

IMPROVING MENTAL HEALTH SCREENING FOR PATIENTS WITH INFLAMMATORY
BOWEL DISEASE IN A GASTROENTEROLOGY CLINIC: A QUALITY IMPROVEMENT
INITIATIVE

by

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A scholarly project submitted in partial fulfillment
of the requirements for the degree

of

Doctor of Nursing Practice

in

Psychiatric Mental Health Nurse Practitioner

MONTANA STATE UNIVERSITY
Bozeman, Montana

May 2026

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ACKNOWLEDGEMENTS

I would like to express gratitude to my chair, Dr. Tretter, whose continued support, mentorship, and expertise guided every stage of this quality improvement project. Her countless hours of thoughtful feedback and dedication shaped both this work and my growth as a clinician-scholar. My appreciation also extends to Dr. Ruff, who served as my second reader.

I am deeply thankful to the project site and its staff who embody compassion, professionalism, and a genuine dedication to serving patients at the highest degree. This project was made possible because of the collaboration and commitment of everyone involved. I am especially grateful to Tina Radford, Clinic Practice Director, for her exceptional support, guidance, and willingness to advocate for this initiative. Her partnership made all the difference, and this project greatly benefited from her leadership.

Finally, I offer the utmost acknowledgement and gratitude to my mom and my dad, Julie and Adam Benson, whose unwavering love, encouragement, and belief in me have been the foundation of my life and graduate school journey. Their continual support made this achievement possible, and they are my greatest gift.

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ABSTRACT

Background: Depression and anxiety occur at higher rates among individuals with inflammatory bowel disease and are associated with increased disease activity, healthcare utilization, and reduced quality of life. Clinical guidelines recommend routine mental health screening in gastroenterology settings; however, implementation remains inconsistent.

Local Problem: A needs assessment at a western Montana outpatient gastroenterology clinic identified no standardized depression or anxiety screening process. Chart review demonstrated lower documented rates of these conditions than literature reports, suggesting potential under recognition of psychiatric comorbidities.

Methods: This quality improvement project used the Institute for Healthcare Improvement Model and six Plan–Do–Study–Act cycles to implement a mental health screening workflow. Data collected over six weeks included screening completion, documentation adherence, patient education, and primary care referrals.

Interventions: After staff education, a standardized workflow incorporated validated screening tools, including the PHQ-9 and GAD-7, electronic documentation templates, patient education, and communication of positive results to primary care providers.

Results: Among 845 patients offered screening, 749 completed assessments (88%). Screening identified 136 patients with positive results, including 10 with a documented diagnosis of inflammatory bowel disease (five with Crohn’s disease and five with ulcerative colitis). Additionally, 26 patients had no prior documented diagnosis of depression and 21 had no prior documented diagnosis of anxiety. All positive screening results were communicated to patients’ primary care providers, and one new referral to primary care was placed.

Conclusion: Mental health screening in a gastroenterology clinic was feasible and improved identification of previously unrecognized depression and anxiety.

CHAPTER ONE

REVIEW OF THE LITERATURE

Introduction

Inflammatory bowel disease (IBD), including Crohn's disease (CD) and ulcerative colitis (UC), impact between 2.4 and 3.1 million individuals in the United States (Centers for Disease Control and Prevention [CDC], 2024). These chronic autoimmune conditions of the gastrointestinal (GI) tract have no cure and greatly impact patients' quality of life due to distressing physical symptoms of diarrhea, fatigue, bloody stools, bloating, nausea, and abdominal pain (Tan et al., 2024). Beyond physical distress, IBD is associated with an elevated risk of comorbid depression and anxiety. A bidirectional association exists: not only does the risk of developing depression and anxiety increase by 55% and 48%, respectively, in patients with IBD, but patients with depression have a twofold greater risk of developing IBD (Bisgaard et al., 2023). Factors such as functional impairment, negative body image perception, and distressing physical symptoms contribute to this increased risk (Eugenicos & Ferreira, 2021). This presents a significant problem, as mental health comorbidities worsen treatment outcomes: anxiety raises the risk of therapy escalation, hospitalization, and emergency visits, while depression also increases the risk of disease flares and surgical intervention (Fairbrass et al., 2022b). Depression and anxiety screenings are crucial aspects of care to identify mental health comorbidity and direct treatment (Hinnant et al., 2025; Hu et al., 2021a). In a 2022 survey of 1,026 patients with IBD, 36% reported a diagnosis of anxiety, and 35% reported a diagnosis of depression, substantially higher than general U.S. population rates of 19% and 8%, respectively (American

Gastroenterological Association, 2022). These statistics highlight the need for routine mental health screening, as comorbid depression and anxiety can exacerbate disease symptoms and negatively impact health outcomes.

Background and Significance

Pathophysiology

Inflammatory bowel disease occurs in genetically predisposed individuals due to a complex interaction between bacterial antigens and a dysregulated innate immune response, resulting in intestinal mucosa overactivity and the release of pro-inflammatory cytokines (Abdulla & Mohammed, 2022). Defects in intestinal epithelial cells increase permeability of the intestinal barrier to bacterial antigens, while leukocytes, adhesion molecules, and pro-inflammatory cytokines interact to amplify and sustain the inflammatory response (Petagna et al., 2020). Enteric nervous system dysfunction and increased permeability allow cytokines to enter circulation, cross the blood–brain barrier, activate microglia, and deplete serotonin, contributing to depression and anxiety (Craig et al., 2022). Inflammatory cytokines and stress-related hormonal signals may also over activate the hypothalamic–pituitary–adrenal (HPA) axis, contributing to dysregulated stress responses and the development of depression and anxiety symptoms (Lou et al., 2025).

In CD, inflammation impacts the entire thickness of the bowel wall in any part of the intestinal tract, most commonly in the terminal ileum, often leading to fistulae, strictures, and granuloma formation (Petagna et al., 2020). In contrast, UC involves superficial inflammation and ulcerations limited to the mucosal layer of the colon, typically starting in the rectum and

possibly extending into the rest of the large intestine (Walfish et al., 2023). Environmental factors such as smoking, NSAIDs, diet, and psychological stress also play a role in one's predisposition to IBD (Lou et al., 2025). Inflammatory bowel disease can emerge at any age but is commonly diagnosed in individuals aged 15-30 (Kamp et al., 2020).

Impact of Disease Status

Crohn's disease and ulcerative colitis follow an episodic course marked by alternating periods of remission and flare-ups. This fluctuating disease pattern has been linked to mental health symptoms, which can also affect the risk of flare occurrence. In a study of 100 patients with IBD, 60% of patients with active disease screened positive for depression and 40% for anxiety, compared to patients in remission in which 34% screened positive for depression and 21% for anxiety (Karpin et al., 2021). A 2025 systematic review and meta-analysis found that IBD patients with depression had a 1.69-fold higher risk of active disease flare compared to those without depression (Gong et al., 2025). Patients with active disease and mental health symptoms also had higher rates of steroid use, therapy escalation, and mortality than those in remission without psychiatric symptoms (Fairbrass et al., 2022a). These findings illustrate the bidirectional relationship between IBD and mental health, in which active disease contributes to higher rates of depression and anxiety, while psychiatric comorbidity increases the risk of flare-ups and worsens clinical outcomes.

Psychosocial Burden of IBD

Other factors such as stress, social burden, sleep changes, and negative self-image contribute to the increased rates of depression and anxiety seen in patients with IBD. Individuals

with IBD may experience fecal urgency and bowel movements up to 20 times daily, causing difficulty in social situations, relationships, and the workplace (Kemp et al., 2012). Fatigue in IBD ranks as one of patients' greatest concerns and impairs socialization, work productivity, and perceived quality of life (Kemp et al., 2012). Disrupted sleep quality is higher in patients with IBD than in control groups, contributing to psychological distress (Gîlc-Blanariu et al., 2020). Additionally, body image dissatisfaction in IBD contributes to depressive symptoms, lower quality of life, and avoidance of social situations (Saha et al., 2015). Greater body image dissatisfaction is correlated with active disease flares and higher symptom burden, revealing the importance of disease course in mental health and perceived quality of life (Saha et al., 2015).

Financial Implications

Beyond clinical outcomes, mental health comorbidity can result in substantial financial costs for IBD patients and healthcare systems. In a large retrospective longitudinal study, IBD patients with a comorbid mental health diagnosis had roughly double the healthcare costs compared to those with IBD and no mental health comorbidity (\$35,740 compared to \$18,520 annually) (Park et al., 2020). Patients with IBD and a comorbid mental health diagnosis incur higher costs related to ED visits, surgical costs, pharmacy costs, and out of pocket costs than IBD patients without mental health comorbidity (Szigethy et al., 2021). In a prospective study at a hospital based in Australia, implementing mental health screenings and intervention resulted in a net institutional saving of \$58,647 in a two-year period (Lores et al., 2021).

Impact of Mental Health Treatment on IBD Outcomes

Psychotherapeutic interventions positively impact IBD patient health outcomes. In a randomized controlled trial of patients with IBD, the use of Acceptance and Commitment Therapy resulted in a 39% reduction in stress in the treatment group from baseline to 8 weeks, compared with 8% in the control group (Wynne et al., 2019). Several studies revealed that cognitive behavioral therapy (CBT) significantly improved symptoms of depression and anxiety, reduced disease activity, and improved quality of life in patients with IBD (Bennebroek Evertsz' et al., 2017; Hunt et al., 2020; Jordan et al., 2019). Research demonstrates that IBD patients treated with antidepressants see significant reductions in depression and anxiety, increased clinical remission of IBD symptoms, and improved physical and social quality of life (Di Vincenzo et al., 2025; Wang et al., 2023; Weston et al., 2024). These findings indicate that mental health comorbidity is a modifiable risk factor implicating patient quality of life and disease course.

Standards of Care

The American College of Gastroenterology recommends all patients with IBD undergo routine screenings for depression and anxiety at baseline and annually with referrals to a therapist or counselor for those who screen positive (Farraye et al., 2025). A consensus statement from IBD experts including healthcare providers, mental health providers, and IBD patient advocates supports the ACG recommendation (Hinnant et al., 2025). Despite this, few clinics have standardized screening protocols, even though structured screening programs improve depression and anxiety detection rates, facilitate earlier treatment, and improve patient quality of

life (Choi et al., 2023; Hu et al., 2021a). Furthermore, there is no universally accepted or recommended protocol for utilization of specific screening instruments. To address this practice gap, this scoping review will investigate the screening instruments used by clinical centers to assess depression and anxiety in patients with inflammatory bowel disease.

Methods

This review aims to investigate the question, which screening instruments have been used to identify depression and anxiety in patients with IBD, and what have different instruments revealed about mental and physical symptom burden?

Search Strategy

The evidence was reviewed according to the Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA) guidelines (Page, 2021). Inclusion criteria for this review included 1) peer-reviewed, 2) full-text articles written in English, 3) with a publication date between January 2020 and August 2025. Databases accessed and searched through the Montana State University library included: Web of Science; PubMed; and PsycINFO. Search terms included: Anxiety AND depression screen* AND IBD OR “inflammatory bowel disease” OR CD OR Crohn's OR UC OR "ulcerative colitis.”

Study Selection

The search yielded 310 articles from the three databases. After removing 172 duplicate articles, 138 articles were reviewed by title and abstract. Of these articles, 29 were sought for retrieval, and 2 were unavailable. A total of 27 articles from this pool were assessed for

eligibility. Articles were further excluded if they focused on the pediatric population, had a meta-analysis, or review study design. In total, 11 articles met inclusion criteria and relevancy. Citation searches of included studies revealed 10 additional articles, 3 of which were unavailable, with 3 meeting inclusion criteria and relevancy. As seen in Appendix A, a total of 14 studies were selected as eligible for the scoping review.

Results

Overview of Studies

This review consisted of nine cross sectional studies (Askar et al., 2021; Avinir et al., 2022; Azizoglu et al., 2025; Karpin et al., 2021; Lontai et al., 2024; Nazarian et al., 2021; Pal et al., 2024; Seaton et al., 2025; Yu et al., 2023), four prospective cohort studies (Flicek et al., 2022; Jordi et al., 2022; Moon et al., 2020; Sciberras et al., 2022), and one retrospective cohort study (Lores et al., 2023). Two studies were conducted in the United States (Flicek et al., 2022; Karpin et al., 2021), and further studies were conducted in each of the following countries: Egypt, Israel, Turkey, Switzerland, Hungary, Australia, Korea, Canada, India, the UK, and China (Askar et al., 2021; Avinir et al., 2022; Azizoglu et al., 2025; Jordi et al., 2022; Lontai et al., 2024; Lores et al., 2023; Moon et al., 2020; Nazarian et al., 2021; Pal et al., 2024; Sciberras et al., 2022; Seaton et al., 2025; Yu et al., 2023).

Quality Assessment

Study quality and level of evidence were evaluated using the Johns Hopkins Nursing Evidence-Based Practice Model and tools, specifically Appendix E (Bassett et al., 2025). This framework classifies studies into five levels of evidence based on research design. The model

also assigns a quality rating of high, good, or low, reflecting clarity of study purpose, methodological rigor, adequate sample size, valid and reliable instruments, and consistency between results and conclusions.

Thirteen studies in this review were classified as Level III, based on their nonexperimental cross-sectional or observational designs (Askar et al., 2021; Avinir et al., 2022; Azizoglu et al., 2025; Jordi et al., 2022; Karpin et al., 2021; Lontai et al., 2024; Lores et al., 2023; Moon et al., 2020; Nazarian et al., 2021; Pal et al., 2024; Sciberras et al., 2022; Seaton et al., 2025; Yu et al., 2023). One study was classified as Level II, based on its quasi-experimental study design (Flicek et al., 2022).

Five studies received a quality rating of high with adequate sample size, rigorous discussion of instrument validity, and clear results (Jordi et al., 2022; Moon et al., 2020; Sciberras et al., 2022; Seaton et al., 2025; Yu et al., 2023). Five studies received a quality rating of good based on clear methods, data presentation, and valid instruments, but with small sample sizes (Askar et al., 2021; Azizoglu et al., 2025; Karpin et al., 2021; Nazarian et al., 2021; Pal et al., 2024). Four studies received a quality rating of low due to lack of adequate sample size for the study design (Flicek et al., 2022), low participant survey response (Lores et al., 2023), lack of discussion of instrument selection and validity (Lontai et al., 2024), and minimal discussion of methods (Avinir et al., 2022).

Depression Screening in IBD

Three instruments were used to screen for depression. One study used the Hamilton Depression Screening (HAM-D) (Askar et al., 2021), one used the Beck Depression Inventory

(BDI) (Avinir et al., 2022), and four used the Patient Health Questionnaire-9 (PHQ-9) (Flicek et al., 2022; Lontai et al., 2024; Seaton et al., 2025; Yu et al., 2023).

Hamilton Depression Screening (HAM-D) The HAM-D was administered to 105 IBD patients attending an outpatient clinic in Egypt (Askar et al., 2021). The authors selected the HAM-D due to its widespread use in assessing depression, although they noted its lengthy administration time of 30 minutes (Askar et al., 2021). The HAM-D is clinician administered and rated. The original 21-item scale was adapted to the 17-item version (HAM-D17), which excluded four infrequently endorsed items such as depersonalization. In this study, scores of 0–7 were categorized as within normal range or indicative of clinical depression remission, and scores ≥ 20 were indicative of at least moderate depressive severity adequate to suggest major depressive disorder.

Findings demonstrated that 19.1% of participants met criteria for depression alone, while an additional 37.1% presented with both depression and anxiety, resulting in an overall depression prevalence of 56.2%. HAM-D scores ranged from 8-29, with a mean score of 16.4 (Askar et al., 2021). Disease status was measured with the Crohn's Disease Activity Index (CDAI) and Mayo score. A CDAI score <150 indicated remission, 150–219 indicated mild activity, 220–450 indicated moderate activity, and > 450 indicated severe activity. A Mayo score above 1.5 indicated active disease. Of the 23 patients with CD, the mean CDAI score was 238.84, with a range of 159-413. Of the 82 patients with UC, the mean partial Mayo score was 8.4, with a range of 4-12. Therefore, no individuals in this study were in disease remission. No

significant association between depression severity and disease activity was observed (Askar et al., 2021).

Beck Depression Inventory (BDI) The BDI was administered to 79 IBD patients at an outpatient medical center in Israel (Avinir et al., 2022). The authors selected the BDI due to its widespread use as a screening instrument and previous application in IBD populations. It consists of 21 items rated on a 0–3 Likert scale, yielding a total possible score of 0–63. In this study, scores of 10–18 were classified as indicative of mild depression, 19–29 as moderate depression, and 30–60 as severe depression.

The study did not analyze data according to disease status but reported that their sample included 61 patients with CD, of which 24 had active disease based on the Harvey Bradshaw Index to measure active disease, and 18 patients with UC, of which 2 had active disease based on Ulcerative Colitis Activity Index (UCAI) scores. Findings revealed a median BDI score of 7, with 30.4% of participants meeting criteria for mild depression and 8.9% for moderate depression (Avinir et al., 2022).

When compared directly with Hospital Anxiety and Depression Scale (HADS) in the same patient population, depression prevalence was higher on the BDI, potentially due to its incorporation of physical symptoms into the assessment (Avinir et al., 2022). The researchers also noted that the BDI has four levels of depression severity (no depression, mild, moderate, and severe), while the HADS quantified depression in three categories (no depression, possible, and probable) (Avinir et al., 2022). Thirty percent of patients captured with mild depression on the BDI were therefore not represented in the categories of the HADS-D (Avinir et al., 2022).

Patient Health Questionnaire (PHQ-9) The PHQ-9 was utilized in an outpatient study of 364 IBD patients in North Carolina (Flicek et al., 2022), an outpatient study of 117 IBD patients in Hungary (Lontai et al., 2024), a cross-sectional analysis of baseline data collected from a previous randomized controlled trial of 599 outpatient IBD patients in the UK (Seaton et al., 2025), and a multi-site hospital study of 2,478 IBD patients in China (Yu et al., 2023).

The PHQ-9 is a 9-item self-report instrument scored on a 0–3 Likert scale, with a total score range of 0–27. Across studies, score cutoffs were reported as 0–4 indicating no or minimal depression, 5–9 mild depression, 10–14 moderate depression, 15–19 moderately severe depression, and ≥ 20 severe depression (Lontai et al., 2024; Seaton et al., 2025). Two studies characterized scores ≥ 15 as indicative of severe depression (Flicek et al., 2022; Yu et al., 2023). All studies utilized scores ≥ 10 as the cutoff for clinically significant depressive symptoms (Flicek et al., 2022; Lontai et al., 2024; Seaton et al., 2025; Yu et al., 2023).

The PHQ-9 was selected for its brevity and ease of administration, focus on recent symptoms in the past two weeks, and clinically proven reliability (Flicek et al., 2022; Seaton et al., 2025; Yu et al., 2023). Studies reported a sensitivity and specificity of 88% (Yu et al., 2023) and a Cronbach's alpha of 0.87 (Seaton et al., 2025). Across studies, identification of depression varied, with rates of 18%, 22%, 76%, and 17.1%, respectively (Flicek et al., 2022; Lontai et al., 2024; Seaton et al., 2025; Yu et al., 2023). Three studies examined the relationship between disease activity and depression, revealing a positive correlation between active disease flares and elevated PHQ-9 scores (Lontai et al., 2024; Seaton et al., 2025; Yu et al., 2023). Notably, the study reporting the highest depression prevalence of 76% included a sample in which 76.29% of participants reported active disease (Seaton et al., 2025).

Anxiety Screening in IBD

Three instruments screened for anxiety. One study used the Hamilton Anxiety Screening (HAM-A) (Askar et al., 2021), one used the State-Trait Anxiety Inventory (STAI) (Avinir et al., 2022), and three studies used the Generalized Anxiety Disorder 7 (GAD-7) (Flicek et al., 2022; Lontai et al., 2024; Yu et al., 2023).

Hamilton Anxiety Screening (HAM-A) The HAM-A was administered to 105 IBD patients attending an outpatient clinic in Egypt (Askar et al., 2021). The authors selected the HAM-A because it was one of the first standardized rating scales developed to assess anxiety, is widely used across clinical and research settings, and captures both psychological and somatic symptoms of anxiety (Askar et al., 2021). The HAM-A is clinician administered and rated. Results indicated that 37.1% of patients met criteria for anxiety, all of whom also screened positive for depression. As noted in the discussion of the HAM-D, no individuals in this study were in disease remission. No significant association was found between anxiety and disease activity status (Askar et al., 2021).

State Trait Anxiety Inventory (STAI) The STAI was administered to 79 IBD patients at an outpatient medical center in Israel (Avinir et al., 2022). The authors selected the STAI for its ability to measure both current (state) anxiety and general (trait) anxiety as well as being used in previous studies of patients with IBD. The STAI consists of 40 items divided evenly between state and trait subscales, with total scores ranging from 20 to 80. Scores ≥ 40 are indicative of clinically significant anxiety. Results were reported separately for state and trait anxiety. On the state anxiety subscale, 43% of participants met criteria for clinically significant anxiety, with a

median score of 38. On the trait anxiety subscale, 45.6% of participants met criteria for clinically significant anxiety, with a median score of 38 (Avinir et al., 2022).

Generalized Anxiety Disorder (GAD-7) The GAD-7 was used in an outpatient study of 364 IBD patients in North Carolina (Flicek et al., 2022), an outpatient study of 117 IBD patients in Hungary (Lontai et al., 2024), and a multi-site hospital study of 2,478 IBD patients in China (Yu et al., 2023). The GAD-7 is a 7-item self-report instrument scored on a 0-3 Likert scale, with a total score range of 0-21. Score cutoffs were reported as 0–4 indicating minimal or no anxiety, 5–9 mild anxiety, 10–14 moderate anxiety, and ≥ 15 severe anxiety, with scores ≥ 10 indicating clinically significant anxiety symptoms (Flicek et al., 2022; Lontai et al., 2024; Yu et al., 2023). The GAD-7 was selected for its brevity and ease of administration, focus on recent symptoms in the past two weeks, and clinically proven reliability (Flicek et al., 2022; Yu et al., 2023). A sensitivity of 89% and specificity of 82% were reported (Yu et al., 2023). Anxiety prevalence across studies was reported at 18%, 15%, and 16.1%, respectively (Flicek et al., 2022; Lontai et al., 2024; Yu et al., 2023). Two studies analyzed disease status and found anxiety positively correlated with active disease flare (Lontai et al., 2024; Yu et al., 2023).

Combined Depression and Anxiety Screening in IBD

Four instruments screened for both depression and anxiety. Seven studies utilized the Hospital Anxiety and Depression Scale (HADS) (Avinir et al., 2022; Azizoglu et al., 2025; Jordi et al., 2022; Moon et al., 2020; Nazarian et al., 2021; Pal et al., 2024; Sciberras et al., 2022), one study used the Computerized Adaptive Testing-Mental Health screener (CAT-MH) (Karpin et al.,

2021), one study used the Kessler Psychological Distress Scale (K10) (Lores et al., 2023), and one study used the Depression, Anxiety, and Stress Scale (DASS-21) (Lores et al., 2023).

Hospital Anxiety and Depression Scale (HADS) The HADS was used in an outpatient study of 79 IBD patients in Israel (Avinir et al., 2022), an outpatient study of 94 IBD patients and 74 controls in Turkey (Azizoglu et al., 2025), a database study of 1,973 IBD patients in Switzerland (Jordi et al., 2022), a multi-center hospital study of 355 IBD patients within the first four weeks of UC diagnosis in Korea (Moon et al., 2020), an outpatient study of 94 patients with inactive IBD in Canada (Nazarian et al., 2021), an outpatient study of 202 IBD patients in India (Pal et al., 2024), and a multicenter study of 505 IBD patients across Europe and Israel (Sciberras et al., 2022).

The HADS consists of 14 items scored on a Likert scale from 0 to 3, divided equally between the depression and anxiety subscales (HADS-D and HADS-A), with total scores ranging from 0–21 for each subscale. One study used only the HADS-D subscale (Jordi et al., 2022). Scoring thresholds varied slightly across studies. Studies reported score cutoffs of 0–7 normal, 8–10 mild symptoms/possible case, 11–14 moderate symptoms/probable case, and ≥ 15 severe symptoms/probable case (Avinir et al., 2022; Jordi et al., 2022; Moon et al., 2020; Pal et al., 2024). One study reported score values of ≥ 10 for anxiety symptoms and ≥ 7 for depressive symptoms as clinically significant (Azizoglu et al., 2025), and three studies utilized a cutoff of ≥ 8 for clinically significant depression and anxiety (Nazarian et al., 2021; Pal et al., 2024; Sciberras et al., 2022).

The HADS was selected for its validated use in medically ill populations, excluding somatic items that may influence results in patients with chronic disease (Azizoglu et al., 2025; Jordi et al., 2022; Sciberras et al., 2022). One study specifically evaluated the HADS for suitability in IBD populations by comparing it with the BDI and STAI, emphasizing that the HADS intentionally omits physical symptoms such as appetite change and fatigue to reduce false positives among medically ill patients (Avinir et al., 2022). To increase sensitivity and specificity of the HADS within the IBD patient population, the study recommended reducing cutoff scores on the HADS-D to ≥ 7 and scores on the HADS-A to ≥ 11 to indicate prevalence of depression and anxiety, respectively (Avinir et al., 2022). Internal consistency for the HADS was demonstrated by Cronbach's alpha values of 0.88 for the anxiety subscale and 0.73 for the depression subscale (Avinir et al., 2022). However, one study questioned whether the HADS specifically measures depression and anxiety, suggesting it may instead capture broader emotional distress (Jordi et al., 2022). Prevalence of depression across studies was reported between 5.4%–46.8%, while prevalence of anxiety ranged from 17.4%–50.6% (Avinir et al., 2022; Azizoglu et al., 2025; Moon et al., 2020; Nazarian et al., 2021; Pal et al., 2024; Sciberras et al., 2022).

Disease status played a role in prevalence, with notably low depression prevalence of 5.4% in a study specifically recruiting patients with inactive IBD (Nazarian et al., 2021). Active disease positively correlated with higher scores on the HADS (Azizoglu et al., 2025; Jordi et al., 2022; Pal et al., 2024). Bidirectionally, depression contributed to higher risk of developing active disease and was a risk factor for fistula, surgery, nonresponse to therapy, and steroid therapy (Jordi et al., 2022). One study found no interaction between disease status and mental health

comorbidity (Moon et al., 2020). The patients included in this study were in the first four weeks of a new UC diagnosis, with 28.2% having severe disease based on endoscopy results, potentially influencing this finding (Moon et al., 2020).

Computerized Adaptive Testing-Mental Health (CAT-MH) The CAT-MH was administered to 134 IBD patients at an outpatient clinic in Chicago (Karpin et al., 2021). The CAT-MH is an adaptive computerized test with 389 items for depression and 437 items for anxiety. Unlike traditional screening instruments that determine severity based on the unweighted sum of individual items, the CAT-MH determines impairment according to the most severe symptom endorsed. The CAT-MH contains a suicide risk assessment based on the Columbia Suicide Severity Rating Score (CSSRS), as well as tests for depression (CAT-DI and CAD-MDD) and anxiety (CAT-ANX) (Karpin et al., 2021). Severity is measured with scores from 0-100. For both depression and anxiety, scores of 0-34 are considered normal, scores of 35-65 indicate mild symptoms, scores of 66-75 indicate moderate symptoms, and scores 76-100 indicate severe symptoms. The study utilized the CAT-MH for its ability to reduce testing time from an hour to less than a minute by using the patient's previous response to select the next most relevant question, with a test sensitivity of 0.95 and a specificity of 0.87 (Karpin et al., 2021). The median screening time was 3 minutes and 32 seconds. Depression was identified in 25.3% of patients, and anxiety was identified in 13.4% of patients, and 1.5% of patients were positive for suicidal ideation (Karpin et al., 2021).

Kessler Psychological Distress Scale (K10) The K10 was utilized in a sample of 1,327 IBD patients across multiple outpatient hospital sites in Australia (Lores et al., 2023). The

authors selected the K10 for its brevity, reliability, and validity. The K10 is a 10-item measure of nonspecific distress, including physical and mental items relating to tiredness, hopelessness, restlessness, depression, and nervousness. Of the sample, 34% of individuals scored in the moderate or severe ranges of psychological distress (Lores et al., 2023).

Depression, Anxiety, and Stress Scale (DASS-21) The same study in Australia also implemented the DASS-21, a 21-item scale that incorporates subscales relating to depression, anxiety, and stress (Lores et al., 2023). This tool was also selected for its brevity, reliability, and validity. Of the sample, 31% of individuals scored in the moderate or higher ranges of the depression subscale, 29% on the anxiety subscale, and 23% on the stress subscale (Lores et al., 2023).

Additional Findings from Screening Studies

One study reported that in patients with a positive screen, 55.9% had no previous diagnosis of depression and 55.5% had no previous diagnosis of anxiety (Karpin et al., 2021). These statistics reveal a significant burden of undiagnosed mental health in patients with IBD. In another study, patients were asked about their previous mental health encounters: only 50% of patients who qualified as severely anxious and 33.3% of patients who qualified as severely depressed had ever received mental health support (Lontai et al., 2024).

Clinical Pathways in Response to Screening

All 14 studies highlighted the importance of mental health screening in patients with IBD. Several studies highlighted the importance of referral to mental health providers (Askar et al., 2021; Avinir et al., 2022; Lontai et al., 2024) and collaboration between gastroenterologists

and psychiatrists (Askar et al., 2021; Flicek et al., 2022; Lores et al., 2023; Moon et al., 2020; Pal et al., 2024; Sciberras et al., 2022; Seaton et al., 2025; Yu et al., 2023). One study advocated for the incorporation of an IBD specific psychologist in GI clinic settings (Karpin et al., 2021).

Discussion

This scoping review highlights the variety of instruments used to screen for depression and anxiety in patients with IBD and the differing symptom burden they present. Depression was screened using the HAM-D, BDI, and PHQ-9, while anxiety was measured using the HAM-A, STAI, and GAD-7. Combined instruments such as HADS, CAT-MH, K10, and DASS-21 assessed both conditions simultaneously. Across studies, rates of depression ranged from 5.4% to 76%, and rates of anxiety ranged from 13.4% to 50.6%. Variability may have been influenced by disease activity, study setting, geographic location, and differences in instrument selection and cutoff scores. For example, studies using HADS applied cutoffs ranging from ≥ 7 to ≥ 11 .

Prevalence of depression and anxiety were generally higher among patients with active disease. These findings align with the biopsychosocial understanding of IBD, where inflammation-related physiological changes may exacerbate depressive and anxious symptoms, and psychiatric distress may, in turn, negatively impact disease course. Notably, the presence of depression in patients with IBD was associated with clinically significant adverse outcomes, including increased risk of fistula, surgery, nonresponse to therapy, and systemic steroid use (Jordi et al., 2022).

Authors selected tools for a variety of reasons such as their brevity, ease of administration, and established validity. The PHQ-9 and GAD-7 were chosen for their concise

formats and strong sensitivity and specificity. Studies utilizing the HAM-A, HAM-D, and HADS emphasized their historical use and capacity to assess both psychological and somatic symptoms. The HAM-A and HAM-D were the only instruments included in this scoping review that are clinician administered and rated, requiring a structured interview by a qualified or licensed provider. The HADS specifically excludes physical symptoms of fatigue and appetite changes to reduce false positives in patients with high physical symptom burden. Online instruments such as the CAT-MH allowed individualized adaptive screening in a short period of time with high diagnostic accuracy. Tools such as the K10 and DASS-21 captured depression, anxiety, and stress simultaneously.

The evidence also highlights a substantial proportion of undiagnosed and untreated psychiatric comorbidity. More than half of patients who screened positive for depression or anxiety had no prior mental health diagnosis (Karpin et al., 2021), and a significant subset had never received mental health treatment despite severe symptoms (Lontai et al., 2024). These findings illustrate a critical gap in clinical practice and emphasize the role of screening as a gateway to timely referral, diagnosis, and intervention. The ACG posits that many individuals view their gastroenterologist as their primary care provider, reflecting the importance of implementing routine screenings as is often part of routine primary care (Farraye et al., 2025). Integrating mental health assessments into routine IBD care not only identifies psychiatric comorbidities but facilitates targeted interventions to improve mental health and physical symptom management.

This review has several limitations. Only one study provided a comparison between tools (Avinir et al., 2022), therefore variations in study populations and methods could obscure

differences in results based on tool selection. Sample sizes between studies varied widely, with one study having an inadequate sample size due to participant attrition after COVID (Flicek et al., 2022). Only two studies were completed in the United States, which may limit the generalizability of results with differing healthcare systems. Study populations with different cultural, socioeconomic, demographic, and health factors likely influenced both mental health symptom reporting and access to treatment, further limiting generalizability.

Conclusion

Literature supports a variety of screening methods to assess depression and anxiety in the IBD patient population. Mental health comorbidities not only exacerbate subjective symptom burden but also influence objective disease outcomes, healthcare utilization, and functional status. Screening for depression and anxiety in patients with IBD is the first step in modifying this risk factor and improving quality of life, physical, and emotional wellbeing for patients. This scoping review was conducted to investigate the screening instruments used to identify depression and anxiety in patients with IBD and the symptom burden they reveal. Screening tools such as the HAM-D, BDI, PHQ-9, HAM-A, STAI, GAD-7, HADS, CAT-MH, K10, and DASS-21 not only identify psychiatric comorbidity but also correlate with physical and functional outcomes, making them valuable for clinical risk stratification in patients with IBD. Factors to consider when selecting a tool include time of administration, length of screening instrument, clinician versus patient administration, IBD symptom severity at the time of screening, sensitivity and specificity of the instrument, content and relevance of screening

questions, and appropriate score ranges to categorize symptom severity. Caregivers should select the tool that will provide the best fit with site resources and population characteristics.

CHAPTER TWO

QUALITY IMPROVEMENT PROPOSAL

Introduction

Screening for depression and anxiety in patients with inflammatory bowel disease (IBD) facilitates timely mental health treatment, improving IBD disease course, disease severity, and patient quality of life (Hu et al., 2021a). Individuals with IBD have a two- to fourfold greater risk of depression and a three- to fivefold greater risk of anxiety than the general population (Hu et al., 2021a). In the United States, over one-third of those with IBD report a diagnosis of depression and anxiety (AGA, 2023). The relationship is bidirectional: mental health comorbidities worsen physical health outcomes, while IBD increases vulnerability to depression and anxiety (Bisgaard et al., 2023). These comorbidities are associated with increased frequency of active disease flares (Jordi et al., 2022; Lontai et al., 2024; Pal et al., 2024), increased risk of surgery, nonresponse to treatment (Jordi et al., 2022), poorer sleep (Pal et al., 2024), reduced quality of life (Moon et al., 2020; Nazarian et al., 2021; Pal et al., 2024; Yu et al., 2023), and increased financial costs to patients and healthcare systems (Park et al., 2020; Szigethy et al., 2021). Individuals with IBD also face higher risk of social isolation and loneliness from disabling physical symptoms, contributing to poorer psychological wellbeing (Yildirim et al., 2025). In a UK survey of 10,000 IBD patients, 60% were not asked about their mental health, despite depression rates reaching 75.6% in active IBD versus 48.2% in other chronic conditions, and anxiety rates reaching 40.7% versus 28.4%, respectively (Gomez et al., 2023). Similarly, an

Australian study found over 50% of patients reported mental health distress, yet only 16.1% were asked about their mental health at GI visits (Mikocka-Walus et al., 2019).

Although no data specifically describe IBD prevalence or its mental health impact in Montana, the state ranks 42nd nationally for frequent mental distress, with depression rates among adults rising 22% from 2012 to 2023 (United Health Foundation, 2025). In Montana, 234,000 individuals are diagnosed with a mental illness and over 770,000 individuals are living in areas lacking adequate mental health providers (SAMHSA, 2022). As many IBD patients view their gastroenterologist as their primary provider, integrating mental health screening into GI visits is essential (Farraye et al., 2025). The American College of Gastroenterology recommends baseline and annual depression and anxiety screening for all patients with IBD to enhance mental health detection, treatment, and overall patient outcomes (Farraye et al., 2025).

Problem Statement

Evidence supports routine screening for depression and anxiety in patients with Crohn's disease and ulcerative colitis; however, such protocols are not often implemented in gastroenterology practice. At a Western Montana outpatient GI clinic, no formal screening protocol exists. This gap limits early identification and treatment of mental health comorbidities, which may lead to poorer outcomes. An opportunity exists to create an evidence-based protocol for depression and anxiety screening, mental health referral, and patient education to improve rates of mental health identification and treatment in adults with IBD. This DNP Project aims to develop, implement, and evaluate a standardized process for depression and anxiety screening consistent with the ACG guidelines.

Specific Aims

This quality improvement project aims to increase depression and anxiety screening among adult patients with IBD. Over the 6-week implementation period, goals include higher PHQ-9 and GAD-7 completion rates, improved referral, and education delivery. Long-term objectives superseding the 6-week implementation timeline include successful treatment of comorbid mental health conditions, leading to improved quality of life and a reduction in IBD disease flares, overall symptom burden, and financial costs.

The initial goals of this project are by January 5th, 2026, 100% of medical assistants and GI providers will receive and review project material regarding: the problem within the site and project aim, the QI initiative, copies of the PHQ-9 and the GAD-7, scoring ranges that define mild/moderate/severe depression or anxiety, documentation instructions within the EHR, the patient educational handout, and the clinical decision-making pathway for screening and documentation. The end goals of this project are by the end of February, 2026, 100% of patients will complete PHQ-9 and GAD-7 screenings, 100% of patients will have the accurate note documented in their chart which will be sent to their primary care provider (PCP), 100% of patients with positive screenings will receive a referral to a PCP if they do not have one established, and 100% of patients will receive the patient educational handout. See Table 1 for detailed Specific, Measurable, Achievable, Relevant, Time-bound, Inclusive, and Equitable (SMARTIE) Goals.

Organizational and Microsystem Assessment

The QI project will take place at an outpatient gastroenterology clinic in Western Montana that manages conditions such as gastroesophageal reflux disease, celiac disease, eosinophilic esophagitis, dysphagia, irritable bowel syndrome, diseases of the liver and pancreas, Crohn's disease, ulcerative colitis, and others. The clinic staff includes seven gastroenterologists, seven advanced practice providers (two NPs and five PAs), seven medical assistants, seven schedulers, two receptionists, and a Clinic Practice Director. The clinic has 13 exam rooms, where 1-2 physicians and 2-4 APPs each see an average of 10-12 patients daily. New patient visits are 60 minutes, and follow-up visits are 30 minutes.

The practice served 5,309 patients in 2024, including 738 patients with IBD, specifically 364 with Crohn's and 374 with ulcerative colitis. Patients averaged 1–2 visits annually, and those with IBD averaged 2–3. At baseline, the clinic does not screen patients for depression or anxiety. Existing mental health diagnoses in the gGastro charting system originate from primary care or patient reported history from intake paperwork.

A random sample of charts was reviewed including 50 patients with IBD seen between January 1 and September 1, 2025, which showed 8% of patients with anxiety only, 6% with depression only, and 12% with both. These rates fall well below reported prevalence ranges of 36–40% for anxiety and 35–75% for depression in IBD populations (American Gastroenterological Association, 2022; Gomez et al., 2023; Mikocka-Walus et al., 2019), suggesting under identification in this clinic. Routine screening practices are likely to identify a

higher prevalence of depression and anxiety in this population, promoting patient education, referral, and improved health outcomes.

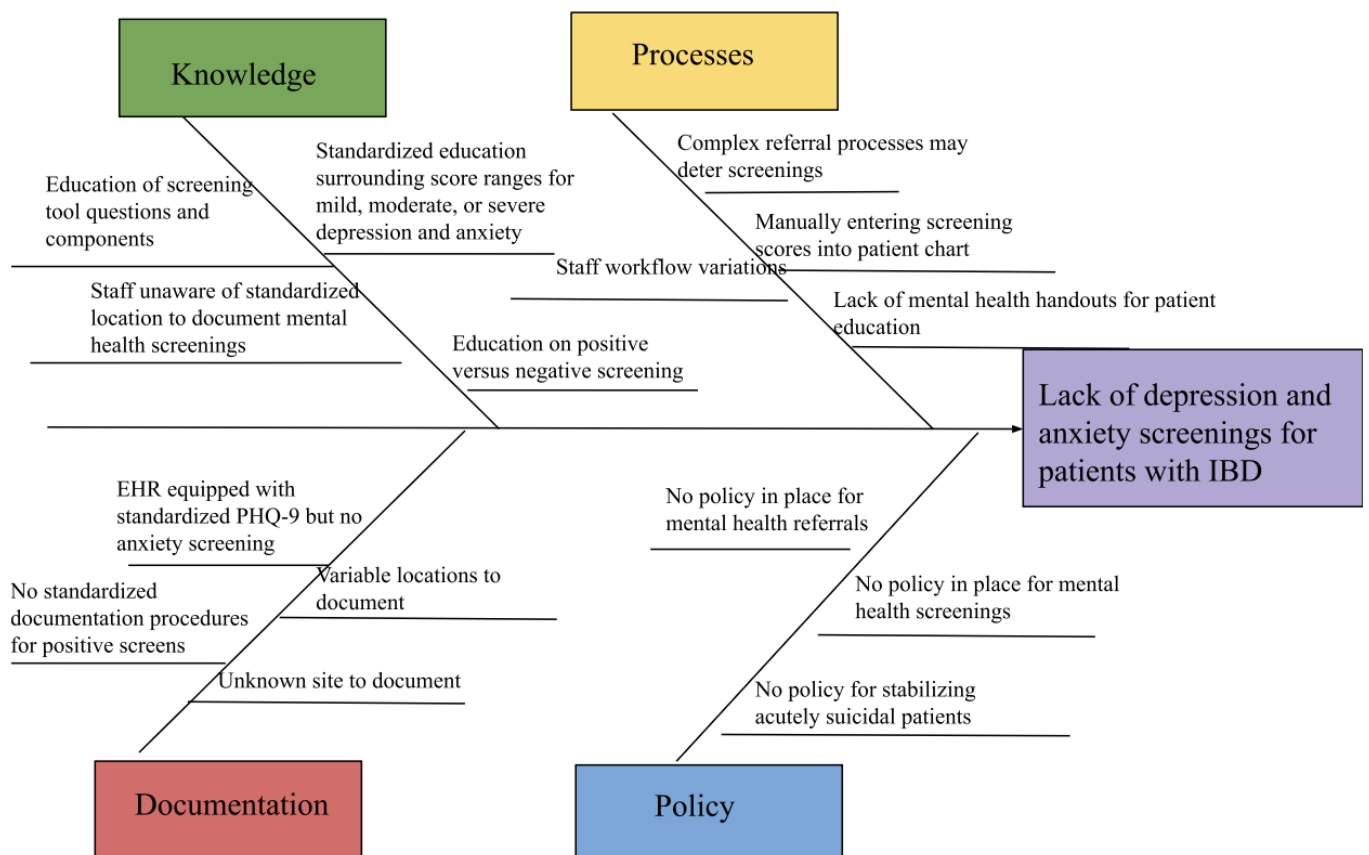
From January 1 to September 1, 2025, the clinic recorded 6,707 follow-up and 2,231 new patient appointments. Of these, 22.1% were IBD-related visits with 775 coded for ulcerative colitis and 1,200 for Crohn's disease. The actual rate may be higher, as 1,569 patients presented with nonspecific GI symptoms possibly indicating undiagnosed IBD: 470 with diarrhea unspecified, 394 with unspecified abdominal pain, 331 with epigastric pain, 193 with generalized abdominal pain, 139 with change in bowel habit, and 42 with lower abdominal pain. Universal screening captures these patients and supports consistent process adherence through simple, efficient workflows (Reed et al., 2025).

Screening interventions pose risks and benefits to patients. Risks include the potential for higher upfront costs and unnecessary testing, as well as false negatives that can delay diagnosis and treatment (Iragorri & Spackman, 2018). Benefits include early identification of conditions and improved health outcomes, while also decreasing the financial burden by treating diseases before they progress (Iragorri & Spackman, 2018). Current recommendations from the ACG and IBD experts suggest that the benefits of depression and anxiety screening outweigh the risks, enhancing detection, treatment, and overall health outcomes (Farraye et al., 2025; Hinnant et al., 2025).

Figure 1 presents a fishbone diagram outlining factors contributing to insufficient depression and anxiety screening in IBD patients. Several existing resources support project success at the site. Staff previously implemented a similar screening workflow and have clear role accountability—MAs calculate scores, alert providers to positives, and document results.

The EHR includes a section for attaching patient education handouts. With the intake and screening workflows already streamlined, this process can be implemented without altering staff roles or expectations. While screening integration is straightforward, documentation presents challenges. The gGastro system includes a built-in PHQ-9 but no GAD-7 tool. Unlike the PHQ-9, which provides automatic severity ranges (“mild,” “moderate,” “severe”), the GAD-7 lacks this feature. Therefore, staff education on score interpretation and positive-screen thresholds is required.

Figure 1: Fishbone Diagram



This quality improvement project aims to improve depression and anxiety screenings through (a) staff education, (b) implementation of a standardized process utilizing the process flowchart, (c) and consistent documentation in the EHR, ultimately leading to (d) appropriate patient referrals, (e) and increased patient education. The project was developed using the Institute for Healthcare Improvement (IHI's) Model for Improvement, utilizing the Plan, Do, Study, Act (PDSA) method. This framework offers approaches to identify system-level problems, utilize evidence-based strategies to best address them, collect data on outcomes measures, analyze the effectiveness of the process, and make modifications for a new cycle.

The "Plan" phase involves pre-implementation preparation, including identifying the problem as an opportunity for improvement within the clinic and developing potential change strategies based on an analysis of current workflows. The "Do" phase involves implementing specific changes while simultaneously collecting relevant data. During the "Study" phase, the effectiveness of the project will be evaluated by measuring predefined outcomes. Finally, the "Act" phase focuses on determining necessary adjustments and planning subsequent cycles based on the results of the previous PDSA cycle. Three two-week PDSA cycles will guide the improvement process, as illustrated in Figure 2.

Methods

Implementation Summary

This quality improvement project will be implemented in an outpatient gastroenterology clinic in Western Montana. The project addresses the gap in routine screening for depression and anxiety among adult patients with IBD. The intervention consists of five primary components:

staff education, implementation of a standardized process utilizing the process flowchart, consistent documentation in the EHR, appropriate patient referrals, and provision of a patient educational handout. The purpose of this project is to implement and evaluate a standardized process for administering the Patient Health Questionnaire-9 (PHQ-9) and Generalized Anxiety Disorder-7 (GAD-7), documenting results in the electronic health record, and providing follow-up interventions in accordance with the American College of Gastroenterology (ACG) guidelines (Farraye et al., 2025). Follow-up interventions include referral to a PCP if the patient screens positive and does not have one, as well as provision of an educational handout with information on depression and anxiety. If a patient has a PCP, their visit note including depression and anxiety screening scores will be forwarded to their existing provider. The implementation process will occur over a six-week period starting in early January 2026 and ending in February 2026. The implementation process will follow the Plan-Do-Study-Act (PDSA) model of quality improvement. Before implementation, the Montana State Institutional Review Board (IRB) will provide approval of the quality improvement project. Consent from patients will not be sought, because patient risks are not expected to be greater than standard of care. Throughout all phases of preparation, implementation, and data analysis, all patient protected health information (PHI) will be kept confidential through deidentification of data.

Intervention and Implementation

The implementation team will include the DNP student, 7 MAs, 14 practice providers, and the Clinic Practice Director. The PDSA steps of this quality improvement project are outlined in Figure 2. The pre-implementation phase of the project began in September 2025. A

scoping literature review was completed to compile current relevant data pertaining to the topic. From this scoping literature review, a variety of depression and anxiety screening instruments were identified and analyzed based on practice site, population, reported reliability and validity, and time of administration. The PHQ-9 and GAD-7 instruments were selected for use in this project due to their ease of administration, proven validity, and accessibility in the IBD patient population. The PHQ-9 has a sensitivity and specificity of 88% (Yu et al., 2023), while the GAD-7 has a sensitivity of 89% and specificity of 82% (Yu et al., 2023). A systematic review and meta-analysis of depression rating scales asserted that the PHQ-9 is potentially the best screening to utilize specifically in primary care settings due to its ease of administration, brevity, reliability, and ease of scoring (Miller et al., 2021). The GAD-7 has also been found to be efficient and reliable in primary care settings (Sapra et al., 2020). Studies in the scoping literature review informed this QI project's scoring of the instruments: A score cutoff of ≥ 10 indicates clinically significant depression symptoms on the PHQ-9 (Flicek et al., 2022; Lontai et al., 2024; Seaton et al., 2025; Yu et al., 2023), and a score ≥ 10 indicates clinically significant anxiety symptoms on the GAD-7 (Flicek et al., 2022; Lontai et al., 2024; Yu et al., 2023). Therefore, any patients scoring ≥ 10 on the PHQ-9 or GAD-7 will be considered a positive screening. These screening tools can be self-administered by patients and scored by a trained individual.

An organizational microsystem assessment was completed to view the current workflow at the clinic, as well as staff roles and responsibilities. Meetings with project stakeholders helped identify the project goals, outcome measures, and data collection process. The project budget was determined, with the only cost expected to be printed copies of the PHQ-9, GAD-7, and educational handouts. With the cost of each printed piece of paper estimated at \$0.05, and an

estimated 40 patients seen in the clinic daily, the cost of screening for 6 weeks would be \$60. To provide a printed patient educational handout to 100% of these patients, an additional \$60 of material would be expected. Cost savings to the institution include 270 hours of work provided by the DNP student, at a conservative nursing hourly rate of \$35/hour, totaling \$9,450. The pre-implementation phase also included the development of a patient educational resource by the DNP student to be used in the project implementation, an educational email for all clinic MAs and GI providers, and a clinical decision-making pathway for screening and documentation, see Figure 3.

At check-in, the receptionist will provide the PHQ-9 and GAD-7 to the patient, label the completed forms, scan them into the chart, place them in a folder, and page the MA. The MA will retrieve the folder, room the patient, and score the results of the PHQ-9 and GAD-7 in the exam room. The PHQ-9 is imbedded in the software of gGastro, allowing the MA to translate each 0-3 Likert scale item from the patient's physical screening to the EHR. The software automatically tallies the score of the PHQ-9. As the GAD-7 is not imbedded in the gGastro software, the MA will manually tally the score and document it under the psychiatric review of systems box. This note is forwarded to the patient's current PCP or used for referral to establish care with a PCP.

After check-in, the MA will inform the physician that the patient is ready and report any positive PHQ-9 or GAD-7 results. For positive screens, the MA will have a standing order to enter the pre-written note, stating: "You screened positive for depression/anxiety. Please follow up with your primary care provider or mental health provider. If you have thoughts of self-harm or suicide, call 911, go to the closest emergency room, or dial the Crisis Lifeline at 988." This

order appears if the MA clicks into the “notes” field of the visit and selects it from a pre-written list on the righthand side of their screen. If the patient screens positive and lacks a PCP, the provider will verbally place a referral order to the MA. During the 6-week implementation period, a standing order will exist for all patients to receive the educational handout regardless of screening score, to streamline and simplify the workflow process in accordance with improvement science. The MA will select the pre-uploaded mental health education in the “plan” section, which automatically prints with discharge paperwork and uploads to the patient’s electronic portal.

The Clinic Practice Director will collect screening forms daily and record the number of appointments, number of completed screenings, and positive results in an Excel log. Forms will be stored in a locked drawer. At the end of every 2-week cycle, the DNP student will collect screening forms to complete a random audit of 50 charts. Screenings will be shuffled, and every fifth patient chart will be reviewed for appropriate documentation and provision of the educational handout. All positive screenings will be reviewed for referral to a PCP if applicable. Screening forms will stay on-site, in a securely locked drawer, and will be destroyed via secure shredding at the end of each 2-week PDSA cycle.

The six-week implementation will include three two-week PDSA cycles. In each cycle, there will be a “Plan,” “Do,” “Study,” and “Act” phase. The “Plan” phase will involve identifying the progress toward the project’s specific aims, aligned with the SMARTIE goals outlined in Table 1. Building on insights from the previous cycle, the DNP student will collaborate with stakeholders to design targeted changes, specifying who will perform each task,

what actions will be taken, when they will occur, and where the interventions will be implemented to improve screening rates, patient referrals, and provision of educational handouts.

In the “Do” phase, the screening and referral process will be implemented in accordance with the ACG guidelines (Farraye et al., 2025). All patients will receive a two-sided educational handout developed by the DNP student (see Appendix C). The front side of the handout compiles information from the Crohn’s and Colitis Foundation regarding depression and anxiety symptoms, while the back side provides information on available mental health treatments and a QR code for Psychology Today, a resource to find a therapist.

Data collection, representing the “Study” phase, will occur concurrently to assess rates of screening completion, appropriate documentation, patient referrals, and education. The DNP student will meet every 2 weeks with the Clinic Practice Director and QI team members to evaluate the effectiveness of interventions and address barriers encountered during the cycle. In the “Act” phase, revisions will be made as needed to optimize the subsequent two-week PDSA cycle.

After 6 weeks of testing, an in-depth data analysis and evaluation of outcome measures will help determine the project’s sustainability. The project timeline is illustrated in Figure 4.

Figure 2: PDSA Cycle

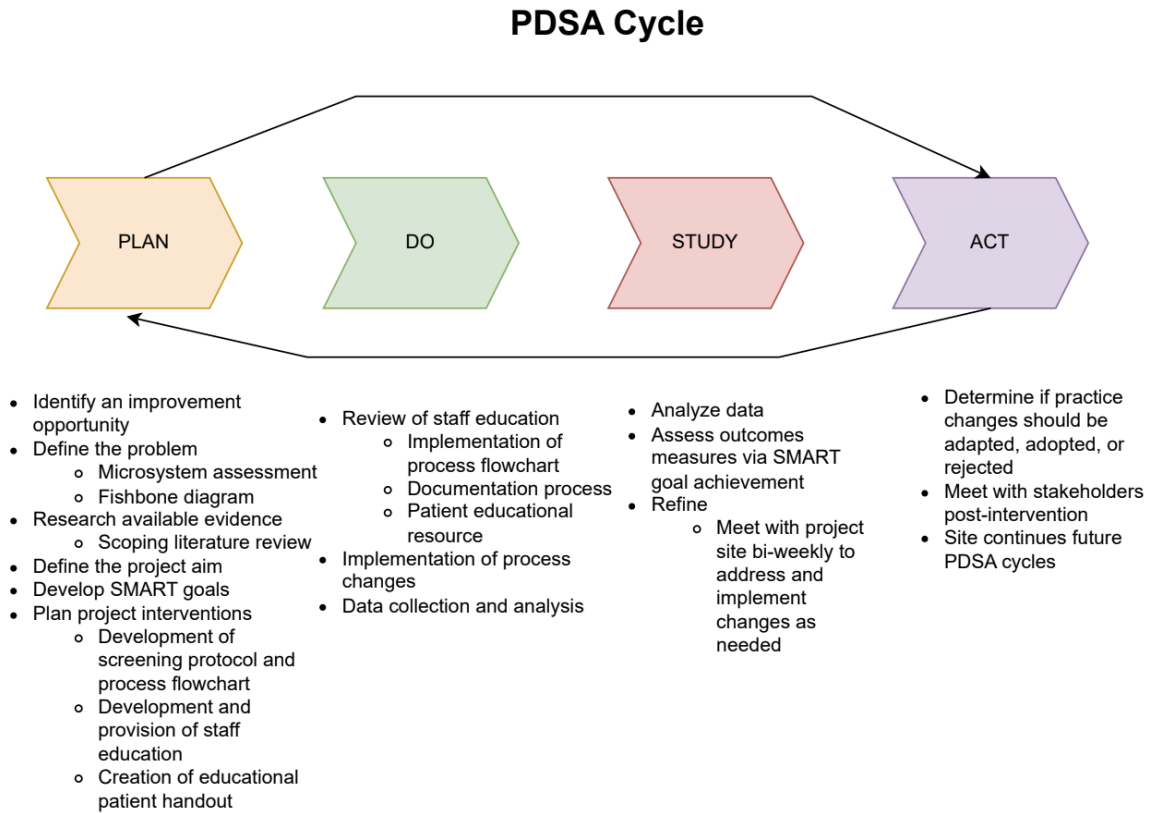


Figure 3: Clinical Decision-Making Pathway

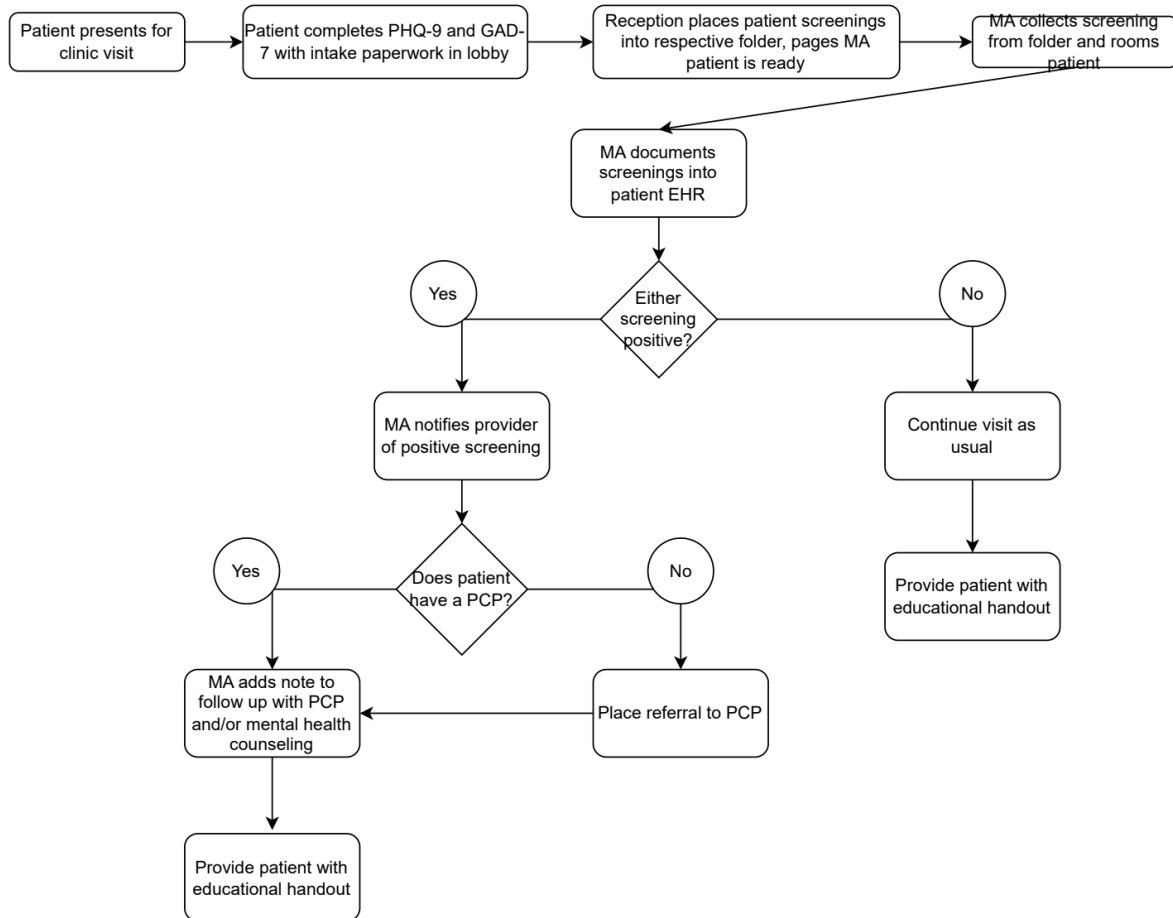
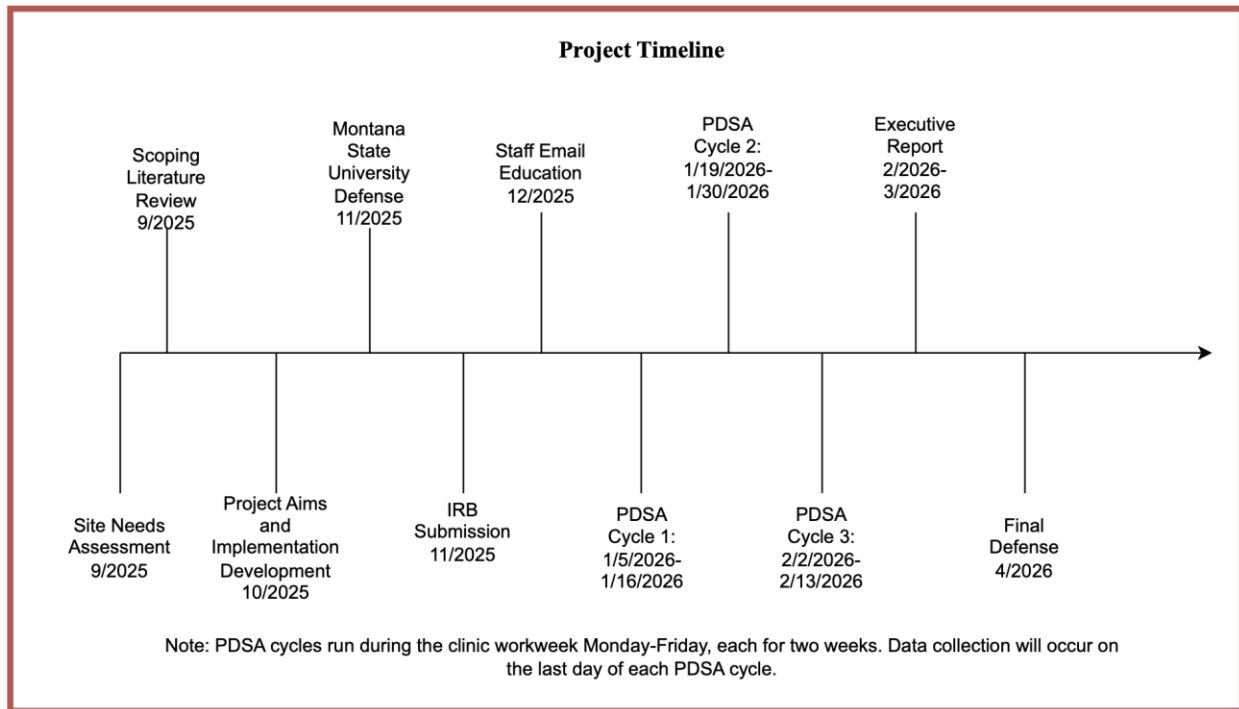


Figure 4: Project Timeline



Evaluation and Analysis

Evaluation and analysis will occur through process and outcome measures, seen in Table 1. Process measures include: the percentage of MAs and GI providers confirming receipt and review of project training materials, the percentage of patients with the appropriate documentation in their chart, and the percentage of patients who received the educational handout. Outcome measures include: the percentage of patients completing both PHQ-9 and GAD-7 screenings at each visit, the percentage of patients with positive screenings and no PCP who received a referral, and the percentage of IBD patients with a positive screening and no previous depression or anxiety diagnosis in their chart.

Data collection will occur throughout the project implementation. Prior to the project start date, the process measure of percentage of MAs and GI providers confirming receipt and review of project training materials will be collected. To collect data about screening rates, the Clinic Practice Director will update an Excel spreadsheet daily from screening forms turned into her office. To collect data about referral rates and educational handout provision rates, the DNP student will conduct chart audits at the end of each 2-week PDSA cycle of IBD patients who visited the clinic. Documentation of screenings, educational handouts, and referrals will be verified through chart notes. Descriptive statistics will be used to display data in bar graph form. Graphs will display data representing all patients and IBD patients in two different colors, allowing evaluation of the overall QI process and specific IBD patients.

Table 1: SMARTIE Goals

SMARTIE Goal #1: By January 5th, 2025, 100% of medical assistants and GI providers will receive and review project material regarding: 1. The problem within the site and project aims 2. The QI initiative 3. Copies of the PHQ-9, GAD-7, and scoring ranges for mild/moderate/severe 4. Documentation instructions within the EHR 5. The patient educational handout 6. The clinical decision-making pathway for screening and documentation		
Description of strategies to be utilized to accomplish goal including any needed resources: The DNP student in collaboration with stakeholder input from MAs and GI providers: • Developed the patient educational handout, see Appendix C. • Developed the clinical decision-making pathway, see Figure 3.		
Data to be collected:	Method of collection and who is responsible:	Planned data analysis:
Percentage of MAs and GI providers who reviewed email (Numerator: # of MAs and GI providers who opened email and verified email receipt; Denominator: # of total MAs and GI providers).	The DNP student will collect verification of receipt from MAs and GI providers via email.	Data will be analyzed via descriptive statistics of the percentage of staff who verified receipt of educational email.

Table 1 Continued

SMARTIE Goal #2: By the end of February 2026, 100% of patients will complete the PHQ-9 and GAD-7 screenings.		
Description of strategies to be utilized to accomplish goal including any needed resources: • New screening protocol designed in collaboration with clinic staff and using guidelines from the American College of Gastroenterology. • Address barriers in screening, documentation, and collaboration with clinic staff and providers.		
Data to be collected:	Method of collection and who is responsible:	Planned data analysis:
Percentage of patients completing the PHQ-9 and GAD-7 at their clinic visit (Numerator: # of patients screened with PHQ-9 and GAD-7; Denominator = # of patients seen).	-MAs will turn in the physical PHQ-9 and GAD-7 screenings at the end of each day to the Clinic Practice Director. -Clinic Practice Director will tally screening completions and non-completions in an Excel sheet daily, as well as total number of patients seen. -Data collection from Excel spreadsheet will occur at the end of every 2-week PDSA cycle by the DNP student.	Data will be analyzed via descriptive statistics showing the percentage of patients completing screenings.

Table 1 Continued

SMARTIE Goal #3: By the end of February 2026, 100% of patients screened will have the accurate note documented in their chart.		
Description of strategies to be utilized to accomplish goal including any needed resources: • Worked in collaboration with MAs and GI providers to create a standardized chart note for positive screenings. • Address barriers in documentation with clinic staff and providers.		
Data to be collected:	Method of collection and who is responsible:	Planned data analysis:
Percentage of patients with appropriate chart documentation (Numerator: # of patients with appropriate chart documentation; Denominator = total # of patients audited: 50)	-DNP student will collect this data from EHR, selecting a random sample of 50 charts by systematically auditing every fifth screening. Screenings will be shuffled prior to sampling. -Data collection will occur at the end of every 2-week PDSA cycle.	Data will be analyzed via descriptive statistics showing the percentage of patients with appropriate chart documentation.

Table 1 Continued

SMARTIE Goal #4: By the end of February 2026, 100% of patients with positive screenings will receive a referral to a PCP if they do not have one established.		
Description of strategies to be utilized to accomplish goal including any needed resources: The DNP student in collaboration with stakeholder input from MAs and GI providers: Developed the clinical decision-making pathway, see Figure 3.		
Data to be collected:	Method of collection and who is responsible:	Planned data analysis:
Percentage of patients who received a referral (Numerator: # of individuals who screen positive with no PCP who received a referral; Denominator: # of individuals who screen positive with no PCP)	-DNP student audits all positive screens every 2 weeks. -Positive screens will be audited by DNP student to see if the patient has a historical diagnosis of depression or anxiety listed in their chart. -Providers/MAs document referral placed.	Data will be analyzed via descriptive statistics showing the percentage of patients eligible for a referral who received a referral.

Table 1 Continued

SMARTIE Goal #5: By the end of February 2026, 100% of patients will receive the patient educational handout.		
Description of strategies to be utilized to accomplish goal including any needed resources: The DNP student in collaboration with stakeholder input from MAs and GI providers: • Developed the patient educational handout, see Appendix C. • Developed the clinical decision-making pathway, see Figure 3.		
Data to be collected:	Method of collection and who is responsible:	Planned data analysis:
Percentage of patients who received an educational handout (Numerator: # of individuals who receive a handout; Denominator: total # of charts audited: 50)	-DNP student will collect this data from EHR, selecting a random sample of 50 charts by systematically auditing every fifth chart. -Providers/MAs document educational handout ordered/given.	Data will be analyzed via descriptive statistics showing the percentage of patients who received a handout.

Safety and Confidentiality

Patient safety and confidentiality are vital elements in health care systems to ensure high quality care and trust with patients. In this quality improvement project, all clinic HIPAA and confidentiality standards will be upheld. Participant risks will be no greater than standard of care. Patient records will only be accessed on-site and will not leave the clinical site. The DNP student and Clinic Practice Director will collect de-identified data on whether the PHQ-9 and GAD-7 were administered, number of positive screenings, and number of referrals and educational handouts provided. During project implementation, patient screenings will be kept in a locked drawer in the Clinic Practice Director's office and reviewed by the DNP student every 2 weeks. Screenings will never leave the clinic site and will be destroyed at the end of the 6-week implementation period through disposal into locked and secure shredding bins at the facility. Only objective numerical values, no protected health information, will be recorded. Data will be tracked in an Excel spreadsheet and updated every 2 weeks, located on the DNP student's protected One Drive through Montana State University, and backed up on Google Drive. Only the DNP student will have access to the spreadsheets.

Conclusion

This quality improvement project addresses the gap in routine depression and anxiety screenings among adult patients with inflammatory bowel disease in a Western Montana outpatient gastroenterology clinic. Through collaboration between the DNP student, medical assistants, gastroenterology providers, and the Clinic Practice Director, this project introduces a structured intervention consisting of staff education, implementation of the PHQ-9 and GAD-7

screenings, consistent EHR documentation, and provision of patient education and referrals. The six-week implementation timeline, beginning in January 2026, will follow the Plan-Do-Study-Act (PDSA) model. Data will be collected through chart audits every 2 weeks and tracked using descriptive statistics to evaluate process and outcome measure goals. The project aims to enhance early detection, referral, and management of mental health comorbidities to improve outcomes for patients with IBD.

CHAPTER THREE

QUALITY IMPROVEMENT MANUSCRIPT

Contribution of Authors and Co-Authors

Manuscript in Chapter 3

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Contributions: Identification of the practice problem, scoping literature review, intervention, implementation, data collection, and analysis

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Journal of the American Association of Nurse Practitioners

Status of Manuscript:

☒ Prepared for submission to a peer-reviewed journal

☐ Officially submitted to a peer-reviewed journal

☐ Accepted by a peer-reviewed journal

☐ Published in a peer-reviewed journal

Clinical Problem

Inflammatory bowel disease (IBD), including Crohn's disease (CD) and ulcerative colitis (UC), is associated with substantial physical and psychological burden. Individuals with IBD have a 55% increased risk of depression and 48% increased risk of anxiety compared to the general population (Bisgaard et al., 2023). Psychiatric comorbidity is linked to higher rates of disease flares, therapy escalation, hospitalization, surgery, emergency department use, and increased healthcare costs (Fairbrass et al., 2022b; Szigethy et al., 2021). Depression has been associated with a 1.69-fold increased risk of disease flare (Gong et al., 2025), and active disease is characterized by markedly higher rates of psychological distress, with 60% of patients screening positive for depression and 40% for anxiety compared to 34% and 21%, respectively, among patients in remission (Karpin et al., 2021). Collectively, these findings suggest that untreated depression and anxiety may perpetuate a cycle of increased disease activity and healthcare utilization, reinforcing the need for routine mental health screening in gastroenterology settings.

In Montana, over 234,000 individuals are diagnosed with mental illness, and depression rates have increased 22% since 2012 (SAMHSA, 2022; United Health Foundation, 2025). The American College of Gastroenterology recommends baseline and annual depression and anxiety screening for patients with IBD, with referral for positive screens (Farraye et al., 2025). Evidence supports antidepressant pharmacotherapy and psychotherapy in reducing psychiatric symptoms and improving quality of life in IBD populations (Wang et al., 2025; Weston et al., 2024).

Depression and anxiety are modifiable risk factors that significantly influence disease course and quality of life, making early identification and treatment essential components of comprehensive IBD care. However, despite clear guideline recommendations and evidence of benefit, mental health screening remains inconsistently implemented in gastroenterology settings. In a UK survey of more than 10,000 patients, 60% reported never being asked about their mental health, and an Australian study found that only 16.1% of patients were screened despite over half endorsing psychological distress (Gomez et al., 2023; Mikocka-Walus et al., 2019). These findings highlight a persistent gap between evidence-based recommendations and practice. Consistent with this pattern, a needs assessment at a western Montana gastroenterology clinic identified no standardized baseline screening for depression or anxiety among patients with IBD. To address this gap, the clinic engaged a Doctor of Nursing Practice (DNP) student to lead a quality improvement initiative focused on implementing systematic mental health screening within routine care.

Review of the Literature

A scoping review was conducted to identify validated screening instruments for depression and anxiety in patients with IBD and to examine how psychological symptom burden has been measured across studies. Depression was assessed using the Hamilton Depression Rating Scale (HAM-D), Beck Depression Inventory (BDI), and Patient Health Questionnaire-9 (PHQ-9); anxiety was measured with the Hamilton Anxiety Rating Scale (HAM-A), State-Trait Anxiety Inventory (STAI), and Generalized Anxiety Disorder-7 (GAD-7). Combined measures included the Hospital Anxiety and Depression Scale (HADS), Computerized Adaptive Test–

Mental Health (CAT-MH), Kessler Psychological Distress Scale (K10), and Depression Anxiety Stress Scales–21 (DASS-21).

Instruments varied in design, administration, symptom focus, and suitability for medically ill populations. Clinician-administered tools (HAM-D, HAM-A) offered structured assessments but required more time and resources, limiting feasibility in routine IBD care. Self-report measures (PHQ-9, GAD-7) were brief, easily administered, and suitable for outpatient and hospital settings. Tools differed in their inclusion of somatic symptoms, which is particularly relevant in IBD populations where fatigue, appetite change, and sleep disturbance may reflect disease activity rather than psychiatric pathology. The BDI and HAM scales include physical symptoms, potentially inflating prevalence, whereas the HADS excludes somatic items. In one study comparing the BDI and HADS, 30% of patients classified with mild depression on the BDI were not captured by the HADS-D, likely due to somatic symptom inclusion and differences in severity categorization (Avinir et al., 2022). The CAT-MH reduced testing burden using computerized symptom weighting and adaptive questioning. Screening outcomes varied across studies based on instrument choice, cutoff thresholds, study setting, and disease activity, with generally higher depression and anxiety prevalence in active disease.

Selection of screening tools depends on administration time, number of items, mode of delivery, IBD symptom severity, psychometric performance, and content relevance. Based on feasibility, validity, and established use in IBD populations, the PHQ-9 and GAD-7 were selected for this project. Both are brief, self-administered measures completed in under five minutes, facilitating integration into outpatient workflow. The PHQ-9 demonstrates strong internal consistency (Cronbach's $\alpha = 0.87$) and diagnostic accuracy for major depressive disorder

(sensitivity 88%, specificity 88% at ≥ 10) (Seaton et al., 2025; Yu et al., 2023). The GAD-7 has excellent reliability ($\alpha = 0.92$) and diagnostic accuracy for generalized anxiety disorder (sensitivity 89%, specificity 82% at ≥ 10) (Spitzer et al., 2006; Yu et al., 2023). Both instruments have been widely applied in IBD populations across diverse international settings, supporting their validity and generalizability in gastroenterology care.

Purpose

The purpose of this quality improvement project was to enhance depression and anxiety screening, referral, and patient education among individuals with IBD in a western Montana gastroenterology clinic, consistent with ACG guidelines. The intervention was comprised of five components: staff education, implementation of a standardized screening process using validated tools, consistent EHR documentation, appropriate patient referrals, and provision of a patient educational handout. The project aimed to pilot a sustainable mental health screening and referral process to support early identification and treatment of comorbid psychiatric conditions, improve health outcomes, and enhance quality of life.

Conceptual Framework

This project was guided by the Institute for Healthcare Improvement (IHI) Model, structured around three questions: What are we trying to accomplish? How will we know a change is an improvement? What changes can we make that will result in improvement? (IHI, n.d.). The model supports improvement through problem identification, testing workflow modifications, measuring outcomes, and assessing intervention effectiveness via iterative Plan–Do–Study–Act (PDSA) cycles.

What are we Trying to Accomplish? The DNP student served as project lead and principal investigator (PI). A needs assessment, including chart review and workflow observation, revealed that the clinic lacked standardized depression and anxiety screening for patients with IBD. Existing mental health diagnoses were derived from primary care records or patient self-report rather than systematic assessment within the gastroenterology clinic. Review of 50 random patient charts from January–September 2025 found 8% had anxiety only, 6% depression only, and 12% both, well below reported prevalence of 36–40% for anxiety and 35–75% for depression in IBD populations (American Gastroenterological Association, 2022; Gomez et al., 2023; Mikocka-Walus et al., 2019), indicating possible under-identification. The project aimed to improve detection and treatment initiation of depression and anxiety through standardized screening, education, documentation, and referral processes.

A quality improvement team was formed to ensure representation across operational, clinical, and administrative domains (IHI, n.d.). Members included the Clinic Practice Director, who provided organizational authority and daily oversight; seven gastroenterologists and seven advanced practice providers, who contributed clinical expertise; and seven medical assistants (MAs), who offered workflow insight and facilitated daily operational processes including patient intake, communication with providers, documentation, and referrals.

How Will We Know That a Change is an Improvement? Process, outcome, and balancing measures were used to track progress toward project goals (IHI, n.d.). Process measures assessed staff preparedness and adherence, including the percentage of MAs and GI providers confirming review of training materials and patients with accurate documentation. Outcome measures

included completion of PHQ-9 and GAD-7 screenings, referrals for patients with positive screens and no PCP, delivery of educational handouts, and identification of previously undiagnosed depression or anxiety in those with IBD. Balancing measures monitored workflow feasibility, staff burden, and unintended consequences. Weekly data collection over six one-week PDSA cycles allowed iterative refinement of workflow and continuous assessment of project goals.

What Changes Can We Make That Will Result in Improvement? Cause-and-effect analysis identified barriers to timely identification and treatment, including lack of standardized screening, documentation, patient education, and referral. Proposed changes were informed by a scoping literature review, national IBD and mental health guidelines, and input from the QI team. To address these barriers, the project introduced several changes designed to integrate mental health assessment into routine clinic workflows. Screening forms for depression and anxiety were added to patient packets distributed at check-in. Medical assistants were trained to score and document screening results. Pre-written notes and standing orders were implemented to standardize documentation, with these templates linked to automated delivery of an educational handout through the patient portal. All patients with positive screening results had findings communicated to their primary care provider, and those without an established provider received a referral.

Implementation occurred over six one-week Plan–Do–Study–Act cycles. During each cycle, data were collected on screening completion, documentation accuracy, patient education delivery, and referrals to primary care. Results from each “study” phase were reviewed with the

quality improvement team to evaluate which changes improved workflow and patient outcomes. Adjustments were made iteratively, and after the six-week implementation period, a final review allowed the clinic to assess the feasibility and sustainability of the implemented changes and determine whether to adopt, modify, or discontinue specific workflow elements.

Methods

Context

The project was conducted in an outpatient gastroenterology clinic in western Montana, managing conditions such as gastroesophageal reflux disease, celiac disease, eosinophilic esophagitis, dysphagia, irritable bowel syndrome, liver and pancreatic diseases, Crohn's disease, and ulcerative colitis. Stakeholders included seven gastroenterologists, seven advanced practice providers (two NPs and five PAs), seven medical assistants, seven schedulers, two receptionists, and a Clinic Practice Director. In 2024, the clinic served 5,309 patients, including 738 with IBD (364 with Crohn's and 374 with ulcerative colitis). The clinic maintained a standardized, efficient workflow for patient handoff and care coordination between MAs and physicians, with clear role accountability, facilitating the implementation of mental health screening.

Intervention

Pre-implementation began with in-person staff education, followed three weeks later by an email summarizing project information. Materials included the site-specific problem and project aim, the project plan and timeline, PHQ-9 and GAD-7 forms with scoring ranges, EHR documentation instructions, the patient educational handout, and the clinical decision-making pathway. The PI developed the handout using content from the Crohn's and Colitis Foundation

(n.d.) on DSM-5 depression and anxiety symptoms and the University of Wisconsin–Madison Integrative Health Program (n.d.) on mental health treatment options, including Cognitive Behavioral Therapy, Acceptance and Commitment Therapy, autogenic training, breathing exercises, meditation, and progressive muscle relaxation (Appendix C).

During implementation, the screening workflow was as follows: the receptionist provided the PHQ-9 and GAD-7 to the patient, labeled and scanned completed forms, placed them in a folder, and paged the MA. The MA roomed the patient, scored and documented the results in the EHR, and entered the appropriate “Depression Health Counseling” and/or “Anxiety Health Counseling” note, which triggered the dot phrase: “You screened positive for depression/anxiety. Please follow up with your primary care provider or mental health provider. If you have thoughts of self-harm or suicide, call 911, go to the closest emergency room, or dial the Crisis Lifeline at 988.” Once selected, the note was incorporated into the visit documentation and automatically generated in the after-visit summary, which was provided to the patient at checkout and uploaded to the patient’s electronic portal, along with the linked patient educational handout. All notes were forwarded to the patient’s established PCP or used for referral if the patient did not have a PCP. In the latter case, the physician placed a verbal referral order to the MA, who entered the referral into the EHR from the clinic’s network and included screening results. The receiving PCP office then contacted the patient to schedule care.

Measures

Five goals were measured: (1) 100% of medical assistants (MAs) and GI providers would receive and review the educational email; (2) 100% of patients would complete PHQ-9 and

GAD-7 screenings; (3) 100% of patients would have the accurate note documented in their chart and sent to their primary care provider (PCP); (4) 100% of patients with positive screenings (scores ≥ 10) would receive a referral to a PCP if none was established; and (5) 100% of patients would receive the patient educational handout. These measures assessed implementation adherence across key workflow steps, including staff preparedness, patient screening completion, accurate documentation, appropriate referral, and delivery of patient education, collectively evaluating the feasibility, consistency, and sustainability of integrating standardized mental health screening into routine IBD care.

Analysis

Given the project's short duration and patient volume, implementation was organized into six one-week PDSA cycles. Prior to project initiation, staff receipt and review of training materials were confirmed via email responses. Throughout implementation, the PI conducted weekly chart audits to collect rates of screening, documentation accuracy, referral, and delivery of the educational handout. Screening completion rates were calculated for each one-week PDSA cycle by dividing the number of patients completing PHQ-9 and GAD-7 screenings, obtained from physical forms, by total patients seen per appointment records. Correct documentation, determined by insertion of the "Depression Health Counseling" and/or "Anxiety Health Counseling" note, and handout provision were audited for all positive screenings and 30 randomly selected negative screenings per cycle using systematic sampling (every fifth form). All positive screenings (scores ≥ 10) were reviewed for appropriate PCP referral. Historical mental health diagnoses for patients with IBD were determined by chart review. Balancing

measures, including workflow barriers, staff burden, and feasibility concerns, were assessed via verbal feedback at the end of each PDSA cycle and ongoing email communication. Themes were summarized to assess whether perceived feasibility improved, remained stable, or declined over time. Quantitative and qualitative findings were discussed with the Clinic Practice Director and relevant stakeholders after each cycle to guide iterative workflow adaptations.

Ethical Considerations

Prior to implementation, the Montana State University IRB reviewed and approved the project as a quality improvement initiative, not “Human Subject Research” (Application #2434). This project aligned with routine depression and anxiety screening recommendations from the American College of Gastroenterology based on evidence of high IBD comorbidity and potential impacts on disease outcomes (Farraye et al., 2025). All clinic and HIPAA safety and confidentiality standards were upheld throughout the entirety of the project. Signed consent from patients was not sought, because patient risks were not expected to be greater than standard of care, and patients could elect to decline the screening. Throughout all phases of preparation, implementation, and data analysis, all patient protected health information (PHI) was kept confidential through deidentification of data.

Results

Evolution of the Intervention and Testing Phases

During the first two weeks of testing, a small number of patients declined screening, prompting revision of Goal #2 from 100% to 90% completion to balance patient autonomy with high screening uptake. In week 1, educational handouts were not distributed due to incorrect

linkage within the EHR. Beginning in week 2, handouts were provided only to patients with positive screens, as education was more relevant to this group, and were automatically uploaded to the patient portal through linkage with the “Depression Health Counseling” and “Anxiety Health Counseling” notes.

Data collection procedures were refined during PDSA Cycle 1. Initially, only patients with IBD who screened positive were going to be assessed for a historical mental health diagnosis. However, in week 1, only one patient with a positive screen had a documented IBD diagnosis, limiting the utility of only assessing patients with IBD. The process was revised so that all patients with positive screens (scores ≥ 10), instead of only those with an IBD diagnosis, were audited for a prior history of depression and anxiety. This adjustment ensured that newly identified cases of depression and anxiety across the broader clinic population were accurately captured. Because handouts were limited to positive screens, Goal #5 audits were restricted to this group. Documentation accuracy (Goal #3) among patients with negative screens was assessed through weekly random audits of 30 charts.

In week 5, the PI observed a marked increase in patient screening declinations. Reception staff reported that some patients expressed frustration when completing the forms and subsequently modified the process by informing patients they could write “decline” if they preferred not to participate. In week 6, following team discussion, staff were permitted to continue this approach and request patient-provided reasons for declining to facilitate feedback collection.

Process and Outcome Measures

Pre-implementation, 77% of staff confirmed receipt of educational outreach (7/8 MAs, 6/7 of APPs, and 4/7 of physicians). Although Goal #1 of 100% email verification was not met, all staff participated in in-person training. During the six-week implementation period, 845 patients attended appointments, including 77 with IBD. All patients were offered screening, and 749 completed both the PHQ-9 and GAD-7, yielding an overall completion rate of 88%, slightly below the 90% target. Weekly rates met target (90–96%) during weeks 1–4 and declined to 69% and 89% in weeks 5 and 6 following reception workflow changes, which included offering patients the option to decline screening (Figure 5).

A total of 136 patients screened positive on at least one instrument: 45 on the PHQ-9 only, 19 on the GAD-7 only, and 72 on both instruments. Among these, 10 patients had a documented diagnosis of IBD, including five with Crohn's disease and five with ulcerative colitis. Screening identified 26 cases of depression and 21 cases of anxiety without prior documented diagnoses. After accounting for overlap between these groups, 36 unique patients were identified with previously undocumented depression or anxiety. Among patients with inflammatory bowel disease, two had no prior history of depression and three had no prior history of anxiety.

Documentation using the designated health counseling notes averaged 74% across the implementation period, with rates reaching 100% in week 5, and declining to 74% in week 6. Incomplete documentation reflected omission of the pre-written counseling phrase, including crisis resources (911, 988, emergency guidance), although screening scores were recorded. After correction of the week 1 EHR issue, educational handout distribution paralleled counseling

documentation rates. All visit notes were routinely forwarded to primary care providers, ensuring communication of positive screening results regardless of counseling documentation completion. Among 180 audited charts of patients with negative screens, 100% demonstrated accurate documentation. Only one patient with a positive screen lacked an established primary care provider and received a referral, meeting Goal #4. Weekly documentation and education metrics are presented in Figure 6, and qualitative feedback regarding workflow, barriers, and screening declination is summarized in Appendix D.

Figure 5: Completed Screenings

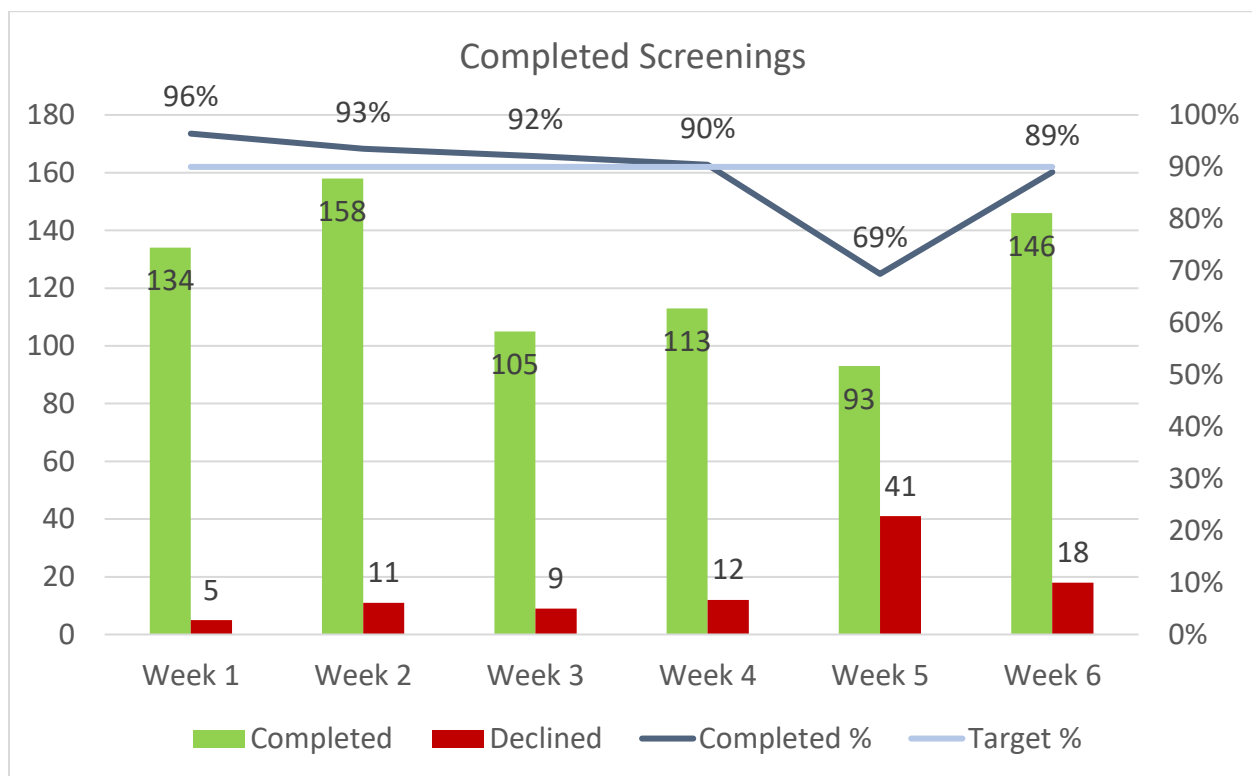
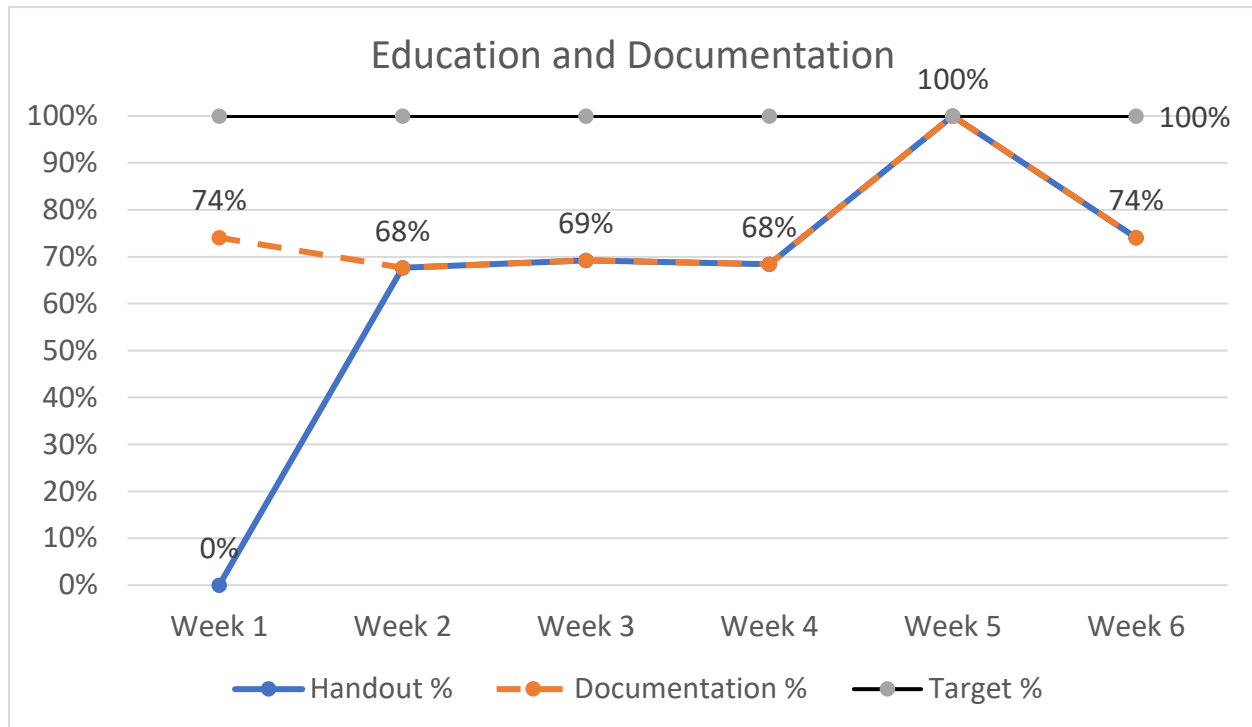


Figure 6: Education and Documentation



Contextual Elements and Unintended Consequences

Several contextual factors influenced implementation and contributed to counseling documentation and education delivery falling below targets. Early staff unfamiliarity with EHR workflows limited consistent use of the designated counseling notes, particularly during week 1. Although automatic linkage of notes to patient portal handouts improved alignment in subsequent weeks, documentation still relied on manual insertion of the counseling phrase. In a busy clinical environment, this reliance on staff to insert the note during each encounter introduced opportunities for human error, contributing to variability in documentation rates, including the decline from 100% in week 5 to 74% in week 6. Increased screening declinations

following introduction of an explicit “decline” option in weeks 5 and 6 further contributed to variability.

A notable benefit of the intervention was increased staff awareness of mental health comorbidity among gastroenterology patients, with informal feedback indicating greater confidence in initiating mental health discussions. Some patients expressed frustration when screening was perceived as irrelevant; offering an opt-out option addressed this concern. No safety issues or additional costs were identified. Missing data were limited to screening declinations and early documentation gaps, both of which informed iterative workflow refinement through weekly audits.

Discussion

This quality improvement project successfully implemented standardized depression and anxiety screening in a gastroenterology clinic, achieving an overall completion rate of 88%. In contrast to the pre-implementation chart review, which showed no documented use of standardized tools, the intervention aligned with recommendations from the American College of Gastroenterology to routinely screen patients with IBD for mental health comorbidities and refer those who screened positive (Farraye et al., 2025). Similar initiatives in IBD clinics demonstrated an increase in PHQ-2 screening rates from 18% at baseline to 88% post-implementation using a medical assistant-driven protocol (Sanfratello et al., 2022), and improved identification of depression from 20% based on documented history alone to 35% with systematic PHQ-9 screening (Nagirimadugu et al., 2021). Retrospective studies further support these findings, demonstrating that structured screening can identify clinically significant

depression and anxiety as well as previously unrecognized mental health symptoms in patients with inflammatory bowel disease (Byrne et al., 2017; Choi et al., 2023). Collectively, these results reinforce that systematic mental health screening in gastroenterology care can uncover clinically meaningful psychiatric symptoms that might otherwise remain undetected.

Although this initiative targeted IBD, only 10 of 136 patients who screened positive carried an IBD diagnosis; most newly identified cases of depression and anxiety occurred among patients with other gastrointestinal conditions. This aligns with broader literature demonstrating high rates of psychological comorbidity across disorders of gut–brain interaction, including irritable bowel syndrome, functional dyspepsia, functional constipation, celiac disease, eosinophilic esophagitis, and gastroesophageal reflux (Hu et al., 2021b; Mikocka-Walus et al., 2016; Person & Keefer, 2021). Together, these data suggest that clinically significant distress is prevalent across gastrointestinal diagnoses and that limiting screening to IBD may miss a substantial proportion of affected patients. Considering U.S. Preventive Services Task Force recommendations to screen all adults for depression and anxiety in primary care (2023a, 2023b), gastroenterology practices may benefit from universal rather than diagnosis-specific screening approaches.

In the present project, reception staff reported occasional patient frustration with completing multiple forms, and the opt-out option helped reduce perceived burden. Patients who declined screening cited reasons such as repetitiveness, emotional readiness, perceived relevance, and practical barriers like poor vision or recent completion of similar forms elsewhere. Offering patients the option to decline screening in weeks 5 and 6 enhanced autonomy but contributed to lower completion rates. Research on why patients decline mental

health screening and strategies to mitigate this is limited, making it difficult to identify best practices or how other clinics have addressed this. In an outpatient primary care clinic implementing the PHQ-9, 30% of patients did not complete screenings, with non-completion linked to older age, Black race, Medicaid or uninsured status, and lower medical comorbidity (Stover et al., 2025). These findings highlight the importance of balancing comprehensive screening with patient burden. Clinics implementing universal screening may benefit from maintaining an opt-out option and documenting reasons for declination to identify and address modifiable barriers. Overall, the detection of previously unrecognized mental health concerns reinforces the value of routine screening, particularly for patients with limited engagement in primary care or behavioral health services.

Counseling documentation and educational handout distribution were integrated into clinic workflows with minimal disruption. Medical assistants reported limited additional charting burden, and providers endorsed feasibility, consistent with prior reports demonstrating successful embedding of mental health screening into GI settings (Flicek et al., 2021; Sanfratello et al., 2022). However, approximately 26% of patients with positive screens lacked structured counseling documentation or automated education delivery. Similar implementation challenges have been described in both primary care and specialty settings, where manual documentation steps and competing demands reduce reliability (Stover et al., 2025). While the semi-manual process used in this project may have contributed to this variability, technology-based approaches are not without barriers; tablet-based screening initiatives have reported IT challenges, inconsistent staff adherence, longer completion times, and workflow strain during high-volume check-in periods (Stover et al., 2025). Drawing from the Expert Recommendations

for Implementing Change (ERIC) framework (Powell et al., 2015), strategies such as embedding automated EHR prompts, requiring structured documentation fields, conducting audit and feedback cycles, and incorporating point-of-care reminders may enhance consistency.

Strengthening automation alongside standardized education attachment may reduce practice variation, improve accountability, and mitigate liability risk associated with incomplete documentation of counseling and crisis resources.

Qualitative feedback from clinical staff indicated that the intervention was well received. Actively seeking staff input and incorporating their feedback into workflow adjustments was a key strength of the project, enhancing feasibility, staff engagement, and sustainability of the screening process. Medical assistants reported that incorporating screenings added only a few minutes to charting, did not substantially disrupt workflow, and increased comfort in discussing mental health with patients. Both providers and medical assistants endorsed the workflow and expressed interest in integrating a psychiatric provider within the clinic to manage mental health conditions and support an interdisciplinary approach to care. Evidence supports such multidisciplinary models in gastroenterology settings, demonstrating improvements in symptom management, care coordination, and patient engagement by addressing both psychological and gastrointestinal contributors to disease (Burgell et al., 2024; Flicek et al., 2021). Clinics may benefit from exploring the addition of a dedicated mental health provider to support patient care.

Limitations

This project was conducted in a single outpatient gastroenterology clinic over a six-week period, limiting generalizability to other clinical settings and patient populations. The clinic's

demographic and disease characteristics may not reflect broader gastroenterology or primary care populations. The short implementation period, constrained by project lead availability, likely limited workflow stabilization and staff adoption. Longer testing periods at other sites may enhance training, workflow refinement, and evaluation of intervention sustainability.

Workflow adaptations, including explicit patient decline options introduced in weeks 5 and 6, may have contributed to variability in screening rates, confounding assessment of intervention effectiveness. Documentation and educational handout distribution relied on staff adherence, which varied over time and might have improved with additional practice. Early electronic health record challenges contributed to inconsistencies in automatic education delivery, later addressed through workflow modifications. To address these limitations, staff received electronic and in-person training, weekly audits monitored screening and documentation rates, and feedback from reception staff and patients informed iterative workflow refinements.

Conclusion

This quality improvement project demonstrated the value of routine depression and anxiety screening in a gastroenterology clinic, enabling systematic identification of previously unrecognized mental health needs. Sustainability was supported by integration into existing workflows, minimal additional staff burden, and use of EHR templates for documentation. To further strengthen sustainability, designation of a clinical champion, such as a lead MA or APP, could help reinforce workflow adherence and support training of new staff to ensure long-term continuation of the intervention. Although the project focused on patients with IBD, most newly

identified cases occurred in patients with other gastrointestinal conditions, suggesting potential expansion to all GI patients and other gastroenterology clinics. Findings underscored the importance of incorporating mental health assessment into routine care to enhance early detection, facilitate timely referrals, and support holistic patient management. Nurse practitioners are well positioned to lead implementation of such interventions in clinical settings, utilizing their expertise in patient assessment, care coordination, and health education to integrate mental health screening into standard practice. Future initiatives could focus on embedding mental health providers, implementing electronic prompts to promote consistent documentation, and evaluating long-term outcomes to inform best practices. Additionally, developing a closed-loop referral process to confirm PCP receipt, follow-up actions, and patient engagement in care could strengthen care coordination and ensure that positive screening results translate into completed mental health evaluation and treatment. Staff and patient feedback indicated that the implemented screening intervention was feasible and could enhance staff confidence in addressing mental health concerns, demonstrating high potential for adoption across outpatient gastroenterology practices.

CHAPTER FOUR

ADVANCED NURSING ESSENTIALS REFLECTION

Introduction

The American Association of Colleges of Nursing (AACN) established ten core competencies that guide Doctor of Nursing Practice (DNP) students in developing the advanced knowledge, leadership capacity, and clinical expertise required to succeed in the advanced nursing practice role (AACN, 2021). Throughout my DNP program and clinical training as a Psychiatric Mental Health Nurse Practitioner (PMHNP), these competencies shaped my professional identity and informed my approach to patient care, systems thinking, and leadership. The implementation of my quality improvement project served as a practical culmination of these essentials. Through this work, I strengthened my ability to translate evidence into practice, collaborate across disciplines, and improve mental health care delivery in a specialty population. In the following sections, I describe how I achieved five of the AACN Essentials during my doctoral education and applied them in the planning, execution, and evaluation of my QI project.

Essential 1: Knowledge for Nursing Practice

The first essential, “Knowledge for Nursing Practice,” highlights the integration of nursing science with biopsychosocial, behavioral, and systems-based knowledge to inform advanced practice (AACN, 2021). Throughout my PMHNP curriculum, courses such as Evidence-Based Practice, Advanced Pathophysiology, Advanced Health Assessment, Advanced Pharmacology, and Advanced Clinical strengthened my ability to understand neurobiological

processes, evaluate clinical presentations, and apply evidence-based interventions. In my Advanced Clinical course, I regularly completed formal case presentations to classmates and preceptors, during which I synthesized patient histories, diagnostic criteria, and treatment rationales. These experiences required me to defend clinical decisions using current evidence and reinforced my ability to think critically and communicate complex psychiatric concepts clearly.

During clinical rotations, I advanced from supervised encounters to practicing with increasing independence, including completing full psychiatric evaluations, developing treatment plans, and providing extensive patient education. Pitching treatment plans during supervision with therapists and preceptors helped refine my assessment, diagnosis, and treatment planning skills in child, adolescent, and adult populations. This knowledge directly supported my QI project. Understanding the bidirectional relationship between IBD and psychiatric disorders informed the rationale for implementing structured screening. Previous courses including Healthcare Informatics, Design of Healthcare Systems, and Program Planning & Evaluation, Outcomes, & Quality Improvement, provided the foundational knowledge to analyze a system, design a research project, and appraise evidence. This clinical knowledge and systematic thought process remains central to how I will manage complex psychiatric cases and incorporate biological, psychological, and social factors into holistic care.

Essential 2: Person-Centered Care

The second essential, “Person-Centered Care,” recognizes patients as active partners in their treatment, emphasizing respect for individual values and compassionate communication (AACN, 2021). Throughout my clinical rotations in outpatient psychiatry, I developed a practice

philosophy grounded in empathy, motivational interviewing, and therapeutic alliance-building. Person-centered care is built on an inherent respect for the values, culture, diversity, and background of each unique individual (AACN, 2021). In clinical rotations, I specifically developed a passion for shared decision-making. In this model, patients are viewed as active participants in their care decisions. Treatment plans are not prescribed but rather negotiated with the patient, which fosters a team-based approach where patients are listened to and valued. I engaged patients in collaborative discussions about diagnosis and treatment options, ensuring they understood risks, benefits, and alternatives.

In my QI project, person-centered care guided how screening processes were implemented to promote early identification of mental health comorbidity and facilitate timely treatment. Screening was introduced as a routine and normalized part of care while maintaining patient autonomy with the option to decline screening. To promote the best patient outcomes, I collaborated with stakeholders at the clinical site and promoted engagement across interdisciplinary teams and with primary care. In my role as a PMHNP, safety and trust will be essential elements to join with patients and promote healing.

Essential 4: Scholarship for the Nursing Discipline

The fourth essential, “Scholarship for the Nursing Discipline,” involves synthesizing research, applying theoretical frameworks, and evaluating interventions to advance nursing practice (AACN, 2021). Evidence-Based Practice I & II, Statistical Applications, and Scholarly Writing equipped me with the ability to critically appraise research, extract meaning from data, and communicate scholarly work effectively. In Evidence-Based Practice coursework, I

completed detailed evidence appraisal assignments and presentations comparing integrative versus allopathic treatments for mental health conditions, as well as ketamine versus electroconvulsive therapy. These assignments sharpened my skills in evaluating study quality, clinical relevance, and applicability to patient care.

For my QI project, I conducted a scoping literature review on the mental health burden in IBD, validated screening tools, and practice guidelines. I synthesized findings to support project planning, selected appropriate measures, and developed data collection measures to evaluate screening rates, positive screenings, documentation practices, referrals, and patient education. Six PDSA (Plan-Do-Study-Act) cycles allowed for continuous refinement of workflows. Engaging in scholarly processes strengthened my identity as a clinician to contribute to advancements in the field of psychiatry and lead further quality improvement initiatives.

Essential 6: Interprofessional Partnerships

The sixth essential, “Interprofessional Partnerships,” highlights collaboration with providers, patients, family members, and care disciplines to improve patient health outcomes (AACN, 2021). In my clinical rotations, I regularly collaborated with psychiatrists, nurse practitioners, primary care providers, therapists, pharmacists, nurses, and social workers, strengthening my communication and teamwork skills. The success of my QI project depended heavily on collaboration with gastroenterologists, advanced practice providers, medical assistants, and clinic leadership. I established rapport by meeting individually with stakeholders early in the process to understand their workflows, identify perceived barriers, and clarify project goals. This allowed for smoother project integration, staff engagement, and shared ownership of

the implementation process. Regular meetings with staff facilitated problem-solving and collective decision-making. As a future PMHNP, I will continue to rely on strong interprofessional partnerships to deliver coordinated, comprehensive psychiatric care.

Essential 10: Personal, Professional, and Leadership Development

Essential 10, “Personal, Professional, and Leadership Development,” focuses on self-reflection, lifelong learning, and displaying leadership, humility, and expertise (AACN, 2021). Leadership development was woven throughout my DNP education, particularly in Advanced Nursing Leadership. In this course, I completed formal assessments of my leadership style, which identified my predominant style as participative. This aligns with my belief in collaboration, shared decision-making, and adapting leadership approaches to the needs of followers and the task at hand. Additional leadership coursework required me to analyze local, state, and national healthcare organizations, examining mission, values, strengths, and areas for improvement. I reflected on my personal and professional values, sources of meaning in my career, and future developmental needs.

In clinical settings, I learned to manage complex change, guide teams, evaluate outcomes, and communicate effectively. Integrating leadership theory, feedback from preceptors, and insights from mentors strengthened my confidence in influencing system-level improvements. I also sought to be a leader to my patients by demonstrating empathy, expertise, and clear communication at each encounter.

Leading my QI project required resilience, flexibility, and a growth mindset. I managed barriers, facilitated staff engagement, and adapted workflows based on emerging feedback. These

experiences solidified my identity as a future PMHNP capable of guiding organizational change, advocating for evidence-based mental health care, and continually developing as both a clinician and leader. I plan to remain committed to lifelong learning, mentorship, and reflective practice throughout my career.

Conclusion

The DNP essentials provided the foundation for my clinical growth, scholarly development, leadership identity, and advanced nursing practice. Through coursework, clinical training, and the completion of my QI project focused on improving mental health screening for patients with IBD, I applied these competencies in meaningful and practical ways. The integration of evidence-based practice, person-centered care, interprofessional collaboration, systems thinking, and population health principles prepared me to enter psychiatric practice with confidence. As I transition into my role as a PMHNP, these essentials will continue to guide my commitment to compassionate care, clinical excellence, and ongoing professional development.

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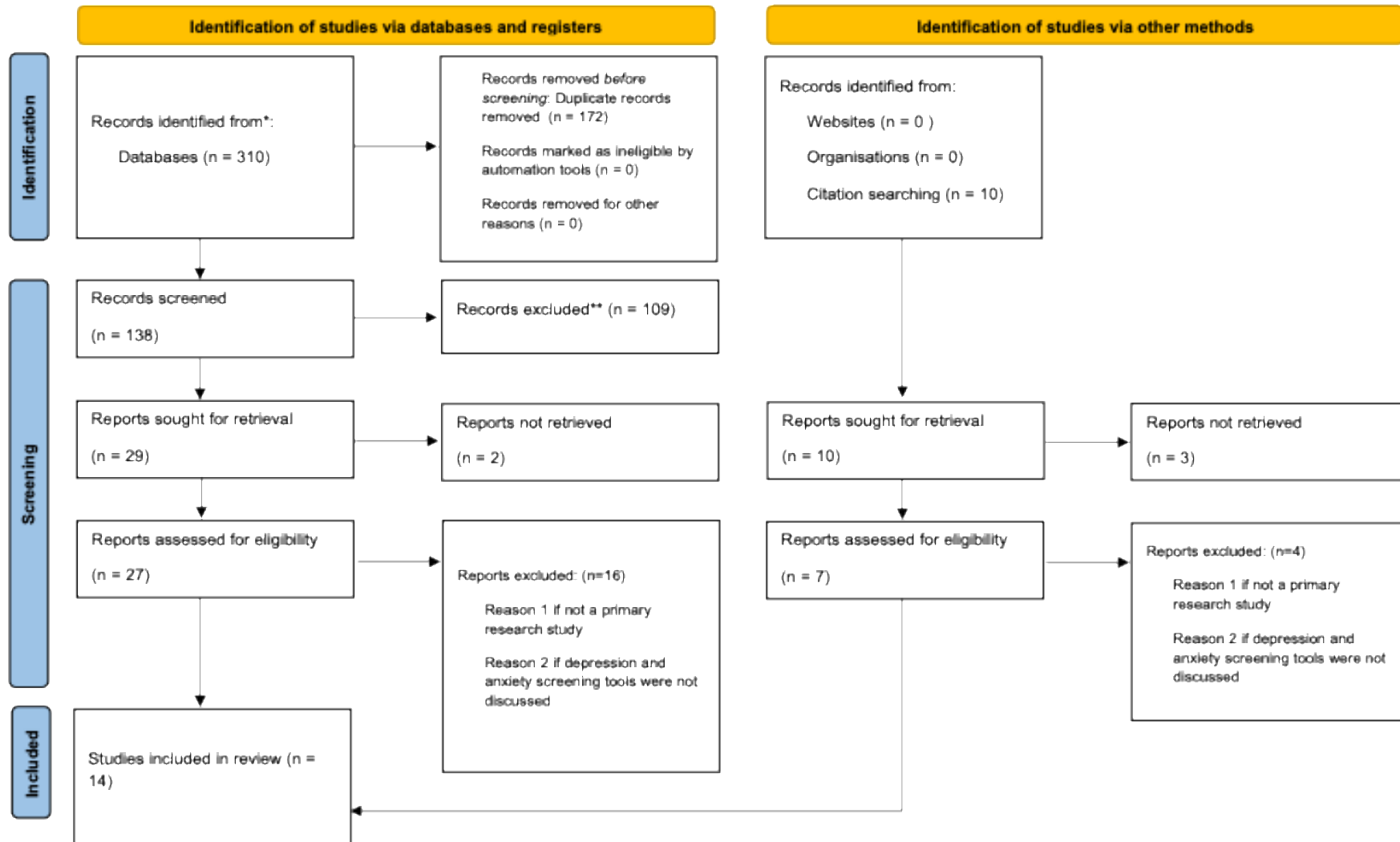
APPENDICES

APPENDIX A

PRISMA DIAGRAM

Prisma Diagram

PRISMA 2020 flow diagram for new systematic reviews which included searches of databases, registers and other sources



APPENDIX B

PHQ-9 AND GAD-7

PHQ-9 and GAD-7

**Patient Health Questionnaire and General Anxiety Disorder
(PHQ-9 and GAD-7)**

Date _____ Patient Name: _____ Date of Birth: _____

Over the last 2 weeks, how often have you been bothered by any of the following problems?
Please circle your answers.

PHQ-9	Not at all	Several days	More than half the days	Nearly every day
1. Little interest or pleasure in doing things.	0	1	2	3
2. Feeling down, depressed, or hopeless.	0	1	2	3
3. Trouble falling or staying asleep, or sleeping too much.	0	1	2	3
4. Feeling tired or having little energy.	0	1	2	3
5. Poor appetite or overeating.	0	1	2	3
6. Feeling bad about yourself – or that you are a failure or have let yourself or your family down.	0	1	2	3
7. Trouble concentrating on things, such as reading the newspaper or watching television.	0	1	2	3
8. Moving or speaking so slowly that other people could have noticed. Or the opposite – being so fidgety or restless that you have been moving around a lot more than usual.	0	1	2	3
9. Thoughts that you would be better off dead, or of hurting yourself in some way.	0	1	2	3
Add the score for each column				

Total Score (add your column scores): _____

If you checked off any problems, how difficult have these made it for you to do your work, take care of things at home, or get along with other people? (Circle one)

Not difficult at all

Somewhat difficult

Very Difficult

Extremely Difficult

Over the last 2 weeks, how often have you been bothered by any of the following problems?
Please circle your answers.

GAD-7	Not at all sure	Several days	Over half the days	Nearly every day
1. Feeling nervous, anxious, or on edge.	0	1	2	3
2. Not being able to stop or control worrying.	0	1	2	3
3. Worrying too much about different things.	0	1	2	3
4. Trouble relaxing.	0	1	2	3
5. Being so restless that it's hard to sit still.	0	1	2	3
6. Becoming easily annoyed or irritable.	0	1	2	3
7. Feeling afraid as if something awful might happen.	0	1	2	3
Add the score for each column				

Total Score (add your column scores): _____

If you checked off any problems, how difficult have these made it for you to do your work, take care of things at home, or get along with other people? (Circle one)

Not difficult at all

Somewhat difficult

Very Difficult

Extremely Difficult

APPENDIX C

PATIENT EDUCATIONAL HANDOUT

Patient Educational Handout

Your Mental Health Matters!

Living with a gastrointestinal (GI) condition can bring feelings of sadness, frustration, or anxiety. If low mood, worry, or stress lasts for several weeks or begins to interfere with daily life, it's important to reach out to a mental health professional for support.

Emotional distress can affect digestive symptoms and overall wellbeing. Taking care of your mental health is an important part of managing your GI condition. Treatment for depression or anxiety can help improve physical symptoms, reduce flare-ups or discomfort, and enhance quality of life.

If you have thoughts of self-harm or suicide, call 911, go to the closest emergency room, or dial the Crisis Lifeline at 988.

Depression	Anxiety
Depression is a serious mood disorder that causes sadness, loss of interest, exhaustion, and hopelessness. If you experience five or more of these symptoms for a sustained period of longer than two weeks, we encourage you to seek an evaluation from a qualified professional: ● Persistent sad, anxious, or "empty" mood ● Feelings of hopelessness, negativity ● Feelings of guilt, worthlessness, helplessness ● Loss of interest or pleasure in hobbies and activities that were once enjoyed ● Decreased energy, fatigue, being "slowed down" ● Difficulty concentrating, remembering, making decisions ● Insomnia, early-morning awakening, or oversleeping ● Appetite and/or weight loss, or overeating and weight gain ● Restlessness, irritability	Anxiety includes persistent worry, nervousness, and restlessness. If you have experienced these symptoms for several days within the last two weeks and they have interfered with your ability to work and maintain relationships, you may consider seeking help from a mental health professional: ● Feeling nervous, anxious, or on edge ● Not being able to stop or control worrying ● Worrying too much about different things ● Trouble relaxing ● Being so restless that it is hard to sit still ● Becoming easily annoyed or irritable ● Feeling afraid as if something awful might happen

Patient Educational Handout Continued

What Can Treatment Look Like?

Depression and anxiety are both treatable conditions. While it may take time for symptoms to improve, treatment can help lift your mood, restore a sense of wellbeing, and strengthen your ability to cope with challenges.

There are different types of therapy available, and for some people, medication may also be an important part of treatment alongside counseling with a trained professional.

Cognitive and Behavioral Therapies

Several evidence-based therapies focus on how thoughts and beliefs shape emotions and behavior:

- **Cognitive Behavioral Therapy (CBT):** CBT helps you recognize unhelpful or negative thoughts and teaches you how to replace them with more balanced, constructive ones.
- **Cognitive Processing Therapy (CPT):** A specialized form of CBT, CPT focuses on how your thoughts about a distressing event affect your life. With guidance from a mental health provider, you learn to identify and change patterns of thinking that increase stress and worsen symptoms.
- **Acceptance and Commitment Therapy (ACT):** Rather than eliminating painful experiences, ACT emphasizes accepting them while committing to actions that align with your values. The goal is to build a meaningful life while learning to manage the discomfort that comes with it.

Mind-Body Approaches

These strategies integrate mental focus with physical relaxation to help reduce stress and improve well-being:

- **Autogenic Training (AT):** A form of self-hypnosis in which you use verbal cues to create sensations of warmth, heaviness, and calm throughout your body.
- **Biofeedback:** This approach uses signals from your own body—such as breathing, heart rate, or muscle tension—to help you learn how to regulate and control these processes.
- **Breathing Exercises:** Practicing slow, deep breathing can calm the body and reduce the impact of stress-related conditions.
- **Meditation:** Through sustained attention on the breath, a word, or an image, meditation helps quiet distractions, fostering both mental clarity and physical relaxation.
- **Progressive Muscle Relaxation:** This technique involves relaxing muscle groups one at a time, either by tensing and then releasing them or by focusing directly on releasing tension. It teaches awareness of muscle tightness and promotes deep relaxation.

Find a Therapist at Psychology Today: <https://www.psychologytoday.com/us/therapists>



Crohn's and Colitis Foundation. (n.d.) *Mental health and IBD: Depression and anxiety.*
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APPENDIX D

Qualitative Feedback

Qualitative Feedback

Stakeholder/Patient Group:	Feedback Summary:
Physicians and Advanced Practice Providers	--Screening did not impede workflow. --Would like an integrated psychiatry provider in the clinic to refer patients to.
Clinic Practice Director	--Would not change the screening process. --Workflow was smooth and easy to integrate into clinic workflow.
Medical Assistants	--Supportive of workflow. --It increases time to chart the results of PHQ-9 and GAD-7 during patient intake by a couple of minutes. --Incorporating screenings did not significantly increase workflow burden. --The process was influenced if patients were late to clinic appointments, resulting in back-up waiting for patients to finish the screening. --Became more comfortable asking patients about their mental health. --Would like integrated psychiatry provider in the clinic.

Qualitative Feedback Continued

Receptionists	--Noted occasional patient annoyance to fill out screenings. Gave patients the option to decline in weeks 5 and 6 to mitigate that.
Patients	Reasons for declining: “It makes me feel like I have to take a test.” “Makes me feel like I can’t have a bad day.” “I wonder if they even look at them.” “In chemotherapy, all I do is sleep.” “My dog died this week, and this is not a reflection of my normal week.” “I am not depressed.” “Not depressed.” “Unable to open this Pandora’s Box today.” “Filled this out last week with another provider.” “This is repetitive when I see multiple providers.” “Filled out too many of these forms.” “Poor vision.”