with an additional 4 reporting milder anxiety. HADS-D scores for 3 participants were suggestive of clinically significant depression, with an additional 8 reporting milder depression. Compared to baseline, there was a significant reduction in anxiety (HADS-A) and in stress (PSS-4) over time. The HADS-A baseline mean score was 10.28 (SD = 3.79) and 8.13 (SD = 3.34) at the 24-week assessment and the PSS-4 mean was 7.89 at baseline (SD = 2.37) and 6.25 (SD = 1.91) at 24 weeks. There were no statistically significant changes in depression scores (HADS-D). However, inspection of average depression scores over time suggests a trend for a decrease in scores at the 6- and 12-week points, with a subsequent increase at 24 weeks. Mean scores and statistics for the three primary outcome measures are shown in Figure 1.

Participant satisfaction and qualitative feedback

Participant satisfaction on the CSQ-8 ranged from 18 to 28 with a mean of 23.65 reflecting good satisfaction with the online intervention. Over eighty percent of the respondents described the iCBT program as "good" or "excellent" in terms of overall quality, felt that they got the kind of service that they wanted from this program, and that the online program helped them deal more effectively with their problems. While the majority (59%) reported that most of their needs had been met, the remainder indicated that few of their needs had been met.

Feedback regarding the utility and quality of the program was obtained at completion of each module and in the exit interview. In terms of the structure of the program, participants appreciated the convenience and flexibility of the online intervention and noted that the emailed prompts to continue working on the program were helpful. In terms of content, participants enjoyed the practice exercises related to relaxation strategies, personal goals and values, and how to talk about IBD with others. They found the modules focused on psycho education related to the brain-gut connection, anxiety, behavioral activation, and IBD and the workplace, to be particularly helpful. Participants also noted that the program made them consider how serious the disease could get (e.g., information regarding surgery, ostomy bags). Some observed that the program might be most helpful for those recently diagnosed with IBD, as it provides information about what IBD is, which is familiar information for those with a longer disease duration. Themes and participant quotes associated with these themes are summarized in Table 3.

Secondary outcomes

Perceived confidence in managing stress if an increase in IBD symptoms was to occur, as measured by the CGI-I, significantly improved over the course of the intervention from weeks 6 (M = 3.22, SD = 1.00) to 24 (M = 2.69, SD = 0.95) [F (2, 30) = 3.64, p = 0.04]. Baseline scores on the WSAS were in the range suggestive of significant functional impairment but of less severe psychopathology (M = 15.22, SD= 8.79). There were no significant changes across time points. Baseline T-scores on the PROMIS 29 were reflective of functioning in the normal-mild distress range (Anxiety M = 57.96, SD = 7.15; Depression M = 55.62, SD = 7.22; Fatigue M = 59.67, SD = 5.64; Sleep M = 52.15, SD = 8.32; Social M = 44.49, SD = 6.31; Physical function M = 44.54, SD = 7.70; Pain Interference M = 53.28, SD = 9.04; Pain Intensity M = 2.89, SD = 1.97); there were no significant changes across time points on any of the subscales.Clinical symptoms of IBD at baseline, as evaluated by mean scores on the three domains of the IBDSI-SF (Fatigue M = 1.80, SD = 0.74; Abdominal discomfort M = 0.62, SD = 0.33; Bowel symptoms M= 0.71, SD = 0.40) were very similar to those reported by Sexton et al. (2019), with some indication of higher fatigue for the current sample (mean of 1.80 vs. 1.10). There were no changes over time on the IBDSI-SF.

Discussion

The goal of this pilot study was to test the feasibility and preliminary effectiveness of an IBD-tailored iCBT program for depression, anxiety, and stress. An IBD patient advisory group was utilized to guide development and contribute to content

Table 3: Summary of participant feedback on the intervention.

Theme	Related quotes
Content/Accessibility of Program	"I would say the best part about it from my perspective was the pacing of it and the fact that it was an online program because sometimes I have a goofy schedule" "I found that it was very good to have that outlet, and for me to be able to access something like that without having to go out; like I could do it in the privacy of my own environment" "I like that it wasn't just the topics, it was the topics in how they relate to the condition and the uniqueness of the condition"
Impact on stress, mental health, destigmatization	"That type of direction where it was, where people were talking about it, normalizing it, realizing that you can get over it, get back on track, get back to normalcy in your life while you still have the condition is kind of a main factor that people need for hope" "Thought it was very helpful in the way that it explains the info of the message you can use to get your depression/anxiety or whatever you feel under control" "I really liked when it gave you actual tips to take away from it, so when you find yourself in that moment you can practice what it gave you as a tip" "It tends to reduce pain, and reduces stress because you realize that now with the information in the program it is a lot easier to cope" "I found that I could adapt it to the other stressors in my life that I'm dealing with because I have a lot of responsibilities and family commitments"

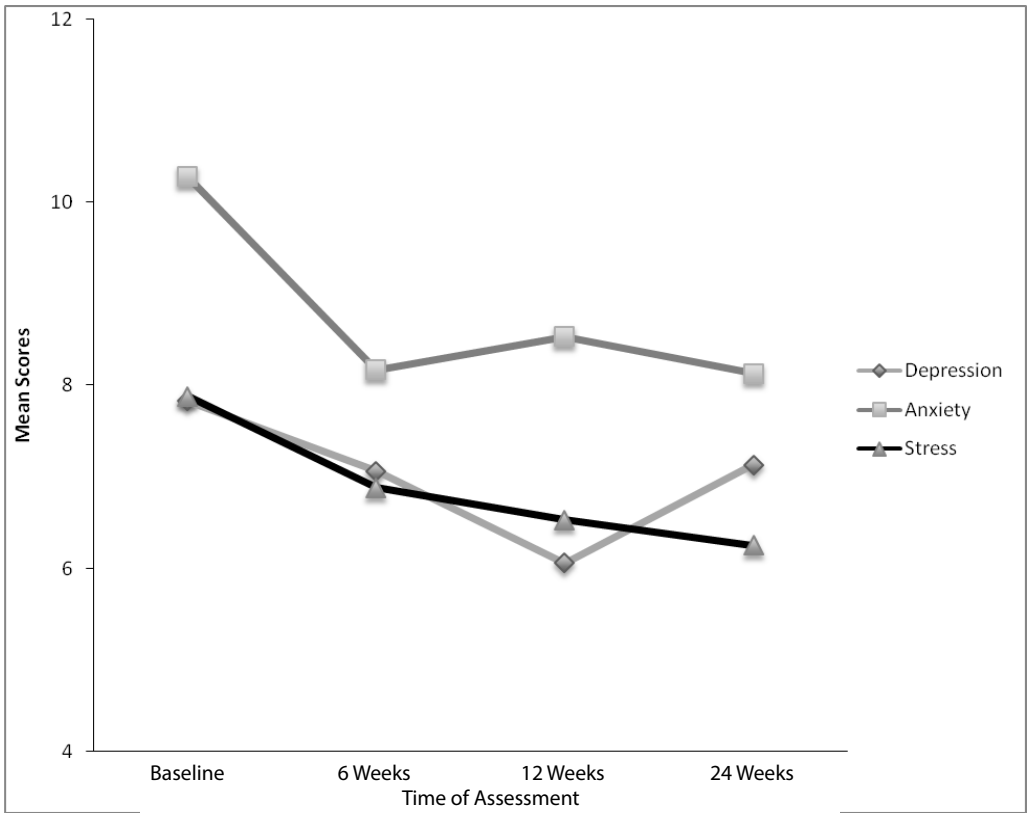

Figure 1: Change in primary outcome measures from baseline to 24 weeks as measured by the HADS and PSS-4. Note: There was a significant reduction in stress (PSS-4) over time [F(3, 45) = 2.7, p = 0.05], with an average decrease of 1.31 points between baseline and 12 weeks (p = 0.04). Decreases comparing baseline, 6 weeks, and 24 weeks were not significant. There was also a significant reduction in anxiety (HADS-A) across time points [F(3, 45) = 4.51, p = 0.008]. Post hoc tests using the Bonferroni correction showed anxiety was reduced by an average of 2.56 points between baseline and 6 weeks (p = 0.02). There were no statistically significant changes in depression scores across time points.

with the goal of maximizing relevance for the target population and enhancing engagement. Participant engagement was strong and consumer satisfaction was positive. The completion rate in this pilot study was very high with 86% of the participants completing the online intervention and continuing on through the 24-week assessment period. This completion rate is significantly higher than, for example, the 26% achieved in McCombie and colleagues [26] in their iCBT intervention with an IBD population. It is important to note that our program had a low attrition rate despite minimal contact, which is uncommon for online CBT interventions [43-45]. The low drop-out rates despite minimal therapist contact

underscores the promise of this iCBT program as a feasible option for mental health treatment with this population. Including a Patient Advisory Committee in the creation of content for the program was beneficial in tailoring the intervention to how IBD persons experience stress, anxiety, and depression.

Satisfaction with the iCBT intervention was generally high as supported by ratings provided on most of the items on the CSQ as well as by the feedback given after completion of each module. This is a positive outcome for an internet-delivered program, especially for one with no additional therapist support. The finding from one item of the CSQ, for which 41% noted that this program only met a few of their needs, may suggest that for some individuals, therapist-supported iCBT or in-person CBT may be important. A stepped-care approach with this population, starting with low-intensity interventions such as the one evaluated here, and then adding interventions involving greater therapist contact for those who report unmet needs, warrants investigation in future research [46].

Effectiveness of this internet-delivered intervention was examined through changes in psychological distress and other aspects of functioning. The iCBT program was associated with a significant decrease in anxiety and stress symptoms. Earlier studies evaluating other iCBT protocols for mental health issues in IBD did not report similar changes [20,26,47]. This difference may relate to the inclusion criteria which required elevated baseline HADS-A scores for our sample compared to these studies Similar to these two studies, we found that our iCBT intervention did not significantly impact depressive symptoms. We may have encountered a floor effect here as more of our sample had relatively mild baseline depression scores (38.9%), with only 17% in the clinically significant range.

Perceived confidence in managing stress in the context of worsening IBD was strengthened for participants over the course of the iCBT intervention. This aligns with the program's focus on improving coping and stress management skills. However, there were no other significant changes in the secondary outcome measures of distress, functional impairment, or IBD symptoms.

This study had some limitations. First, this pilot evaluation did not involve randomization or have a control condition. An RCT with an appropriate control group will provide a clearer understanding of the impact of this iCBT intervention. Second, the sample size in the pilot was small and therefore underpowered, making it more challenging to discern treatment effects. Most of our participants had relatively low baseline depression scores which may have impacted outcome. There was a trend towards decreased depression scores across measurement points which may be clarified with higher baseline scores as well as larger sample size. Another consideration is that only 22% of our sample were within the first 3-5 years of diagnosis with the remaining 78% having longstanding diagnoses (10 years or more). Future research with larger samples may be able to elucidate the impact for more recent versus longstanding diagnoses, potential differential impact for those with UC or CD and responsiveness to CBT for accompanying mental health issues.

Conclusion

The results of this pilot study suggest it is a promising clinical intervention and support further investigation of this online CBT intervention for adults with IBD. Clinically meaningful reductions in anxiety and stress were achieved with this relatively low-resource intensity and accessible intervention. Participant engagement was high, with an excellent completion rate.

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Declaration of Conflicting Interests

The authors declare that there is no conflict of interest.

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