ENHANCING EATING DISORDER SCREENING IN THE OUTPATIENT PEDIATRIC SETTING: A QUALITY IMPROVEMENT INITIATIVE

by

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ABSTRACT

Screening for eating disorders (EDs) in pediatric patients is crucial for early identification, to allow for timely intervention which could reduce the risk of long-term physical and mental health complications. Pediatric primary care providers are often the first healthcare professionals to address mental health concerns with patients, putting them in a unique position to identify potential EDs early. However, in rural areas like Montana, limited access to specialized care, along with the financial and logistical barriers, present significant challenges in implementing consistent and effective screening programs.

Although evidence from governing bodies such as The American Academy of Child and Adolescent Psychiatry supports the implementation of routine screening, eating disorders (EDs) often remain undiagnosed and untreated. Unfortunately, a busy pediatric primary care clinic in Montana was-not utilizing a standardized approach for routinely screening for EDs. Using the Model for Improvement, Plan-Do-Study-Act (PDSA) cycles guided the seven-week implementation dedicated to utilizing the SCOFF screening tool at every well-child check and mental health related visit for adolescents aged 12-17, with recommended follow-ups for positive screenings.

This project aimed to increase the number of patients screened for EDs. The SCOFF-Based Eating Disorder Screening and Referral Protocol increased the patients screened from 0 to 56, successfully screening 75% of eligible visits over a 7-week period. Barriers to consistency included difficulties in adhering to the new screening protocol and updated workflow practices, compounded by the absence of full clinic participation from all providers. This made it challenging for staff to consistently integrate the new process into their daily routines.

The findings support the use of the SCOFF- Based Eating Disorder Screening and Referral Protocol in the pediatric setting for identifying disordered eating. However, future teams may consider integrating an on-site counselor or incorporating Integrated Behavioral Health, along with full participation from all clinic providers, to enhance consistency and further streamline the process for all patients in the clinic. The SCOFF- Based Eating Disorder Screening and Referral Protocol shows immense promise for improving long-term health outcomes for the youth population.

CHAPTER ONE

REVIEW OF THE LITERATURE

Introduction

Eating disorders, ranking as the third most prevalent chronic illness affecting adolescent females and the most fatal among all mental health diagnoses, have significantly increased in the past three decades. Incidence rates, reaching nearly 7.8% after the COVID-19 pandemic, highlight the urgent need for improved identification to support the long-term health of the adolescent population (Edakubo & Fushimi, 2020; Hartman-Munick et al., 2022; Lopez-Gil et al., 2023). Dangerous behaviors associated with eating disorders, such as purging, fasting, food restriction, and excessive exercise lead to menstrual irregularities in females, organ damage, cardiovascular complications, increased risk of heart failure, and osteopenia or osteoporosis. Psychological feelings of humiliation, regret, and shame associated with these physical behaviors often exacerbate other mental health conditions (Rittenhouse, 2021). While the occurrence of eating disorders is not frequently observed until after puberty, current data reveals an increase in contributing elements to the onset of both disordered eating tendencies and diagnosable eating disorders during these critical adolescent years, particularly between the ages of 10 and 14 (Rohde et al., 2014).

Since many eating disorders begin with atypical and rigid eating and behavioral patterns in early childhood, they are frequently underdiagnosed and undertreated, being quickly dismissed by parents and healthcare professionals as mere pickiness or disinterest in food. These subtle and indistinct patterns are often dismissed due to not presenting with the typical hallmark

symptoms of an eating disorder such as extreme thinness or muscle wasting (National Eating Disorders Collaboration, n.d.). Early identification is further complicated because 55% to 97% of individuals with an eating disorder experience at least one mental health condition such as anxiety, depression, or obsessive-compulsive disorder (National Eating Disorders Collaboration n.d.). This overlap makes early identification challenging for providers, as distinguishing an eating disorder from a primary mental health condition can be challenging. Alarmingly, these co-occurring mental health issues are linked to a 31-fold increase in suicide risk among individuals diagnosed with anorexia compared to those without (National Eating Disorders Collaboration, n.d.). Acknowledging that eating disorders are more complex than merely a physical condition defined by low body weight deepens the understanding of the dysmorphic thoughts that contribute to additional health complications among adolescents and enhances the provider's ability to more readily detect these disorders (Rohde et al., 2017).

Systemic barriers, such as improper insurance coverage and limited time with pediatric patients at routine visits, contribute to the challenges that lead to an overall reduction in screening (DeSocio et al., 2007; Hornberger et al., 2019; Moreno et al., 2019; Nicula et al., 2022; Penwell et al., 2024). A comprehensive approach to addressing eating disorders begins with increasing awareness of eating disorders, alongside the implementation of reliable screening tools to guide assessment and diagnosis. Despite the availability of various screening tools and understanding of strategies to target early identification, failure to implement these strategies remains overlooked. A multifaceted problem, stemming from the unique presentation of each patient, necessitates further investigation of ongoing education and universal screening options.

Background and Significance

From 2000 to 2018, the global prevalence of eating disorders skyrocketed to almost 7.8%, a two-fold rise from 3.4% (Galmiche et al., 2019). Young athletes exhibit prevalence rates of nearly 13.5%, almost doubling rates seen in the general population (El Ghoch et al., 2013). Moreover, the expense of various treatments and therapies for eating disorders presents a significant barrier, particularly in regions like Montana, where approximately 12.1% of the population lives below the poverty line and 20% of all residents rely on a public health insurance plan for their healthcare (Henderson, 2022; Statista, 2024). Accessing adequate care, including leading therapies in eating disorder treatment such as cognitive behavior therapy or outpatient treatment facilities, can be both costly and time-consuming regardless of insurance coverage (Frostad & Bentz, 2022; Kaidesoja et al., 2022). These outpatient treatments often amount to thousands of dollars and span several months. Additionally, the duration of treatment or the necessary adjustments in care levels for eating disorders remains unpredictable (Frostad & Bentz, 2022). Between 2018 and 2019 in the United States, the economic cost associated with eating disorders was nearly $64.7 billion or $11,808 per affected person (Streatfield et al., 2021).

Beyond the financial implications of eating disorders both universally and state-wide, delays of routine screening practices are further exacerbated by Montana's vast landscape which restricts provider aid within rural communities. Montana, with a population of over 1 million and a land area of over 147, 000 square miles, has only two eating disorder centers and ten psychiatric providers who specialize exclusively in the care needed for individuals with eating disorders (Rittenhouse, 2021). The centers in Bozeman and Missoula are up to an 8-hour drive

for some residents across the state, rendering them less accessible, especially considering that 44% of Montana's population is classified as rural (Explore Census Data, n.d.).

In addition to the challenges posed by geographic constraints, food insecurity, characterized by inadequate or limited access to nutrient-dense food for optimal growth and development, affects over 44 million Americans and nearly 130,000 Montanans annually (Feeding America, n.d.). Food insecurity contributes to an increased incidence of eating disorders due to the heightened focus on food, nutrition, and constant worry about when the next meal will be. Individuals experiencing these levels of food insecurity compromise both the quality and quantity of their food intake, sometimes enduring days without eating. While food insecurity alone may not directly trigger an eating disorder, it increases the likelihood of its onset as researchers found in a study involving over 800 participants that moderate to severe food insecurity correlates with bulimia nervosa (Hazzard et al., 2020).

Despite the growing number of eating disorders, substantial cost to the healthcare system, and deadly health concerns associated with these conditions, less than 20% of adolescents with an eating disorder seek care, experiencing an estimated delay of 5.28 years before accessing care (Forrest et al., 2017; Hamilton et al., 2021). Given the sharply rising prevalence rates alongside limited care-seeking, The American Congress of Obstetricians and Gynecologists (ACOG), The American Academy of Child and Adolescent Psychiatry, and The American Academy of Pediatrics (AAP), recommend that healthcare providers assess height and weight, consider risk factors like food insecurity and negative body image, and utilize reliable screening tools for eating disorders during routine evaluations of adolescent patients (ACOG, 2018; Hornberger et al., 2023; Lock & La Via, 2015). All annual sport physicals and well-child visits already include

height and weight measurements, necessitating only minor adjustments to each appointment to incorporate the guidelines suggested by these governing bodies. Timely identification of eating disorders, especially in under-resourced areas such as Montana, is essential for reducing long-term complications and mortality among the adolescent population. This scoping review examines interventions to identify eating disorders in the outpatient pediatric setting and the barriers to routine implementation.

Methods

Search Strategy

Initial searches utilized databases including, CINAHL, PsycInfo, Web of Science, and PubMed. The search was conducted during August and September of 2024. Four separate searches were conducted in each database using the following phrases and terms: Eating disorders, screening tools, recommendations, adolescents, pediatrics, pediatric primary care, identification, barriers, interventions, outpatient.

Inclusion Criteria

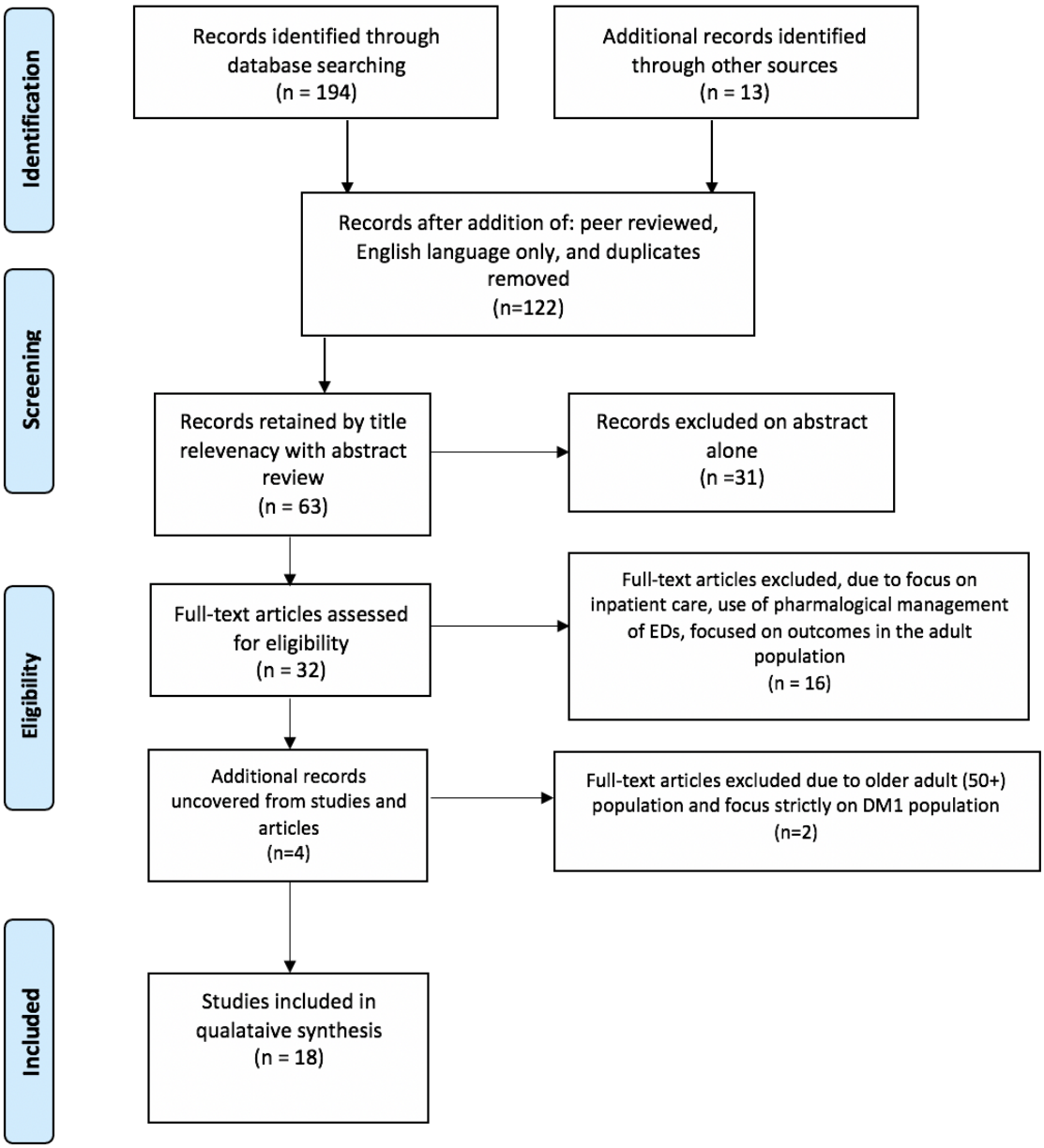
To be included in the scoping review, studies and articles needed to be peer-reviewed, have full-length text availability online, and be written in English. Given the limited research on the adolescent population, inclusion criteria were extended to young adults. Furthermore, the search was expanded to cover the years 2000-2024. The selected literature included both successful and unsuccessful interventions for the identification of eating disorders, as well as commonly identified barriers to use of the methods uncovered. All available full-text articles

were independently reviewed and assessed for quality and to determine if they met inclusion criteria.

Study Selection

The initial search of the four databases yielded 194 articles with 13 identified through other sources. This number was reduced to 122 after a refined search criterion including peer review, written in the English language, and duplicates were excluded. The remaining articles were scanned by title for relevancy and 63 articles were retained. A review of these 63 abstracts was conducted, leading to the exclusion of 31 based on abstract alone. The full text of 32 articles was then reviewed, and 16 additional articles were excluded based on this thorough review, yielding 16 articles to be included in the literature review. Additional articles were selected by searching within the citation lists of the studies determined to meet inclusion criteria which revealed 4 eligible articles. A full review of these four yielded 2 additional studies to the literature review, totaling 18 articles in the literature review. Exclusion criteria included articles older than 2000 and studies that did not directly address question or topic. The screening process is outlined in Figure 1.

Figure 1. PRISMA Diagram



Results

Overview of Studies

The body of research on ED identification in adolescents and young adults encompassed a total of 18 articles, with a variety of studies, reviews, and clinical practice guidelines (CPG) that collectively examined physician practices, screening methods and barriers as well as gaps in practice. Of these articles there were six cross-sectional studies (Anderson et al., 2016; Hautala et al., 2009; Lakeman & McIntosh, 2018; Linville et al., 2010; Lipson & Sonneville, 2020; Saleh et al., 2018), one literature review (Thompson & Brenner, 2012), two exploratory qualitative studies (DeSocia et al., 2007; Fursland & Watson, 2014), three systematic reviews (Coop et al., 2024; Feltner et al., 2022; Lopez-Gil et al., 2023), two psychometric studies (Gideon et al., 2016; Prnjak et al., 2022), one clinical practice guideline (Hornberger, 2019), one mixed-methods study (Penwelle et al., 2024), one retrospective cohort study (Moreno et al., 2019), and one scoping review (Nicula et al., 2022).

Four studies specifically addressed the pediatric population (DeSocio et al., 2007; Hautala et al., 2009; Lopez-Gil et al., 2023; Moreno et al., 2019), and additional studies extend the focus to early adulthood (Saleh et al., 2018; Lispon & Summerville, 2020; Lopez-Gil et al., 2023; Furland & Watson, 2014; Moreno et al., 2019; Penwelle et al., 2024). Five studies focus solely on physician's health screening practices, summarizing healthcare providers' attitudes toward ED patients (Anderson et al., 2016; DeSocio et al., 2007; Lakeman & McIntosh, 2018; Linville et al., 2010; Thompson & Brenner, 2012) with one CPG emphasizing the role of pediatric providers in the prevention and early identification of EDs and advocating for a multidisciplinary approach to care (Hornberger, 2019).

Additionally, one study evaluated the reliability and accuracy of the Sick, Control, One, Fat, and Food (SCOFF) tool in identifying eating problems among individuals already diagnosed with an ED (Furland & Watson, 2014). Furthermore, two scoping and systematic reviews highlighted the barriers to early identification of EDs in youth, providing recommendations for screening principles and clinical research efforts (Nicula et al., 2022; Feltner et al., 2022). Lastly, three studies examine various screening tools and methods, assessing their validity and effectiveness while highlighting the downfalls (Coop et al., 2016; Gideon et al., 2016; Prnjak et al., 2020).

Synthesis of the Literature

Eating Disorder Screening Tools

A growing body of evidence suggests that achieving improved outcomes in eating disorder patients begins with a multifaceted approach involving integrating screening tools, provider training, and collaboration with multidisciplinary teams (Anderson et al., 2016; Hornberger et al., 2019; Linville et al., 2010). While several validated tools for the screening of eating disorders are available, limited research exists regarding their utility in the pediatric setting.

One tool used often in the outpatient setting is The Sick, Control, One, Fat, and Food (SCOFF) questionnaire. This validated screening tool, used frequently for adolescents due to its simplistic design, consists of five questions with simple "yes" or "no" answers that efficiently address key indicators of eating disorders such as body dysmorphia, binge eating tendencies, and psychosocial struggles. The SCOFF's brevity and simplistic design for any literacy level,

regardless of age, makes it a popular choice among pediatric providers and patients (Lipson & Sonneville, 2020). Studies have confirmed the SCOFF's high specificity (72.7-94%) and sensitivity (72-80%) in the timely identification of eating disorders (Lipson & Sonneville, 2020; Saleh et al., 2018). In a Finnish school setting, the SCOFF questionnaire identified 81% of students who self-reported eating disorder symptoms—students who otherwise would not have been detected without the SCOFF questionnaire or a similar eating disorder assessment tool (Hautala et al., 2009). The Healthy Minds Study examined over 70,000 positive SCOFF scores and their association with the subsequent development of eating disorders, more than doubling the risk of suicidality compared to those without an eating disorder (Lipson & Sonneville, 2020). Furthermore, students who scored a five—the highest possible on the SCOFF—were eleven times more likely to attempt suicide compared to those without eating disorder symptoms (Lipson & Sonneville, 2020). When the SCOFF tool was used in an outpatient mental health treatment center for patients receiving care for anxiety and depression, scores identified that 48 out of 260 subjects exhibited disordered eating tendencies, while 7.3% of participants met criteria for a diagnosable eating disorder (Fursland & Watson, 2014). This data underscores the importance of early identification using the SCOFF questionnaire to effectively and promptly identify patients at risk for an eating disorder.

While the SCOFF was useful in the prompt identification of potential eating disorder tendencies, Coop et al. (2024) examined 180 studies that employed the SCOFF and found that two-thirds misused the screening tool in various ways (Coop et al., 2024). Insufficient interpretation strategies as well as inconsistent scoring thresholds/cuts offs were among the identified errors to proper use (Coop et al., 2024). Furthermore, due to the most recent addition

of specific eating disorders in the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-5), the SCOFF fails to capture the tendencies associated with all eating disorders, typically working best for bulimia and anorexia (Lopez-Gil et al., 2023).

Developed in 1993, the Eating Disorder Examination Questionnaire (EDE-Q) is a 28-question self-report form consisting of 4 sections addressing typical ED behaviors such as restriction, weight and shape worries, and eating patterns. Utilizing a Likert scale ranging from 0 to 6, zero being "no days" and six being "every day," higher scores indicate greater severity and frequency of eating disorders (Prnjak et al., 2020). With a Cronbach's alpha ranging from 0.71-0.91, demonstrating high reliability and internal consistency, the EDE-Q is universally used as a tool in the ongoing reassessment of symptoms and severity of individuals with eating disorder in addition to a routine screening tool in primary care (Gideon et al., 2016; Prnjak et al., 2020).

Due to the rigorous nature of this form, the EDE-QS (short form) was developed as a condensed version consisting of 12 questions. Developed in 2016 by Nicole Gideon to minimize the time and cognitive demand to complete the timely 28-item form, the EDE-QS utilizes a shortened 0 to 3 range to capture eating disorder symptoms (Gideon et al., 2016). When compared, the EDE-Q showed a sensitivity of 0.80 and specificity of 0.83, while the EDE-QS demonstrated a sensitivity of 0.83 and specificity of 0.85 (Prnjak et al., 2020). This suggests that reducing the number of questions did not impact the instrument's ability to detect eating disorders, making it a time-saving tool in a busy outpatient setting.

While the EDE-QS and SCOFF have shown potential for early identification of eating disorders using brief assessment strategies, various studies have confirmed that they should not be used as diagnostic measures, but rather screening tools to necessitate further investigation and

patient conversations (Coop et al., 2024; Prnjak et al., 2020). Therefore, these tools should be reserved for initial evaluations and lead the way for further assessment rather than diagnosis.

Provider Barriers to Identification

A significant gap in the detection, diagnosis, and treatment of various eating disorders arises from the necessary but multifaceted approach to screening, leaving many providers uncertain about how to advance the conversations surrounding eating disorders and their associated health concerns (Anderson et al., 2016; Lakeman & McIntosh, 2018; Linville et al., 2010). Researchers identified inadequate provider training and knowledge, limited time, and insufficient reimbursement as barriers to treating patients with eating disorders (Lakeman & McIntosh, 2018; Linville et al., 2010; Thompson-Brenner et al., 2012). Knowledge among physicians is limited in terms of eating disorders. Only half of residents and fellows were able to recognize the signs of an eating disorder and most (88.5%) viewed eating disorder symptoms as rare (Anderson et al., 2016). Interestingly, primary care providers who reported experience or familiarity with eating disorder patients indicated feeling more assured in their ability to treat these patients (Anderson et al., 2016; Lakeman & McIntosh, 2018). Lakeman and McIntosh (2018) found that providers with over 70 hours of eating disorder training were 2.7 times more likely to view themselves as both confident and competent in managing these conditions. In contrast, 73% of respondents who reported minimal to no training in eating disorders felt restricted in their ability to manage their care efficiently (Lakeman & McIntosh, 2018).

Finally, limited educational opportunities, both in graduate level schooling and post-graduate continuing education that focus on eating disorders, exacerbates the issue of prompt diagnosis, referral, and treatment. This shortage of trainings focused on detection and

management of eating disorders appears to correlate with a broader issue, as both Anderson et al. (2016) and Thompson-Brenner et al. (2012) reported frustration and reluctance from providers to treat these patients. When surveyed, 67% of medical providers indicated continuing education hours or better access to referral information as helpful resources to more effectively treat eating disorders (Lineville et al., 2010). Unfortunately, the limited education that is provided often focuses on the morbidity and mortality rates of eating disorders rather than tools, resources, and strategies to improve early detection (Feltner et al., 2022). This data, combined with the limited resources available in rural Montana, further underscores the need for increased educational resources and support early identification of these disorders.

Systemic Obstacles to Identification

Systemic obstacles such as brief appointments, infrequency of well-child visits, and lack of insurance coverage or reimbursement further complicate timely intervention and subsequent treatment for those with an eating disorder (DeSocio et al., 2007; Hornerger et al., 2019; Moreno et al., 2019; Nicula et al., 2022; Penwell et al., 2024). Insurance coverage for eating disorders is rarely adequate, often decreasing providers' willingness to implement effective screening practices due to the low likelihood of reimbursement and coverage for patient treatment (DeSocio et al., 2007; Hornberger et al., 2019; Nicula et al., 2022).

Reimbursement may be denied for several reasons, including insurance reviewers determining that a lower level of care would be appropriate based on symptom severity or necessary care is not covered due to in-network eligibility requirements (Hornberger et al., 2019; Moreno et al., 2019). In a cross-sectional study involving 1,599 individuals who were currently suffering from or previously had an eating disorder, 80% indicated that the lack of identification

of their disorder by a healthcare provider was a critical issue that prevented them from seeking help (Penwell et al.,2024). From a provider perspective, the uncertainty of whether specific treatment modalities will be covered limits their desire to address eating disorders entirely.

Furthermore, the inequities between private and public insurance adds another layer of complexity to the issue. Moreno et al. (2019) found that patients with private insurance receive treatment recommendations at a threefold higher rate compared to those with public insurance (Moreno et al., 2019). Interestingly, nearly 34.7 million of the nation's children rely on the Children's Health Insurance Program (CHIP), a public insurance option, which is less likely to cover adequate treatment for eating disorders in comparison to private insurance (Hornberger et al., 2019; Moreno et al., 2019). This lack of equitable coverage creates barriers that hinder both patient's access to care and provider willingness to implement effective screening practices based on the likelihood of insurance coverage for treatment strategies moving forward.

As previously noted, timely identification plays a crucial part in reducing long-term consequences of unidentified eating disorders. Well-child visits occur annually, and an adolescent showing early signs of an eating disorder during one visit could be severely compromised both mentally and physically by the following year without routine screening in place (DeSocio et al., 2007). With healthcare providers seeing one patient every 10-20 minutes and handling upwards of 25 patients per day, most visits tend to be brief, focusing on developmental milestones or acute issues, leaving limited time for additional interviewing at each visit (DeSocio et al., 2007; Nicula et al., 2022). This lack of flexibility for in-depth conversations, coupled with financial pressure from high overhead costs and low insurance reimbursement, frequently results in hesitation from healthcare providers to broach the topic of

eating disorders, fearing they lack sufficient time to thoroughly care for these patients (DeSocio et al., 2007; Linville et al., 2010).

Discussion and Conclusions

This scoping review emphasizes the various barriers to early identification of eating disorders in outpatient pediatric care; highlighting a comprehensive approach including proactive identification by primary care providers facilitated by increased educational opportunities and integrating validated screening tools into routine visits. Researchers uncovered that pressure on providers to maintain brief appointments to improve clinic through-put and keep up with expected daily volumes leaves minimal time for additional interviewing to uncover eating disorder tendencies. Furthermore, inequitable insurance coverage for all patients makes providers hesitant to address screening altogether, fearing treatment recommendations would not be covered and having minimal confidence in their ability to diagnose, manage, and treat these patients on their own.

Preventative screenings, particularly in mental health, are an instrumental component to comprehensive pediatric healthcare. Guidelines for routine screening of both anxiety and depression have been introduced into the outpatient pediatric setting over the last 20 years, showing promise in early identification of these mental health disorders (US Preventative Task Force, 2022). While the United States Preventative Task Force concludes there is insufficient evidence on the benefits versus harm of screening for eating disorders in the pediatric setting, recommendations from professional organizations such as the AAP, ACOG, and AACAP advocate for a multifaceted approach to include routine checks of height, weight, body mass index (BMI), eating patterns to address eating disorders in the pediatric population (ACOG,

2018; Hornberger et al., 2023; Lock & La Via, 2015). These recommendations, coupled with the increasing incidence of eating disorders over the past three decades, highlights that a standardized screening protocol with timely interventions are needed to help mitigated both immediate and long-term consequences linked to eating disorders.

While the research does not strongly endorse any specific screening tool and additional research is necessary to evaluate the effectiveness of routine screening for eating disorders, the use of standardized screening tools creates roadmap for providers, guiding the clinical process and eliminating the need for lengthy assessments in already brief appointments. Validated tools offer a standardized approach to assessing and identifying patients during routine examinations (Fursland & Watson, 2014). The SCOFF, although brief, initiates conversations between patients and providers regarding eating behaviors and body image. Although various versions of the EDE-Q have demonstrated efficacy and reliability, their application is typically reserved for ongoing treatment of eating disorders rather than routine assessment (Prnjak et al., 2020). Additionally, the lengthy 28-question form creates challenges in a fast-paced outpatient environment. Although the EDE-QS does address the time constraint with a brief 12 question format, the limited available research on its use in adolescence further limits its utility in the outpatient pediatric setting. The SCOFF's brevity and use of five simple questions for limited literacy skills, encourages universal screening regardless of providers' familiarity with eating disorders. This scoping review reveals that a comprehensive approach to early identification of eating disorders is necessary, that begins with enhancing provider knowledge through educational opportunities as well as implementing reliable screening tools into practice to guide assessment and diagnosis.

CHAPTER TWO

QUALITY IMPROVEMENT PROTOCOL

Introduction

Eating disorders (EDs) are the third most prevalent chronic illness among adolescent females globally and the deadliest of all mental health conditions (Edakubo & Fushimi, 2020; Hartman-Munick et al., 2022). Over the past eighteen years, global prevalence has nearly doubled, rising from 3.4% in 2000 to 7.8% in 2018 (Galmiche et al., 2019). In the United States, nearly 9% of the population is affected, impacting about 28.8 million Americans at some point in their lives (Deloitte Access Economics, 2020). This surge has resulted in an economic burden of approximately $64.7 billion in the U.S., averaging $11,808 per affected individual (Streatfield et al., 2021). Although specific rates of eating disorders among Montana adolescents are not available, nearly 11% of Montanans experience food insecurity (Feeding America, n.d.), which, while not directly causing eating disorders, significantly increases the risk of onset due to heightened concerns about eating habits and related anxieties (Feeding America, n.d.).

Despite the growing number of eating disorders, substantial cost to the healthcare system, and deadly health concerns associated with these conditions, less than 20% of adolescents with an eating disorder seek care, experiencing an estimated delay of 5.28 years before accessing care (Forrest et al., 2017; Hamilton et al., 2021). Recommendations from The American Academy of Child and Adolescent Psychiatry and The American Academy of Pediatrics recommend that healthcare providers assess height and weight, consider risk factors like food insecurity and negative body image, and utilize reliable screening tools for eating disorders during routine

evaluations of adolescent patients (Hornberger et al., 2023; Lock & La Via, 2015). Unfortunately, these recommendations remain overlooked. This paper proposes a quality improvement project to increase ED screening in pediatric patients.

Problem & Aim Statements

The implementation site is a leading outpatient pediatric clinic in Montana, which has served over 40,000 children and adolescents since January 1st, 2023. Despite serving a large patient population, this clinic does not routinely use standardized screening tools to assess for EDs. Despite evidence to support routine screening methods, EDs may frequently be left undiagnosed and untreated, contributing to costly treatment and extensive medical bills, stemming from the failure to recognize and address these issues early where outpatient treatment may still be a viable option.

A literature review was conducted to identify strategies and barriers to early identification of EDs. The findings supported a comprehensive approach to addressing EDs beginning with increasing awareness of EDs, alongside the implementation of reliable screening tools to guide assessment and diagnosis. Common implementation barriers identified were improper insurance coverage, limited appointment times, and minimal provider education on EDs, contributing to an overall reduction in screening (DeSocio et al., 2007; Hornberger et al., 2019; Moreno et al., 2019; Nicula et al., 2022; Penwell et al., 2024). Throughout the literature review, the implementation of a routine screening tool proved to be a consistent and non-biased approach for identifying patients who may be at risk for an ED or already suffer from one during routine visits, creating a roadmap for providers to guide the clinical process and reducing the need for lengthy assessments during brief appointments while identifying potential health risks (Gideon et

al., 2016; Hautala et al., 2009; Lipson & Sonneville, 2020; Prnjak et al., 2020; Saleh et al., 2018).

While several validated tools for screening eating disorders are available, limited research exists on their utility in the pediatric setting. The Sick, Control, One, Fat, and Food (SCOFF) questionnaire is used frequently in adolescents due to its simplistic design, consisting of five questions with simple "yes" or "no" answers that efficiently address key indicators of eating disorders such as body dysmorphia, binge eating tendencies, and psychosocial struggles (Hautala et al., 2009; Lipson & Sonneville, 2020; Saleh et al., 2018).

To address the absence of screening at the chosen site, the SCOFF screening tool will be used (see Appendix A) with an aim to screen 100% of patients aged 12-17 at well-child visits over a 6-week period. It is important to note that the aim of a screening tool is not to diagnose eating disorders but rather to identify adolescents who may need further evaluation and to trigger a more in-depth clinical interview with positive screens. Preventative screenings, particularly in mental health, are an instrumental component to comprehensive pediatric healthcare. Standardized tools like the SCOFF streamline the clinical process, enabling providers to efficiently identify at-risk youth during routine assessments.

With the rising incidence rates of eating disorders over the past three decades, routine screening holds promise to effectively identify at-risk youth. Within the pediatric population, failing to integrate routine screenings for eating disorders into practice may result in increased morbidity, mortality, and costly inpatient stays to treat EDs that are not diagnosed until after the onset of advanced symptoms.

Organizational Microsystem Assessment

The quality improvement project will take place at a pediatric outpatient clinic in south-central Montana. This clinic serves a local population of over 120,000 and extends its care to thousands more from rural communities throughout the state, as well as patients from neighboring states seeking complex pediatric care, particularly for those with multiple medical issues. During a typical clinic day, there are five medical doctors (MDs), two advanced practice providers (APPs), two registered nurses (RNs), one licensed practical nurse (LPN), four medical assistants (MAs), and two front desk staff at the clinic. Key stakeholders directly involved in patient care during the project include the project lead (myself), MDs, MAs, RNs, LPNs, dietitians, and front desk staff. Those engaged in pre-implementation tasks and the approval process, but not directly involved in patient care, include the clinic manager, the information technology (IT) team, data analysts, and care managers.

Despite the clinic's comprehensive, high-quality care, routine screening for eating disorders has not been implemented, highlighting a clinical practice gap. In 2023, the clinic treated 148 patients diagnosed with an eating disorder, while the hospital provided inpatient care for 49 patients who required more intensive treatment. In a randomized review of 35 patient charts for children attending well-child visits ages 12-17, none included documentation of eating disorder behaviors such as food restriction, body image issues, and/or excessive exercise tendencies. This highlights the urgent need for standardized screening.

Additionally, a pre-implementation survey was distributed to all clinic providers, asking them to identify common barriers to ED screening, express any concerns about adding a screening process, and choose their preferred screening tool between two options: SCOFF or

EDE-QS. From the four responses received, commonly cited reasons from the clinic providers for lack of routine screening were unawareness of available screening tools for these conditions, uncertainty about the utility of such screening tools, time constraints related to adding another screening form, or a lack of guidance on how to handle adolescents showing signs of an eating disorder. These feelings are congruent with the literature that uncovered similar feelings of providers regarding screening tools within the clinic setting.

Quality Improvement framework

Implementing a new screening tool within a healthcare setting presents various challenges, particularly during the initial weeks and months. While careful planning is essential, it is inevitable that some aspects may not go as intended. The Institute for Healthcare Improvement's (IHI) Model for Improvement incorporates the Plan-Do-Study-Act (PDSA) and asks three key framing questions: 1.) "What are we trying to accomplish?" 2.) "What change can be made that will result in improvement?" And 3.) "How will we know a change created an improvement?" (IHI, 2024). The PDSA cycle allows for continuous improvement through multiple cycles of reassessment and adjustment, helping to address the difficulties that arise when launching a new initiative (Agency for Healthcare Research and Quality [AHRQ], 2024).

The Plan (P) phase involves identifying an area for improvement, setting objectives, and developing a general plan for change. The Do (D) portion of the cycle consists of executing the plan on a small scale to test the change and gather the set of starting data. The Study (S) phase involves analyzing the results and pitfalls from the previous cycle, while the Act (A) phase uses those insights to improve the next cycle of the project (AHRQ, 2024). These small-scale cycles

allow for the team to act and learn from the process, rather than simply discussing plans without implementing and being unable to adjust until the project is over. This fluid approach, with steps oftentimes overlapping each other, creates countless opportunities for change, thereby continually engaging stakeholders (AHRQ, 2024). This quality improvement initiative aims to utilize the PDSA model to successfully integrate the SCOFF screening tool into the outpatient pediatric setting.

Plan

The first step, "Plan," in the implementation cycle involves identifying the clinical problem, reviewing the literature for evidence-based solutions, selecting a validated screening tool, and providing education to key stakeholders prior to the six-week implementation period. A site needs assessment revealed that there was no routine screening for eating disorders within the clinic, specifically during well-child visits. Following the identification of the clinical problem, a review of the literature was conducted, and the SCOFF screening tool was identified as a practical, evidence-based tool for improving early identification of eating disorders in adolescents (Hautala et al., 2009; Lipson & Sonneville, 2020; Saleh et al., 2018). Four pediatricians expressed interest to participate in the quality improvement (QI) project. Ongoing communication with the project's stakeholders was elicited for feedback and continuous improvements to the planning process to ensure the new process would fit smoothly into the current workflow of the clinic.

Do

The "Do" phase will begin on January 6th, 2025, with multiple weekly PDSA cycles throughout the 6-week implementation period, concluding on February 14th, 2025. During this phase, medical assistants will distribute the SCOFF screening form to each adolescent during their well-child visit and submit completed forms to the provider for analysis. Based on the findings, the provider will determine the appropriate next steps, which may include further evaluation, management, referral, or no additional assessment. The SCOFF results will then be documented in the patient's chart.

Study

At the end of each week, the project lead will review the completed forms, noting trends in results and the need for referrals or further evaluation. Data will be recorded in an Excel spreadsheet and analyzed to determine whether the goals and aims of the quality improvement initiative were met. Throughout the week, the project lead will gather feedback from key stakeholders about the process and any challenges encountered.

Act

The final phase in the PDSA cycle is "Act." During this phase, based on the data analysis and stakeholder feedback, a summary of the findings along with key insights will be shared with the clinic staff and necessary adjustments will be made to the implementation process. The project team will briefly discuss key insights and changes to the implementation process during the Monday Huddle meeting, before starting a new cycle to ensure the next cycle accounts for the necessary adjustments that need to be made. At the conclusion of the six-week

implementation process, a post-implementation survey with stakeholders will take place to assess what was effective, what challenges arose, and the feasibility of extending this project to all providers within the practice.

Implementation summary

The quality improvement initiative will take place in an outpatient pediatric clinic in Montana, which offers comprehensive healthcare services from birth through adolescence, focusing on preventive and routine care and the management of acute and chronic conditions. Over a seven-week period, from January 13th to February 27th, 2025, the SCOFF screening tool will be administered to all patients of 4 participating providers in the clinic aged 12-17 during their well-child visits. The aim is to create a standardized screening process for eating disorders to enhance early identification of eating disorders, ultimately reducing long-term complications associated with these conditions.

Intervention and Implementation

The proposed eating disorder screening protocol aims to establish a consistent and standardized approach to screening for eating disorders during routine well-child visits to facilitate early detection and a protocol for further evaluation and follow-up of positive screenings, thereby improving mental and physical health.

Pre-Implementation Preparation & Education

Before implementation, the project lead will compile the Generalized Anxiety Disorder (GAD-7) used for anxiety evaluation, Patient Health Questionnaire (PHQ-9) used for depression,

and SCOFF forms into one packet for easier distribution to patients. Since the GAD-7 and PHQ-9 are already routinely provided to all patients aged 12 and older during well-child visits, adding the SCOFF will be straightforward. Based on the average number of eligible well-child weekly between the four providers, three hundred pre-made packets will be created and stored in the filing cabinet where all clinic screening forms are kept. The SCOFF forms will be available on the clinic's shared drive in the instance more screening forms are needed. Additionally, a pre-made dot phrase, .SCOFF, will be made using the AutoText feature in the electronic health record (EHR) for ease of charting for all providers.

Prior to the start date for the SCOFF screening, all clinical staff will attend 25-minute educational sessions during lunch hours throughout early December. Using information gathered from the literature review and eating disorder agencies such as The National Eating Disorder Association, educational materials and presentations will be created and presented by the project lead and approved by key stakeholders, including dietitians and pediatricians. These sessions will focus on eating disorders, emphasizing their clinical significance and the SCOFF screening tool, and everyone's role in the new process. Additionally, multiple opportunities for refresher sessions will be conducted the week before the project start date. Furthermore, education will highlight the prompt discontinuation of the screening if a patient appears overwhelmed or expresses a desire not to complete the form. A one-page handout summarizing the key aspects of the quality improvement initiative (Appendix A) will be displayed at nursing and provider workstations to minimize the risk of overlooking the distribution of the form. After the educational session, each staff member will sign a document confirming their participation and understanding of the training and SCOFF implementation. The presentation will be provided in

both a physical packet and a shared Word document, ensuring easy online access for staff to reference throughout the implementation process.

This educational packet (Appendix B) will include:

- An overview of the clinical significance and statistical data on eating disorders in the United States.
- The SCOFF screening sheet
- A list of follow-up questions and tips for initiating conversations after a positive screen, focusing on topics such as eating and exercise habits.
- A page for recommended follow-up appointments and outcomes.

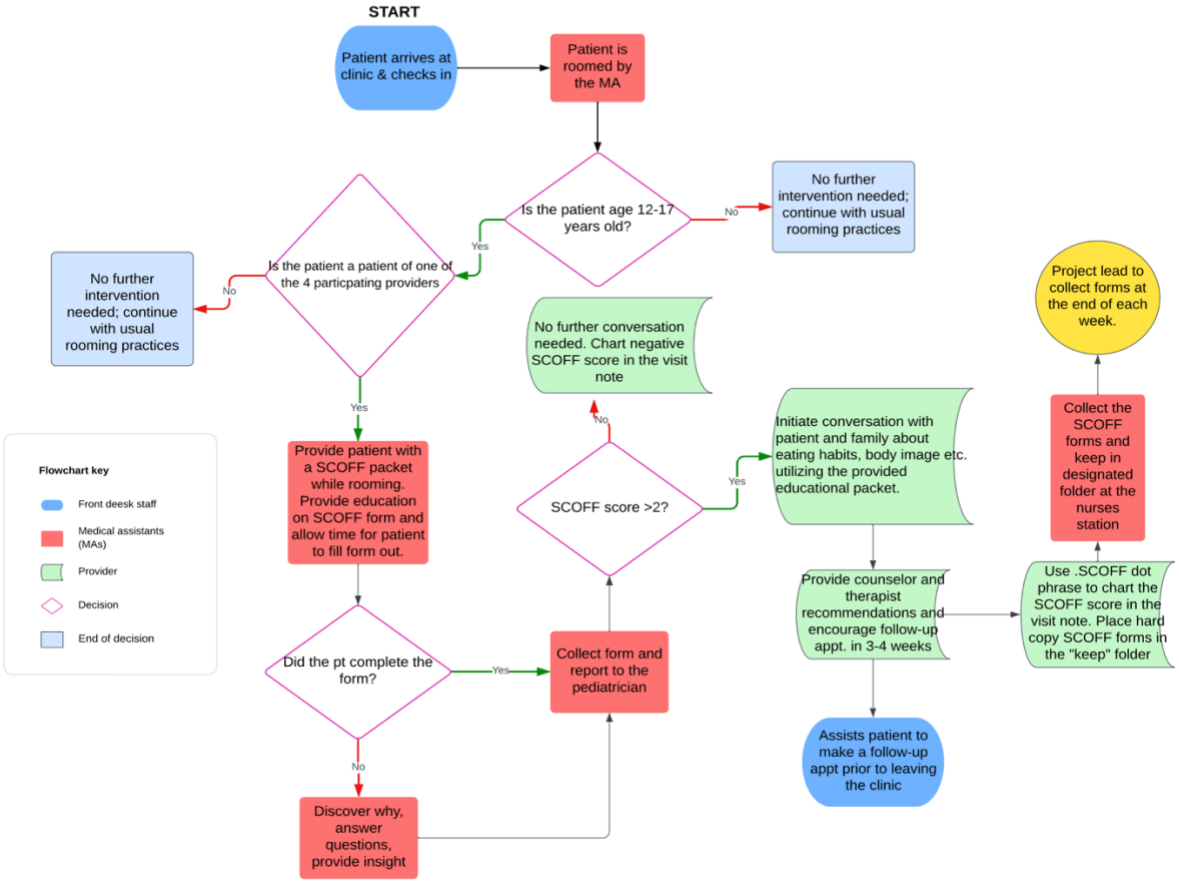
Screening & Referral

Beginning January 13th, 2025, the medical assistant (MA) will provide the SCOFF screening sheet to each patient as part of a packet that includes the GAD-7 and PHQ-9 during their visit. Brief instructions from the MA on each form will be provided to the patient, clearly stating that the pediatric patient should complete the forms themselves but encouraging parental input if clarity or advice is needed. After the patient completes the forms, the MA will collect and provide the packet to the pediatrician for analysis. Scores > 2 on the SCOFF indicate potential eating disorder tendencies. Providers will use these results to decide whether to initiate a conversation if the score is positive (> 2) or use their discretion on further evaluation if the score is negative (< 2).

For patients with positive screens, a conversation as well as physical copy of counseling and therapy resources will be provided in the visit summary. A follow-up appointment with the

pediatrician and dietitian together will be strongly recommended in 3-4 weeks to assess potential treatment and therapy needs. Front desk staff will assist in scheduling this appointment before the patient leaves the clinic. Following each visit, providers will enter the SCOFF score and any parental input regarding eating habits and patterns into the visit note in the patient's electronic medical chart using the designated dot phrase .SCOFF. Figure 2 below outlines the complete screening process, beginning at the time the patient enters the clinic.

Figure 2. ED Screening Process

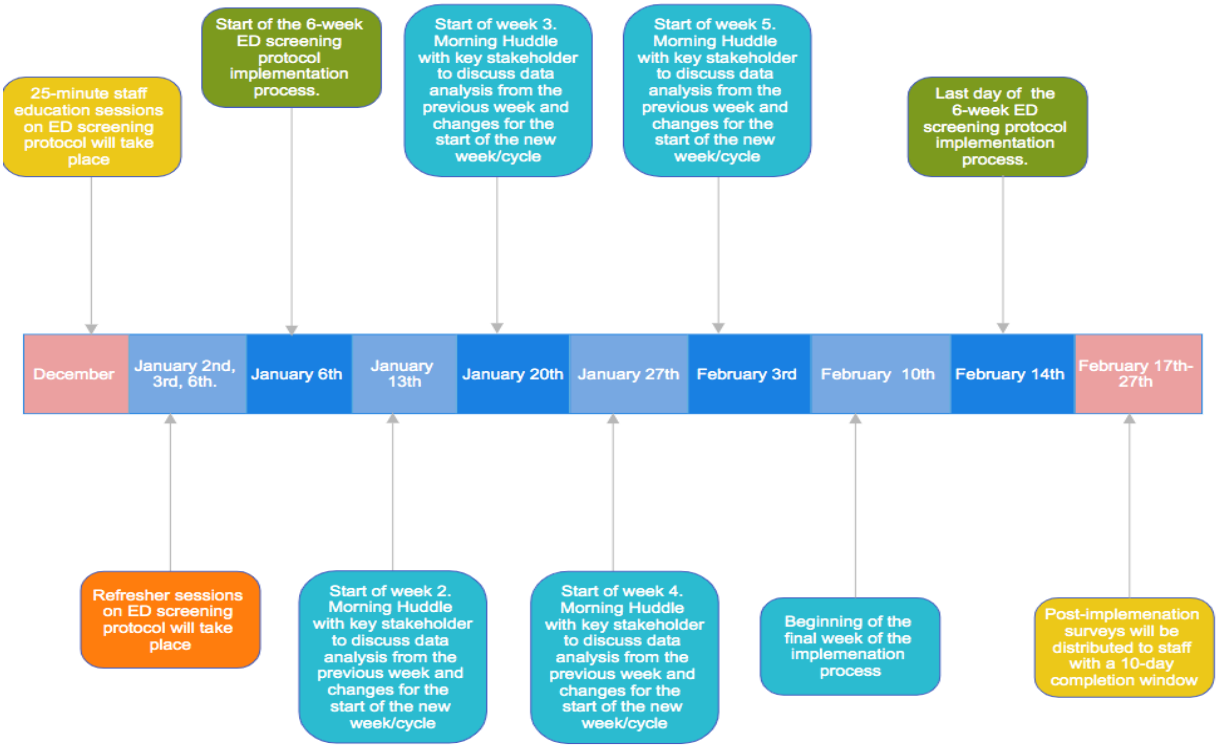


Timeline & Budget

The pre-implementation phase will be from December 10th, 2024, to January 3rd, 2025. During this phase, the GAD-7, PHQ-9, and SCOFF forms will be compiled into one packet and staff education on the new screening protocol will be completed. Educational sessions will take place during regularly scheduled shifts to avoid overtime. Implementation will extend from January 6th, 2025, to February 14th, 2025. During this phase, the new process will be tested and evaluated weekly to determine whether any changes need to be made. At the end of the implementation phase, the team will decide whether to adopt or abandon the new process. Based on the team's feedback, a plan will be made to spread the change to other providers in the clinic or to eliminate the process.

The cost of the initiative will be from printing costs of the SCOFF screening tool, education packets, and informational sheets for staff member, totaling approximately $53.00 which will be paid by the pediatric clinic. Additionally, positive screenings may require referrals and follow-up visits, potentially resulting in higher costs for both the patient and the facility, though the exact cost is uncertain due to multiple influencing factors.

Figure 3. Project Timeline



Barriers

There are several potential barriers to implementing a new screening process within an already busy pediatric facility. One concern is that MAs might forget to distribute or collect the new screening forms, resulting in missed opportunities for identifying eating disorders. To address this, the GAD-7, PHQ-9, and SCOFF forms will be compiled into a single packet, thereby reducing the chances the SCOFF form is overlooked or discarded rather than kept in the sealed envelope following completion and analysis by the provider.

Another potential obstacle is the risk of providers forgetting to chart or assess the SCOFF scores. To mitigate this issue, the SCOFF screening sheet will be printed and placed at each provider's station above their computer. Additionally, weekly analyses comparing the number of

forms administered to those charted will be reviewed with the providers. Any discrepancies will be reviewed and addressed before the start of the next cycle to ensure that SCOFF scores are consistently recorded.

Finally, some providers feel uncertain about how to initiate difficult conversations regarding eating disorders, compounded by the limited resources available for treatment in the community. To address these potential barriers, the pre-implementation training will focus on evidence-based strategies for initiating conversations about eating disorders, as well as providing resources for follow-up care for patients with positive screenings.

Evaluation and Analysis

Data collection & Statistical Analysis

Using the PDSA model, the evaluation of the standardized ED screening and referral process will take place weekly throughout the six-week implementation cycle. The MA will collect and securely store all SCOFF screening forms in a blue folder at the nurses' station where the project lead will retrieve them at the end of each week. Data will be tracked using a password-protected Excel spreadsheet to compile data. A weekly tally of well-child visits for adolescents aged 12-17 will be conducted for each provider using the EHR. Each eligible well-child visit record will be reviewed using the EHR to determine if the SCOFF form was documented. Hard copies of completed SCOFF screenings will be maintained and analyzed as a secondary data source. If a SCOFF score was not charted, the paper forms will help identify whether the form was not given to the patient or if it was filled but not recorded in the system by the provider. Positive screens will be flagged by the project lead during the data process analysis

for ongoing review to determine if a follow-up appointment was scheduled and whether the appointment was completed. Assessing the completion of the follow-up visit will provide relevant data about barriers to follow up and the impact of the new process on patient outcomes. An outline of the weekly data collection method can be found in Table 1.

This data, which will include a summary of the analyzed data, any gaps in the protocol, and improvement strategies for the upcoming cycle, will be shared via email with key stakeholders on the Sunday before the start of the new cycle (week). Weekly run charts will be created using key metrics from the Excel spreadsheet including the total number of SCOFF forms collected, forms charted, negative results, positive results, and total follow-up appointments scheduled. The run chart will help pinpoint areas that may require improvement or highlight successes and provide a clear visual representation of performance trends, shifts, and patterns throughout the implementation process. This ultimately helps to support data-driven decision-making and enhance the screening process over time. Finally, an anonymous post-implementation survey will be administered to gather both qualitative and quantitative data from stakeholders. Percentages and emerging themes will be used to evaluate project improvements and stakeholder perceptions.

Table 1. Weekly SCOFF Data Sheet

	Mon.	Tues.	Weds.	Thurs.	Fri.	Weekly total
Total well-child visits (age 12-17)						
Total SCOFF forms collected						
Total SCOFF forms charted						
Total negative SCOFF forms						
Total positive SCOFF forms						
Total follow-up appts. made						

Specific Aims and Purpose Statement

The purpose of this quality improvement project is to establish a standardized process for screening adolescents for EDs. By using specific, measurable, achievable, relevant, and time-bound (SMART) goals, the project team aims to implementing a routine screening protocol and lessen the need for expensive inpatient care when outpatient treatment could be a safe alternative. Patients with positive screenings will receive resources and follow-up appointments to facilitate early diagnosis and referrals for treatment, enhancing early identification and ultimately improving outcomes for adolescents at risk for eating disorders. See table 2 for detailed SMART goals.

Table 2. Specific, Measurable, Achievable, Relevant, and Time-bound (SMART) goals

SMART Goal #1		
ED training, including education on the SCOFF tool, the eating disorder screening process, and their specific roles in the process (including documentation), will be completed by >90% of stakeholders before January 6th. • >90% because of varying FTEs, holidays, sick time • Education will be developed • Sign off sheet for completion of education will be created • "Getting started" packets will be given to each stakeholder		
Data to be collected	Collection Process	Planned data analysis
Numerator: Completed forms signed by all stakeholders. **Denominator**: Stakeholders participating in QI project	The project lead will conduct education and collect sign offs.	A percentage will be calculated based on the number of completed and signed forms relative to the number of stakeholders who received the training.

SMART Goal #2		
By the end of the first week, the ratio of completed well-child visits to returned and completed SCOFF forms to the MA will exceed 75%.		
Data to be collected	Collection Process	Planned data analysis
Numerator: Number of hard copies of completed SCOFF forms. **Denominator**: Number of well child visits for the week eligible for screening form.	The project lead will use the EHR to compile the number of eligible well child visits for the week. Hard copies of the SCOFF will be collected by the medical assistant following completion by the patient.	The project lead will analyze the number of eligible visits and number of hard copy SCOFF forms, at the end of each week. This data will be calculated and presented in the form of percentages and a weekly run chart to illustrate progress from week to week.

Table 2 Continued.

SMART Goal #3		
By the end of the first week, 75% of screening form results will be charted by the pediatricians. • 75% because a new form presents various challenges. • Forms will be in a packet with GAD-7, PHQ-9 which are routinely given at well-child visits.		
Data to be collected	Collection Process	Planned data analysis
Numerator: Number of SCOFF screenings charted for those eligible visits. **Denominator**: Number of well child visits for the week eligible for screening form.	Project lead will use EHR to compile eligible well-child visits weekly Each visit note will be viewed to see if SCOFF tool was charted Hard copies of the SCOFF will be analyzed for discrepancies in charting vs. returned form	The project lead will analyze the number of eligible visits, number of hard copy SCOFF forms, and number of charted SCOFF scores at the end of each week. This data will be calculated and presented in the form of percentages a run chart.

SMART Goal #4		
100% of all positive screens will have a follow-up appointment scheduled prior to leaving the clinic for the duration of the entire implementation process.		
Data to be collected	Collection Process	Planned data analysis
All hard copies of screening forms will be reviewed weekly. Positive screenings will be flagged for follow-up.	All positive SCOFF screens will be viewed by analyzing the hard-copy forms and viewing the EHR. EHR will be used to see if a follow-up appointment was made.	The project lead will evaluate whether a follow-up appointment was made. Number of positive SCOFF screens and number of follow -up appointments will be analyzed and presented in the form of percentages.

Table 2 Continued.

SMART Goal #5		
95% of SCOFF screenings will be charted by providers by the end of the 6-week implementation by February 14th, 2025.		
Data to be collected	Collection Process	Planned data analysis
Numerator: Number of SCOFF screenings charted for those eligible visits. **Denominator**: Number of well child visits for the week eligible for screening form.	The project lead will use the EHR to compile the number of eligible well child visits for the week. Using the EHR, each visit note will be viewed to see if SCOFF tool was charted Hard copies of the SCOFF will be analyzed for discrepancies in charting vs. returned form	The project lead will analyze the number of eligible visits, number of hard copy SCOFF forms, and number of charted SCOFF scores at the end of each week. This data will be calculated and presented in the form of percentages.

SMART Goal #6		
95% of the SCOFF forms will be completed and returned to the MA by the end of implementation by February 27th, 2025.		
Data to be collected	Collection Process	Planned data analysis
Numerator: Number of hard copies of completed SCOFF forms. **Denominator**: Number of well child visits for the week eligible for screening form.	The project lead will use the EHR to compile the number of eligible well child visits for the week. Hard copies of the SCOFF will be collected	The project lead will analyze the number of eligible visits and number of hard copy SCOFF forms, at the end of each week. This data will be calculated and presented in the form of percentages and a run chart

Table 2 Continued.

SMART Goal #7		
>75% of patients with positive screenings will attend their referral appointment.		
Data to be collected	Collection Process	Planned data analysis
Denominator: Positive screens. **Numerator**: Follow-up referrals completed	Charts of patient's who screen positive will be analyzed weekly for the completion of the mental health referral.	Number of positive screens and follow-up referrals completed will be expressed in the form of a percentage.

SMART Goal #8		
>75% of patients with positive screenings will attend their follow-up pediatric and dietician appointment.		
Data to be collected	Collection Process	Planned data analysis
Denominator: Number of positive screens **Numerator**: Completed follow-up appointment	Hard copy SCOFF forms will be analyzed for positive results. EHR will be utilized to access the charts of patients who had a positive screen.	The number of positive SCOFF screens compared to completed follow-up appointments with the pediatrician and dietician will be expressed as a percentage.

Table 2 Continued.

SMART Goal #9		
Following the 6-week implementation, 100% of participating staff members will complete the post-implementation survey to gather data on the positive and negatives experiences from the process. • Survey will be anonymous, no stakeholder identification. • Number of returned surveys will be compared to number of eligible people to take the survey.		
Data to be collected	Collection Process	Planned data analysis
Numerator: Number of stakeholders involved **Denominator**: Number of returned post-implementation surveys	The project lead will analyze the online surveys for completion	The project lead will analyze the number of staff who completed the survey compared to the number of those eligible to complete the survey (those who participated) and express that in the form of a percentage.

Safety and Confidentiality

Patient safety and confidentiality is at the forefront of quality improvement initiatives. Prior to implementation of this quality improvement project, an ethical review will be conducted by both the implementation site and Montana State University's Institutional Review Board (IRB), with approval obtained from all stakeholders. All stakeholders will adhere to routine privacy practices to ensure patient confidentiality. Potential patient risks include emotional distress related to the screening questions. This will be mitigated by prompt discontinuation of the screening if a patient appears overwhelmed or expresses a desire not to complete the form. There were no risks to staff identified.

Primary data will be collected using the SCOFF screening sheets which are administered to each patient and collected and kept by the medical assistants. All screening forms will include

the current date, the patient's initials, age, gender, and the name of the patient's provider. During each week, all completed screening forms will be kept in solid folders labeled “SCOFF screening, confidential patient information” and kept in a locked cabinet at the nurse’s station. Screening forms will be destroyed by the project lead at the end of each week once data is analyzed and placed into a password protected Excel sheet as well as a back-up flash drive at the implementation site.

Secondary data will involve reviewing eligible patient charts to verify the completion and documentation of the SCOFF screening dot phrase. Additionally, patients with a positive screening will have an identifying patient sticker placed on their SCOFF for follow-up on the completion of follow-up appointments with the pediatrician and dietitian. Chart reviews will take place in a private office in the clinic using a designated project site computer. No identifying information or screening forms will be removed from the facility. Post-implementation surveys will be administered to key stakeholders anonymously via an internet survey to gather feedback on the project process, perceived barriers, and any hesitation regarding potential large-scale implementation to all providers within the clinic.

CHAPTER THREE

QUALITY IMPROVEMENT MANUSCRIPT

Contribution of Authors and Co-Authors

Manuscript in Chapter 3

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Contributions: Created manuscript and developed major ideas for project

Co-Author: Dr. Ruth Tretter

Contributions: Chair of project's committee, first reader and editor

Co-Author: Dr. Julie Ruff

Contributions: Member of the project's committee, second reader, and editor

Manuscript Information

Author: Courtney S. Dolan

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

Eating disorders (EDs) are the third most prevalent chronic illness among adolescent females globally and the deadliest of all mental health conditions (Edakubo & Fushimi, 2020; Hartman-Munick et al., 2022). Over the past eighteen years, global prevalence has nearly doubled, rising from 3.4% in 2000 to 7.8% in 2018 (Galmiche et al., 2019). Young athletes exhibit prevalence rates of nearly 13.5%, almost doubling rates seen in the general population (El Ghoch et al., 2013). This surge has resulted in an economic burden of approximately $64.7 billion in the U.S. (Streatfield et al., 2021). Although specific rates of eating disorders among Montana adolescents are not available, nearly 11.7% of Montanans experience food insecurity (Feeding America, n.d), which significantly increases the risk of eating disorders due to heightened concerns about eating habits and related anxieties (Feeding America, n.d.). Furthermore, approximately 12.1% of the population lives below the poverty line and 20% of all residents rely on a public health insurance plan for their healthcare (Henderson, 2022; Statista, 2024). These socio-economic challenges further contribute to the vulnerability of Montana's youth developing an eating disorder.

Beyond the financial implications of eating disorders both universally and state-wide, delays of routine screening practices are further exacerbated by Montana's vast landscape which restricts provider aid within rural communities. Montana, with a population of over 1 million and a land area of over 147,000 square miles, has only two eating disorder centers and ten psychiatric providers who specialize exclusively in the care needed for individuals with eating disorders (Rittenhouse, 2021). The centers in Bozeman and Missoula are up to an 8-hour drive for some

residents across the state, rendering them less accessible, especially considering that 44% of Montana's population is classified as rural (United States Census Bureau, n.d.).

Identification of EDs is complicated by the fact that 55% to 97% of individuals with an eating disorder experience at least one mental health condition such as anxiety, depression, or obsessive-compulsive disorder (National Eating Disorders Collaboration n.d.). Alarmingly, these co-occurring mental health issues are linked to a 31-fold increase in suicide risk among individuals diagnosed with anorexia compared to those without (National Eating Disorders Collaboration, n.d.).

Although evidence supports the use of routine screening (Hornberger et al., 2023), EDs often go undiagnosed and untreated (National Eating Disorders Collaboration, n.d.), potentially leading to higher treatment costs and extensive medical bills due to the failure to address these issues at an earlier stage. Dangerous behaviors associated with eating disorders, such as purging, fasting, food restriction, and excessive exercise lead to organ damage, cardiovascular complications, and osteopenia or osteoporosis (Rittenhouse, 2021). A local outpatient pediatric clinic with two locations in South-Central Montana, serving over 40,000 pediatric patients yearly, did not routinely employ standardized screening tools to assess for EDs in adolescent patients. A literature review was conducted to determine interventions to identify eating disorders in the outpatient pediatric setting and the barriers to routine implementation.

Review of the Literature

A literature review emphasized the barriers to early identification of EDs in the outpatient pediatric setting. Systemic obstacles such as brief appointments, inconsistent educational opportunities for providers, infrequency of well-child visits, and lack of insurance coverage or

reimbursement complicate timely intervention and subsequent treatment for those with an ED (DeSocio et al., 2007; Hornberger et al., 2019; Moreno et al., 2019; Nicula et al., 2022; Penwell et al., 2024). Insurance coverage for eating disorders is rarely adequate, often decreasing providers' willingness to implement effective screening practices due to the low likelihood of reimbursement and coverage for patient treatment (DeSocio et al., 2007; Hornberger et al., 2019; Nicula et al., 2022). Moreno et al. (2019) found that patients with private insurance received treatment recommendations at a threefold higher rate compared to those with public insurance (Moreno et al., 2019). Accessing adequate care, including leading therapies in ED treatment such as cognitive behavioral therapy or outpatient treatment facilities, can be both costly and time-consuming regardless of insurance coverage (Frostad & Bentz, 2022; Kaidesoja et al., 2022).

A significant gap in the detection, diagnosis, and treatment of various EDs arises from the necessary but multifaceted approach to screening, leaving many providers uncertain about how to advance the conversations surrounding EDs and their associated health concerns (Anderson et al., 2016; Lakeman & McIntosh, 2018; Linville et al., 2010). Additionally, the lack of educational opportunities for physicians on the detection and management of EDs reflects a larger issue, with both Anderson et al. (2016) and Thompson-Brenner et al. (2012) noting frustration and reluctance among providers to treat these patients. When surveyed, 67% of medical providers expressed that continuing education and improved access to referral information would be valuable resources for more effectively addressing eating disorders (Linville et al., 2010).

Limited appointment time is a barrier to in depth conversations about eating habits and body image. Well-child visits occur annually, and an adolescent showing early signs of an ED

during one visit could be severely compromised both mentally and physically by the following year without routine screening in place (DeSocio et al., 2007). With healthcare providers seeing one patient every 10-20 minutes and handling upwards of 25 patients per day, most visits tend to be brief, focusing on developmental milestones or acute issues, leaving limited time for additional interviewing at each visit (DeSocio et al., 2007; Nicula et al., 2022). This lack of flexibility for in-depth conversations, coupled with financial pressure from high overhead costs and low insurance reimbursement, frequently results in hesitation from healthcare providers to broach the topic of EDs, fearing they lack sufficient time to thoroughly care for these patients (DeSocio et al., 2007; Linville et al., 2010).

Preventative screenings, particularly in mental health, are an instrumental component to comprehensive pediatric healthcare. Guidelines for routine screening of both anxiety and depression have been introduced into the outpatient pediatric setting over the last 20 years, showing promise in early identification of these mental health disorders (US Preventative Task Force, 2022). The use of standardized screening tools creates a roadmap for providers, guiding the clinical process and eliminating the need for lengthy assessments in already brief appointments. Validated tools offer a standardized approach to assessing and identifying patients during routine examinations (Fursland & Watson, 2014).

Based on the literature review, two validated tools were identified as effective for guiding ED screening. First, the Sick, Control, One, Fat, and Food (SCOFF) screener is an effective and brief tool for initiating discussions between patients and providers about eating behaviors and body image. With just five simple “yes” or “no” questions, the SCOFF addresses key indicators of EDs, including body dysmorphia, binge eating, and psychosocial struggles. Studies have

shown the SCOFF's high specificity (72.7-94%) and sensitivity (72-80%), making it an efficient tool for identifying youths at risk for EDs in a timely manner (Lipson & Sonneville, 2020; Saleh et al., 2018). Its simplicity and accessibility make it suitable for individuals of all literacy levels and ages, promoting universal screening even in settings where providers may have limited experience with EDs.

In contrast, the Eating Disorder Examination Questionnaire (EDE-Q) is a more detailed 28-item self-report tool that assesses behaviors like food restriction, weight concerns, and eating patterns. It has proven reliability, with a Cronbach's alpha of 0.71-0.91, and is commonly used in ongoing treatment for eating disorders (Prnjak et al., 2020; Gideon et al., 2016). However, its length can be a barrier in fast-paced outpatient settings. To address this, the 12-item EDE-QS offers a shorter, more time-efficient option with a 0 to 3 scale. The EDE-QS maintains similar diagnostic accuracy as the full EDE-Q, with sensitivity and specificity rates of 0.83 and 0.85, respectively (Prnjak et al., 2020). Despite these benefits, the research on the EDE-QS in adolescent populations is limited.

Overall, while both the SCOFF and EDE-Q tools demonstrate reliability and efficacy, the SCOFF's brevity and accessibility make it particularly suitable for universal screening, especially in outpatient environments where time and literacy constraints are concerns. The scoping review revealed that a comprehensive approach is necessary to early identification of EDs that begins with enhancing provider knowledge through educational opportunities as well as implementing a reliable screening protocol into practice to guide assessment and referral.

Conceptual Framework: Plan, Do, Study, Act (PDSA)

The Institute for Healthcare Improvement's (IHI) Model for Improvement incorporates the Plan-Do-Study-Act (PDSA) cycle and is guided by three critical questions: 1.) What is the desired outcome or accomplishment? 2.) What change can be made to drive improvement? and 3.) How will it be determined that the change created an improvement? (IHI, 2024). This QI project utilized the PDSA cycle format to facilitate continuous improvement through weekly cycles of reassessment and adjustment. The Plan (P) phase focused on recognizing the absence of ED screening in the pediatric clinic and engaging stakeholders to support a shift toward a standardized screening workflow including the SCOFF from and guidelines for subsequent referrals. This phase included setting objectives and creating an overall plan for the change. The Do (D) phase involved implementing the plan by administering the SCOFF screening forms on a small scale each week to test the change and collect initial data. During the Study (S) phase, with the help of the project stakeholders, the results and challenges from the previous week's data and SCOFF forms were analyzed. Finally, the Act (A) phase utilized these insights to refine and enhance the next cycle of SCOFF screening for the project (Agency for Healthcare Research and Quality, 2024). These small-scale cycles enabled the team to act and learn from the process in real time, rather than simply discussing plans without implementing them or waiting until the project's conclusion to adjust. This flexible, overlapping approach created ongoing opportunities for change, keeping stakeholders actively engaged (AHRQ, 2024). This model offered an ideal framework for translating evidence-based practices, as identified in my literature review, into actionable steps for testing the implementation of the SCOFF screening form.

Aims and Purpose

The purpose of this quality improvement project was to implement a standardized screening process for adolescents at well-child visits to improve the early detection of eating disorders. Using the SCOFF (Sick, Control, One, Fat, Food) questionnaire, the project aimed to identify potential ED behaviors and trigger a more in-depth clinical interview and evaluation for those with positive screening forms. The primary objective was to facilitate early identification, prompt referrals for treatment, and ultimately to improve outcomes for adolescents at risk for EDs.

Ethical Considerations

Prior to implementation, this quality improvement project underwent an ethical review and was deemed non-human subject's research by both the implementation site and Montana State University's Institutional Review Board (IRB). Patient confidentiality was maintained by not removing identifying information or screening forms from the facility. Screening forms were destroyed by the project lead at the end of each week once data was analyzed and placed into a password protected Excel sheet on a laptop as well as a back-up flash drive stored at the implementation site.

Methods

Context

The quality improvement project took place at a pediatric outpatient clinic in south-central Montana. This clinic serves a local population of over 120,000 and extends its care to thousands more from rural communities throughout the state, as well as patients from

neighboring states seeking complex pediatric care. The clinic employs a total of 12 full time pediatricians (MDs), one full time resident provider from Seattle Children's, two advance practice providers (APPs), four registered nurses (RNs), one licensed practical nurse (LPN), eight medical assistants (MAs), and four front desk staff. Additionally, ancillary staff such as social workers, physical therapists, occupational therapists, and dietitians play a key role in the clinic. A randomized review of 35 patient charts for children ages 12-17 attending well-child visits found that none included documentation of eating habits, exercise routines, or body image—factors commonly associated with signs of an eating disorder. Commonly cited reasons from the clinic providers for lack of routine screening were unawareness of available screening tools for these conditions, uncertainty about the utility of such screening tools, time constraints for adding another screening form, or a lack of guidance on how to handle adolescents showing signs of an ED. These feelings are congruent with the literature that uncovered similar feelings of providers regarding screening tools within the clinic setting.

Key stakeholders in this project included the pediatric providers, who played a central role in evaluating the screening forms; the medical assistants and nursing staff who administered the forms; the front desk staff, who scheduled follow-up appointments; the social worker, who coordinated care and connected patients to counseling resources; and the dietitian team, who provided referrals for patients with positive screens who were interested in further support.

Intervention

The eating disorder screening protocol aimed to establish a consistent approach to screening for EDs and for follow-up of positive screenings. To assess baseline knowledge of EDs, preferences for screening practices, and interest in implementing a standardized protocol, a

brief pre-implementation survey was sent via email to all clinic providers (Appendix C). The survey inquired about current screening practices, familiarity with existing ED screening methods, and preferences between two potential screening tools. This helped identify the need for a formal screening protocol and garnered support for ED screening within the clinic. Of the four returned surveys, most providers (75%) preferred the SCOFF as a screening option over the Eating Disorder Examination Questionnaire- Short Form (EDE-QS) due to simplicity for pediatric patients.

Together, key stakeholders collaborated with the project lead to develop the SCOFF-Based Eating Disorder Screening and Referral Protocol for administering the screening form and a subsequent follow-up plan for positive screenings. The project lead compiled a list of nine counseling resources, both in-person and virtual, specializing in ED patients locally and statewide, to provide to patients with a positive screen. This list was included in the provider education packet (Appendix B), which also contained an overview of the clinical significance and statistical data on EDs in the United States, the SCOFF screening tool, a list of follow-up questions and tips for initiating conversations after a positive screen, and a page outlining recommended follow-up appointments and expected outcomes. All clinical staff underwent an education session prior to the implementation start date using the education packet and information gathered from the literature review. These sessions focused on everyone's role in the new process. A one-page handout summarizing the key aspects of the quality improvement initiative (Appendix A) was displayed at nursing and provider workstations to minimize the risk of overlooking the distribution of the form. Finally, the education packet was provided in both a

physical packet and a shared Word document, ensuring easy online access for staff to reference throughout the implementation process.

Beginning January 13th, 2025, the MA provided the SCOFF screening sheet to each patient aged 12-17 attending a well-child visit with a participating provider. Brief instructions from the MA or nurse on the SCOFF form were provided to the patient, encouraging the pediatric patient to complete the form themselves but encouraging parental input if clarity or advice was needed. After the patient completed the forms, the MA collected and provided the SCOFF screening form to the pediatrician for analysis. Scores > 2 on the SCOFF indicated potential eating disorder tendencies. Providers used these results to decide whether to initiate a conversation if the score is positive (> 2) or use their discretion on further evaluation if the score was negative (< 2). For patients with positive screens, a conversation about counseling and therapy resources was provided in the visit summary. A follow-up appointment with the pediatrician was strongly recommended in 3-4 weeks to assess potential treatment and therapy needs. At this time a discussion about dietician involvement would be had. Parents were encouraged to stop at the front desk prior to leaving where staff would assist in scheduling this appointment before the patient leaves the clinic. Finally, the SCOFF score and any parental input regarding eating habits and patterns was placed into the visit note in the patient's electronic medical chart using the designated dot phrase .SCOFF.

Measures and Analysis

Weekly, a chart audit and data collection process evaluated the ongoing effectiveness of the SCOFF screening and referral protocol. Beginning on January 13th, 2025, provider schedules were reviewed daily to assess the total number of eligible visits for the week that should receive

the SCOFF screening form. At the end of each week, the physical SCOFF forms were collected, and a systematic chart audit was conducted to check for the charted SCOFF score and confirm whether the patient had been screened using the SCOFF. This process continued until the completion of the testing phase on February 28th, 2025. Key metrics collected on a weekly basis included the total number of eligible patients for screening, the number of physical copies of the SCOFF forms returned in relation to eligible visits, whether the SCOFF was documented by the provider for all eligible screenings, and for those who screened positive, whether a follow-up visit was scheduled. In line with the PDSA model, this information was tracked weekly in an Excel spreadsheet, with data compiled across weeks. Information from the spreadsheet was emailed to the providers each Sunday updating them on weekly and overall project progress, any process changes, and upcoming screenings to anticipate before the next cycle. This email thread provided an opportunity for providers to share any changes they wished to implement, highlight successes, discuss challenges, and exchange ideas for the upcoming week.

To measure the success of the screening process in relation to the goals set, the data was presented as percentages and displayed in run charts to visually track eligible patients, collected and charted SCOFF forms, and follow-up visits made. At the end of the seven weeks, the total number of screening forms were totaled, and the positive and negative SCOFF scores were calculated and presented as percentages. The number of missed screening forms for eligible visits was also tracked weekly. The objective was to ensure that 95% of eligible visits received the SCOFF form, and that 100% of positive results were followed by appropriate follow-up and subsequent counseling recommendations.

Results

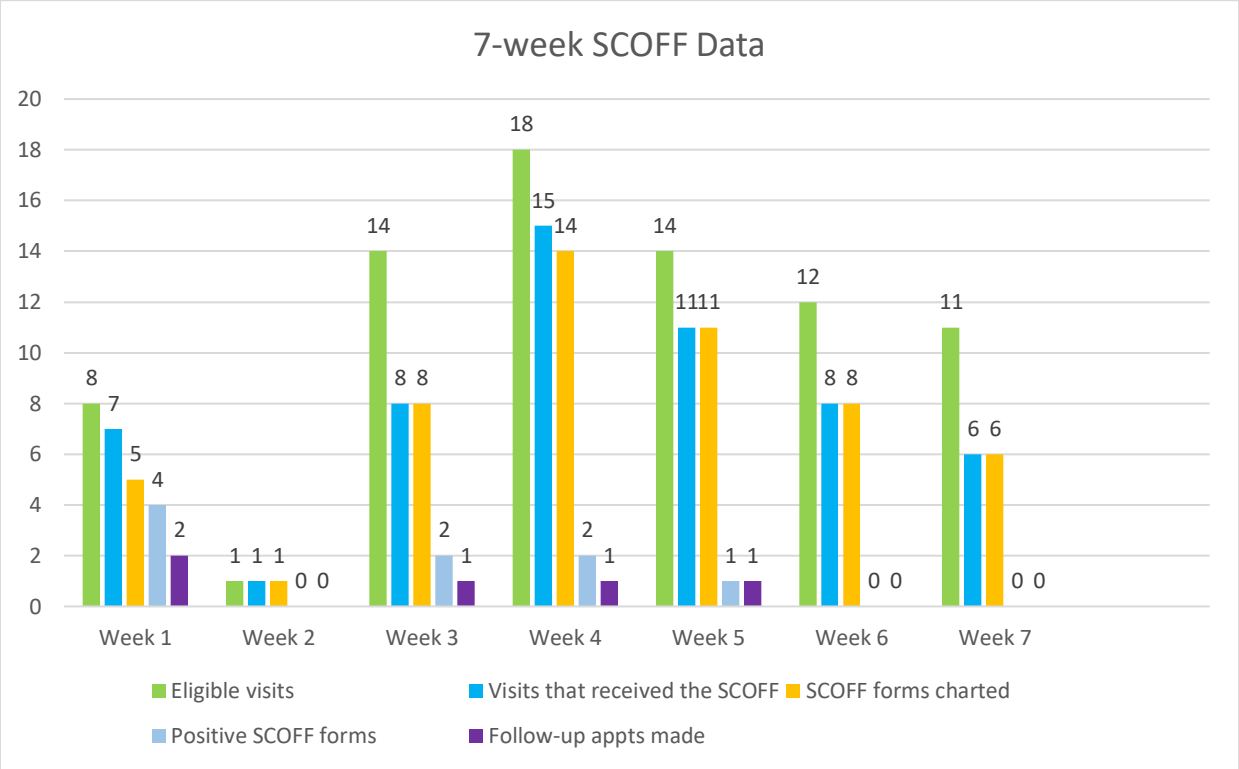
Prior to the start of the project, the team surpassed the goal of having greater than 90% of participating staff members complete the training prior to the start of the project, successfully engaging 100% of participating members in the training. Additionally, one provider opted out of the project during the first week, as they preferred to keep the project focused on one site before expanding to two. However, another provider joined at the start of week three, contributing four weeks of data collection and adding an additional 11 screenings. The remaining three providers had seven weeks of data collection.

During the seven-week implementation period, a total of 75 patients were eligible for screening, and 56 patients were screened using the SCOFF tool, resulting in a screening rate of 74.6%. Of the 56 patients screened, 9 had positive scores (16.1%), indicating potential eating disorders or signs of disordered eating. Of the nine positive results, 6 were female, with the average age for a positive screen being 15 years old. Notably, 100% of those with positive screenings also had a diagnosis of anxiety and/or depression.

Figure 4 (below) depicts the weekly data gathered across the seven-week implementation period. Following week two, the team recognized that only screening well-child visits was not reaching many adolescents that were coming into the clinic. For weeks three-seven, the team expanded the screening to include patients coming in for medication checks (e.g., anxiety, depression) and any mental health related follow-up visits. By expanded the screening to include patients coming in for mental health related appointments in week three, 26 additional appointments were screened, resulting in five positive SCOFF scores from those visits. By weeks four and five, the team noticed an increase in the number of eligible visits and screening

completed due to the additional provider and the expanded reach to a broader demographic. Overall, adding the mental health and medication checks accounted for 46.4% of the total eligible visits screened.

Figure 4. Seven-Week SCOFF Data



By the end of the first week, the ratio of completed well-child visits to returned and completed SCOFF forms was 88%, exceeding the project goal of 75%. However, this number decreased to 75% by the end of the project, falling short of the end goal of 95%. In terms of charting SCOFF scores, 100% of scores were documented by the end of week one, meeting the target of 75%. By the end of the seven-week implementation period, 95% of scores were charted, achieving the goal set by the team. Figure 5 (below) shows the trends of SCOFF administration

rates weekly, while Figure 6 (below) illustrates the charting trends of SCOFF forms in relation to collected forms over the seven-week cycle.

Figure 5. SCOFF Administration Rates

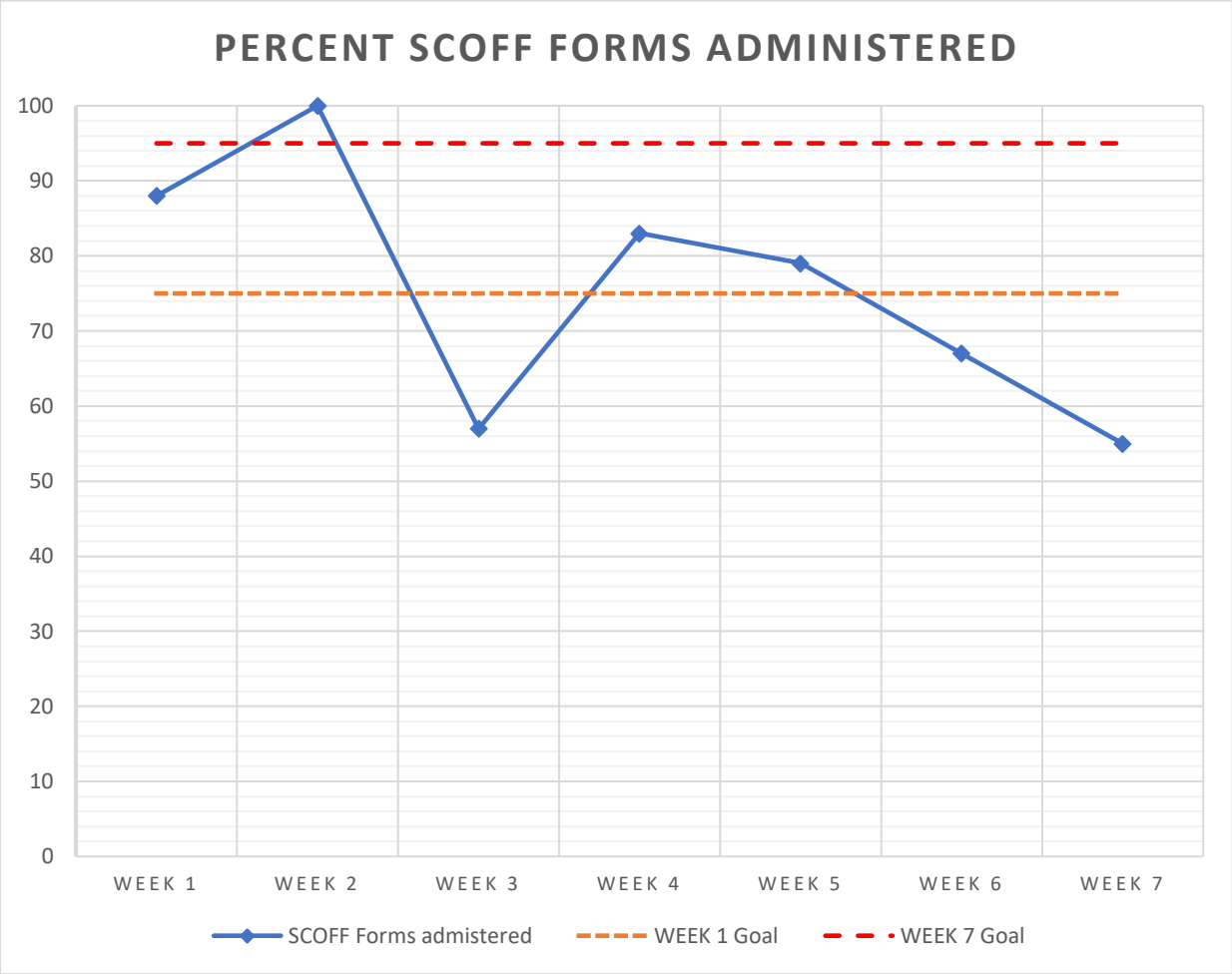
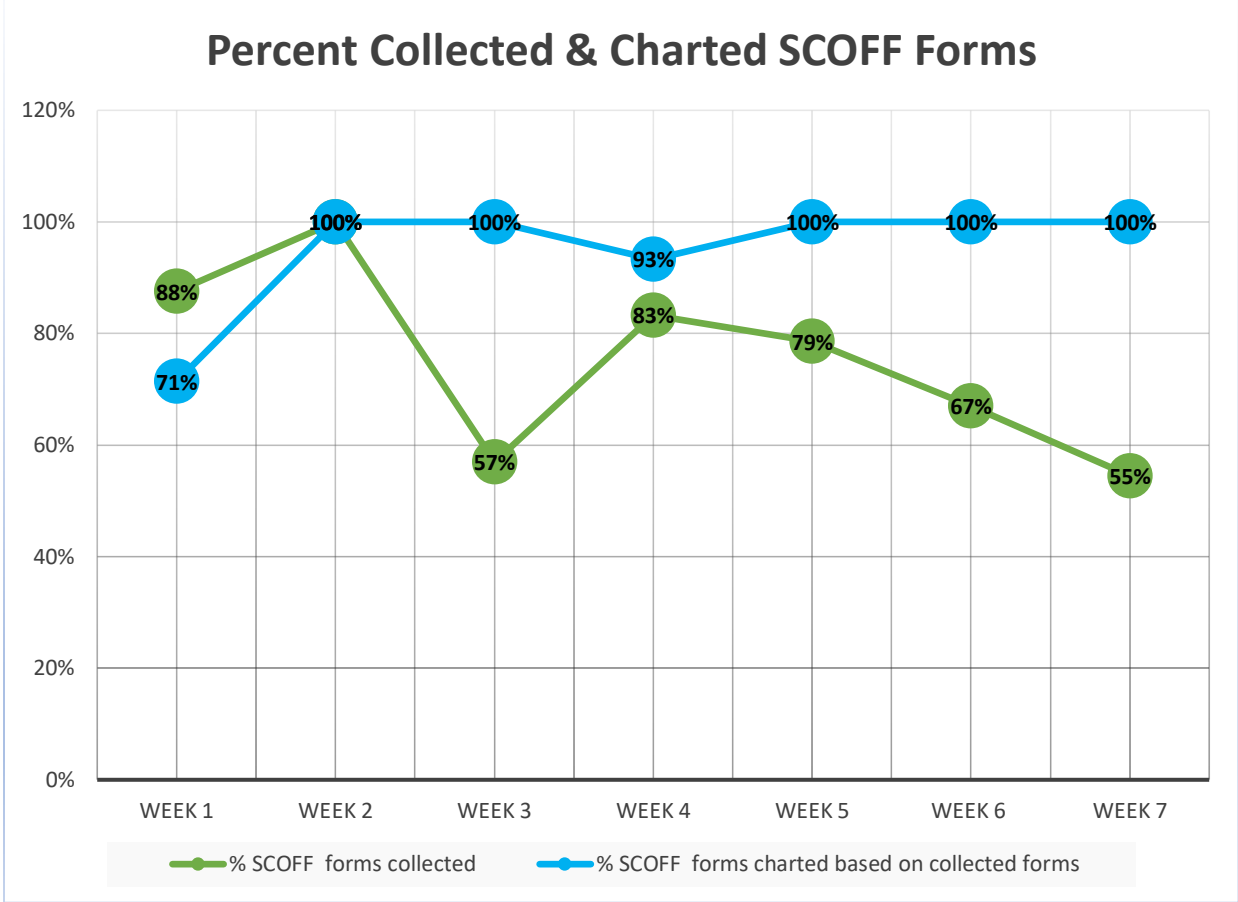


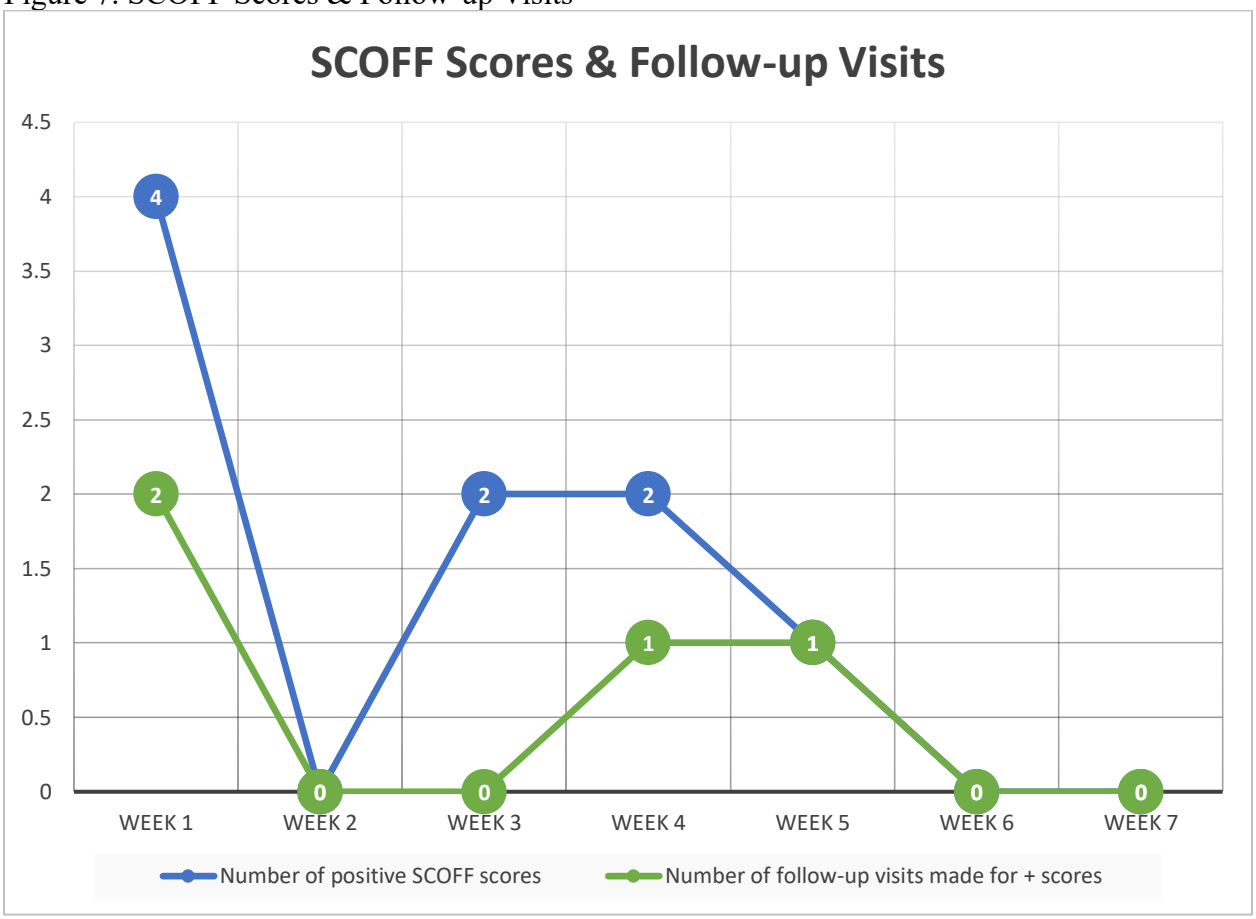
Figure 6. Percent of Collected & Charted SCOFF Forms



The team set a goal of having more than 75% of positive screenings attend a referral appointment with a counselor or mental health specialist and more than 75% to attend their follow-up appointment with their pediatrician. Figure 7 (below) illustrates the weekly positive results with scheduled follow-up visits. Notably, four of the nine positive screenings (44.4%) that occurred early in the project had a follow-up appointment either with the pediatrician, the dietician, or IBH. Additionally, the team observed an increase in Integrated Behavioral Health (IBH) referrals during weeks four and five, assisting two of the nine (22.2%) positive screenings, following the launch of the pilot program within the clinic, separate from the SCOFF screening

protocol, in week four of the SCOFF screening project. IBH involves behavioral health specialists, such as counselors and psychiatrists, working alongside primary care providers to address both physical and mental health needs of patients. The introduction of the IBH program within the clinic allowed for a more streamlined referral to enhancing overall adherence to treatment recommendations for positive screenings.

Figure 7. SCOFF Scores & Follow-up Visits



While the original plan outlined a three- to four-week follow-up with both the dietitian and pediatrician together, by week two, the team collectively agreed that a six- to eight-week follow-up would be more appropriate, aligning with typical mental health follow-up schedules.

To streamline provider workflows and maintain consistency with existing practices, the decision was made to extend the follow-up period and eliminate the joint appointments between the pediatrician and dietitian, as coordinating both providers' availability at the same time proved challenging. Interestingly, those who scheduled a follow-up visit before leaving the clinic were the only ones who attended their follow-up, while the remaining five positive results, who did not have follow-up visits scheduled before leaving the clinic, did not have a return appointment scheduled or attended by the end of the project. Due to the short 7-week implementation period with a 6-8-week follow-up, it was challenging to fully assess the success of these project goals, as there was insufficient time to gather data on the long-term follow-up results for all patients in the project.

Aligning with the final goal, 100% of participating staff members completed the post-implementation survey aimed at helping make project improvements. Overall, 100% of participating staff members felt that integrating the SCOFF into their routine practice and workflow was easy and believed the SCOFF form should be added to all well-child visits for ages 12-17, alongside the GAD-7 and PHQ-9, throughout the clinic. Finally, 83% expressed confidence in using and administering the SCOFF tool for future project screenings, while 17% remained neutral.

The survey revealed two key challenges encountered with the SCOFF tool and referral protocol: difficulty remembering to administer the form and confusion about when to administer it. In the qualitative data section of the survey, varying degrees of satisfaction regarding the follow-up process and recommendations for positive SCOFF screens were highlighted. Staff requested a more defined plan for follow-up, particularly for the highest-risk patients, including a

flowchart to guide next steps based on specific factors, such as the presence of other mental health concerns, the degree of positive answers on the form, and clearer follow-up instructions. Staff also noted an overall positive response from parents and patients regarding the new screening protocol and felt that patients understood what the SCOFF screening form was asking.

Discussion

The purpose of this quality improvement project was to implement a standardized screening process for adolescents at well-child visits to improve the early detection of eating disorders. Using the SCOFF (Sick, Control, One, Fat, Food) questionnaire, the project aimed to identify potential ED behaviors and trigger a more in-depth clinical interview and evaluation for those with positive screening forms. The primary objective was to facilitate early identification, prompt referrals for treatment, and ultimately to improve outcomes for adolescents at risk for EDs. While the SCOFF tool demonstrates potential for the early identification of EDs through brief assessment methods, several studies emphasize that screening tools like the SCOFF should not be used for diagnostic purposes (Coop et al., 2024; Prnjak et al., 2020). Instead, these tools should serve as an initial step in the evaluation process, prompting further investigation and conversations with patients to guide subsequent assessments, rather than providing a definitive diagnosis (Coop et al., 2024; Prnjak et al., 2020).

There is often confusion between disordered eating and eating disorders, as the terms are used interchangeably despite representing different levels of severity and clinical criteria. Although there is significant overlap between the two, disordered eating varies in severity and does not meet the frequency, duration, or psychological criteria required for a diagnosable ED according to the Diagnostic and Statistical Manual of Mental Disorders (DSM-5) (Dennis, 2024).

It is important to note that not all disordered eating evolves into a diagnosable ED. Early intervention has been shown to improve treatment outcomes by identifying and addressing symptoms early, preventing the progression into a diagnosable ED (Dennis, 2024).

Eating disorders are complex conditions rooted in psychological issues, with disordered eating behaviors serving as the physical manifestation. This QI project found that administering the SCOFF questionnaire during mental health-focused visits was beneficial, identifying 16.1% of screened visits as having a potential eating disorder—a prevalence higher than the global reported rate of 7.8% in 2018, as well as the 13.5% identified in young athletes nationwide (El Ghoch et al., 2013; Galmiche et al., 2019). Notably, anxiety and/or depression were present in 100% of individuals with positive SCOFF scores in this project, a finding consistent with the literature. The coexistence of a mental health condition can often mask symptoms of disordered eating, adding to the complexity of treatment and diagnosis. Beyond identification, addressing positive screens proved challenging for providers and dietitians, as access to counseling and therapy for individuals with potential eating disorders was limited. Providers and dietitians struggled to manage these patients independently without the support of a counselor, underscoring the need for collaboration across specialties. These results highlight the challenges of addressing eating disorders, given their multifactorial nature and their coexistence with other mental health conditions (National Eating Disorders Collaboration, n.d.). A holistic care approach, involving multidisciplinary support, is essential for achieving optimal outcomes in the treatment of eating disorders.

Limitations

Several barriers and limitations arose throughout the project. Limited provider buy-in added complexity to the process. One provider initially agreed to assist but decided not to participate when the project started, as they were the only provider at the other site. They recommended that the team focus on one site rather than being spread across two when implementing the new process. Without full provider participation, it was challenging for the medical assistants to maintain a consistent process for who should receive screening forms. Since the SCOFF form could not be added to all adolescent patient packets to ensure every teen was screened as originally planned, the responsibility fell on the medical assistants and nursing staff to remember to add the form. As a result, there were occasions when the screening form was not provided to patients, leading to inconsistencies in the screening process.

The team did observe a decrease in screenings during the final two weeks of the project. This decline could have been due to a variety of factors such as staff falling back into previous workflow practices, leading to inconsistencies in who received the SCOFF. Congruent with feedback from the post-implementation survey, staff noted that forgetting to administer the form was a barrier to routine screening and being uncertain about which medication checks, or mental health related visits qualified for a SCOFF screening, leading to personal judgment calls on whether a patient should receive the screening form.

Another key limitation was the short timeline of seven weeks. This hindered the ability to gather a larger sample size, with only 75 eligible patients and 56 screened. Consequently, the findings may not fully capture the potential impact of the intervention over a longer period. Furthermore, the brief timeline did not allow for sufficient time to monitor how all positive screens progressed after the initial screening and whether patients adhered to recommended

ongoing support and follow-up appointments. This lack of follow-up data prevents a comprehensive understanding of the long-term health outcomes associated with the use of the SCOFF tool and early referrals with children who present to the pediatric clinic.

Finally, despite having an actionable follow-up plan with a list of local and state counseling options, some providers were hesitant to engage, citing concerns that the limited resources and lack of direct, consistent access to counseling would undermine the effectiveness of the screening process. Expanding on this concern, there were limited counseling resources for patients with eating disorders, with wait times for counselors often stretching for weeks, causing delays in follow-up care with both providers and dietitians. Time constraints further complicated matters, as fewer well-child visits occurred during the implementation period. This was likely due to a higher number of episodic visits related to respiratory season, while most well-child visits typically take place during the summer months or just before school begins. These issues underscored the need for a more streamlined, resource-supported approach to address eating disorders effectively in the pediatric setting.

Recommendations

Future projects should focus on several key improvements. First, integrating an on-site counselor, such as through Integrated Behavioral Health (IBH) would enhance the support available for patients. The inclusion of IBH during week three of the QI project allowed for two positive screenings to receive direct referrals within the clinic for more prompt follow up rather than relying on patients to make off-site counseling appointments, which often took weeks. It would be valuable to assess the impact of having IBH throughout the entire implementation

process and how this integration could improve adherence to follow-up visits and long-term outcomes for these patients.

Additionally, ensuring that all providers within the site participate in the screening process is essential, thereby increasing compliance and ensuring that the form is both completed and evaluated by the provider. This would help improve compliance as everyone would receive this packet at check-in and would require less reliance on the memory and eliminate personal interpretation of the MAs and nursing staff on who should receive the form. Finally, establishing a clinic wide protocol for addressing positive screens with participation from all the clinic's providers would help streamline follow-up care and ensure consistent management of potential eating disorders.

Conclusion

By integrating the SCOFF-Based Eating Disorder Screening and Referral Protocol into the workflow, the team enabled early detection, timely referrals, and ensured that patients received necessary support and resources to address both the psychological and physical aspects of EDs, ultimately fostering a foundation for more comprehensive and holistic care. While further research is needed to assess the SCOFF tool's effectiveness in improving long-term patient outcomes when integrated with comprehensive care, its use as a screening tool for the early identification of eating disorders in a clinical setting has proven valuable. Through improved staff education and awareness, coupled with the proactive use of a brief screening tool, the team was able to connect patients to necessary resources, such as counseling and dietitian support without adding a significant time to the busy appointments. This not only raised

awareness about the importance of addressing eating concerns but also highlighted the need for integrated care that supports both the psychological and physical well-being of Montana's youths.

Through routine integration of screening tools such as the GAD-7 and PHQ-9, we have empowered providers to recognize signs of mental health challenges, ensuring that patients receive the comprehensive care they need. Similarly, utilizing the SCOFF screening combined with clear guidelines for referral and integrated behavioral health, holds immense promise in becoming a standard part of pediatric care to recognize signs and tendencies of disordered eating. The results of this quality improvement initiative highlight the role that early detection and interdisciplinary care coordination play in pediatric care and how routine screenings, such as the SCOFF, serve as an integral component in promoting better long-term health outcomes for youth.

CHAPTER FOUR

ADVANCED NURSING ESSENTIALS REFLECTION

The American Association of Colleges of Nursing (AACN) outlines ten core competencies that Doctor of Nursing Practice (DNP) students must develop through a combination of didactic and clinical experience in the E*ssentials of Doctoral Education for Advanced Nursing Practice* (AACN,2021). Updated in 2021, these competencies have served as the foundation for my growth into becoming a Nurse Practitioner and shaped my ability to provide advanced patient care, lead clinical initiatives, and contribute to holistic healthcare delivery. Through coursework, clinical practice, and the implementation of a quality improvement project, the following sections provide examples that highlight how I applied key principles from these essentials during my doctoral journey to earn my Doctor of Nursing Practice in Family Practice at Montana State University. These experiences have deepened my understanding of the DNP essentials and their practical application in clinical settings. The final chapter will reflect on how these competencies were addressed through the curriculum and how they will guide my future role as a Nurse Practitioner.

Domain 2: Person-Centered Care

The second essential is “Person Centered Care,” which guides focus to an individualized, holistic, compassionate, yet evidence-based approach (AACN, 2021). Person-centered care emphasizes treating patients as active partners in their care and goes far beyond just addressing medical issues but rather focusing on the whole person and their unique circumstances. Throughout classes such as Vulnerability and Health Care in Diverse Communities, we learned

skills necessary to provide holistic care and direct translate this into our clinical practice. Oftentimes in medicine, we can remain so focused on treatments and following standard protocols that we lose sight of the patient's perspective and their long-term goals. Person-centered care helps refocus our attention on the "why" behind what we do, ensuring that we not only deliver evidence-based treatments but also integrate holistic measures that align with the patient's values. This approach reminds us that healthcare is not just about fixing conditions but about supporting the whole person. To highlight how I have incorporated patient-centered care into my project, the focus was on more than just diagnosing an eating disorder but rather aimed to uncover underlying issues and provide the necessary resources to help patients address them. Eating disorders are psychological conditions, with disordered eating serving as the physical manifestation. My project centered on the identification and ongoing support of these individuals through counseling and dietitian appointments to provide holistic care to treat the underlying psychological issues of an eating disorder.

Furthermore, during a recent clinical rotation, I had a patient who expressed concerns about taking an anxiolytic medication but was struggling greatly to manage her anxiety. Through shared decision-making and an extended appointment time, we discussed her fears and reservations, exploring alternative ways to manage her anxiety without relying on medication, such as anxiolytics. She mentioned that she was worried we would insist on prescribing a medication, but instead, she was relieved to explore other options that better aligned with her preferences. By listening to the patient's concerns and collaboratively deciding on the best course of action, we identified a set of solutions that would enhance her adherence to therapies for managing her anxiety. While the first-line therapy may have been an anxiolytic, a patient-

centered approach empowered her to feel more in control of her treatment plan and more confident in the choices we made together. As I step into my new role as a nurse practitioner, employing this individualized approach to patient care will not only cultivate a relationship of trust but also foster an environment of collaboration of healing.

Domain 3: Population Health

The third domain, "Population Health," emphasizes equitable healthcare delivery within communities and prioritizes health prevention and promotion through public health initiatives and community partnerships (AACN, 2021). Classes such as Population Health and Vulnerability and Health Care in Diverse Communities taught a holistic approach to healthcare, focused on health disparities, as well as social and economic factors that influence overall health. One example that highlights the economic disparities in different populations was having to shift my focus on finding ways to ensure that adolescents with Medicaid had access to the same counseling opportunities as those with private insurance during my DNP project on eating disorders in the pediatric setting. Many counselors, particularly in private practice, do not accept Medicaid, making it difficult to secure equitable services for individuals with eating disorders. Despite these challenges, identifying these barriers was a vital part of addressing gaps in access to care and ensuring that all patients, regardless of insurance type, receive the support they need.

As a future Nurse Practitioner, population health will be a significant part of my daily practice, especially in a rural state such as Montana. Every patient community, and population faces unique needs and challenges, and as their provider, I will be their strongest advocate for addressing those healthcare needs. Monitoring and addressing population health disparities involves collecting and analyzing local and global data to identify trends, risks, and note

disparities within populations. By doing this, I can seek to pinpoint key health issues and implement targeted interventions such as education or community-based programs that can be implemented to promote equity across populations. As a future advanced practice provider, I plan to continue applying the lessons I have learned about health promotion and prevention through community partnerships and using them to meet patient needs and enhance patient care.

Domain 4: Scholarship for Nursing Discipline

The fourth domain, "Scholarship for the Nursing Discipline," emphasizes the DNP student's ability to apply the knowledge gained throughout the program (AACN, 2021), particularly from courses like Healthcare Delivery and Design, Informatics, and Statistical Applications. These classes systematically prepared us to understand the complexities of healthcare systems, understand the role of informatics in improving healthcare outcomes, and how to properly utilize statistical tools and analysis to identify trends, measure outcomes, and assess the impact of interventions, which are critical for quality improvement initiatives. Over the past year, Nursing 674 guided us through the necessary steps for executing a successful quality improvement project. We began by identifying a gap in practice, then developed a research question, proposed solutions, and outlined expected outcomes. We conducted an extensive literature review to create a synthesis that would inform our project. Originally beginning with 207 articles, 18 peer-reviewed sources were utilized in the literature review to guide the quality improvement initiative. Each article was independently reviewed and assessed for quality. The strength of study designs, the validity of outcomes, and the consistency of results across different sources were thoroughly analyzed. This process prepared me to effectively use the evidence gathered to act and implement my quality improvement project. By thoroughly

assessing the quality of the literature, I was able to confidently apply the most relevant and reliable evidence to drive meaningful improvements in practice.

Finally, utilizing the evidence-based methods uncovered, site networking, and collaboration with interdisciplinary teams, we implemented our plans and disseminated the results of our work in Nursing 675. By evaluated current practice and site needs, forming a motivated team, and collaborating to develop an implementation plan, the quality improvement project came to fruition and was continually refined throughout the 7-week implementation period by studying multiple PDSA cycles to ensure ongoing improvements were being made. These courses set the foundation for improving community health by developing actionable plans to address the practice gaps we identified. Moving forward, as a future Nurse Practitioner, I plan to carry these same efforts for practice improvement and change by continuing quality improvement initiatives wherever I work. My commitment to lifelong learning will drive me to consistently seek opportunities for growth and contribute to enhancing healthcare practices and patient outcomes.

Domain 6: Interprofessional Partnerships

The sixth domain, "Interprofessional Partnerships," emphasizes intentional collaboration across specialties to optimize patient care (AACN, 2021). By fostering a team-oriented environment, this approach aims to improve patient outcomes through coordinated efforts and shared expertise. As a doctoral student, I made a deliberate effort to build strong relationships with each clinical site and its staff. By applying the tools and skills gained throughout my entire three years, including classroom and clinical experiences, I was able to use those skills to help me secure a supportive environment for my DNP project, as I had already established trust with

the team at a particular clinic. Building rapport and relationships during every professional encounter allows mutual respect, and effective communication, which are essential for collaboration and positive outcomes. For me, finding these qualities in the pediatric clinic I completed my QI project in facilitated a smoother integration of my project which in turn enhanced overall productivity and ease with an already trusting and supportive staff.

Additionally, working with individuals from different specialties, where everyone brings their own level of expertise, helps to create a more comprehensive and holistic approach to patient care. This collaborative environment allows for the integration of different perspectives, leading to better problem-solving, enhanced care coordination, and ultimately, improved patient outcomes. While working on my Quality Improvement (QI) project, I collaborated with dietitians and providers to identify gaps in the practice of eating disorder identification and worked with the social worker to determine actionable steps for addressing positive screenings. This interprofessional collaboration was crucial to the success of my project, as integrating insights from various specialties allowed me to develop a comprehensive plan and ensure effective follow-up.

Domain 7: Systems-Based Practice

The seventh domain “Systems-Based Practice” highlights the proactive approach needed to coordinate resources and deliver safe, high-quality, and equitable care to a variety of different populations (AACN, 2021). In Montana, where much of the state is rural, working together across disciplines is critical to providing equitable care to diverse populations. Access to healthcare can be limited in these areas, so it's essential to ensure that all individuals, regardless of their location or background, have the resources and support they need for optimal health

outcomes. Throughout my project, I focused on delivering high-quality care while coordinating numerous resources, such as counseling, follow-up pediatric appointments, and dietitian referrals. It required collaboration across all disciplines to create a comprehensive care plan for patients with positive screenings, ensuring they received ongoing assessments and support to help them in the most effective way possible.

During one of my clinical rotations in a more rural environment, I observed my preceptor helping a patient who had been hospitalized for a pulmonary embolism and required anticoagulation therapy before being discharged. During a conversation, the patient revealed that her finances were extremely limited, leaving her with only $40 each month after paying her bills. The cost of the prescribed Lovenox was $47, which she could not afford. My preceptor dedicated over 8 hours to speaking with social workers, pharmacists, and local health assistance programs to finding a way to help the patient get her medication. She was able to find coupons and free monthly trials for the medication, ensuring the patient could safely go home while still being able to meet her financial obligations. This was such an important lesson in systems-based care that I was able to be a part of. My preceptor's attention to detail and proactive coordination ensured that the patient received the medication she needed, which in turn allowed her to safely manage her condition at home while maintaining financial stability. This thoughtful approach not only addressed her immediate health needs but also considered her broader life circumstances, demonstrating the importance of holistic, patient-centered care. As a future advanced practice provider in rural Montana, I will focus on understanding how different components of the healthcare system interact and how these relationships impact patient outcomes. This includes

collaborating with interdisciplinary teams, utilizing evidence-based guidelines, and ensuring smooth transitions of care between providers, specialists, and community resources.

Conclusion

During my last three years at Montana State University, the doctoral program has been transformative in shaping my future career as a Nurse Practitioner. The in-depth coursework focused on key essentials to high quality patient care, hands-on clinical experiences, and the completion of a quality improvement project have equipped me with a higher level of knowledge, critical thinking, and leadership skills. These experiences have not only deepened my understanding of advanced clinical practice but also enhanced my ability and confidence to influence patient outcomes and drive change in clinical settings. As I move forward into my new career as Nurse Practitioner, I am excited to apply the skills and insights I learned to provide comprehensive and evidence-based care to my patients for years to come

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APPENDICES

APPENDIX A

ONE-PAGE STAFF HANDOUT

EATING DISORDER SCREENING PROTOCOL: A HEALTH INITIATIVE & HOW **YOU** CAN HELP

The rate of children under 12 being admitted to a hospital for eating disorders **rose 119% in less than a decade** (Agency for Healthcare Research and Quality, 2009).

10,200 deaths each year are the direct result of an eating disorder – that's **one death every 52 minutes** (Deloitte Access Economics, 2020).

Less than 6% of people with eating disorders are medically diagnosed as "underweight" (Gravina et al., 2018).

Project timeline

Jan. 13-Feb 28

Who gets a SCOFF?

Ages 12-17

Where do I put the completed SCOFF form?

Blue folder at the nurses station

SCOFF Questionnaire

- Do you make yourself **S**ick because you feel uncomfortably full?
- Do you worry you have lost **C**ontrol over how much you eat?
- Have you recently lost more than **O**ne stone (14 lbs) in a 3-month period?
- Do you believe yourself to be **F**at when others say you are too thin?
- Would you say **F**ood dominates your life?

(Luck et al., 2002)

APPENDIX B

QUICK GUIDE: EDUCATIONAL ED HANDOUT

Eating Disorder Facts & Statistics

Eating disorders affect over 28 million Americans each year (Deloitte Access Economics, 2020). Dangerous behaviors associated with these disorders, such as purging, fasting, food restriction, and excessive exercise lead to menstrual irregularities in females, organ damage, cardiovascular complications, increased risk of heart failure, and osteopenia or osteoporosis (Rittenhouse, 2021). While the occurrence of eating disorders is not frequently observed until after puberty, current data reveals an increase in contributing elements to the onset of both disordered eating tendencies and diagnosable eating disorders during these critical adolescent years, particularly **between the ages of 10 and 14** (Rohde et al., 2014).

10,200 deaths each year are the direct result of an eating disorder – that's **one death every 52 minutes** (Deloitte Access Economics, 2020).

The rate of children under 12 being admitted to a hospital for eating disorders **rose 119% in less than a decade** (Agency for Healthcare Research and Quality, 2009)

Less than 6% of people with eating disorders are medically diagnosed as "underweight" (Flament et al., 2015).

In adolescents, the **mortality rate** associated with anorexia ranges from **4% to 11%** (Gravina et al., 2018).

Adolescents with anorexia have a **12x greater risk of death** compared to their peers in the general population (Gravina et al., 2018).

13% of adolescents will develop an eating disorder by the age of 20 (Reinecke, 2017).

3.8% of female, and 1.5% of male, adolescents will struggle with an eating disorder (Rittenhouse, 2021).

55% to 97% of individuals with an eating disorders experience at least one other mental health condition (National Eating Disorders Collaboration n.d.).

From 2000 to 2018, the global prevalence of eating disorders skyrocketed to almost 7.8%, a two-fold rise from 3.4% (Galmiche et al., 2019).

Less than 20% of teens with an ED seek care, experiencing an estimated delay of 5.28 years before accessing care (Forrest et al., 2017; Hamilton et al., 2021).

Created by: Courtney Dolan, RN, BSN, DNP Candidate

SCOFF Questionnaire: Screening for Eating Disorders

Date of assessment:

Initials (no full name please):

Age:

Gender (male, female, non-binary)

Provider you are seeing today:

	YES	NO
1. Do you make yourself sick because you feel uncomfortably full?		
2. Do you worry that you have lost control over how much you eat		
3. Have you recently loss more than 14 pounds in a 3-month period?		
4. Do you believe yourself to be fat when other's say you are too thin?		
5. Would you say that food dominates your life?		

Total score _____ of 5

15 simple questions to help you dive deeper into a positive SCOFF score (>2)

Start by asking an open-ended question such as:

Can you tell me a bit more about your answers on this form?

Can you tell me more about your relationship with food and your body?

Eating

1.) Can you tell me more about foods that you like to eat?
2.) Are there any foods that scare you? What are those foods?
3.) Are you happy with what you ate today?
4.) Do you have any "safe" foods?
5.) Do you purposefully limit the amount of food you eat in order to influence your weight?

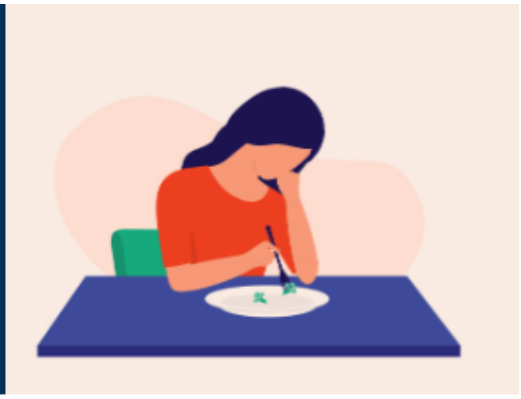
Exercising

1.) Can you tell me about any exercise routine that you have?
2.) Do you enjoy exercising or is it something you feel like you have to do?
3.) Do you exercise to burn calories?
4.) Do you exercise to justify what you eat or ate?
5.) Do you eat anything before or after a workout? If so, what?

Appearance & Social

1.) Do you feel as though you fixate on how you look in the mirror or in pictures?
2.) Do you think that food stops you from doing things with your friends or family?
3.) Do you/have you ever had a fear of gaining weight?
4.) Have you had a strong desire to lose weight?
5.) Has thinking about your weight or what you ate made it difficult to concentrate on other things in life such as school or activities?

What's next? Ensuring all steps are completed.



#1.

Screening form completed?

Ensure screening form was given to patient and returned completed. Investigate if form was NOT completed.

#2.

Positive score? Initiate a conversation.

Use the previous sheet to help start the conversation regarding positive scoring. Dive deeper!

#3.

Resources provided?

Use the provided resource sheet with a list of therapists, counselors, and psychiatrists to help be a liaison for next steps in care

#4.

Follow-up appointment made?

Encourage a follow-up appointment with the dietician & pediatrician. Preferably with the dietician **FIRST**, followed by the pediatrician. Assist patient to front desk on their way out to make appointment.

#5.

Charting?

Using the DotPhrase ".SCOFF", chart the SCOFF score in the visit note. Chart both positive **AND** negative scores

Please reach out to me, Courtney, at any point with questions, comments, or concerns