

IMPLEMENTATION OF A SCHOOL NURSE-LED ANXIETY SCREENING  
PROTOCOL WITHIN AN ELEMENTARY SCHOOL:  
A QUALITY IMPROVEMENT PROJECT

by

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

of

Doctor of Nursing Practice

in

Psychiatric Mental Health

MONTANA STATE UNIVERSITY  
Bozeman, Montana

May 2024

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## DEDICATION

This is dedicated to my husband, whose endless love and patience have been pillars of my strength, allowing me to reach this milestone. To my children, who inspire me every day to live a life worth being proud of, a life filled with moments, purpose, and kindness.

To my mother, who paved the way for a life of service as a Bobcat nurse, setting a profound example of compassion and dedication in her role as my mother, and the depth of love that she shares with her family, which I strive to emulate in my own career.

To the many inspiring healthcare workers, CNAs, nurses, and nurse leaders I have had the pleasure to work alongside. You showed me the importance of relationships and the power to advocate for my patients and loved ones.

To my Montana State University faculty in my undergraduate journey who inspired me to lead with kindness and compassion. To my undergraduate and graduate faculty who are responsible for so much of myself that I am proud of.

Finally, to every child who has shared a piece of their journey with me; it is you who led me here. My belief in your goodness and potential carries me forward, fueling my commitment to enhancing mental health care in our schools. You are the reasons I advocate, innovate, and continue to learn. Thank you for inspiring me to improve it each day.

## ACKNOWLEDGEMENTS

I am deeply grateful to all those who supported and inspired me during my time at Montana State University. Special thanks to my committee chair and co-chair, Dr. Margaret Hammersla and Dr. Elizabeth Johnson, whose guidance profoundly shaped my academic journey.

I also appreciate the Montana State University Great Falls Campus and my graduate faculty for their indispensable expertise and support.

Gratitude extends to the ANEW Rural Ready Nurse Practitioner Scholarship and BWET professional program teams for their financial and emotional support, which was crucial throughout my studies.

I deeply value my professional mentors and leaders in the nursing field whose wisdom and dedication have significantly influenced my career.

To my peers and cherished female friends, your companionship and support have enriched this challenging journey, making it a joyful and resilient experience. I am immensely thankful for the uplifting impact of your presence.

Thanks also to the dedicated nurses and staff at the healthcare facilities where I've worked, with special acknowledgment to the project pilot site staff and the school nurse, whose exceptional dedication to students and nursing continues to inspire. Your commitment to care and community wellbeing underscores the importance of this work. I am grateful for your support and belief in my endeavors.

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## ABSTRACT

Childhood anxiety disorders are becoming increasingly prevalent in the US, with reported cases rising from 7.1% in 2016 to over 9.2% by 2020. This increase is often manifested through somatic symptoms in children, highlighting the urgent need for early detection and intervention, particularly in school settings where these symptoms frequently result in visits to school nurses. In a rural elementary school in Montana, there was a lack of systematic screening for anxiety among students aged 8–12. These students often present with somatic complaints that lack a clear medical diagnosis, leading to under-identification and inconsistent referral practices. The Plan-Do-Study-Act (PDSA) framework guided the implementation of a school nurse-led anxiety screening initiative using the SCARED tool. This project focused on systematic screening of English-speaking students who exhibited recurrent, unexplained somatic symptoms. Key interventions included training the school nurse on the SCARED tool, the establishment of structured screening protocols, and improved communication with parents to meet legislative consent requirements. The initiative was highly successful, achieving a 100% identification rate for students meeting the anxiety criteria, with all positively screened students referred for further support. These results demonstrate a significant enhancement in schools' capacity to manage childhood anxiety. This quality improvement project effectively addressed the rising prevalence of anxiety disorders in elementary students, emphasizing the value of structured, nurse-led screening processes. It successfully met and exceeded the set SMART goals, offering a replicable model for early detection and management of anxiety in schools. This model also highlights the importance of considering somatic complaints as potential indicators of anxiety disorders.

Keywords: Anxiety screening, elementary school, quality improvement, SCARED, pediatric mental health, school nurse intervention

## CHAPTER ONE

## REVIEW OF THE LITERATURE

Introduction

Childhood anxiety disorders have emerged as a significant public health issue affecting a substantial portion of the global youth population. These disorders typically manifest by the age of 11 years and have seen a significant increase in prevalence, particularly in the United States, where anxiety rates rose by 27% from 2016 to 2020. Currently, 9.4% of U.S. children are diagnosed with anxiety, surpassing the global average (Soneson et al., 2021; Soneson et al., 2020). The escalation of these mental health issues significantly influenced by the COVID-19 pandemic underscores the urgent need for effective intervention strategies in educational settings (Garcia-Adasme et al., 2021; Lebrun-Harris et al., 2022).

Background

Prominent health organizations worldwide, such as the United States Preventive Services Task Force (USPSTF), American Academy of Child and Adolescent Psychiatry (AACAP), Children's Hospital Association (CHA), and American Academy of Pediatrics (AAP), advocate early intervention and routine screening for anxiety in children starting at age 8 to effectively manage and prevent these disorders (Moyes, 2023). Legislative changes, particularly those requiring explicit parental consent for mental health screening, have had a profound impact on the effectiveness of these programs. For example, in Montana, "opt-out" models result in higher

screening rates compared to “opt-in” models, which require proactive parental action and often result in lower engagement (Connors et al., 2022; CDC, 2023).

Previous research has established a clear connection between pediatric anxiety and somatic symptoms (Wolters et al., 2022). School nurses, who are often the first point of contact for students experiencing anxiety-related somatic symptoms, play a crucial role in identifying and addressing these symptoms. Despite facing challenges, such as limited mental health training and access to evidence-based resources, nurses are essential in the early detection and management of anxiety disorders in children. To improve consent rates and participation in mental health screening programs, it is necessary to implement nurse-led anxiety screening protocols and tailored communication strategies that address parental concerns (Schwartz et al., 2019; Al-Yateem et al., 2022; Kubik & Maughan, 2022). Table 1 provides a comprehensive overview of the seven different types of anxiety disorders in children, including diagnostic criteria, common symptoms, and the age groups typically affected (Bennett & Walkup, 2022). This information is valuable in understanding the distinct characteristics of childhood anxiety disorders and developing effective screening and intervention strategies.

Table 1. Common Types of Anxiety Disorders in Children

<b>Anxiety Disorder</b>	<b>Diagnostic Criteria</b>	<b>Common Symptoms</b>	<b>Age Group Affected</b>
Generalized Anxiety Disorder	Excessive anxiety and worry for at least 6 months about various events or activities.  Difficulty controlling the worry	Restlessness Fatigue Difficulty Concentrating Irritability Muscle Tension Sleep disturbances	Children and adolescents

Table 1. Common Types of Anxiety Disorders in Children Continued

<b>Anxiety Disorder</b>	<b>Diagnostic Criteria</b>	<b>Common Symptoms</b>	<b>Age Group Affected</b>
Social Anxiety	Marked fear or anxiety about social situations with scrutiny by others.  Fear of negative evaluation	Avoidance of social situations Fear of embarrassment Physical symptoms (crying, tantrums)	Childhood and adolescence with an emphasis on peer settings
Panic Disorder	Recurrent unexpected panic attacks characterized by abrupt intense fear or discomfort.  Followed by one month of worry or behavior changes	Palpitations Sweating Trembling Shortness of breath Chest Pain Nausea Dizziness Fear of dying	Childhood and adolescence
Agoraphobia	Marked fear of anxiety about specific situations where escape might be difficult or help unavailable	Avoidance of specific situations (e.g., public transportation, open spaces)	Childhood and adolescence
Specific Phobias	Marked fear or anxiety about specific objects or situations	Immediate fear or anxiety- Avoidance of specific phobic stimuli	All age groups with specific fears varying by age and individual
Separation Anxiety	Excessive fear or anxiety about separation from attachment figures or home	Worry about harm to attachment figures- refusal to go to school.  Nightmares	Childhood
Selective Mutism	Consistent failure to speak in specific social situations despite speaking in others	Inability to speak in specific social settings. social withdrawal- anxiety around speaking	Childhood

Given the widespread prevalence of anxiety disorders in children and the significant impact when left untreated, this review emphasizes the urgent need for effective school-based mental health strategies. Specifically, the role of school nurses in this context is critical, particularly in elementary schools where early screening can significantly influence long-term outcomes. This scoping review systematically explores and synthesizes the existing literature on the prevalence, impact, and management of anxiety disorders in school-aged children, with a particular focus on the effectiveness of school-based interventions and the contributions of school nurses in addressing these challenges. This comprehensive examination will provide valuable insights into the current state of knowledge, identify gaps, and guide future research and policymaking to enhance mental health support provided to children in educational environments.

### Methods

This scoping review aims to explore the literature on the prevalence, impact, and management of anxiety in school-aged children, focusing particularly on the effectiveness of school-based interventions and the role of school nurses in anxiety screening.

The methodology of this review adheres to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines. A comprehensive literature search was done across multiple databases, including CatSearch, Web of Science, ProQuest Central, CINAHL, National Association of School Nurses (NASN), and PsycINFO. The following search terms were used: “pediatric somatic symptoms of anxiety AND mental health,” “school nurse recognition of somatic symptoms,” “clinical practice guidelines for the treatment of pediatric anxiety,” “school nurse AND identification of anxiety,” “interventions for pediatric anxiety,”

“school avoidance OR chronic absenteeism AND anxiety,” “school nurse-delivered anxiety interventions,” “school nurse perspectives on managing mental health,” “evidence-based pediatric anxiety assessment tools,” “school-based mental health interventions,” “barriers in early identification of pediatric anxiety,” and “mental health and academic achievement.”

### Eligibility: Inclusion and Exclusion Criteria

Included studies had to meet the following criteria: (1) publication date between 2018 and 2023, (2) peer reviewed, (3) written or translated in English, (4) focus on pediatric populations, (5) center on mental health and awareness, and (6) available as full-text articles. Exclusions applied to articles not related to children’s mental health, those discussing comorbid conditions, lacking relevance to specific mental health disorder(s), or presenting unclear methodologies.

### Results

This comprehensive scoping review analyzed 30 studies addressing pediatric anxiety, somatic symptom presentation, and the role of school nurses in mental health interventions. The studies encompass various research designs, including cross-sectional observational studies, comparative investigations, mixed-method approaches, and clinical guidelines, offering diverse insights into pediatric mental health.

#### The Interplay Between Anxiety, Somatic Symptoms, and School Avoidance

The interplay between anxiety, somatic symptoms, and school-avoidance childhood anxiety disorders often manifest with a range of somatic symptoms, including psychomotor

restlessness, gastrointestinal disturbances, headaches, and fatigue, which can obscure underlying anxiety (Garcia-Adasme et al., 2021; Sackl-Pammer et al., 2018). Children with social anxiety disorders are particularly likely to experience stomachaches and musculoskeletal pain, especially girls, illustrating the complex interplay between anxiety and physical symptoms (Amendola et al., 2022; Sackl-Pammer et al., 2018). The COVID-19 pandemic has intensified these symptoms, leading to increased emergency department visits for mental health concerns among children (McCabe et al., 2021). Furthermore, the negative correlation between school nurse visits for somatic complaints and academic performance underscores the impact of untreated anxiety on educational outcomes (Ratterman et al., 2021). Multifaceted interventions, including leisure activities and parenting programs, have shown effectiveness in reducing anxiety and depression symptoms in teenagers, potentially reducing school-avoidance behaviors associated with anxiety disorders (Florescu et al., 2019)

### The Role of School Nurses in Identifying Childhood Anxiety

As frontline responders, school nurses play a crucial role in identifying anxiety through psychosomatic complaints, emphasizing the need for evidence-based training programs that enhance their ability to use validated screening tools like SCARED, thus ensuring a standardized approach to diagnosing and managing anxiety disorders in students (Ginsburg & Muggeo, 2019; Henry et al., 2021). To address this, recent systematic reviews advocate for the adoption of nurse-led anxiety screening protocols, which have demonstrated effectiveness in managing anxiety and depression among youth (Zhang et al., 2022; Ashwini et al., 2023). However, the challenge of implementing these protocols is increased by the absence of formal assessment tools, with school nurses often identifying anxiety as the most prevalent issue yet struggling with

the lack of necessary resources (Muggeo & Ginsburg, 2019). Despite these hurdles, empirical evidence from studies like those by Connors et al. (2022) displays significant progress, with mental health screening rates in schools increasing from 0% to 22% due to targeted quality improvement initiatives. This growth highlights the vital role of school nurses in enhancing mental health support for elementary students and the importance of developing robust mental health frameworks within schools. Evidence from a recent study indicates that cognitive-behavioral therapy, whether combined with pharmacological treatment or not, does not significantly alter the treatment outcomes for anxious youth, underscoring the critical role of school nurses in identifying and referring students for appropriate anxiety interventions (Hudson et al., 2023)

### School-based Interventions for Childhood Anxiety Disorders: A Critical Examination

School nurses are pivotal in the early detection and management of childhood anxiety disorders and are often the first health professionals to note psychosomatic symptoms in students. Their role is becoming increasingly critical given the prevailing lack of standardized assessment tools, highlighting the need for structured interventions and extensive mental health training in educational settings (Ginsburg & Muggeo, 2019; Henry et al., 2021).

Empirical research underscores the efficacy of nurse-led anxiety screening protocols in alleviating the symptoms of anxiety and depression among children and adolescents. These protocols have demonstrated substantial benefits, confirming their effectiveness in managing mental health issues (Ashwini et al., 2022; Ashwini et al., 2023). The scarcity of formal assessment tools in educational environments necessitates the establishment of standardized

procedures to ensure precise diagnosis and management of anxiety disorders (Muggeo & Ginsburg, 2019).

### Validity and Use of Anxiety Screening Tools: SCARED

Recent research has highlighted the significance of using validated tools, such as the Screen for Child Anxiety Related Emotional Disorders (SCARED), in school settings to identify and assess anxiety levels in children. Martinelli and Gatt (2022) and Reardon et al. (2022) recognized the relevance and effectiveness of SCARED in evaluating anxiety symptoms in secondary- and primary-school students. The SCARED tool, endorsed by the USPSTF and AACAP, aligns with DSM-IV criteria and boasts a comprehensive structure that encompasses 41 items across five factors, making it a reliable and responsive tool for diverse clinical and research applications (Birmaher et al., 1997; Birmaher et al., 1999; Monga et al., 2000, as cited in Kaajalaakso et al., 2021)

### Impact of Intervention and Treatment on Youth Anxiety Disorders

Effective treatments, such as cognitive-behavioral therapy (CBT) and selective serotonin reuptake inhibitors (SSRIs), have demonstrated considerable symptom improvement in pediatric anxiety, with school-based interventions showing promising results in managing these disorders within the school setting (Swan et al., 2018; Walkup et al., 2008). These treatments yield long-term benefits including enhanced global functioning, life satisfaction, and reduced domain-specific impairments, particularly in cases of remission. Psychological capital attributes, such as hope, efficacy, resilience, and optimism, positively influence mental health outcomes, particularly in school settings (Preston et al., 2022; Preston et al., 2023).

## Limitations

This comprehensive review, while offering significant insights into anxiety screening practices in school settings, encounters several limitations that reflect the broader challenges in the field.

### Target Population Focus

The primary concentration of middle and high school students in the existing literature echoes the background concern that childhood anxiety disorders, starting as early as ages 3–17, require age-specific research, particularly in elementary settings, to comprehensively address and understand anxiety-screening practices.

### Scarcity of RCTs

The dearth of Randomized Controlled Trials (RCTs) underscores the gap in robust empirical evidence necessary for validating the efficacy of screening tools and interventions, reflecting the urgent need for comprehensive mental health support highlighted in the background.

### Diversity in Screening Tools

The varied use of screening tools across studies complicates direct comparisons and reflects the broader issue of a lack of standardized assessment tools in educational environments, underscoring the necessity for a unified approach to anxiety screening.

### Sample Size and Generalizability

The limited sample size and regional focus of many studies restrict the generalizability of findings, calling for broader, more diverse research that can inform global needs for mental health interventions in schools, as noted in the introduction.

### Constrained Publication Date Range

Focusing on studies published between 2018 and 2023 might omit crucial historical insights and the evolution of anxiety screening practices, a perspective that is essential given the increasing prevalence of anxiety disorders and the impact of global events like the COVID-19 pandemic.

### Conclusion

Reflecting on the critical role of school nurses in elementary settings, this review underscores the necessity of equipping them with specialized tools and comprehensive training to address anxiety-related symptoms effectively. The introduction of the SCARED tool into the school nurse-led anxiety screening process is a pivotal step toward bridging the current gap in mental health services within educational institutions. Furthermore, the empirical evidence advocating for a transition to an “opt-out” consent model could significantly enhance early detection and intervention capabilities, resonating with the urgent need for effective mental health support identified in the background.

This review emphasizes the importance of adopting “opt-out” consent models to improve participation rates in mental health screenings, ensuring that students, especially those at risk of anxiety disorders, receive timely and necessary intervention. Moreover, the integration of digital

interventions and parental involvement in treatment aligns with the forward-thinking approach in mental health care, addressing the rising prevalence of anxiety disorders and the exacerbated challenges during the post-pandemic period.

This literature review and the accompanying quality improvement (QI) project spotlight the vital contributions of school nurses in the early identification and management of anxiety disorders, advocating for comprehensive, evidence-based strategies to support student mental health in alignment with global needs and legislative changes.

## CHAPTER TWO

## QUALITY IMPROVEMENT PROPOSAL

Introduction

Globally, anxiety disorders are among the first psychiatric conditions to affect children, impacting approximately 8% of those aged 3–17. This prevalence has increased in the United States, rising from 7.1% in 2016 to 9.2% by 2020 (Lebrun-Harris et al., 2022). Compounding this growing concern is the underutilization of mental health services. Despite the availability of effective treatments like cognitive-behavioral therapy (CBT) and selective serotonin reuptake inhibitors (SSRIs), less than half of affected children receive the necessary care (Walter et al., 2020).

In Montana, the 2023 Youth Risk Behavior Survey reveals significant mental health concerns among adolescents. The survey indicates that 42.8% of respondents experienced pervasive sadness or hopelessness, impacting daily activities. Furthermore, 25.7% contemplated suicide, with 22.0% devising a suicide plan within the past year. Among those who attempted suicide, 9.1% did so once, while 5.0% reported multiple attempts. Notably, 4.7% of these attempts resulted in injuries necessitating medical attention (CDC, 2023).

These data emphasize the urgent need for early and systematic mental health interventions, particularly in elementary settings where there is a lack of comprehensive data collection and established evidence-based screening and referral processes. Moreover, in Montana, 27.5% of mental health service recipients are aged 0–12, exceeding the national average of 16%. Among these children, 84.7% are diagnosed with Serious Emotional

Disturbances (SED), surpassing the national average of 69.6%, underscoring the critical demand for early mental health evaluation and intervention.

In addressing the need for effective anxiety screening among children, the U.S. Preventive Services Task Force (USPSTF) has assessed a variety of tools, notably the Screen for Child Anxiety Related Emotional Disorders (SCARED) and the Social Phobia Inventory (Mangione et al., 2022). These tools are widely used in clinical practice due to their focused approach toward anxiety disorders. While the Social Phobia Inventory is designed for social phobia, the SCARED tool encompasses a broader range of anxiety disorders, including general anxiety disorder, separation anxiety disorder, panic disorder, social phobia, and school phobia symptoms (Birmaher et al., 1997; Birmaher et al., 1999, as cited in Kaajalaakso et al., 2021).

The SCARED tool includes 41 items that parallel the DSM-IV classification of anxiety disorders. This tool has demonstrated good internal consistency, test-retest reliability, discriminant validity, and sensitivity to treatment response, making it a reliable and comprehensive option for early detection of anxiety disorders (Monga et al., 2000, as cited in Kaajalaakso et al., 2021). Its practical administration, taking approximately 10 minutes by hand, via computer, or online, fits well into the busy and resource-limited settings of the school.

Endorsed by the USPSTF and AACAP, the SCARED tool's robust psychometric properties, as validated through replication studies, ensure its reliability across various settings (Hale et al., 2018; Amendola et al., 2022; Mangione et al., 2022). This tool has been pivotal in diverse research contexts, particularly in assessing treatment responses to interventions like Cognitive Behavioral Therapy and Sertraline. Recent research by Parkhurst et al. (2022) further

confirmed the validity of the SCARED tool, highlighting its effectiveness in detecting various subtypes of anxiety.

In the context of this Montana school, where there are significant gaps in mental health care and a high incidence of poverty-related stress among students, the SCARED tool emerges as an ideal choice. It aligns with the role of school nurses in the early detection and management of anxiety disorders, addressing the need for efficient and effective mental health services in the school setting.

This project aligns with national recommendations and Montana's administrative guidelines such as USPSTF, AACAP, CHA, AAP, and Montana House bill 676 (AAP, 2022; AACAP, 2022; CHA, 2022; Montana Legislature, 2023a, 2023b; USPSTF, 2021). It aims to develop a scalable model for the early detection and intervention of anxiety in elementary students, bridging the gap in mental health care for Montana's youth and providing a blueprint for broader mental health screening strategies in schools.

### Problem Statement

The problem is the absence of a standardized, evidence-based, anxiety screening tool for students aged 8–12 in the school health setting, which the school nurse can effectively administer. Currently, the identification of student anxiety relies on subjective assessments, resulting in limited accuracy and inconsistent referral processes. This lack of objective screening tools impedes the early detection and intervention of anxiety disorders, negatively affecting students' academic performance and mental health. The implementation of an administered anxiety screening using the validated screening tool (SCARED) at the project site aims to

streamline early identification, provide accurate referrals, and offer practical support for students with anxiety.

### Organizational Microsystem Assessment

Within a small, urban, elementary school in Montana, part of a district comprising 20 schools, a survey among school nurses (81% response rate, n=17) has exposed significant barriers in meeting the mental health needs of students. There is a need to enhance the role of school nurses in mental health services, recognizing their potential to contribute to interventions at the system level (Hoskote et al., 2022). Data indicate:

- Substantial delays in mental health referrals (47%),
- Ambiguity in the role of school nurses in mental health care (70.6%),
- Excessive workloads impeding mental health support (58.8%),
- Unclear protocols for post-referral follow-ups (52.9%), and
- Communication challenges with other professionals impeding collaborative care.

This microsystem services a diverse student population of 430, with a vast majority facing socioeconomic challenges (97% receiving reduced/free lunch), correlating to elevated risks of mental health issues. Demographically, the student body encompasses 54.4% male and 45.6% female students across various ethnic backgrounds, reflective of the broader community's diversity.

### Analysis and Considerations

School Nurse Office Visits Analysis (September 1st–January 24th): Through targeted screening, an estimated 10 students were identified as potentially at-risk. Referral Estimates

Based on Comprehensive School Study: Out of 10 at-risk students, about six (precisely 5.92) need further evaluation or support. Timeframe: Over 17 weeks. Projection for Shorter Timeframe: In 6 weeks, approximately two students are estimated to require referrals. The basis for these projections is rooted in the observed referral rate among at-risk students, as highlighted in the Connors et al. study from 2021. This study demonstrated an increase in the average percentage of total students screened, providing a real-world reference for estimating the number of students who may require referrals within a specific timeframe. By leveraging data from this study, we extrapolated the potential impact of targeted screening on identifying and supporting at-risk students within our microsystem.

The school nurse plays a pivotal role, managing 25 medication administrations and nine direct-care services daily. Approximately 40% of these visits are linked to mental health concerns, primarily anxiety, behavioral crises, and class avoidance. This substantial figure highlights the acute need for robust mental health support within the school. Conversations with the school nurse underscore their essential role in mental health screenings and the importance of trust-building with students to facilitate effective care.

However, a systemic issue surfaces in the absence of a formal non-emergent mental health care pathway, echoing national trends of inaccessible care and pointing toward the critical need for systemic quality improvement (QI) interventions.

### Project Site Considerations

The pilot school is at the forefront of addressing these challenges, exacerbated by its high activity level and limited mental health support capacity. The existing mental health support structures, including a school counselor, district therapist, and a therapist from a federally

qualified health center, are stretched to their limits. This scenario is particularly concerning given the recent legislative changes mandating written parental consent for mental health screenings, which has led to a cessation of universal suicide screenings, thereby potentially overlooking at-risk students.

The school's selection for this QI project is strategic, given the school nurse's leadership among peers and familiarity with the Frontline electronic health record system. The Frontline system is a secure, password-protected platform for documenting nursing office visits and interventions. Her capacity to integrate a new mental health screening process amidst a demanding schedule will serve as a benchmark for the feasibility of similar initiatives in other schools.

The project's alignment with the school's existing chronic absenteeism initiatives, like the SBAS grant program, presents an opportunity to seamlessly integrate mental health screenings into broader school health strategies. This integration is crucial for early identification and prevention of anxiety, starting with its manifestation as somatic symptoms in elementary school. Addressing anxiety at this nascent stage enables timely interventions, ensuring students' seamless integration into mental health care pathways and fostering a culture of emotional resilience and regulation. This proactive approach in the elementary setting aims to circumvent the progression of anxiety into more severe mental health conditions in later years, ultimately contributing to a healthier and more stable school environment.

Table 2. Are Students Receiving Adequate Referrals Survey Results

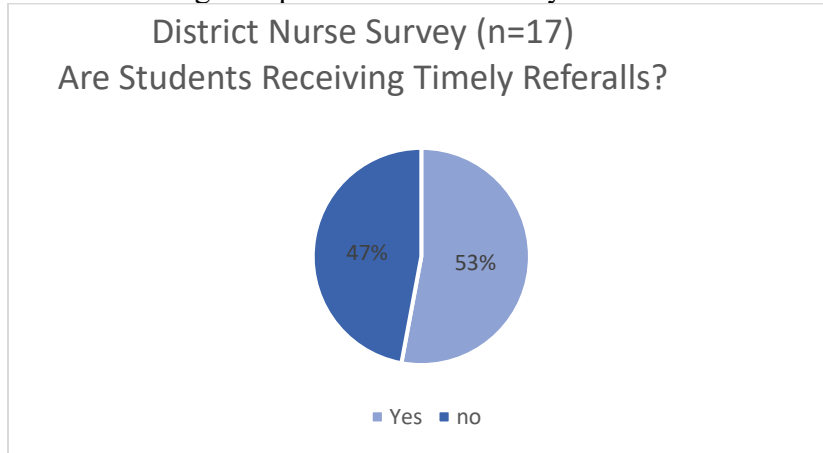
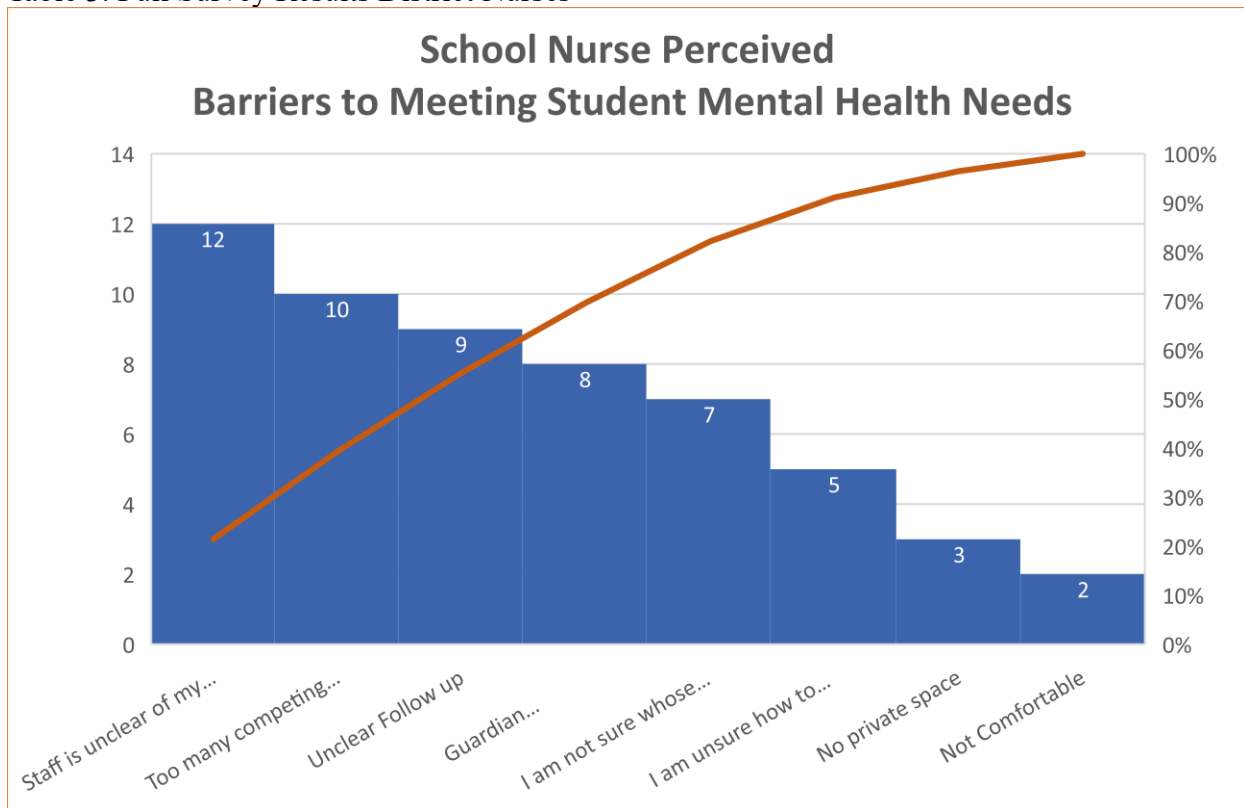


Table 3. Full Survey Results District Nurses



## Quality Improvement Framework

The proposed quality improvement (QI) project is grounded in the Plan-Do-Study-Act (PDSA) framework. The PDSA cycle is highly compatible with school screening procedure development and implementation, yielding locally valid results tailored to the local school community's unique needs, strengths, and contexts (Connors et al., 2022). The PDSA framework supports starting on a smaller scale, allowing teams to scale up only when evidence indicates readiness. This incremental approach minimizes risks associated with broader implementation discussed in the literature where schools hesitant to initiate screening often fear overwhelming demands, unmanageable student needs, and potential litigation related to consent practices (Connors et al., 2022). By starting small and involving feedback from students, families, and school staff, the PDSA cycle mitigates these concerns.

## Methods

### Implementation Summary

The planned intervention for this project is a school nurse-led anxiety screening protocol using the SCARED screening tool. The primary aim is to assess the feasibility of the screening process, improve education and knowledge about anxiety, and assess the need for screening in elementary school. The project is based on guidelines recommending anxiety screening for children and will follow the Plan-Do-Study-Act (PDSA) framework for continuous improvement.

### IRB Approval

As of January 5, 2024, this project has received approval from the Institutional Review Board (IRB) at Montana State University. The IRB has determined that the project does not meet the definition of Human Subjects Research under federal regulations (45 CFR 46). This approval signifies that the proposed work aligns with ethical and regulatory standards, and no IRB oversight, approval, or exemption is required.

### Intervention & Implementation

This quality improvement, mental health intervention project at a Montana elementary school begins in January 2024. This project involves a structured, tiered approach to mental health interventions, aligning with the Multi-Tiered Systems of Support (MTSS) framework, suggests a systematic method for school nurses to support students at different levels of need (Kubik & Maughan, 2022). This process approach aligns with the Plan-Do-Study-Act (PDSA) framework.

### Plan Phase

The “Plan” phase, set to commence in January 2024, is dedicated to establishing effective communication, engaging key stakeholders, and aligning strategically with school policies, legislative guidelines, and community expectations. This phase is pivotal for laying a solid foundation for the project’s success and involves the following key activities:

#### Stakeholder Meeting:

Scheduled for January 2024, this comprehensive meeting will include the DNP student, school nurse, administrator, school counselor, school therapist, and FQHC therapist.

Objectives:

- Review the screening protocol, documentation practices, and the SCARED tool.
- Discuss the process flowchart for clarity and coherence, as outlined in Chapter Three
- Examine the SCARED tool's metrics, scoring methodology, and documentation procedures.

Development of Guardian Education and Communication Materials:

Based on feedback from the initial meeting, the DNP student will create materials to engage parents and guardians actively.

These materials include:

Wednesday Envelope Mailer: A weekly take-home folder established as a routine communication channel to disseminate clear and concise information about the screening program to parents of students aged 8–12. This mailer will include an infographic that explains the program in simple terms, ensuring parental understanding and buy-in.

Consent Envelope Infographic: Elucidating the screener and outlining the subsequent steps, approved by the administration for clarity.

Phone Script for Parent Contact: A standardized script to facilitate effective communication between the school nurse and parents regarding the child screening process.

Focus on Parental Engagement:

Emphasizing the critical role of parents and guardians in the project's success, especially in completing the guardian version of the SCARED tool and providing written consent. The aim

is to transition stakeholders and parents from passive participants to active partners in the intervention process.

This “Plan” phase is designed to promote understanding, participation, and collaboration among all stakeholders, ensuring the project begins on a solid footing with clear goals and a shared vision for success.

### Do Phase

The “Do” phase begins on January 17, 2024, with the parent infographic describing the project sent out to parents of students aged 8–12 within the school. Then, the first 2-week PDSA cycle begins on January 22nd and ends on February 2nd, with two sequential 2-week cycles after the first is completed (February 5th–16th and February 19th–March 1st). During this phase, the DNP student and school nurse will have weekly meetings to review student nurse visits that meet inclusion criteria, review feedback with guardian engagement and consent, discuss process steps, and review the documenting system for ease of use and accuracy.

### Identification of Eligible Students

Beginning on January 22nd, the school nurse will identify English-speaking students aged 8–12 who exhibit chronic absenteeism, defined as students who have missed 10% or greater of the total days enrolled during the school year for any reason, or if a student has frequent visits to the nurse’s office (3+) with somatic complaints lacking a medical diagnosis, within the project time period. This strategy is based on research indicating a correlation between such patterns—regular nurse visits and consistent absenteeism—and a heightened risk of anxiety

among children. For a detailed explanation of this identification process, refer to the flowchart provided in Chapter Three.

#### Screening Process (January–March 2024)

In the initial Plan-Do-Study-Act (PDSA) cycle, the school nurse will contact the guardian of a student who meets the inclusion criteria via telephone, using the script developed in the planning stage. If the guardian agrees to proceed with the screening, there are two options: (1) The guardian-informant version of the screening tool, along with the consent form, can be sent home with the student for completion and then returned to the school nurse, or (2) The guardian can schedule a time to complete the parent version of the screening tool and sign the consent form at the school, with the option of being present during the child’s screening by the nurse. For both options, the nurse will schedule the student screening between 2:30 and 4:00 p.m., Monday through Friday, within 1 week of the student’s identification. If the guardians choose option 1, they will need to return the completed screening in an envelope marked “Confidential” and given to the school secretary who will then place it in the nurse’s mailbox daily.

The school nurse will collaborate with the DNP student to ensure efficient screenings and accurate assessment of results. Maintaining clear communication with guardians is crucial to ensure they understand the project’s criteria, goals, and purpose and to secure their informed consent for the screening.

#### Documentation and Data Collection

The school nurse will utilize Frontline accessed via a password-protected district laptop, to record visits to the nurse’s office. “Anxiety Screening Recommended” and “Anxiety Screening Completed” will be new additions to the intervention section of this system. In

addition to the existing documentation practices, a Pareto chart will effectively document and analyze any barriers experienced by the nurse in the screening process. Updated weekly, this chart will categorize and prioritize issues based on their frequency, enabling a targeted approach to address the most significant barriers first. This method will aid in identifying and focusing on the critical challenges that impact the screening process, enhancing overall efficiency.

Each week, the DNP student will review records of students who visited the nurse and returned to class (RTC). This review will determine the proportion of students meeting the criteria for screening who were successfully identified. These numerical totals will be securely stored on a district laptop under password protection.

For the screening process, the school nurse will complete and score the screenings, communicate findings to guardians, and refer students screening positive to the school counselor. For students screening negative, education materials will be given to the guardians on anxiety and positive coping skills. The school nurse will then scan the completed screenings into the school's FERPA and HIPAA-compliant student-record system, reporting the results in the confidential "assessment section." This approach mirrors the existing procedure for suicide risk assessments. Hard copies of the screenings will be filed in a physical folder within the nurse's office within a locked cabinet.

The school nurse will provide a "Tally" sheet for weekly data collection. It will record the number of students identified, the number screened, the results of the screenings (positive/negative), the number of students referred to the counselor, and written feedback from school stakeholders and guardians, and barriers to screening. The tally sheet will be securely stored in a locked cabinet in the nurse's office when not in use.

Throughout this phase, the DNP student will communicate with the school nurse and monitor process barriers, data collection, and storage.

### Study Phase

The “Study” phase will utilize run charts as analytical tools. These charts will track metrics such as the rate of student identification for anxiety screening, completion rates of screenings, and the frequency of successful referrals to counselors. These data will be placed into run charts that will be updated weekly by the DNP student. The run charts will provide a visual representation of the data over time, enabling the identification of trends, patterns, and areas needing improvement. A Pareto Barrier chart will also be used to collect encountered barriers in real time and will be updated weekly by the DNP student. This continual analysis will assess the efficacy of the screening process and barriers encountered and guide iterative refinement. This approach will foster active stakeholder engagement and data-driven decision-making, effectively conveying progress and findings to school administration and healthcare providers.

The analysis phase will compare data between cycles to assess the impact of this intervention on workflow and student outcomes. Stakeholder feedback, including insights from school administrators, healthcare providers, and guardians, will be collected to refine the approach and remain sensitive to the needs of students and the school community. The goal of this phase is to establish a robust, responsive, and empathetic system that effectively addresses mental health challenges among students, ensuring the approach is practical in the short term and evolves to meet changing needs.

Alongside the ongoing data analysis, the insights gleaned from run charts will offer a longitudinal perspective, highlighting trends and shifts in the screening process, while the Pareto

charts will focus on delineating the most common operational challenges. This dual analytical approach will ensure a comprehensive understanding of the initiative's temporal progress and the immediate practical obstacles, paving the way for more targeted and effective strategies in the subsequent "Act" phase.

After each cycle, the "Act" phase focuses on implementing changes based on the review of outcomes. This includes a detailed follow-up with the school nurse and counselor regarding the screening process and the progress of the referred students. This communication will aid in modifying and refining future cycles, based on the insights gained.

#### Safety and Confidentiality

The project commits to ethical and responsible conduct and implements measures to ensure the safety and confidentiality of all the collected data. This process aligns with the standards set by Montana State University, HIPAA, and FERPA privacy regulations.

Before anxiety screening, informed consent was obtained from the guardians of eligible students. The process clearly explains the purpose of the screenings, the nature of the data collected, and their use. Guardians will have the option to consent to or withhold their children's participation. All data, including numerical quantitative data and qualitative stakeholder feedback, will be securely stored in an electronic health record (EHR) system or locked cabinets in school nurses' and administrators' offices. Individual student identities were not linked to the collected information to protect privacy. Access to these data is restricted to authorized personnel who have undergone the district's onboarding requirements for data security and confidentiality. Only those directly involved in the project and with legitimate needs have access. All data will

remain on district platforms and be transmitted directly from the secure EHR system to designated recipients.

Data will be retained only as long as necessary to achieve the project's goals and to align with the district's policy on confidential assessments. The "Act" phase is essential for applying modifications and enhancements based on the analysis of previous cycles. This continuous evolution of the project is vital to meet the changing needs of students and the school environment.

### Conclusion

This quality improvement project aimed to address the critical issue of underdiagnosed and untreated anxiety among elementary school students in Montana. By implementing a nurse-driven anxiety screening initiative using the SCARED tool, this project seeks to enhance early identification, referral, and support for students with anxiety disorders. The Plan-Do-Study-Act (PDSA) framework guides the project through iterative improvement cycles, ensuring that the screening process is tailored to the school's unique needs and can be scaled to other districts facing similar challenges. The goal was to improve the mental health outcomes and academic success of elementary school students in Montana. This project establishes a comprehensive, effective, and replicable model for early detection and intervention of anxiety in elementary students. Its success has broad implications for mental health care, stakeholder engagement, and legislative alignment. It sets a precedent for school-based mental health care and could influence national approaches, addressing a significant gap in mental health care for Montana's youth and beyond. Considering the outlined microsystem challenges and capacities, the quality improvement (QI) project sees an opportunity for impact beyond immediate mental health

intervention. The school nurse, adept in her role and a leader among peers, stands at the forefront of this project and is capable of navigating the demands of a busy school environment while pioneering a vital health-screening process.

The implications of the project are profound. By integrating early anxiety screening into routine school health assessments with multimodal parental consent processes, we can bridge the gap left by the limitations of suicide screening. The focus shifted to prevention and early intervention, providing a safety net for students before their needs escalated to critical levels.

This approach aligns with the objectives of the school-based Active Surveillance (SBAS) grant program and the school's commitment to initiative-taking mental health strategies. The school nurse's leadership and the QI project's adaptability to legislative requirements create a model of school-based healthcare that is both sustainable and responsive to the evolving educational landscape. This initiative is not just about compliance with new regulations, but also about a deeper integration of mental health awareness and support into the daily fabric of school life, potentially setting a standard for schools' district-wide and beyond.

CHAPTER THREE

QUALITY IMPROVEMENT MANUSCRIPT

Contribution of Authors and Co-Authors

Manuscript(s) in Chapter(s) 1

Author: Donna Sanders, RN, BSN

Completed the literature review, analysis of the clinical problem, implementation method, implementation, data analysis, author of first draft of the manuscript.

Co-Author: Margaret Hammersla, PhD, ANP-BC

Collaboration in the analysis of the clinical problem, contributed to the development of the implementation method, assisted in the analysis of the implementation phase, and contributed to data analysis.

Co-Author: Elizabeth Johnson, PhD, MS-CRM, RN

Through editorial review, ensured that the manuscript adhered to scholarly standards and assisted in refining the manuscript for clarity and coherence.

Conflicts of Interest Statement

The authors declare that they have no financial or nonfinancial conflicts of interest that could potentially influence the research or its outcomes. This includes relationships with organizations or entities that may have a vested interest in the study's results.

Manuscript Information

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Journal of American Association of Nurse Practitioners

- 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

### Abstract

This quality improvement (QI) project aimed to enhance the early identification and management of anxiety among elementary school children by integrating a systematic anxiety screening initiative using the Screen for Child Anxiety Related Emotional Disorders (SCARED). The project was conducted at a rural elementary school with a diverse student population, using the frequency of somatic symptom visits as the criterion for initiating screening. The intervention included distributing dual-part folders prepared by the school nurse containing educational materials, and SCARED screening forms. Guardians were engaged through detailed communication, offering multiple screening options to accommodate different preferences and ensuring thorough understanding and participation. Data management practices emphasized confidentiality and ethical standards, with robust tracking and secure storage of screened data. Results from a 6-week period showed that, out of eight students identified for screening, six participated and five had positive screening results, reflecting a high prevalence consistent with post-COVID-19 observations of pediatric anxiety. This project highlights the critical role of school nurses in early mental health interventions and demonstrates the effectiveness of structured screening programs in educational settings.

### Introduction

Recent research has revealed a significant increase in mental health issues among children, with anxiety disorders being particularly prevalent. According to the most recent studies, 20.5% of children in the United States are affected by anxiety, which represents a substantial increase from earlier evaluations (Bitsko et al., 2022; CDC, 2022; Lebrun-Harris et al., 2022; Strawn et al., 2021). In Montana, the mental health situation is particularly distressing, with 43% of high school students reporting persistent feelings of sadness or hopelessness, underscoring the pressing need for systematic early screening (CDC 2023).

The pressing need to address escalating mental health issues in children calls for robust early intervention strategies. The quality improvement initiative at a Montana elementary school addresses this challenge by incorporating the Screen for Child Anxiety Related Emotional Disorders (SCARED) into its existing health services framework. This initiative is specifically

designed for English-speaking students aged 8–12, who are not currently receiving mental health services, to identify and address anxiety issues effectively.

The COVID-19 pandemic and the subsequent shift toward increased utilization of virtual care highlight the critical need for accessible and adaptable mental health services within schools (Miranda et al., 2020; Bozzola et al., 2022; Saunders et al., 2022). This initiative can serve as a model for broader applications of similar strategies in educational settings, demonstrating the potential benefits of systematic screening in managing childhood anxiety.

The recent rise in pediatric anxiety following the pandemic has underscored the importance of effective screening and intervention. A significant percentage of children with anxiety disorders report somatic symptoms that can significantly affect their academic performance and social interaction. The complexity of these symptoms often necessitates interventions that can be integrated into daily school activities (Hale et al., 2018; Sackl-Pammer et al., 2018). School nurses play an essential role in the early detection of mental health issues because of their ongoing interactions with students. With proper training and tools, such as the Screen for Child Anxiety Related Emotional Disorders (SCARED), school nurses can efficiently identify anxiety symptoms and coordinate care with mental health professionals (Ginsburg & Muggeo, 2019; National Association of School Nurses, 2008).

### Screening Tools and Efficacy

The Screen for Child Anxiety Related Emotional Disorders (SCARED) is a well-established and extensively validated tool for evaluating anxiety symptoms in elementary-aged children, particularly in school settings. Studies by Behrens et al. (2018) and Reardon et al. (2022) highlighted its robust psychometric properties, including high test-retest reliability and

strict measurement invariance, ensuring that the tool consistently delivers accurate assessments across different demographic groups. This reliability and broad applicability make the SCARED particularly suitable for school-based mental health screening.

Given the recent legislative changes in Montana, the SCARED tool's capacity to integrate reports from multiple informants—children, parents, and potentially school staff—becomes even more pertinent. The Montana legislature has enacted a law requiring parental consent for schoolchildren's mental health screenings, emphasizing the need for parental involvement in these processes (Montana Legislature HB0265, 2017). This legislative context underscores the relevance of the SCARED tool, which naturally involves parents in the screening process aligning seamlessly with new legal requirements. Thus, using the SCARED tool, schools can ensure compliance with state laws while fostering an environment that encourages parental participation, which is critical for the effective identification and management of anxiety disorders in children.

Furthermore, research indicates that opt-out methods, such as those potentially permissible under Montana's new guidelines, significantly increase participation rates in health-screening programs (Mehta et al., 2018). This suggests that implementing the SCARED tool in a manner that aligns with these guidelines not only adheres to legal requirements but may also enhance student participation in mental health screenings, thereby supporting early detection and intervention strategies that are crucial for mitigating long-term psychological outcomes.

### Conceptual Framework

The Institute for Healthcare Improvement (IHI) Model for Improvement: The Plan-Do-Study-Act (PDSA) framework was applied to refine the anxiety screening processes at a rural

elementary school in Montana. The planning phase involved identifying the need for an anxiety screening protocol driven by the high incidence of somatic complaints among students, a well-documented manifestation of childhood anxiety (Ginsburg et al., 2018). The Screen for Child Anxiety Related Emotional Disorders (SCARED) was selected for its demonstrated effectiveness in pediatric populations (Birmaher et al., 1999) coupled with initiatives to train school nurses, and the implementation of adaptations of the Frontline electronic record system.

During the “Do” phase of the quality improvement (QI) project, the school nurse conducted screenings using comprehensive materials that explained the process and connection between somatic symptoms and potential anxiety, ensuring informed consent. The nurse actively communicated with the guardians about the screening options, emphasizing transparency and collaboration. Using Frontline, the nurse utilized a specific template to consistently track symptoms such as headaches and stomach aches, classified under “somatic symptoms” with specific report codes (2003 and C-052). The nurse also documented visits primarily related to mental health concerns under “Mental Health,” which accurately supported appropriate referrals and follow-ups. All referrals initiated after screening were meticulously documented, whether by directing parents to specific interventions or referring to primary, school-based, or community-based services. Standardized documentation protocols were established to ensure data accuracy and continuity, especially when substitute nurses were present, and the data were organized in Excel for comprehensive reporting. This structured approach to documentation ensured that all procedural steps were followed consistently, enhancing the project’s effectiveness, and maintaining effective communication with the school’s counseling and mental health teams.

The “Study” phase involved detailed evaluation of the collected data, focusing on the rates of identification, completion of screenings, and subsequent referral processes for students exhibiting signs of anxiety. Based on this analysis, the “Act” phase introduced improvements in communication strategies, ongoing nurse education to enhance mental health acumen, and refinement of screening criteria to better identify at-risk students.

This cyclical process adheres to evidence-based practices that promote continuous improvement in clinical and educational settings (Murray et al., 2020), ensuring that interventions are both effective and adaptable.

### Project Goals

The primary aim of this project was to bolster the early detection and management of anxiety among students, with a particular focus on those presenting with somatic symptoms, by establishing a robust mental health support framework within the school. These goals were strategically designed to monitor progress and maximize the impact of the intervention.

1. Identification: The project aimed to identify at least 80% of students who meet the anxiety screening criteria by March 1, 2024. This ambitious goal was supported by benchmark studies demonstrating a high efficacy rate for early screening interventions in educational settings (Smith et al., 2021).
2. Screening Completion: A completion rate of 90% for SCARED screening among the identified students with parental consent was aimed at the designated date. This ensured that the screening results were comprehensive and representative of the entire student population.

3. Referrals: A crucial objective was to guarantee that 100% all students screening positive received timely referrals for further evaluation or treatment, thus facilitating immediate access to essential mental health services.
4. Develop a scalable model: This project was designed to develop a scalable and adaptable anxiety screening model that can be implemented in other educational contexts, potentially broadening the scope and influence of this initiative beyond the initial school environment. This strategic approach not only addresses immediate needs, but also contributes to a sustainable model for mental health support in schools.

#### Project Setting

This quality improvement (Q.I.) project was situated in a rural elementary school located in Montana. Schools have a high utilization of mental health services and are characterized by significant socioeconomic challenges. The school, which primarily serves a low-income demographic, with 97% of its 430 students qualifying for free or reduced lunch, aligns with broader district demographics, making it an appropriate setting for this nurse-led anxiety screening initiative. The economic conditions in the community underscore the limited access to healthcare, emphasizing the necessity for accessible school-based mental health interventions.

#### Local Context and Legislative Changes

Recent regulatory modifications in Montana, particularly those outlined in House Bill 676, necessitate parental consent for mental health screenings, thereby affecting the implementation of universal mental health assessments. These changes have presented obstacles

to conducting screenings freely, which could potentially delay the identification and support of students with anxiety disorders. The project incorporates a rigorous consent process that respects these new requirements, while striving to maintain effective screening practices. The school's active involvement in the school-Based Active Surveillance (SBAS) grant program, aimed at identifying and addressing chronic absenteeism related to health issues, was seamlessly integrated with this project. This dual approach ensures that the insights gained from the Q.I. project not only enhance the effectiveness of anxiety screening, but also inform broader health initiatives within the district.

#### Population and Sampling

The intended population for this project comprised English-speaking students aged between 8 and 12 years who have not been receiving mental health services and who visited the school nurse three or more times within the project's timeline. These students frequently reported physical symptoms, including headaches and stomachaches, which might be indicative of anxiety. This targeted approach aimed to identify students who may experience somatic symptoms of anxiety but have not been diagnosed with any clear medical condition to explain the symptoms. In the future phases of the project, efforts will be made to improve its linguistic inclusivity, thereby expanding its scope and impact to better address the needs of non-English-speaking students.

#### Ethical Considerations

Ethical considerations were a cornerstone of the intervention, with IRB approval from Montana State University ensuring adherence to ethical and regulatory standards. Informed

parental consent was rigorously obtained prior to any student screening and privacy was maintained throughout the data collection and analysis phases. Access to data was restricted to authorized personnel, and retention policies were in line with the district and project objectives. The “Act” phase incorporated refinements based on the data analysis and stakeholder input, ensuring an adaptable and responsive project approach.

### Methods

The intervention employed the Plan-Do-Study-Act (PDSA) framework to establish a nurse-led anxiety screening protocol using the SCARED tool at an elementary school in Montana. A process for screening students aged 8–12 years, who presented three times with somatic symptoms, was developed in collaboration with the lead district nurse, sub-leadership nurse, pilot school principal, school indigenous education team, counselor, assistant superintendent, and superintendent.

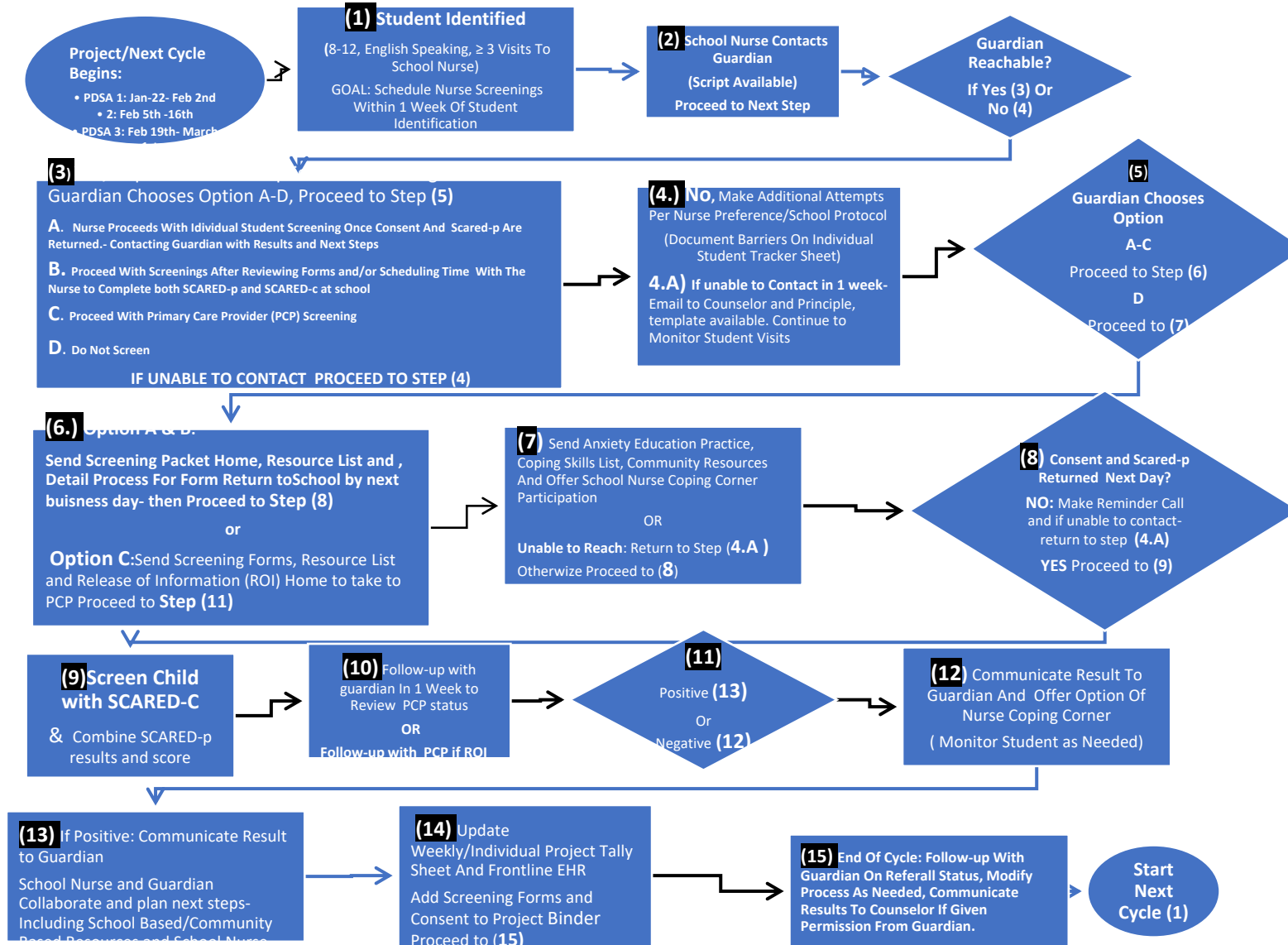
### Anxiety Screening Process Steps

The anxiety screening process focused on identifying and addressing anxiety in English-speaking students aged 8–12 through a systematic approach. The steps included identifying eligible students based on repeated somatic complaints, initiating contact with guardians to explain the screening’s significance, and detailing various screening options for guardians to choose from. Depending on the guardian’s choice, screening can be completed independently, at school, or through primary care providers, with options also available for those opting out of screening. Following the screenings, the results were communicated to guardians, offering necessary resources or interventions based on the outcome. Negative results led to educational

materials on coping strategies, while positive screenings prompted further evaluation. Nurse-led interventions, including psychoeducation and coping skills development, may also be offered.

All processes were meticulously documented and securely stored, maintaining privacy and allowing for ongoing monitoring of the program's effectiveness. For a detailed visual representation of this process, please refer to the accompanying flowchart in Figure 1.

Figure 1. Flowchart of the Intervention Process



As described in the conceptual framework, the implementation period was divided into three PDSA cycles. At the conclusion of each 2-week cycle, preliminary review of progress toward goals as well as barriers and facilitators were reviewed with the project team. A brief description of each PDSA cycle is provided below.

PDSA Cycle 1 (January 22nd–February 2nd): Initial efforts were focused on overcoming barriers with the district’s consent form, which was previously limited to suicidal screening. A revised and more inclusive consent form was developed and implemented quickly. Simultaneously, the school nurse established a comprehensive intervention system. After the school counselor could not aid in the referral process due to her heavy caseload, the school nurse introduced resources such as coping corners, sensory tools, and a goal system equipped with coping kits, which are crucial during the initial adjustment phase.

PDSA Cycle 2 (February 5th–February 16th): This cycle brought enhancements in behavioral management and noticeably improved the job satisfaction of the school nurse. The referral process was effectively transitioned from counselor-led to nurse-managed, accommodating the high caseload of counselors and optimizing the impact of interventions.

PDSA Cycle 3 (February 19th–March 1st): This cycle concluded successfully with mental health referrals for two students who tested positive. It addressed the challenge of regular school nurses’ absence by integrating a substitute nurse and ensuring continuity in the screening process.

#### Documentation and Data Collection

The Frontline system included specific filters to track student visits for somatic symptoms indicative of anxiety such as headaches and gastrointestinal complaints. The project

team conducted regular analyses and reviews to accurately track these symptoms and ensure adherence to screening criteria. In response to the intervention, the system was updated to include two new data points: “Anxiety Screening Recommended” and “Anxiety Screening Completed.” The school nurse communicated the results of the screenings to guardians, referring students with positive screenings to further care, and providing educational materials on anxiety to those with negative screenings. To ensure privacy and security, the project team managed the data in compliance with FERPA and HIPAA regulations. The data were stored on a district laptop and entered into previously established FERPA- and HIPAA-compliant student record systems. A weekly tally sheet tracked the key metrics, including the number of screenings completed and stakeholder feedback. An individual student tracker sheet also tracked process steps, barriers, and feedback.

### Measures

The efficacy of the intervention was thoroughly assessed by monitoring unscheduled student visits using Frontline reporting codes. These visits were analyzed for children aged 8–12 who returned to class and reported nonspecific symptoms, such as headaches and stomachaches, which adhered to the school’s health policies regarding exclusion due to medical reasons, such as fever or vomiting. The data, which were collected weekly and organized into Excel spreadsheets, only included relevant visits that did not result in exclusion owing to minor injuries, illnesses, medication administration, or chronic conditions.

The achievement of the study was contingent on the assessment of identification and advancement within the intervention. Initially, the number of students who fulfilled the standards during their third visit was monitored; second, the nurse pinpointed the students who met the

criteria; third, the number of identified students whose parents opted for the screening process was determined; and, finally, the number of screened students who were referred for additional aid after testing positive was determined. The progression of each student through the process was documented using their ID numbers, ensuring the precise tracking of multiple visits.

A dedicated student data tracker was managed in a project binder and updated in real time to incorporate vital dates, such as the dispatch and return of screening packets and consent. This binder also housed notes on each step of the process to document any hindrances or feedback, facilitating immediate responses and the continuous improvement of the intervention. Weekly summaries were compiled to determine the number of identified students, those progressing through screening, and the outcomes of these screenings. These data are visually summarized in a Pareto bar chart, emphasizing the most prevalent obstacles to optimizing future interventions.

### Analysis

To thoroughly assess the impact of the nurse-led anxiety screening protocol and to refine its approach, a comprehensive evaluation was conducted across various cycles. This evaluation was centered on key metrics such as identification rates, screening completion, and referrals. Identification rates were calculated based on the number of students who met the criteria during their third visit and were subsequently identified by a nurse. Screening completion rates were measured by the proportion of guardians who underwent screening after initial identification. Referral rates were tracked by noting how many students who tested positive were referred for further support.

Feedback was gathered extensively to enhance the analysis and subsequent adjustments to the protocol. Teachers and guardians provided insights through paper data tallies, individual student sheets, and email summaries prepared by nurses, which were invaluable in gauging the effectiveness and areas for improvement within the screening process. Additionally, feedback from the nurses was systematically collected via email and phone interviews after project completion. This multisource feedback approach ensured a comprehensive understanding of the impact of the intervention from multiple stakeholders, enabling continuous refinement and alignment with the school's dynamic environment. This methodological rigor supports the intervention's ongoing development and effectiveness, ensuring it remains responsive to the needs of the students and the school community.

### Results

Over the 6-week implementation, 100% of students who met criteria for screening were appropriately identified by the school nurse (Goal 1). Eight students, or approximately 1.86% of the total student population of 430, were identified for anxiety screening based on their repeated visits to the nurse for somatic symptoms during the 163 "Return to Class" visits recorded. This rate of identification is consistent with the current research reporting elevated anxiety levels among children following the COVID-19 pandemic (Bitsko et al., 2022; CDC 2022). Of the eight students identified, six students, representing 75% of those identified, agreed to participate in the screening (Goal 2), and five of these were screened and tested positive for potential anxiety disorder symptoms, resulting in a positive screening rate of 83.33%. These results demonstrate a strong correlation between somatic symptoms and potential anxiety disorders and reflect the increased national anxiety rates observed since the pandemic. All five students who

tested positive were referred for further support, effectively achieving a 100% referral rate (Goal 3). This underscores the strong correlation between somatic symptoms and potential anxiety disorders, mirroring the increased national anxiety rates observed since the pandemic. For detailed student results, see Table 4, Summary of Screening Results for At-Risk Students.

Table 4. Summary of Screening Results for At-Risk Students

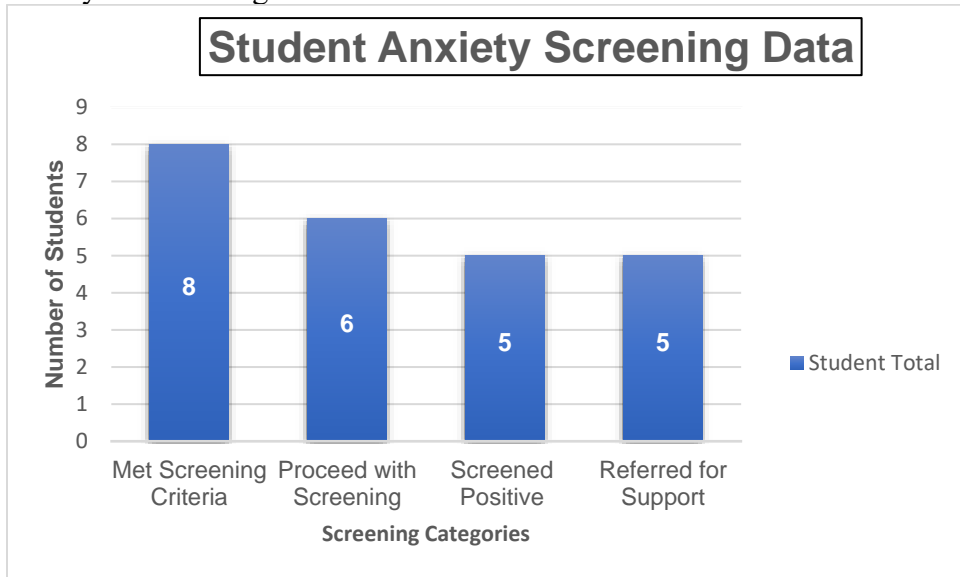


Figure 2. Individual Screening Referrals and Follow-up Actions

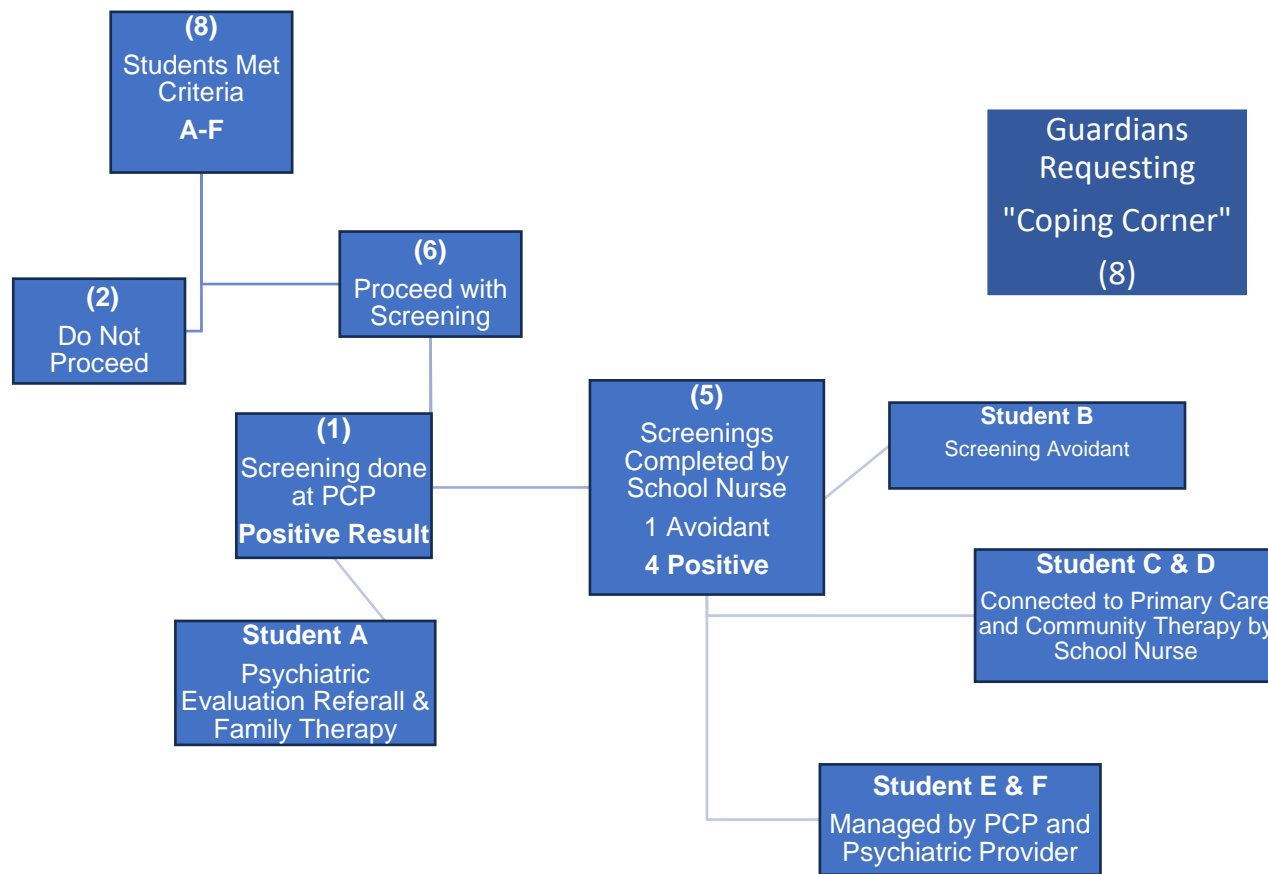
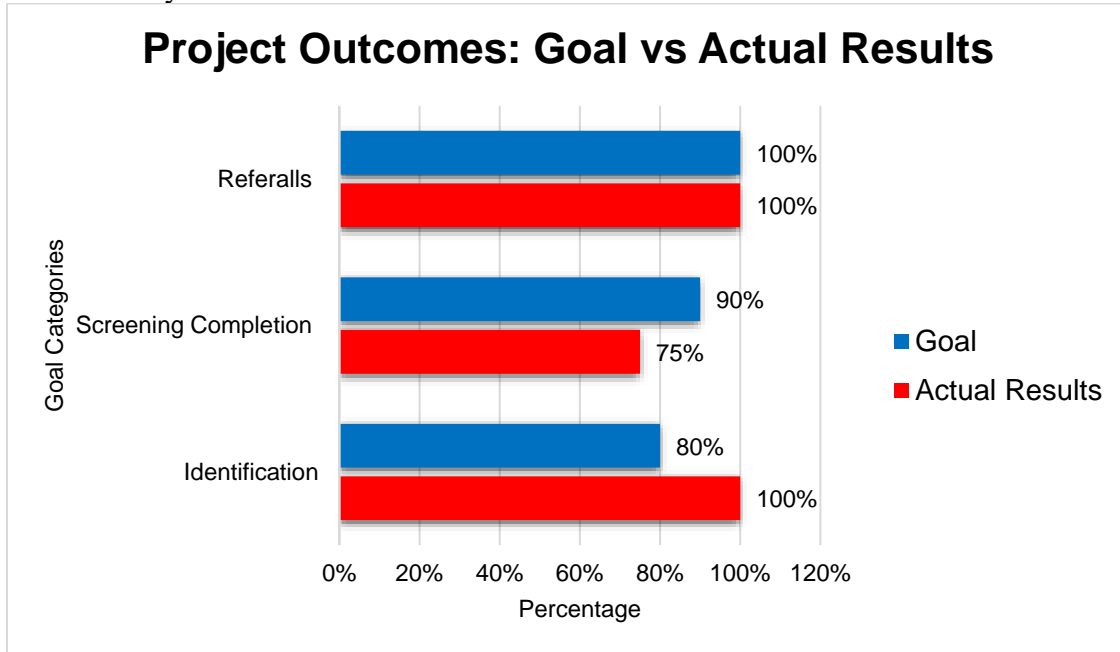


Table 5. PDSA Cycle Process Outcomes



### School Nurse Impact

The school nurse experienced changes in daily work processes due to the anxiety screening project. The end of the school day became busier with increased interactions with students, teachers, and other staff members. Although the workload initially increased, the nurse expected the process to become more efficient as additional students were identified and supported. The project had a positive impact on nurses' professional practice and morale, allowing for immediate observation of the effectiveness of the implemented coping skills among students. The successful execution of the initiative also fostered new relationships between nurses and parents, strengthening the support network for students in the school environment. Students who were screened for anxiety and identified appreciated the additional support provided by school nurses, emphasizing the importance of trust and communication in managing student health. The inclusion criteria used in the anxiety screening project proved to be effective

in identifying students at risk for anxiety, with the criterion of three somatic symptoms demonstrating particular predictive value. This targeted approach ensured that screenings were conducted efficiently and accurately, maximizing resource utilization and support effectiveness.

### Process Barriers and Solutions

The project, which unfolded over three 2-week cycles, was methodically tracked, uncovering several procedural barriers that influenced the efficiency of screening and referral, resulting in variation in time from identification to screening completion (see Table 6, Days from Identification to Screening Completion). The duration from the initial identification of a student by the school nurse to the completion of their screenings ranged between 6 and 29 days, with an average of approximately 16.5 days. This variation suggests potential obstacles in the screening process such as scheduling conflicts, resource availability, or the varying degrees of urgency assigned to cases, which is crucial to address to ensure timely health interventions. Barriers to the screening and referral process include need for Reminder Calls (21.4%), inability to make contact (14.3%), and the nurse's absence due to illness or other reasons (10.7%) (see Table 7). These findings indicate key areas requiring attention to enhance the screening workflow.

Establishing structured communication, clearly defining expectations for the submission of screening forms, and obtaining consent are crucial for ensuring their timely completion. To effectively manage the process, the nurse recommended the implementation of a structured reminder system. Formalized referral forms streamlined communication with parents and facilitated follow-up. Developing a structured process for check-ins would help manage a busy health-room environment and ensure that students acquire effective coping skills. Visual aids in classrooms can encourage students to apply their coping skills independently and reinforce

learning. Hosting meetings with hesitant parents could improve engagement and support for students and provide a direct forum for discussing anxiety screening and intervention benefits. Overall, school nurses viewed the anxiety screening initiative as a proactive approach to addressing mental health in the school setting, improving individual student health, and fostering a supportive and understanding environment.

Table 6. Days from Identification to Screening Completion

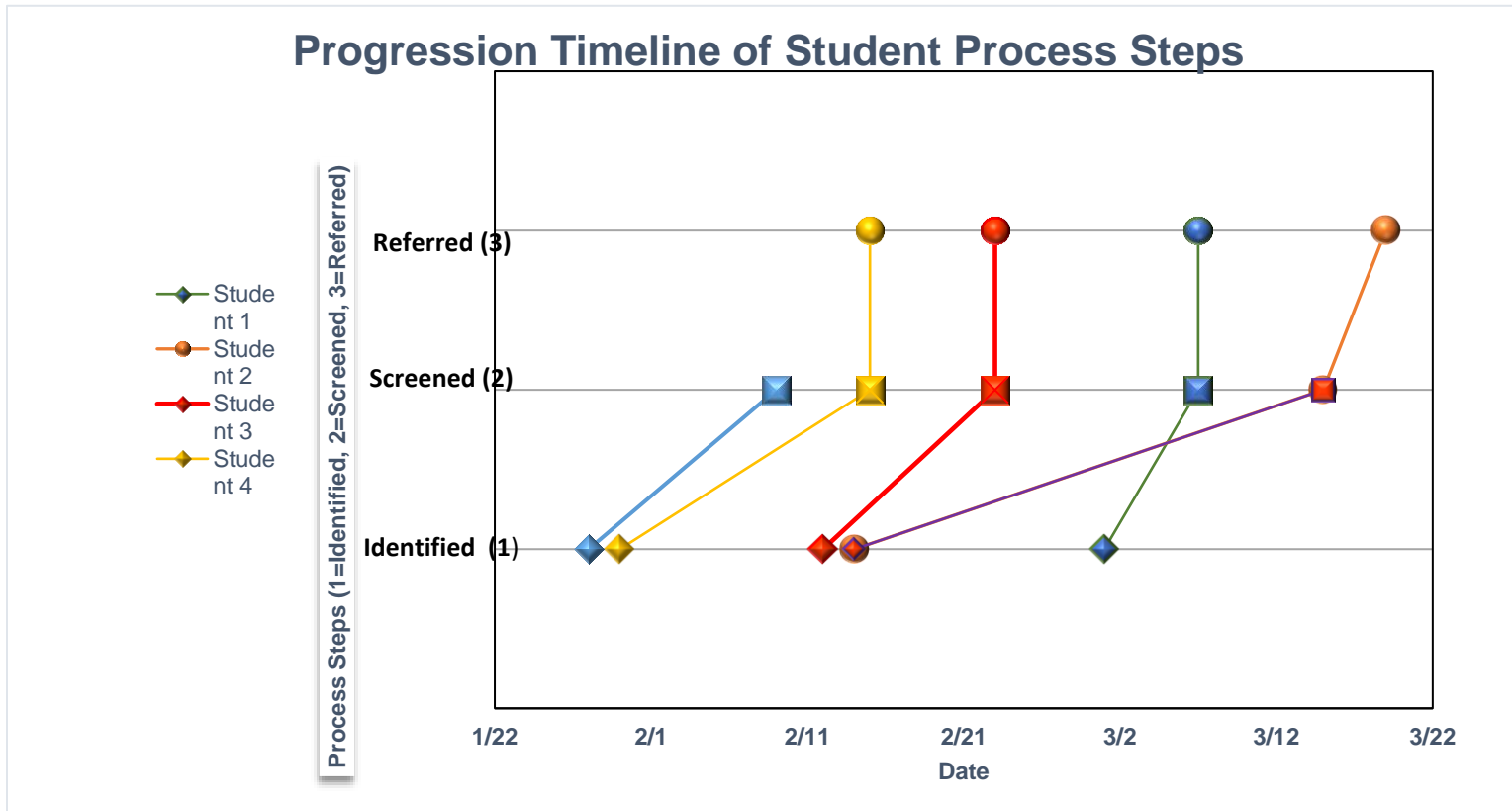
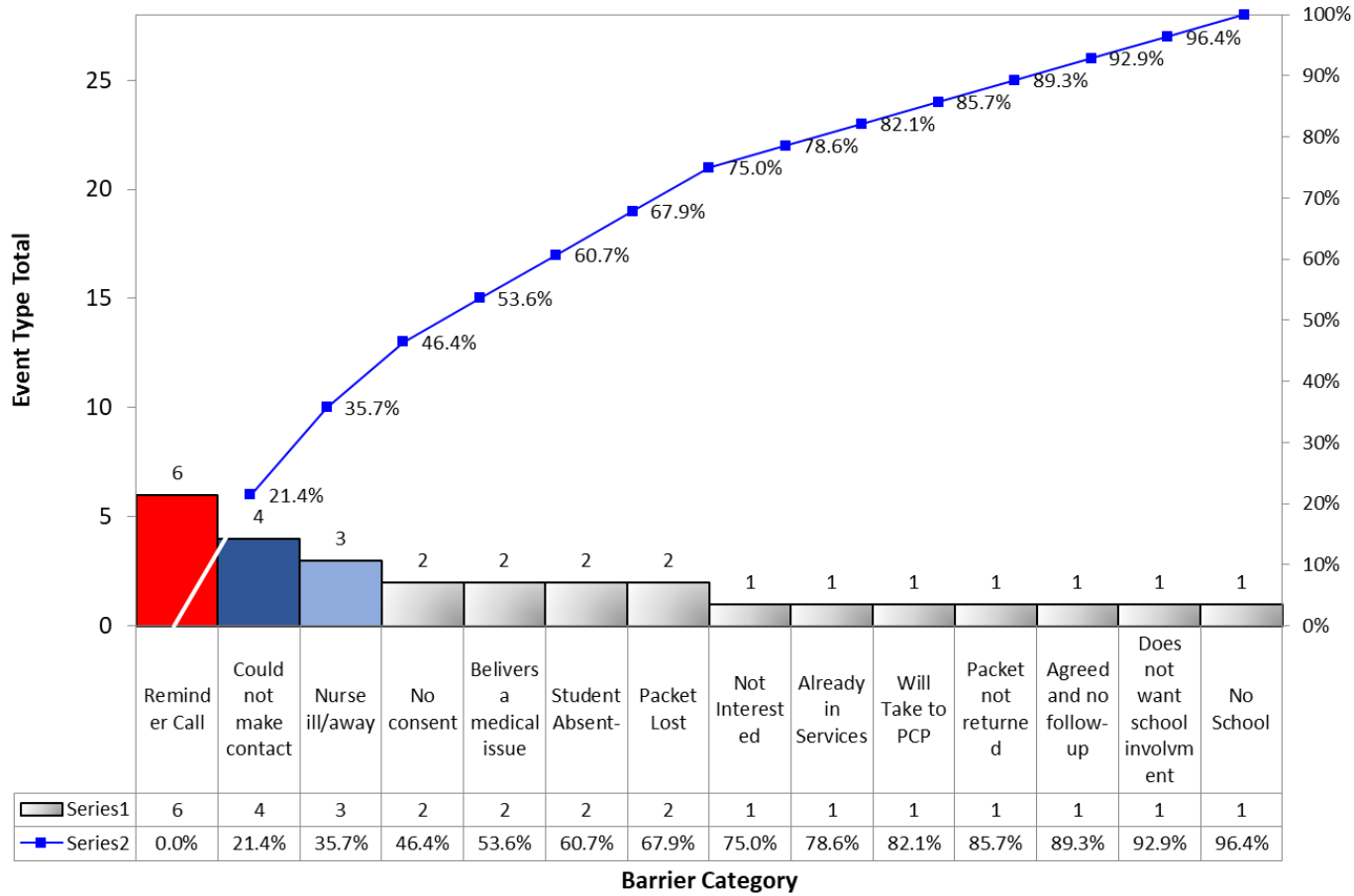


Table 7. Process Barriers

### Pareto Chart Analysis of Project Barriers



This QI initiative validates the efficacy of systematic screening and underscores the vital role of school nurses in the early detection of mental health issues as emphasized by Ginsburg and Muggeo (2019). The project successfully connected three students to psychiatric services and two to community therapy, demonstrating the potential of school-based health initiatives to bridge the gap between identification and access to mental health services. Moreover, family therapy was initiated for one family, highlighting the project's capacity to foster comprehensive support systems.

### Discussion

The quality improvement (QI) project, conducted at a rural elementary school in Montana, has effectively illuminated the critical need for early identification and intervention for anxiety disorders in children, a need that is becoming increasingly recognized in the pediatric health community. Over 6 weeks, utilizing a Plan-Do-Study-Act (PDSA) methodology, the project implemented three 2-week cycles, each progressively refining the anxiety screening process. This iterative approach aligns with the findings of Soneson et al. (2021), who emphasized the efficacy of structured, stepwise interventions in school settings to manage pediatric anxiety effectively.

A key outcome of this project was a high positive screening rate of 83.33%, which reflects the findings of Garcia-Adasme et al. (2021) and illustrates a strong correlation between somatic symptoms and anxiety disorders. This correlation is particularly pertinent in the post-COVID-19 context. Lebrun-Harris et al. (2022) noted an increase in anxiety symptoms among children, paralleling our findings and underscoring the project's relevance and timeliness.

The intervention strategies developed during the QI project, such as the establishment of a coping corner and the use of sensory tools, resonate with the approaches highlighted by Schwartz et al. (2019), who advocated for sensory-integrated interventions to aid children in managing anxiety. Moreover, the shift from counselor-led to nurse-managed referrals was a strategic decision that mirrored the recommendations of Ginsburg and Muggeo (2019), emphasizing the pivotal role of school nurses in effectively managing pediatric mental health. The project's approach to enhance the screening process by developing a new consent form and restructuring the referral process directly addressed the challenges noted by Kubik and Maughan (2022). They pointed out that logistical and administrative barriers often impede the efficacy of mental health interventions in schools, suggesting that streamlined processes can significantly enhance the outcomes.

While the project anticipated more direct involvement from school counselors, the actual execution underscored the critical role of school nurses because of counselor workload constraints. This adjustment in role responsibilities highlights a common issue in school-based mental health initiatives where resource limitations necessitate flexible role dynamics, as discussed by Bennett and Walkup (2022).

The cost implications and strategic trade-offs involved in implementing such a project were evident, particularly in terms of the time and resources spent developing the intervention materials and training staff. However, these trade-offs align with the findings of Moyes (2023), who argued that the long-term benefits of early anxiety detection and intervention justify initial investments.

### Limitations and Recommendations

The quality improvement (QI) project conducted at a rural elementary school in Montana emphasized the critical importance of early identification and intervention for anxiety disorders in children. A significant limitation is the project's potential need for more generalizability beyond similar rural school settings. Additionally, the project's effectiveness depended heavily on the availability of school nurses, revealing a vulnerability in the model. The possibility of reduced nurse availability suggests the need for a broader scope of training and multidisciplinary team approach, as endorsed by the American Academy of Pediatrics.

Expanding the project's scope to more diverse educational settings would increase the project's scalability. This expansion would help assess the adaptability and impact of the model more comprehensively. Furthermore, integrating online screening forms can streamline operations and reduce delays, thereby enhancing the efficiency of the consent process. Additionally, implementing a 5-item scale for initial screening might also be beneficial. This condensed version of the screening tool can expedite the process while maintaining reliable results, offering a potential future direction for the project, as suggested by Birmaher et al. (1999).

Moreover, broadening training programs for all health staff is crucial to ensure uninterrupted service and to maintain the quality of interventions. Accessible materials could deepen parental engagement and support parental education by developing and distributing them more comprehensively. Evaluating a project's adaptability to a broader range of educational settings is essential to enhance its applicability and impact, potentially broadening the scope of this successful model to other contexts. These steps would enhance the effectiveness and reach of

the implemented interventions, ensuring their broader applicability across diverse educational environments.

### Conclusion

In conclusion, this project not only adheres to, but also builds upon, current best practices for managing childhood anxiety in school settings. The successful implementation and outcomes of this project offer a scalable model that other schools could adopt, potentially leading to widespread improvements in the early detection and management of anxiety disorders among school-aged children. Further research and longitudinal studies could provide deeper insights into the long-term benefits of such interventions and help to refine strategies to ensure they are both effective and sustainable across educational environments.

### Funding

This project was conducted without external funding. The absence of funding from external sources underscores the independent nature of this study, with the design, implementation, interpretation, and reporting entirely driven by internal resources and expertise. The lack of funding involvement ensured autonomy in decision-making processes and allowed for a focused and objective approach to address the project's goals and objectives.

## CHAPTER FOUR

## ADVANCED NURSING ESSENTIALS REFLECTION

Introduction

Embarking on my journey through the Doctor of Nursing Practice (DNP) program has been a transformative and profoundly rewarding experience. It has been a journey marked by challenges that tested my resilience, moments of doubt where I questioned if I could make it through, and, ultimately, a testament to the unwavering support and guidance of the faculty who believed in me. Their support has been instrumental in helping me navigate the complexities of this rigorous program and, for that, I am eternally grateful.

The DNP program has been more than just an educational endeavor; it has been a crucible of personal and professional growth. I have learned to lean into the discomfort of the learning process, embracing each challenge as an opportunity for growth and development. Through perseverance and dedication, I have overcome obstacles and emerged stronger and more confident in my abilities as a nurse leader.

This journey has not been mine alone. It has been a collective effort supported by my family, whose unwavering belief in me has been a source of strength and motivation. Their resilience and endurance have been a constant inspiration, propelling me forward even during the most challenging moments of the program.

As I reflect on my journey, I am incredibly proud of the growth I have experienced, both personally and professionally. The incredible leadership and education that I have been fortunate

to experience have shaped me into a competent and compassionate healthcare professional, ready to navigate the complexities of modern healthcare with confidence and integrity.

### DNP Essential I: Scientific Underpinnings for Practice

The foundation of scientific principles in nursing practice is fundamental to delivering evidence-based care. Throughout the Advanced Health Assessment (N601) and Advanced Psychopharmacology II (N630) courses, I deeply understood the intricacies of patient care, especially in mental health settings. The comprehensive health assessments learned in N601 empowered me to discern complex health needs crucial for developing tailored care plans. In N630, my grasp of psychiatric medications and their implications honed my clinical decision-making skills, allowing me to formulate evidence-based treatment plans for adolescents with anxiety and related disorders.

A pivotal moment in applying scientific principles was my experience implementing the anxiety screening protocol using the SCARED tool. This practical application underscored the significance of an evidence-based approach in addressing mental health issues among adolescents. I reinforced my commitment to delivering high-quality, evidence-based care by synthesizing scientific rigor with practical implementation.

### DNP Essential II: Organizational and Systems Leadership

Effective leadership is essential for navigating the intricate systems within healthcare organizations. The Advanced Nursing Leadership course (N609) provided a comprehensive understanding of leadership theories, styles, and strategies relevant to healthcare settings.

Through case studies and practical exercises, I gained insights into fostering collaboration, leading interdisciplinary teams, and navigating organizational challenges.

One significant accomplishment that highlighted my leadership capabilities was advocating for a school nurse program in my hometown. This initiative showcased my ability to apply leadership skills to create sustainable improvements in healthcare delivery and emphasized the critical importance of system-level changes in enhancing patient care outcomes.

#### DNP Essential III: Clinical Scholarship and Analytical Methods for Evidence-based Practice

Engaging in clinical scholarship and mastering analytical methods are integral to advancing evidence-based practice. The Evidence-Based Practice courses (EBP I N604 and EBP II N605) honed my research and analytical skills, emphasizing the integration of high-quality evidence with clinical expertise and patient preferences.

My involvement in a quality improvement (QI) project focused on early identification and managing student anxiety further solidified my commitment to evidence-based practice. The project's success in surpassing screening criteria goals and achieving positive outcomes validated the effectiveness of evidence-based interventions. It also highlighted the importance of systematic screening in addressing the increased mental health demands post-pandemic.

#### DNP Essential IV: Information Systems/Technology and Patient Care Technology for the Improvement and Transformation of Healthcare

In today's digital age, leveraging information systems and technology is crucial for improving healthcare delivery. The Healthcare Informatics course (N610) deepened my

understanding of information systems, electronic health records (EHRs), and data analytics. Practical experiences in clinical settings, especially during the COVID-19 pandemic, highlighted the transformative potential of technology in maintaining and improving patient care.

My involvement in projects implementing digital health solutions, such as telemedicine platforms for mental health services, demonstrated my ability to seamlessly integrate technology into clinical practice. These initiatives enhanced care delivery and significantly improved patient access to healthcare services, showcasing the pivotal role of technological proficiency in modern healthcare environments.

#### DNP Essential V: Healthcare Policy for Advocacy in Health Care

Advocating for healthcare policy changes is crucial in ensuring equitable and accessible healthcare. The Ethics, Law, and Policy course (N612) provided me with a comprehensive framework for navigating ethical dilemmas, legal considerations, and policy development. Active engagement in policy advocacy, particularly in school mental health screenings, empowered me to contribute to necessary changes and support children's and adolescents' mental health and wellbeing.

Contributing to my local school nurse program and analyzing local policies further deepened my understanding of healthcare policy's impact on patient care. It underscored the essential role of DNP-prepared nurses in shaping healthcare delivery through effective policy advocacy and legislative actions.

### Continuous Learning and Professional Development

Throughout this period, I have actively engaged in various learning opportunities to expand my healthcare and public health knowledge and skills. This includes completing several educational courses and evaluations, which have significantly contributed to my professional development and understanding of key concepts in the field.

I received the ANEW Rural Ready Program scholarship in addition to the Montana Behavioral Health Workforce Education and Training (MT BHWET East) program. These roles offered experiences that broadened my educational reach and perspective and equipped me with the knowledge of rural care and the consideration of vulnerable groups along with practical tools to navigate complex healthcare challenges with sensitivity and competence.

Furthermore, I actively engaged in discussions, seminars, and evaluations on telehealth, cultural humility, trauma-informed care, LGBTQ+ healthcare disparities, and many other pertinent topics. These experiences enhanced my clinical skills and reinforced the importance of empathy, cultural competence, and interdisciplinary collaboration in mental health care delivery.

### Conclusion

Reflecting on my DNP journey, each DNP Essential has profoundly influenced my professional growth and prepared me to address complex healthcare challenges. Integrating scientific principles, organizational leadership, clinical scholarship, technological proficiency, and policy advocacy has equipped me with the skills and knowledge to lead transformative changes in healthcare.

As I advance in my nursing career, I am committed to leveraging these experiences to improve healthcare delivery, policy, and education. The holistic and transformative impact of the DNP education has not only prepared me to excel in diverse healthcare environments but also to advocate for change and innovate in ways that positively impact patient care and outcomes. My dedication to continuous learning and professional development remains unwavering, ensuring that I can deliver high-quality, patient-centered care and contribute meaningfully to advancing the healthcare landscape.

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APPENDIX

PRISMA

Table A1. PRISMA

