INCREASING PROVIDER AWARENESS OF EVIDENCE-BASED SCREENING TOOLS TO IDENTIFY INSOMNIA

by

Denise Meitl

A DNP Project Submitted to the Faculty of the

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As members of the DNP Project Committee, we certify that we have read the DNP project prepared by Denise Meitl, titled Increasing Provider Awareness of Evidence-Based Screening Tools to Identify Insomnia, and recommend that it be accepted as fulfilling the DNP project requirement for the Degree of Doctor of Nursing Practice.

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Final approval and acceptance of this DNP project are contingent upon the candidate's submission of the final copies of the DNP project to the Graduate College.

I hereby certify that I have read this DNP project prepared under my direction and recommend that it be accepted as fulfilling the DNP project requirement.

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LAND ACKNOWLEDGEMENT

We respectfully acknowledge that the University of Arizona is situated on the traditional lands and territories of Indigenous peoples. Today, Arizona is home to 22 federally recognized tribes, with Tucson being home to the O'odham and the Yaqui. Committed to diversity and inclusion, the University strives to build sustainable relationships with sovereign Native Nations and Indigenous communities through education offerings, partnerships, and community service.

DEDICATION

To my children, whose love, laughter, and unwavering presence bring me immeasurable joy and serve as my constant source of strength and inspiration.

To my parents, whom I miss dearly.

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ABSTRACT

Background: Insomnia (poor sleep) is a highly prevalent patient-reported symptom that impacts nearly every health-related metric. In its persistent forms, patients may have symptoms meeting DSM-5-TR criteria for a sleep-wake disorder. As a symptom, it is often under-assessed, under-diagnosed, and under-treated, predisposing individuals to have persistent and worsening manifestations and subsequently develop physical health illnesses and mental health disorders. Standardized screening across diverse health conditions, such as insomnia, has been shown to improve recognition, diagnostic accuracy, tailored treatment planning, and patient outcomes. As the basis for standardized screening and the ISE intervention for this project, the ISI, a validated self-report questionnaire designed to assess the severity of insomnia symptoms in clinical practice, was implemented.

Purpose: The aim of this quality improvement (QI) project was to evaluate an educational intervention to motivate clinician use of a validated, evidence-based screening tool, the Insomnia Severity Index (ISI). The overall goal was to improve the identification of insomnia among clinic patients. The Insomnia Severity Education (ISE) intervention was designed to enhance healthcare provider outcomes of 1) insomnia screening knowledge, 2) confidence in using the ISI, and 3) intention to incorporate insomnia screening, specifically the ISI, into routine clinical practice.

Methods: An evaluative design utilizing pre- and post-intervention measures was employed to assess the effectiveness of the ISE intervention in enhancing provider knowledge of insomnia screening, confidence in using the ISI, and intention to incorporate insomnia screening, specifically the ISI, into clinical practice. Healthcare providers from a community health center

in southern Arizona were invited to participate voluntarily, with three providers completing all components of the intervention. The link to the ISE intervention was distributed through the organization's internal email system. Descriptive statistics were used to evaluate and interpret the survey data.

Results: Post-intervention survey responses indicated increases in healthcare providers' knowledge of insomnia screening, confidence in using the ISI, and intent to implement the ISI in clinical practice. Descriptive statistics revealed positive shifts in all three domains, with providers reporting increased familiarity with the ISI and its clinical applications. The anonymous, self-matched pre- and post-surveys demonstrated that a brief, asynchronous educational intervention was effective in promoting awareness and readiness for practice change.

Conclusions: The findings suggest that brief, asynchronous education can be an effective strategy for enhancing provider knowledge and confidence in screening for insomnia. The increase in intention to incorporate the ISI into clinical assessments highlights the potential of targeted educational interventions to support the adoption of evidence-based tools in everyday practice. These results support the feasibility and value of integrating insomnia screening into routine care through provider-focused education.

INTRODUCTION

Insomnia is a sleep-wake disorder defined by an inability to initiate, maintain, and resume sleep when waking during the night (Tsai et al., 2022). In the United States (US), approximately 30% to 35% of adults in the US report experiencing insomnia symptoms on a nightly basis; while these symptoms may be transient for some, they can develop into chronic, severe insomnia in others (American Academy of Sleep Medicine [AASM], 2019). Insomnia has been found to negatively impact numerous health-related metrics, including mortality, morbidity, physical and mental performance, accidents and injuries, healthcare expenditures, quality of life, social relationship satisfaction, and sense of well-being (Espie et al., 2019). In the US, the estimated economic costs associated with insomnia are a staggering $100 billion per year, and an estimated 367 million workdays are lost every year due to insomnia. (Drake & Fernandez-Mendoza, 2021; Rosenberg et al., 2023). In the US, between 1993 and 2015, the diagnosis of insomnia increased 11-fold from 800,000 to 9.4 million (Dopheide, 2020). Insomnia is a global epidemic that may begin to manifest in early childhood and progress throughout the lifespan well into old age; insomnia often increases in prevalence and severity with age (Himelfarb & Shatkin, 2020; McCrae et al., 2021). As a symptom, insomnia is frequently under-assessed, under-diagnosed, and under-treated, particularly in vulnerable populations, predisposing individuals to have persistent and worsening manifestations and subsequently develop physical and mental health disorders (Araújo et al., 2017).

Evidence indicates that incorporating standardized screening practices for a range of health-related conditions, including insomnia, enhances recognition and diagnostic precision, facilitates personalized treatment, and ultimately improves patient outcomes. As the basis for

standardized screening and the ISE intervention for this project, the Insomnia Severity Index (ISI), a validated self-report questionnaire designed to assess the severity of insomnia symptoms in clinical practice, was implemented.

Background Knowledge

Patients with insomnia commonly present with complaints of difficulty initiating or maintaining sleep, or with early morning awakenings accompanied by an inability to return to sleep. Daytime impairments are frequently noted, including fatigue, reduced concentration, impaired memory, mood disturbances, and decreased occupational or social functioning. Additionally, patients may express heightened concern or preoccupation with their sleep difficulties, which can contribute to a cycle of increased arousal and perpetuation of symptoms. Insomnia presents in varied forms and does not follow a uniform pattern across individuals. It may arise as a secondary symptom linked to medical, psychiatric, or situational conditions, or occur as a primary, standalone disorder. Insomnia is the most prevalent sleep-wake disorder and frequently occurs as a symptom across nearly all mental health conditions, with its severity and presentation often fluctuating over time in response to underlying causes, life stressors, and individual vulnerability (McCrae et al., 2021). The diagnostic criteria for Insomnia Disorder (F51.01) are as follows (APA, 2022):

1. The predominant complaint/dissatisfaction with sleep quantity or quality is one or more of the following symptoms: difficulty initiating sleep, maintaining sleep, early morning awakenings, and an inability to return to sleep.
2. The sleep disturbance causes clinically significant distress or impairment in critical areas of functioning (e.g., social, occupational, educational).

3. The sleep difficulty occurs at least three nights per week.
4. The sleep difficulty is present for at least three months.
5. The sleep difficulty occurs despite adequate opportunity for sleep.
6. The insomnia is not better explained by and does not occur exclusively during another sleep-wake disorder.
7. Insomnia is not attributed to the physiological effects of a substance.
8. Co-existing mental disorders and medical disorders do not adequately explain insomnia.

Prevalence, Incidence, and Risk Factors

The prevalence of patient-reported sleep difficulties supports the supposition that sleep quality assessment should be part of primary and mental health clinic assessments. Although the assessment of sleep quality varies across studies of healthy US adults, it is estimated that one-third of the population reports experiencing symptoms associated with insomnia at some point in their lives. Insomnia that causes distress and impaired daytime functioning despite having an adequate opportunity to sleep occurs in 10 to 15% of the adult population and meets the diagnostic criteria for insomnia disorder (Drake & Fernandez-Mendoza, 2021). Highlighting the importance of adequately assessing sleep quality to identify occasional or persistent insomnia and treat accordingly are the multiple risk and vulnerability factors that have been identified. This includes being female, particularly at a time of reproductive hormone changes, child/adolescent distress and lifestyle, stress-laden events, and diseases/illnesses, including those that manifest as chronically painful and/or fatiguing.

Insomnia in Women

Women are more likely to report insomnia-like symptoms across age groups (18.2%) compared to men (12.4%), as well as sleep disturbance and daytime fatigue between ages 18 and 59 and again between ages 75 and 79 (Adjaye-Gbewonyo et al., 2022; Grandner, 2017; McCrae et al., 2021). Although variable, close to or upwards of 40% of pregnant women meet the diagnostic criteria for insomnia or report significant insomnia symptoms, at least by the third trimester. The number of women reporting sleep difficulties increases as pregnancy progresses. Evidence shows that insomnia exacerbates the risks for premature birth, increased fetal birth weight, pre-eclampsia, and gestational hypertension (Kalmbach et al., 2020; Lu et al., 2021). Finally, 46% to 100 % of women who experience interpersonal violence have reported moderate to severe insomnia (Gallegos et al., 2019).

Insomnia in Pediatric Populations

Insomnia, the most predominant pediatric sleep disorder, affects more than one-third of children and adolescents, and its prevalence differs across developmental life stages and varied pediatric populations; the prevalence of insomnia in children with chronic medical conditions (i.e., seizure disorder, asthma) and those with neurodevelopmental disorders (i.e., autistic disorder, attention-deficit hyperactivity disorder) is as high as 83% and 86% respectively (Meltzer et al., 2021). Research has shown that the prevalence of insomnia for infants and toddlers, young children and preadolescents, and adolescents is 20 to 30%, 20%, and 38%, respectively (Blank et al., 2015; Himelfarb & Shatkin, 2020). Before puberty, insomnia is equally common in both female and male adolescents. During puberty, insomnia increases by 3.4-fold among females and by 2.1-fold among males (Marver & McGlinchey, 2020). Prevalence

rates of insomnia among college-age students range between 9.4% and 32.8% (Navarro-Martínez et al., 2020). Insomnia affects approximately 50% of adults aged 60 and older; its severity and prevalence increase with age, becoming more persistent, with 1.1-fold greater odds per decade, and nearly doubling in those over 75 years compared to those aged 65 to 74 years (Irwin et al., 2022; McCrae et al., 2021).

Insomnia and Socioeconomic Disparities

Insomnia is more prevalent among individuals with low socioeconomic status, lower education levels, poor health, and those living in non-metropolitan areas (Centers for Disease Control and Prevention [CDC], 2024a; Dopheide, 2020). Perceived discrimination or racism, biased perceptions regarding healthcare institutions, language barriers, and cultural norms may prevent disclosure to healthcare providers and cause racial, ethnic, sexual, and gender minority groups to experience more severe insomnia symptoms compared to White individuals (Cheng et al., 2020; McCrae et al., 2021; Williams et al., 2015). There is growing evidence suggesting higher rates of insomnia in sexual and gender minority (LGBT) adolescent and adult populations after controlling for demographic differences, substance use, physical health, and mental health issues (McCrae et al., 2021).

Risk Factors for Insomnia

Insomnia arises from a complex interaction of biological, psychological, and environmental influences. Research has consistently identified older age, female sex, chronic medical conditions, psychiatric disorders, and occupational exposures as prominent risk factors (Li et al., 2022; Benge et al., 2024; Maki et al., 2024; McCrae et al., 2021; Hertenstein et al., 2019; Dopheide, 2020). Aging is associated with changes in circadian rhythm and sleep

architecture, as well as an increased burden of comorbidities and medication use, all of which contribute to disrupted sleep patterns (Li et al., 2022; McCrae et al., 2021). Women are at heightened risk due to hormonal fluctuations across the lifespan, particularly during perimenopause and menopause, when vasomotor symptoms such as hot flashes and night sweats commonly interfere with sleep (Maki et al., 2024). In addition, women are more likely to experience depression, anxiety, and psychosocial stressors, which further compound insomnia risk (Benge et al., 2024; McCrae et al., 2021). Chronic medical conditions, including cardiovascular disease, respiratory disorders, pain syndromes, and somatic complaints, are also strongly associated with insomnia (McCrae et al., 2021).

A growing body of literature supports a bidirectional relationship between insomnia and psychiatric disorders. Insomnia may precede or intensify conditions such as depression, anxiety, PTSD, and substance use disorders, frequently functioning as both a symptom and an early indicator of these mental health conditions.(Hertenstein et al., 2019; Cheng et al., 2018; Ghani et al., 2022). Individuals with depression are nearly twice as likely to experience insomnia, and untreated insomnia may increase the risk of future psychopathology (Hertenstein et al., 2019). Occupational risks are particularly evident among military personnel, veterans, and first responders, who demonstrate disproportionately high rates of insomnia due to exposure to trauma, irregular work schedules, and deployment-related stress. Between 2003 and 2011, insomnia diagnoses among U.S. Army soldiers increased by 625% (Dopheide, 2020), and pre-deployment insomnia is strongly linked to post-deployment depression, PTSD, and suicidal ideation (Tubbs et al., 2022).

Implications of Under-recognition and Under-treatment

Under-recognition of insomnia puts individuals at a greater risk of developing dementia, stroke, kidney disease, diabetes, and heart problems, including arrhythmia, heart failure, coronary heart disease, high blood pressure, hypercholesterolemia, and atherosclerosis (Grandner, 2017). Although women experience higher rates of insomnia, men who experience insomnia and short sleep duration (less than six hours per night) have higher rates of mortality (McCrea et al., 2021). Untreated insomnia increases the risk of obesity, developing metabolic syndrome, and worsening quality of life (Glick et al., 2023; Grandner, 2017). A more substantial relationship exists between untreated insomnia, causing weight gain and obesity among non-Hispanic White and Black/African adults (Grandner, 2017). Untreated insomnia can aggravate physical health, including breathing problems (e.g., asthma, chronic obstructive pulmonary disease) and chronic pain, as well as increasing the risk of pregnancy complications (i.e., increased labor pain, preterm birth) (U.S. Department of Health and Human Services [HHS] et al., 2022).

Under-recognized and under-treated insomnia imposes a heavy strain on the nation's healthcare resources and an economic burden on those with insomnia. Individuals with untreated insomnia use more prescriptions and over-the-counter medication, make more frequent visits to emergency departments and outpatient clinics, use alcohol and drugs to promote sleep, have higher rates of absenteeism and lost wages, and are less productive in the workplace (Drake & Fernandez-Mendoza, 2021). Untreated insomnia is a strong risk factor for work disability, and sleep onset insomnia is a stronger predictor of receiving disability than other nighttime disturbances (Drake & Fernandez-Mendoza, 2021). Untreated insomnia can impair working

memory, executive function, and processing speed, raising the risk of occupational and automobile accidents (Drake & Fernandez-Mendoza, 2021).

Untreated insomnia is strongly associated with elevated rates of suicidal ideation, non-fatal suicide attempts, and completed suicides, as it disrupts cognitive functioning and contributes to impulsive, irrational decision-making. These cognitive and behavioral impairments—such as diminished attention, poor executive functioning, emotional dysregulation, and increased impulsivity—persist as significant risk factors even after adjusting for other established contributors, including psychiatric disorders, substance use, and alcohol dependence (McCrae et al., 2021; Drapeau et al., 2019; Lin et al., 2018). Unrecognized and untreated insomnia is also an independent risk factor for suicidality in adolescents; in adolescents with comorbid mental health disorders (i.e., mood disorders, anxiety disorders), research shows significantly higher rates of suicidal ideation, plans, and attempts (Blank et al., 2015; de Zambotti et al., 2018). Given the significant and well-documented link between suicidality, insufficient sleep, and insomnia, the routine implementation of validated insomnia screening tools in healthcare settings is essential to support early identification, risk reduction, and timely intervention.

Untreated insomnia is a significant predictor of alcohol abuse, as individuals may use alcohol as a dysfunctional coping mechanism to induce sleep; for people with a specific vulnerability to substance misuse, it may result in alcohol abuse and dependency (Hertenstein et al., 2019). Alcohol exacerbates symptoms of insomnia by acutely suppressing REM sleep time for both individuals without alcohol use disorder (AUD) and those with AUD; chronic alcohol use reduces total sleep time, disrupts the normal circadian rhythm, and interferes with sleep

homeostasis (He et al., 2019; Koob & Colrain, 2019). Untreated comorbid insomnia in AUD is associated with poor impulse control, higher rates of unemployment, lower quality of life, and more interpersonal conflict (Schubert & Todd Arnedt, 2017). In individuals recovering from AUD, insomnia is highly prevalent, often persisting for up to two years after alcohol withdrawal, and is associated with an increased risk of both relapse and suicidal ideation (Brower, 2015; Perney & Lehert, 2018). In adolescents, there is a strong association between insomnia and substance use (i.e., alcohol, tobacco, cannabis); adolescents may use substances to self-medicate for insomnia, thereby complicating their sleep problems and potentially increasing the risk of developing ongoing sleep disorders and substance use disorders (de Zambotti et al., 2018). These findings underscore the complex and bidirectional relationship between insomnia and substance use, highlighting the importance of early identification and treatment of insomnia as a critical component of both prevention and recovery efforts for individuals at risk for or experiencing alcohol and other substance use disorders.

Several factors contribute to the under-assessment, under-diagnosis, and under-treatment of insomnia. Patients may delay seeking help in alleviating insomnia due to normalizing early insomnia, feeling hopeless about treatment, perceiving there is a social stigma surrounding sleep difficulties, and they tend to self-medicate or believe insomnia will resolve on its own (Araújo et al., 2017). Additionally, patients may not always volunteer information about their sleep without prompting from providers and may only disclose it when insomnia symptoms are more severe and daytime functioning is already impaired (Ogeil et al., 2020). Providers report a lack of adequate knowledge, education, and training in managing insomnia, assuming patients have limited access to treatment options and presuming treatment options are limited (Yamamoto et

al., 2023). Additional barriers cited by providers include time constraints during consultations, workload, uncertainty regarding insomnia diagnosis, and difficulty identifying the appropriate treatment of insomnia compared to other sleep disorders (Ogeil et al., 2020). In addition, insomnia has often been considered a symptom rather than a separate disorder, and clinicians prioritize treatment of other disorders (i.e., anxiety, depression, PTSD) over insomnia and mistakenly believe that insomnia will sometimes resolve after treatment for other disorders (Koffel et al., 2018). Collectively, these patient- and provider-level barriers contribute to the persistent under-recognition of insomnia in clinical practice, underscoring the critical need for increased awareness, targeted education, and routine use of validated screening tools to support timely identification and treatment.

Screening for Insomnia

Measurement-based care (MBC) is the healthcare process of utilizing evidence-based standardized assessments to collect objective data throughout care to guide clinical decisions; research demonstrates that subjective clinical evaluations do not produce reliable diagnoses compared to evidence-based standardized assessments, which are now considered integral to evidence-based care (Dollar et al., 2019; Rosen et al., 2019). Implementing MBC has been demonstrated to improve outcomes, enhance provider-patient communication, and provide a context to guide conversations and share data with clients, leading to shared decision-making about treatment plan modifications (Dollar et al., 2019). Evidence-based validated assessment measures should be used at initial and subsequent evaluations to identify symptoms, improve diagnostic accuracy, thereby reducing misdiagnoses, monitor progress, and discern lack of improvement, as well as to assist providers in exploring different domains of symptoms and

levels of functioning (Rosen et al., 2019). Psychometric properties (i.e., validity, reliability), practice setting, patient population, and practical application (i.e., time to administer, ease of interpreting results) need to be considered when choosing an insomnia screening tool so providers can make well-informed decisions in treatment planning (Ong et al., 2021; Rosen et al., 2019).

The Insomnia Severity Index (ISI; see Appendix E) is a brief 7-item self-report scale that is easily administered, widely used in various settings, and quickly scored, capturing diagnostic criteria for insomnia (Chiu et al., 2016; Yamamoto et al., 2023). The ISI rates the quality of sleep disturbance (i.e., sleep onset, middle insomnia, and early morning awakenings), sleep satisfaction, functional impairment, the perceptibility of sleep problems by others, and distress caused by sleep problems over the past two weeks; a five-point Likert scale (0 = none, 4 = very severe) is used to rate each item; scores range from no clinically significant insomnia (0-7), subthreshold insomnia (8-14), clinical insomnia of moderate severity (15-21), severe clinical insomnia (22-28) (Yamamoto et al., 2023). The ISI has been widely researched, validated in studies throughout the world, and has a high reliability index; it has been translated into over 30 languages and has been validated in different settings (i.e., community, clinical) and age groups (i.e., adolescents, adults, elderly) (Cerri et al., 2023; Manzar et al., 2021). The ISI can quickly identify potential sleep problems that may require further evaluation or intervention and assist providers in making informed recommendations to improve sleep.

Local Problem

The Centers for Disease Control and Prevention (CDC) developed the Behavioral Risk Factor Surveillance System (BRFSS) to collect data about health and risk behaviors, including

sleep, for adults at the national, state, and county levels (Centers for Disease Control and Prevention [CDC], 2024b). The recommended amount of sleep for adults 18 years of age and older is seven or more hours per night; adults who report getting less than seven hours of sleep are considered to be getting insufficient sleep (American Academy of Sleep Medicine [AASM], 2024; Centers for Disease Control and Prevention [CDC], 2024a). In 2020, the age-adjusted prevalence of insufficient sleep among adults aged 18 years and older in Pima County, the targeted setting for the DNP project, was 34%, slightly exceeding the national average of 33% (CDC, 2024b). In 2022, the age-adjusted prevalence of insufficient sleep among adults aged 18 years and older in Arizona was 36.1%, slightly lower than the national age-adjusted prevalence of 36.8% (CDC, 2024a). The Youth Risk Behavior Survey (YRBS), developed by the CDC, monitors adolescent health-related behaviors for students in grades 9-12 to identify critical issues that contribute to causes of death and illness during adolescence (Youth Risk Behavior Surveillance System [YRBSS], n.d.). The recommended amount of sleep for teenagers ages 13-18 is 8-10 hours per 24 hours (AASM, 2024). In 2021, the prevalence of insufficient sleep among high school students in Arizona was staggering, 79.3%, higher than the national average of 77% (YRBSS, n.d.).

The United Community Health Center (UCHC) is a federally qualified health center with 11 community health centers located in southern Pima County, Arizona. UCHC provides primary and preventive care for more than 14,312 patients and services for all individuals, regardless of their ability to pay, including the working poor, the uninsured, the medically underserved, and high-risk and vulnerable populations. UCHC employs 27 medical care providers specializing in family practice, pediatric care, women's health, acute care, dental care,

and behavioral health. It was unknown if an insomnia screening tool is used during initial or subsequent appointments and how many UCHC patients experience insomnia symptoms.

Intended Improvement

Project Purpose

Relevant to the Healthy People 2030 initiative (U.S. Department of Health and Human Services) to increase the number of adults and high school students (grades 9-12) who get sufficient sleep (Office of Disease Prevention and Health Promotion [ODPHP], n.d.), evidence of sleep sufficiency in the U.S. population shows the need for insomnia screening in clinic care. The proportion of adults who get sufficient sleep is worsening; in 2022, 69.9% reported getting enough sleep compared to 72.3% in 2020 (ODPHP, n.d.). The proportion of high school students who get sufficient sleep is declining; in 2021, 22.7% of students in grades 9-12 reported getting enough sleep, compared to 25.4% in 2017 (ODPHP, n.d.). For several reasons, within this quality improvement (QI) project at a clinic site, we aimed to evaluate an educational intervention for its effects on health care providers' knowledge, confidence, and intent to use an evidence-based, standardized screening tool to identify insufficient sleep and symptoms of insomnia. First, insomnia screening tools can facilitate the early detection of insomnia symptoms, even when patients may not recognize or report their sleep issues. Early detection helps ensure timely intervention, preventing chronic insomnia from developing or worsening. Second, a validated, evidence-based screening tool provides a consistent, standardized, objective method for assessing insomnia symptoms. This ensures providers apply the same criteria for all patients, helps avoid diagnostic inaccuracies and discrepancies, and minimizes subjective bias. Third, screening tools, which can provide detailed information about the type, severity, and

functional impact of insomnia symptoms, allow providers to design a personalized, patient-centered approach to treatment. Tailored interventions may include lifestyle modifications (e.g., diet, exercise, stress management), improvements in sleep hygiene, cognitive behavioral therapy for insomnia, or medication. Fourth, a screening tool can be used throughout treatment to monitor progress and effectiveness over time. Ongoing monitoring ensures that interventions are working and also allows for the identification of worsening insomnia or warning signs of insomnia relapse. Fifth, patients who routinely fill out self-reported rating scales often gain a deeper understanding of their condition, become more aware of changes in their symptoms, and improve their ability to communicate effectively with their healthcare providers (Fortney et al., 2017). Lastly, an insomnia screening tool can increase patient engagement and enhance patient-provider communication. Insights gained from screening can initiate meaningful discussions about insomnia, helping to identify root causes or underlying conditions, validate patient symptoms and experiences, encourage proactive management, and promote a supportive and collaborative approach to treatment.

Project Question

The guiding question for this project was: "What is the impact of a brief, provider-focused educational intervention on the Insomnia Severity Index (ISI) on healthcare providers' knowledge of insomnia screening, confidence in using the ISI, and intention to incorporate it into clinical practice?"

Quality Improvement Project Aims

This quality improvement (QI) project aimed to evaluate the impact of the Insomnia Severity Educational (ISE) intervention on healthcare providers' 1) knowledge of insomnia

screening, 2) confidence in using the ISI, and 3) intent to incorporate insomnia screening into clinical practice.

Theoretical Framework

Knowles' Adult Learning Theory

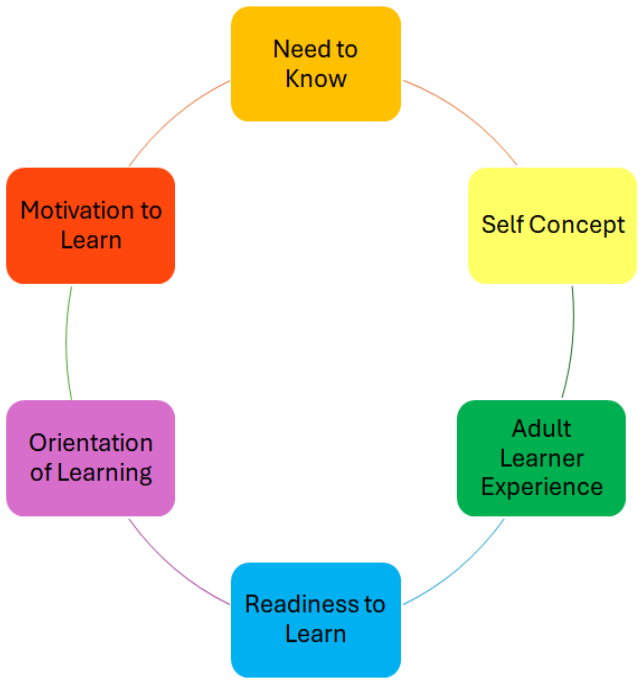
Through observation, prediction, testing, and reasoning, theories describe the relationships between ideas or concepts to understand and explain observable phenomena. A theoretical framework developed from one or more theories shapes the design of a project or study (Varpio et al., 2019). Malcolm S. Knowles' Andragogical Adult Learning Theory (ALT) served as the theoretical framework and guided the development of the educational intervention for this DNP QI project. Andragogy, first coined by German school educator Alexander Kapp in 1833, centers on approaches and principles of adult learners rather than pedagogy, which focuses on methods and teaching of children (Knowles et al., 2005). In 1968, Malcolm S. Knowles, a highly distinguished American educator and researcher, introduced an adult learner-centered approach to teaching in his article *Andragogy, not Pedagogy;* in this and subsequent pivotal works, Knowles presented the following six assumptions of adult learners, which form the basis of ALT (Knowles et al., 2005; Merriam & Baumgartner, 2020):

1. Need to know: Adult learners need to know why they need to learn something before engaging in the learning process.
2. Self-concept: As adults mature and become more independent, they view themselves as autonomous and more capable of self-direction rather than one of a dependent personality.

3. Adult learner experience: As adults mature, they accumulate diverse experiences and knowledge, becoming a rich learning resource.
4. Readiness to learn: Adults become ready to learn to achieve personal goals, accomplish relevant tasks, and cope with everyday situations. Readiness to learn is closely tied to the developmental tasks associated with social roles.
5. Motivation to learn: As adults mature, they develop internal motivations to learn rather than being motivated by external incentives or influences.
6. Orientation of learning: As adults mature, they want their learning to shift toward life-centeredness rather than subject-centeredness. In other words, adult learners want learning to apply to real-world situations or problems.

Figure 1

Knowles' Six Assumptions of Adult Learners



Theoretical Framework Application to Project

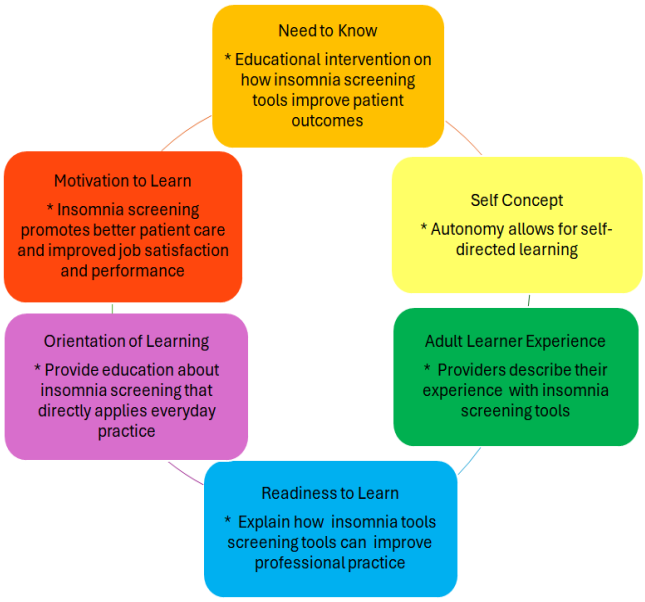
According to Knowles' ALT, the six assumptions need to be addressed to enhance adult learning. Given that the purpose of this project is to increase healthcare provider (adults) awareness of insomnia screening tools, the ALT assumptions were used to guide the structuring of the ISE intervention as follows:

- Need-to-know assumptions: Information was provided on the high prevalence of sleep insufficiency and insomnia (e.g., impact, prevalence, clinical definition) as a rationale for why screening is necessary, as well as how identification and treatment improve patient outcomes.
- Self-concept assumptions: Healthcare provider autonomy was respected by allowing personal decision-making regarding participation in the self-directed learning module.
- Adult learner experience: The participants had prior experiences with screening for other conditions as context for comprehending and valuing the ISE intervention approach. The project objectives aligned with participants' professional goals to enhance clinical effectiveness and improve patient outcomes.
- Readiness to learn assumption: The ISE intervention highlighted the value of insomnia screening in enhancing both clinical practice and patient outcomes. To accommodate participants' diverse work schedules and promote accessibility, the intervention was delivered as an asynchronous, pre-recorded presentation.
- Motivation to learn assumption: As clinicians committed to delivering best practices, participants were introduced through the ISE intervention to the benefits of enhanced insomnia screening, emphasizing its value in improving patient care and outcomes.

- Orientation of learning assumption: The ISE intervention topic of insomnia screening was presented to demonstrate its practical application in everyday workflow.

Figure 2

Adapted Version of ALT to DNP Quality Improvement Project



Literature Synthesis

A literature synthesis is a process whereby existing literature is researched, organized, and synthesized to present current evidence of what is known or unknown about a particular subject or phenomenon (Bonnel & Smith, 2022; Moran et al., 2020). The literature synthesis involved a critical analysis of existing research to identify key themes and relevant concepts related to insomnia screening, providing a foundation for the DNP project. The review revealed four primary themes: (a) measurement-based care and the need for standardized insomnia screening, (b) psychometric properties and accuracy of insomnia screening tools, (c)

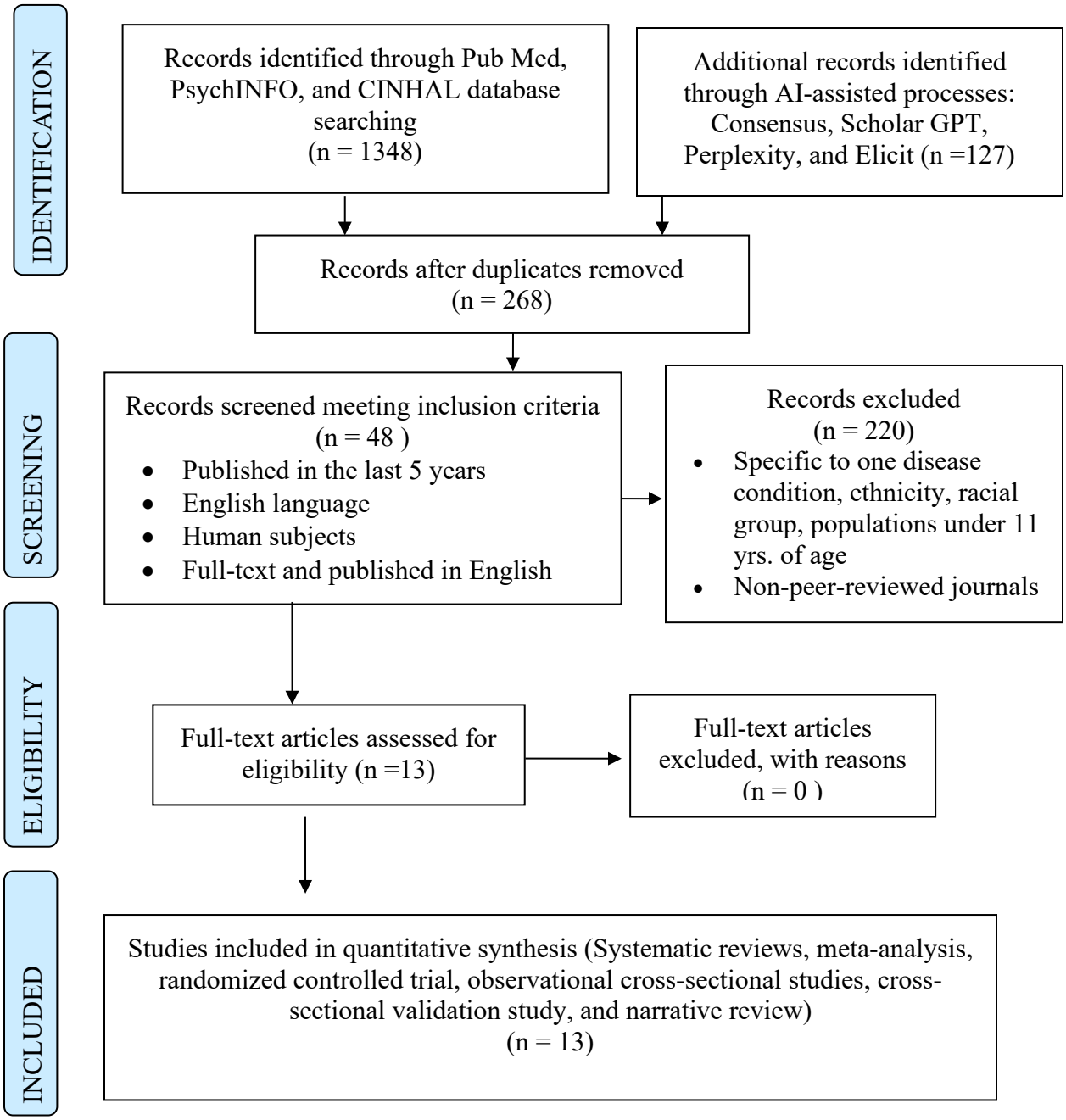
implementation challenges and barriers to insomnia screening adoption, and (d) asynchronous learning. The strengths, weaknesses, and gaps or limitations of the evidence were also identified.

Evidence Search

To support the development of this educational intervention, a systematic evidence search was conducted across multiple databases, including PubMed, PsychINFO, and CINAHL. To ensure relevance and applicability, the search focused on peer-reviewed literature published within the last five years (2019-2024) and involved only human participants. It was restricted to those with full-text publications in English. Articles were excluded if they were specific to one disease condition, ethnicity, racial group, or population under 11 years of age, or were published in non-peer-reviewed journals. Search terms utilized were “insomnia,” “insomnia screening tools,” “measurement-based care,” “sleep questionnaire,” “validated instrument,” “Insomnia Severity Index or ISI,” “evidence-based practice, ” and “asynchronous learning.” In addition, several technological aids were utilized to enhance the evidence search, including ScholarGPT, Elicit, Consensus, and Perplexity. These artificial intelligence (AI) models use natural language processing and deep learning algorithms to generate content. They streamlined the review process by identifying, categorizing, and comparing relevant data, extracting key findings, performing data analysis, and summarizing the relevant research on evidence-based screening tools for identifying insomnia. The combined advanced search yielded 1,292 articles, of which 13 were selected for literature synthesis and analysis (Appendix G). Five articles not published within the last five years were included owing to their high quality of information. The PRISMA flow diagram in Figure 3 summarizes the results of the literature search.

Figure 3

PRISMA 2009 Flow Diagram



Measurement-Based Care

Insomnia is a highly prevalent sleep disorder that is often underdiagnosed and undertreated despite its significant impact on mental health, cognitive function, and chronic disease risk (Ali et al., 2020; Cerri et al., 2023; Chiu et al., 2016; DeSimone & Hansen, 2023; Fabbri et al., 2021; Gagnon et al., 2013; Manzar et al., 2021). To address this gap, Measurement-based care (MBC) offers a structured approach to patient care by systematically utilizing validated assessment tools to monitor symptoms and inform clinical decision-making (DeSimone & Hansen, 2023; Fortney et al., 2017). MBC emphasizes the collection of objective data, rather than relying solely on clinical judgment, to ensure consistent and evidence-based decision-making in patient care (DeSimone & Hansen, 2023; Fortney et al., 2017).

The implementation of MBC for insomnia screening offers several advantages. MBC is specifically designed to optimize the efficiency and accuracy of symptom evaluation, increasing the likelihood that a provider identifies and addresses treatment nonresponse. Utilizing validated screening tools enhances the reliability and precision of assessments, resulting in more effective treatment strategies, higher remission rates, and improved patient outcomes (Ali et al., 2020; DeSimone & Hansen, 2023; Fortney et al., 2017).

The ISE intervention aligns with the principles of measurement-based care (MBC) by introducing providers to a validated screening tool, the ISI, and promoting its routine use in clinical practice. By enhancing provider knowledge, confidence, and intention to utilize the ISI, the ISE intervention supports the systematic identification and management of insomnia, fosters more objective clinical decision-making, and promotes patient engagement, all of which are foundational to effective MBC implementation.

Reliability, Validity, and Comparative Accuracy of Insomnia Screening Tools

The Insomnia Severity Index (ISI) was selected for this project due to its strong diagnostic utility, ease of use, and sensitivity to clinical change compared to other insomnia screening tools. The Insomnia Severity Index (ISI) has demonstrated robust internal consistency across various populations, with Cronbach's alpha consistently exceeding 0.8; its strong factor structure and cross-cultural applicability solidify its role as a reliable tool (Cerri et al., 2023; Manzar et al., 2021). The ISI's high sensitivity, specificity, and predictive validity, particularly in psychiatric populations, confirm the ISI as a psychometrically sound choice for insomnia screening (Gagnon et al., 2013; Wong et al., 2017). In a meta-analysis comparing the ISI, Pittsburgh Sleep Quality Index (PSQI), and Athens Insomnia Scale (AIS), Chiu et al. (2016) found that all three tools demonstrated comparable levels of diagnostic accuracy. However, the ISI stands out for its brevity, straightforward scoring, and alignment with DSM-5 diagnostic criteria, making it especially practical for integration into routine clinical workflows. While Chiu et al. (2016) noted variability in sensitivity, specificity, and cutoff scores across studies, these findings emphasize the importance of selecting a screening tool that is adaptable across clinical contexts.

Challenges and Barriers to Insomnia Screening Adoption

Despite the availability of validated insomnia screening tools, their adoption in clinical practice remains limited, perhaps due to evidence showing several key barriers. Time constraints are a primary challenge, as providers in high-volume settings often lack the time to administer, score, and interpret screening tools during patient visits (DeSimone & Hansen, 2023). Another major barrier is the insufficient training of providers and limited knowledge regarding the use of

insomnia screening tools. Many providers are unfamiliar with integrating these tools into their workflow or effectively interpreting the results (Ali, 2020). Uncertainty about which screening tool to use and variability in cutoff scores further hinder adoption. Without clear guidelines, providers may hesitate to rely on these tools for clinical decision-making (Chiu et al., 2016). Workflow integration challenges also impede adoption. Without support systems such as electronic medical record (EMR) integration or automated scoring, the manual processes required can be cumbersome, particularly in busy practices (DeSimone & Hansen, 2023).

Addressing these barriers requires comprehensive strategies, including brief provider training modules, EMR integration of tools like the ISI and PSQI, and quick-reference scoring guides (Ali et al., 2020; DeSimone & Hansen, 2023; Fortney et al., 2017). Educating providers on the importance of early insomnia detection and leveraging workflow-friendly solutions, such as clinical decision support tools, can improve screening rates (Chiu et al., 2016; DeSimone & Hansen, 2023). By mitigating these challenges, validated tools can be utilized more effectively, thereby enhancing patient outcomes and supporting evidence-based care.

Asynchronous Learning

Asynchronous learning has been shown to be an effective method for delivering educational content across various settings. In a meta-analysis by Zeng et al. (2022), asynchronous learning was found to have a statistically significant advantage over synchronous learning in enhancing student knowledge, although the effect size was relatively small. The authors noted that this small effect was consistent across different educational levels and disciplines, suggesting that asynchronous learning is broadly effective and applicable. Complementing these findings, Hung et al. (2024) conducted a comparative study among 170

fourth-year medical students, finding that both synchronous and asynchronous formats significantly improved learning outcomes and self-efficacy. While cognitive load (e.g., mental load, mental effort) was higher in the asynchronous group, overall learner satisfaction remained high and comparable across formats. Together, they highlight that asynchronous methods can effectively promote knowledge while offering flexibility for busy learners.

Strengths of Evidence

The literature synthesis included five high-level studies, all of which are systematic reviews; three of these reviews incorporated meta-analyses to statistically synthesize results across all studies (Ali et al., 2020; Cerri et al., 2023; Chiu et al., 2016; Fabbri et al., 2021; Manzar et al., 2021). These methods are considered among the most rigorous in the hierarchy of evidence because they improve statistical power, reduce bias, and enhance the generalizability and reliability of findings. In all five studies, two independent reviewers conducted full-text screening and data extraction, strengthening methodological rigor and reducing the potential for selection bias. Four of the five studies followed PRISMA guidelines, and one adhered to REGEMA guidelines, both of which promote transparency and reproducibility in evidence synthesis. Additionally, Cerri et al. and Manzar et al. analyzed large, combined sample sizes (n = 29,688 and n = 13,480, respectively), further contributing to the external validity and precision of the results.

Findings from Cerri et al. (2023) reinforced the ISI's value as the core tool in this project's educational intervention, while Fortney et al. (2017) and DeSimone and Hansen (2023) support its integration into clinical practice as part of a broader shift toward measurement-based care. The ISI is consistently supported in the literature as a valid, reliable, and efficient tool for

assessing insomnia severity across diverse populations and clinical settings (Ali et al., 2020; Chiu et al., 2016; Gagnon et al., 2013). Its brief, self-administered format facilitates ease of use in time-limited outpatient settings, and its strong psychometric properties make it appropriate for both initial screening and tracking symptom changes over time. Furthermore, the literature highlights how standardized tools, such as the ISI, enhance clinical decision-making and improve patient outcomes, which are key principles of measurement-based care (MBC). These findings reinforce the ISI's value as the core tool in this project's educational intervention and support its broader adoption in clinical practice (Cerri et al., 2023; Fortney et al., 2017; DeSimone & Hansen, 2023). To support accessibility and flexibility for busy providers, the ISE intervention was delivered asynchronously, a method shown to be effective in enhancing knowledge and self-efficacy across diverse educational settings (Zeng et al., 2022; Hung et al., 2024).

Weaknesses, Gaps, and Limitations of Evidence

While the overall evidence supporting the ISI is robust, several limitations must be considered when evaluating its generalizability and clinical utility. Notably, multiple studies report variability in the psychometric performance of insomnia screening tools due to differences in study populations, diagnostic thresholds, cultural contexts, and measurement conditions (Cerri et al., 2023; Chiu et al., 2016; Filosa et al., 2020; Manzar et al., 2021). This heterogeneity underscores the importance of caution when applying standardized tools across diverse clinical settings. Additionally, several studies used cross-sectional designs, which assess data at only one point in time, limiting the ability to evaluate test–retest reliability or establish causal relationships. These designs may also be vulnerable to confounding variables that affect the accuracy of diagnostic outcomes. Moreover, while Fortney et al. (2017) advocate for MBC, their

narrative review lacks systematic methodology and may be influenced by author interpretation and selection bias.

DeSimone and Hansen (2023) argue that it is essential to identify the underlying reasons for gaps in MBC within the field of psychiatry. Additionally, research has highlighted a critical need for more rigorous psychometric evaluations, particularly through exploratory and confirmatory factor analyses, to enhance the diagnostic accuracy of sleep questionnaires in distinguishing between various sleep conditions (Fabbri et al., 2021; Manzar et al., 2021). Lastly, additional validation of the ISI is needed for underrepresented groups and specific populations, including older adults, individuals with chronic medical conditions, and culturally and linguistically diverse populations (Cerri et al., 2023; Filosa et al., 2020).

Although the ISI is a widely supported instrument, this project acknowledges its limitations in generalizability and promotes its use as a foundational, yet not exclusive, component of comprehensive care. By focusing on provider education and integrating the ISI into practice, this QI project aimed to bridge evidence-practice gaps and support a more standardized, informed approach to insomnia screening in primary care.

METHODS

Project Design

This quality improvement (QI) project employed an evaluative, pre-post design to assess the impact of a brief educational intervention on healthcare providers: 1) insomnia screening knowledge, 2) confidence in utilizing the ISI, and 3) intention to incorporate insomnia screening, specifically the ISI, into routine clinical practice. The Project Director (PD) developed the asynchronous intervention, which consisted of anonymous pre- and post-surveys, as well as a 14-

minute prerecorded educational PowerPoint presentation, converted to video format and uploaded to YouTube to enhance accessibility. A supplemental resource document was also developed by the PD to reinforce key concepts and support ongoing provider learning. A single Qualtrics link provided seamless access to the pre-intervention survey, the embedded educational video, the post-intervention survey, and the supplemental resource document. Participants created self-generated identifiers to maintain anonymity while allowing pre- and post-survey responses to be matched. The asynchronous format was intentionally chosen to accommodate providers' varying schedules and increase accessibility.

The pre- and post-intervention surveys were used to evaluate changes in three key areas:

- Knowledge of the need for and clinical utility of evidence-based insomnia screening, specifically the ISI.
- Confidence in administering, scoring, and interpreting the ISI in routine practice.
- Intention to incorporate the ISI into regular patient assessments as part of evidence-based care.

The development of this intervention and the writing process incorporated artificial intelligence (AI) as a supplemental tool. AI-assisted technologies were utilized to aid in literature synthesis, refine written content for clarity and coherence, and enhance the organization of project components. Additionally, AI-supported tools (Scholar GPT, Microsoft Copilot) were utilized to develop educational materials and survey questions, ensuring alignment with evidence-based practice and project objectives.

While AI was employed as an aid in these processes, the author critically evaluated, revised, and finalized all content to ensure accuracy, scholarly integrity, and adherence to

academic and ethical standards. The final project reflects the author's professional judgment, expertise, and commitment to advancing nursing practice.

Model for Implementation

Developed by the Institute for Healthcare Improvement (IHI), the Model for Improvement (MFI) is a widely used framework for quality improvement in healthcare and other fields. It provides a structured approach for organizations to evaluate and implement meaningful changes in practice (Institute for Healthcare Improvement [IHI], n.d.). The MFI is an effective implementation model as it promotes continuous learning and adaptation, prioritizes measurable outcomes, and facilitates small-scale testing before full deployment. The MFI is built on three fundamental questions and the Plan-Do-Study-Act (PDSA) cycle. The fundamental questions are as follows (IHI, n.d.):

- What are we trying to accomplish? This project aimed to enhance provider knowledge and confidence in utilizing a validated insomnia screening tool in primary care, pediatric, and behavioral health settings at United Community Health Center (UCHC). By implementing educational intervention, the project aimed to improve the screening and identification of insomnia, ultimately leading to better patient outcomes.
- How will we know if a change is an improvement? Improvement was measured using pre- and post-survey data to assess changes in provider knowledge, confidence, and intention to use an insomnia screening tool in clinical practice.
- What changes can we make that will result in improvement? The primary change introduced was a 14-minute asynchronous, prerecorded educational PowerPoint

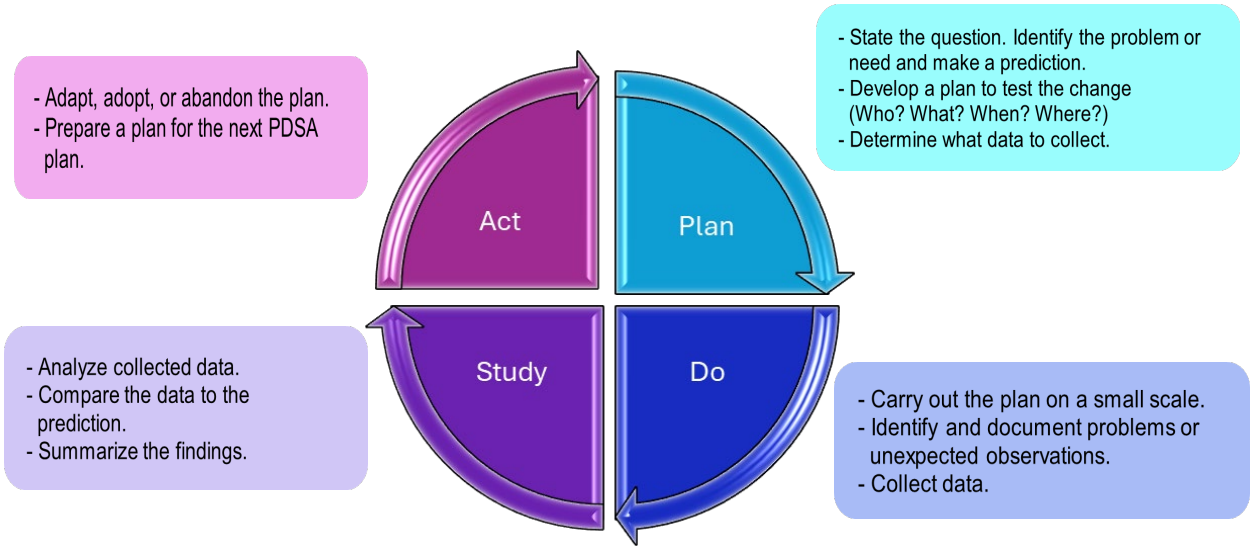
presentation converted to video format and uploaded to YouTube to enhance accessibility.

Plan-Do-Study-Act (PDSA) Cycle

The PDSA cycle is a continuous quality improvement framework that involves planning a change, implementing it on a small scale, analyzing the results, and adjusting the approach before wider implementation (IHI, n.d.). The PDSA cycle guided the implementation and evaluation of this quality improvement project as follows (Institute for Healthcare Improvement [IHI], 2017):

Figure 4

The PDSA Model for Improvement



Adapted from the Institute for Healthcare Improvement's Model for Improvement diagram (IHI, 2017).

Plan

As part of the Plan phase of the PDSA cycle, the project director (PD) selected the ISE intervention as the quality improvement strategy and identified baseline data collection methods to assess provider behavior. Key measurement areas included: (1) knowledge of insomnia

screening, (2) confidence in using the Insomnia Severity Index (ISI), and (3) intention to implement the ISI in clinical practice. At the outset, it was unknown to what extent providers at United Community Health Center (UCHC) were using validated tools to screen for insomnia.

Do

During the "Do" phase, the PD implemented the project by recruiting as many volunteer healthcare providers as possible at UCHC. To facilitate participation, a single Qualtrics link containing the pre-intervention survey, the embedded ISE video presentation, the post-intervention survey, and the supplemental resource document was distributed via the organization's email. Anonymous survey responses were gathered electronically and securely stored for analysis.

Study

For the "Study" phase, the PD analyzed data collected from the pre- and post-intervention surveys related to the ISE video presentation. The difference in pre- to post-survey scores was calculated for each metric: 1) insomnia screening knowledge, 2) confidence in using the ISI, and 3) intent to utilize the ISI in clinical practice. This analysis assessed the effectiveness of the educational intervention and identified areas for potential improvement.

Act

For the "Act" phase, the PD evaluated the effectiveness of the intervention to determine whether to adopt the ISE intervention as standard practice, adapt it based on findings for further refinement, or abandon it if the desired outcomes were not achieved. Since no further modifications or additional cycles are feasible, the results were documented and analyzed to inform future research or practice improvements.

Setting and Stakeholders

Project Setting

This quality improvement (QI) project was conducted in collaboration with United Community Health Center (UCHC), a Federally Qualified Health Center (FQHC) serving rural communities in Southern Arizona. UCHC provides primary care, behavioral health, pediatrics, dental care, and other essential health services across multiple locations. Once the DNP Project Committee reviewed and approved the QI project, it was submitted to the Chief Medical Director at UCHC for official authorization to proceed with implementation (see Appendix A). This authorization ensured institutional support for the project and facilitated its execution within the organization's framework.

Stakeholders

Stakeholders included healthcare providers, clinical leaders, administrators, and patients, who were indirect beneficiaries. For this project, recruitment was limited to adult family care, pediatric, and behavioral health providers, as they were the most likely to encounter patients with insomnia. Clinical leadership and administrators played an advisory and facilitative role in supporting the dissemination of information and ensuring that the project aligned with the UCHC's broader goal of delivering the highest quality care to the communities they serve. Although patients and their families are not direct participants in this study, they served as indirect stakeholders. The ultimate goal of enhancing provider knowledge and confidence in insomnia screening is to improve patient care. By increasing providers' awareness of evidence-based screening tools, this project may lead to earlier identification and intervention for insomnia, improving patient health outcomes and overall well-being. This collaborative approach

ensured that all relevant stakeholders—both direct and indirect—were considered for the successful implementation of this educational initiative.

Planning the Intervention

Following approval from the Chief Medical Officer at UCHC (Appendix A), the PD developed an educational intervention focused on the Insomnia Severity Index (ISI), along with pre- and post-surveys to measure changes in provider knowledge, confidence, and intent to use validated insomnia screening tools. The PD chose an asynchronous format for this project to provide flexible, evidence-based learning that supports knowledge acquisition while accommodating the demanding schedules of healthcare providers. The intervention consisted of a 14-minute PowerPoint presentation developed by the principal investigator, which was prerecorded and converted into a video format to serve as the educational component. This video was uploaded to YouTube to enhance accessibility and ease of integration. Surveys were created using Qualtrics, a secure cloud-based platform, and participants were instructed to create a self-generated identifier to maintain anonymity while allowing for pre- and post-survey response matching. A single Qualtrics link provided participants with access to the full project, including the pre-survey, ISE educational video (embedded directly from YouTube), and post-survey, ensuring a seamless and user-friendly experience. Participants were required to provide informed consent before beginning the pre-survey and accessing the ISE educational video. To support continued learning, a supplemental document with relevant resources was also embedded within the project materials.

The pre-survey consisted of 11 questions designed to assess participants' baseline familiarity, knowledge, confidence, perceived importance, and current clinical practices related

to insomnia screening. Specifically, the survey included two Likert-type questions assessing familiarity with the Insomnia Severity Index (ISI) and DSM-5 diagnostic criteria for Insomnia Disorder, as well as four confidence-related questions evaluating participants' self-reported confidence in screening for insomnia, prescribing treatment, interpreting ISI results, and using ISI results to guide treatment decisions. The survey also included three multiple-choice knowledge questions covering the ISI threshold for clinically significant insomnia, prevalence of insomnia symptoms in the general population, and DSM-5 diagnostic criteria. Additionally, one item assessed participants' current screening practices using a single-choice scaled format, and one Likert-type item measured the perceived importance of screening for insomnia. This combination of question types enabled a comprehensive evaluation of both subjective and objective baseline measures before the educational intervention.

The presentation covered key topics including the prevalence of insomnia, its associated negative health outcomes and impact on functioning, and distinguishing features of clinical insomnia. It also provided an in-depth overview of the ISI, including its suitability, structure, scoring thresholds, and interpretation. The session concluded with practical guidance on how providers can integrate the ISI into their clinical workflows and utilize the results to inform treatment planning and follow-up care.

The post-survey included 13 questions designed to assess changes in provider knowledge, confidence, familiarity, and intent following the educational intervention. Seven Likert-scale items mirrored those in the pre-survey, evaluating familiarity with the ISI, confidence in screening, interpreting results, guiding treatment, and perceived importance of insomnia screening. Three multiple-choice questions assessed knowledge of insomnia prevalence, DSM-5

criteria, and ISI scoring. Additional items evaluated intent to implement the ISI, perceived instructiveness of the presentation, and included one open-ended question for feedback.

Participants and Recruitment

Primary, pediatric, and behavioral health providers at UCHC included three medical doctors, two physician assistants, one doctor of osteopathic medicine, five family nurse practitioners, three pediatric nurse practitioners, and four psychiatric-mental health nurse practitioners, totaling 18 potential participants. A recruitment email (Appendix C) provided an overview of the quality improvement (QI) project, instructions for participation, and a disclosure form (Appendix B). The email also included a single Qualtrics link that granted participants access to the full project, including the pre-survey, embedded educational video, and post-survey. Participants were instructed to exclude themselves if they did not meet all participation criteria specified in the disclosure form.

Consent and Ethical Considerations

This QI project was developed in accordance with the foundational principles of the University of Arizona Institutional Review Board (IRB) and the principles outlined in the Belmont Report. Its implementation was dependent on approval by the IRB, which reviews research proposals involving human subjects to ensure that ethical standards are set (Appendix A).

Consent

Participation in this quality improvement project was entirely voluntary. Before joining, each potential participant received an electronic disclosure form (see Appendix B) detailing their

rights and responsibilities throughout the study. All participant information was managed with strict confidentiality and privacy.

Ethical Considerations

The Belmont Report is a foundational document in the ethics of research involving human subjects. It was developed in 1978 and published in 1979 by the National Commission for the Protection of Human Subjects of Biomedical and Behavioral Research (U.S. Department of Health and Human Services [USDHHS], 1979). The report's principles are essential for developing informed consent protocols and ensuring that research practices honor and protect participants while defining the three foundational ethical tenets: respect for persons, beneficence, and justice.

Respect for Persons

The principle of respect for persons emphasizes recognizing individuals as autonomous agents while ensuring protection for those with diminished autonomy; autonomy involves the ability to make informed decisions, which should be respected as long as they do not cause harm to others (USDHHS, 1979). Violations of autonomy occur when individuals' choices are ignored, their freedom is restricted, or they are denied essential information. This principle was crucial in recruiting participants for this QI project. Ensuring informed consent in recruitment upholds autonomy by providing potential participants with clear, comprehensive information about the study's purpose, procedures, risks, and benefits, allowing them to make voluntary, well-informed decisions about participation.

Beneficence

Ethical participant recruitment must align with the principle of beneficence, which emphasizes respecting individuals' decisions, protecting them from harm, and actively promoting their well-being; in research, beneficence requires avoiding harm while maximizing benefits and minimizing risks (USDHHS, 1979). This means ensuring that potential participants fully understand the study's purpose, procedures, risks, and benefits, allowing them to make informed decisions about participation. By adhering to beneficence, this QI project upheld ethical research practices, ensuring participant safety and advancing patient-centered care.

Justice

The principle of justice emphasizes the fair distribution of research benefits and burdens, ensuring that no group is unfairly disadvantaged or overburdened; justice in research means selecting participants equitably, avoiding exploitation, and ensuring that vulnerable populations are not disproportionately burdened while others reap the benefits (USDHHS, 1979). For this QI project, recruiting a diverse group of providers was crucial to ensuring the intervention's relevance and effectiveness across various healthcare settings and patient populations.

Timeline

The timeline for this QI project was developed in coordination with the committee chair and chief medical director at UCHC to ensure it aligned with the University of Arizona semester deadlines. This deadline allowed time for project development, IRB approval, implementation, data analysis, and final defense to committee members (Appendix F).

Data Collection

A recruitment email (Appendix C) was sent to potential participants, along with a single Qualtrics link that housed the entire project, including the pre-survey, the ISE educational presentation, the post-survey, and the supplemental resource document. The survey questions for both the pre- and post-intervention assessments are provided in Appendix D. Participants were asked to create a unique identification number at the beginning of the pre- and post-educational presentation surveys. Data was de-identified and stored in secure, password-protected systems accessible only to authorized research personnel. No identifiable information was included in any reports or publications, ensuring complete privacy throughout the project.

Data Analysis

The original data analysis plan involved using Stata statistical software to conduct a Wilcoxon signed-rank test to compare pre- and post-intervention responses. However, with only three participants completing both surveys, the sample size was insufficient for meaningful inferential analysis. Consequently, descriptive methods were employed to summarize individual responses and examine trends in knowledge, confidence, and intent. Given the extremely limited sample size, descriptive analysis was the most appropriate approach to reflect changes at the participant level.

RESULTS

The Doctor of Nursing Practice (DNP) quality improvement project was launched on July 7, 2025. To facilitate participation, the Chief Medical Officer's (CMO) administrative assistant distributed a recruitment email to healthcare providers at UCHC, including those in the Family Care, Pediatrics, and Behavioral Health departments. A single Qualtrics link was provided,

granting access to the pre-survey, ISE video presentation, post-survey, and supplemental resource document. The link remained active for a total of eight days. By July 10, 2025, only one response had been received; therefore, the PD requested that the CMO's administrative assistant send a reminder email, which was distributed on July 11, 2025, in an effort to increase participation. Of the 22 providers invited via email, seven responses were received. One provider accessed the survey but declined to give consent, and three providers completed the pre-survey only without completing the post-survey. Three providers fully participated in the project. Informed consent was obtained from all participants before accessing the pre-survey, ISE video presentation, and post-survey, all of which were administered through the Qualtrics platform. To protect participant anonymity, demographic data were not collected. Although the sample size was small, the project upheld ethical principles for human subjects research, including voluntary participation and the safeguarding of participant confidentiality.

Outcomes

This DNP quality improvement project aimed to enhance providers' knowledge, confidence, and intention to implement insomnia screening in clinical practice, thereby facilitating the identification of clinical insomnia and ultimately supporting improved patient outcomes. To align with this objective, the pre- and post-presentation surveys were intentionally designed to assess changes in these key areas. Both surveys contained a mix of multiple-choice and Likert-scale questions aligned with the project objectives. Knowledge-based items evaluated participants' understanding of the DSM-5 diagnostic criteria for insomnia, the ISI clinical threshold score, and the prevalence of insomnia. Likert-scale items measured self-reported familiarity with the ISI, confidence in screening and treatment, and the perceived importance of

insomnia screening in clinical practice. The post-survey included additional items assessing the likelihood of implementing the ISI and the perceived instructiveness of the educational presentation. An open-ended question was also provided to gather feedback on potential improvements to the interventions.

Provider Knowledge of Insomnia Screening and Diagnostic Criteria

To assess changes in provider knowledge, the survey incorporated three multiple-choice questions and two Likert-scale items. These questions evaluated familiarity with the Insomnia Severity Index (ISI) and DSM-5 diagnostic criteria, understanding of ISI scoring thresholds, accurate identification of diagnostic criteria, and awareness of insomnia prevalence in the adult population.

Figure 5

Pre- and Post-Survey Knowledge Data: Likert Statement 1: Familiarity – Individual Responses

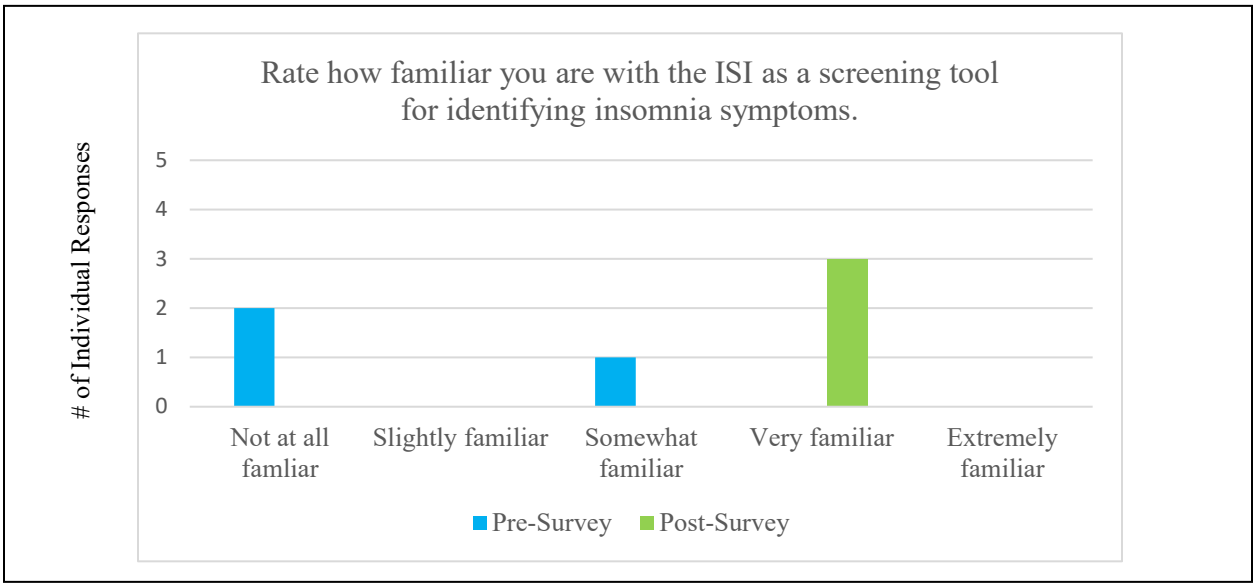


Figure 5 demonstrates a clear improvement in participants' familiarity with the Insomnia Severity Index (ISI) following the intervention. Initially, responses were clustered in the “Not at all familiar” and “Somewhat familiar” categories. After the intervention, all responses shifted to “Very familiar,” indicating a notable increase in awareness and understanding of the ISI as a screening tool for identifying insomnia symptoms.

Figure 6

Pre- and Post-Survey Knowledge Data: Individual Responses – Threshold Score

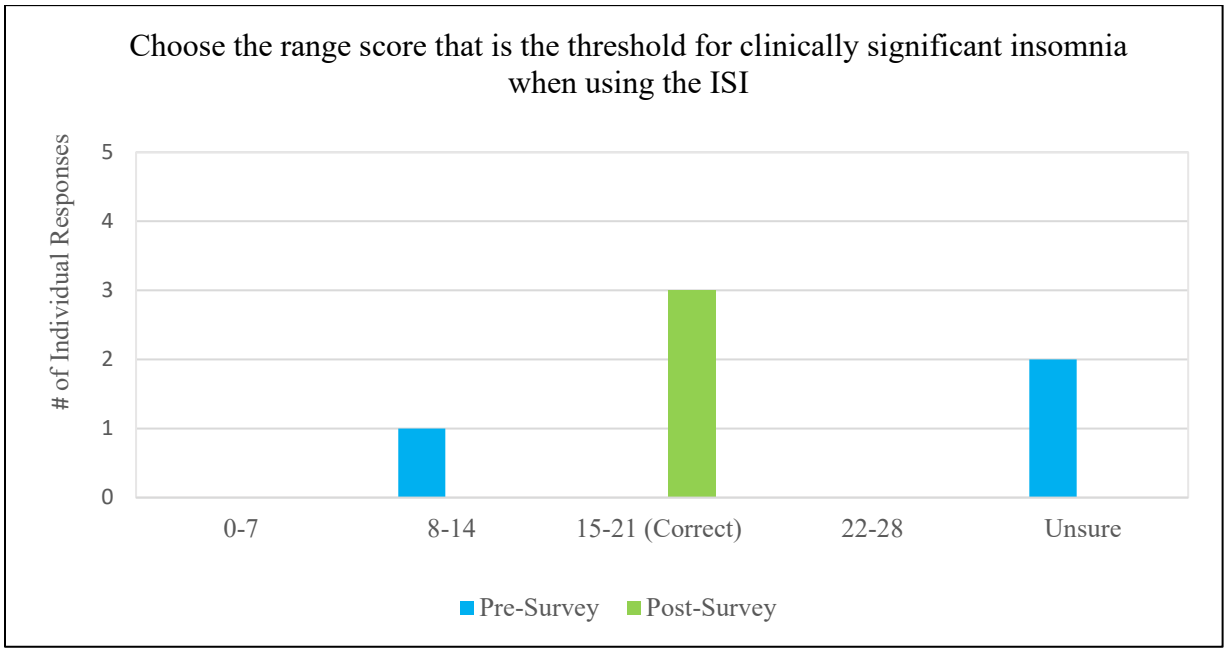
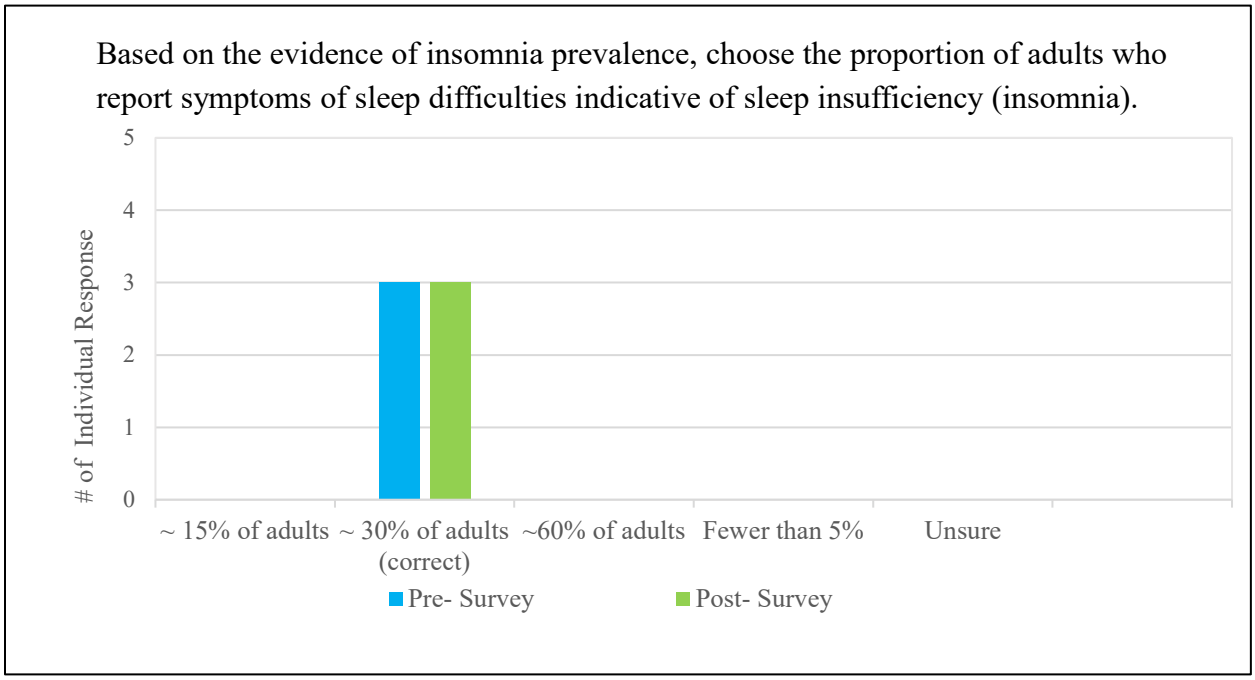


Figure 6 shows a clear improvement in participants’ knowledge of the ISI threshold for clinically significant insomnia. In the pre-survey, responses were divided across incorrect categories and “Unsure,” with no participants selecting the correct range (15–21). Following the intervention, all post-survey responses correctly identified the appropriate threshold. This shift indicates the intervention was effective in increasing knowledge of ISI scoring criteria.

Figure 7

Pre- and Post-Survey Knowledge Data: Individual Responses - Insomnia Prevalence



Both participants correctly identified that approximately 30% of adults experience insomnia symptoms, both before and after the intervention. This consistency suggests accurate baseline knowledge in this area. No change was observed, indicating retention of previously established information.

Figure 7 shows that all participants correctly identified that about 30% of adults experience insomnia symptoms, both before and after the intervention. This indicates a strong baseline understanding of insomnia prevalence and suggests the intervention reinforced existing knowledge rather than introducing new information in this area.

Figure 8

Pre- and Post-Survey Knowledge Data: Likert Statement 2: Familiarity – Individual Responses

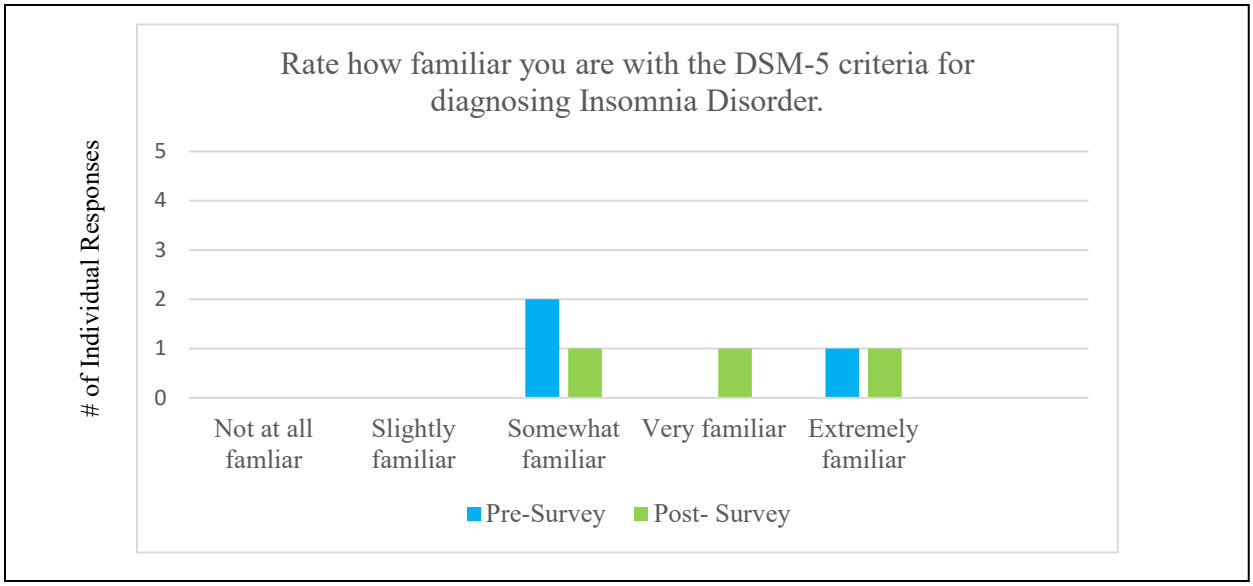
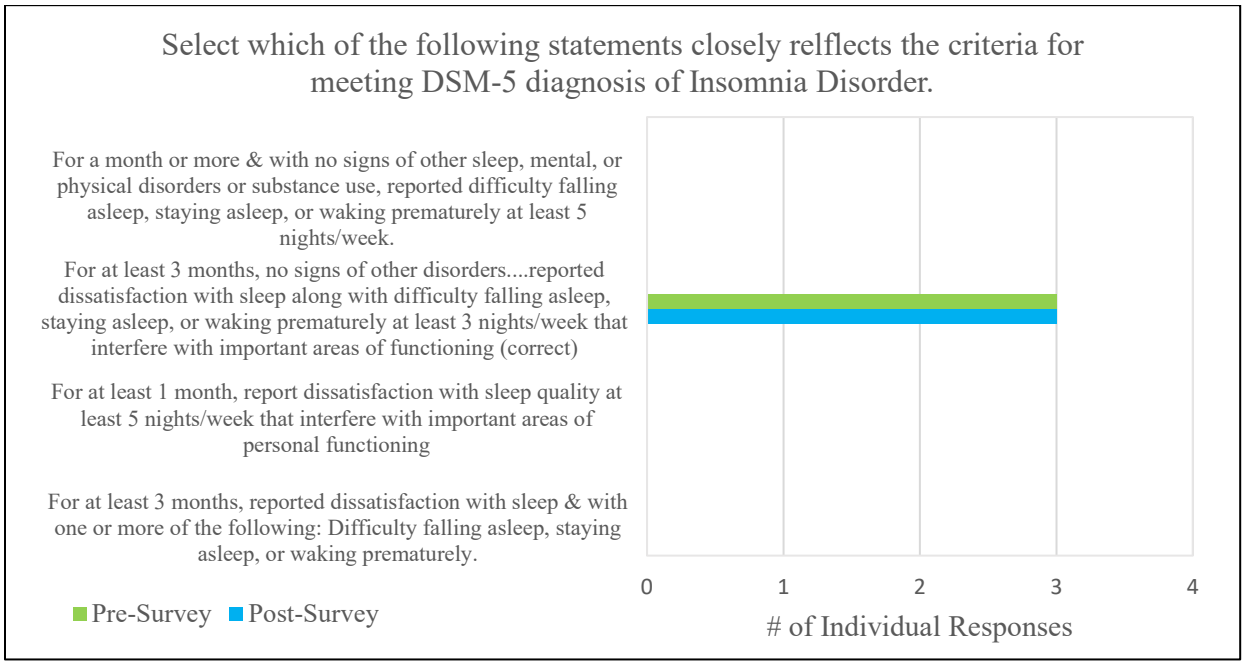


Figure 8 illustrates a positive shift in participants' familiarity with the DSM-5 criteria for diagnosing Insomnia Disorder. Pre-survey responses were concentrated in the "Somewhat familiar" category, while post-survey responses show movement toward "Very familiar" and "Extremely familiar." This trend suggests the intervention increased participants' confidence and understanding of the diagnostic criteria.

Figure 9

Pre- and Post-Survey Knowledge Data: Individual Responses – Diagnostic Criteria for Clinical Insomnia



Note: Response wording abbreviated for display purposes. Full criteria provided in Appendix D.

Figure 9 shows that all participants accurately identified the DSM-5 diagnostic criteria for Insomnia Disorder in both pre- and post-surveys. This indicates a strong baseline understanding of the diagnostic requirements and suggests that while the intervention helped reinforce this knowledge, it did not significantly alter participants' existing comprehension in this specific area.

Provider Confidence in Insomnia Screening

To evaluate changes in provider confidence, the survey included four Likert-type questions. These items assessed confidence in screening for insomnia, directing insomnia treatment, interpreting ISI scores, and using the ISI score to direct treatment.

Figure 10

Pre- and Post-Survey Knowledge Data: Likert Statement 3: Confidence – Individual Responses

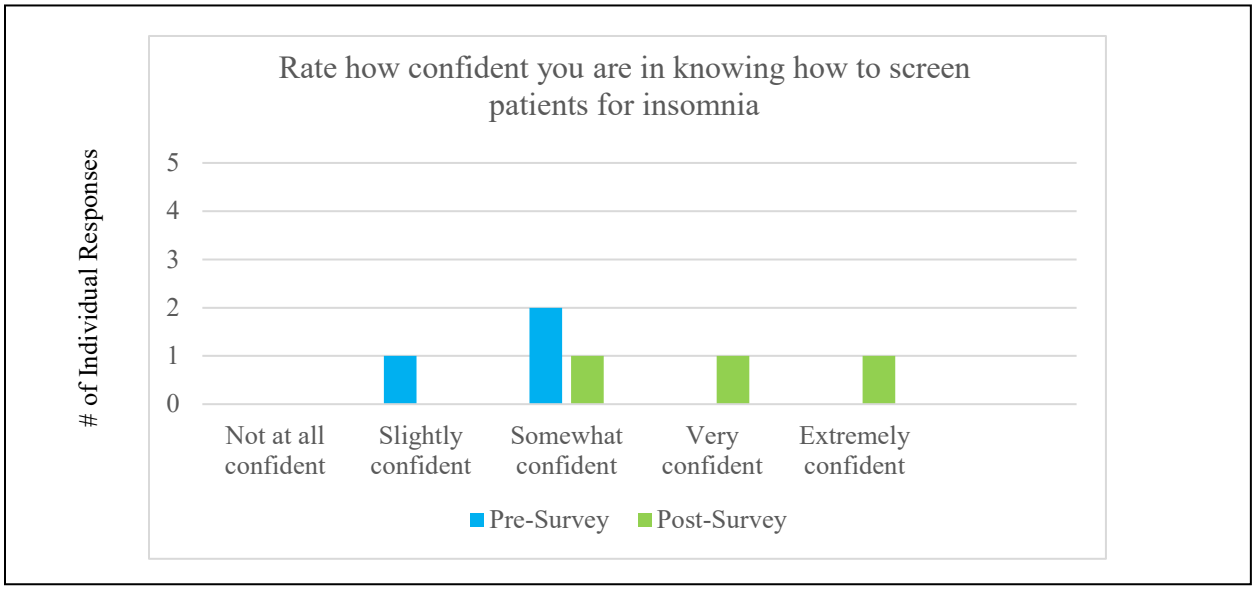


Figure 10 illustrates an upward shift in participants' confidence in screening patients for insomnia following the intervention. Pre-survey responses were limited to "Slightly confident" and "Somewhat confident." Post-survey responses showed a broader distribution, including "Very confident" and "Extremely confident." This progression suggests that the intervention was effective in increasing provider self-assurance in applying insomnia screening practices.

Figure 11

Pre- and Post-Survey Knowledge Data: Likert Statement 4: Confidence – Individual Responses

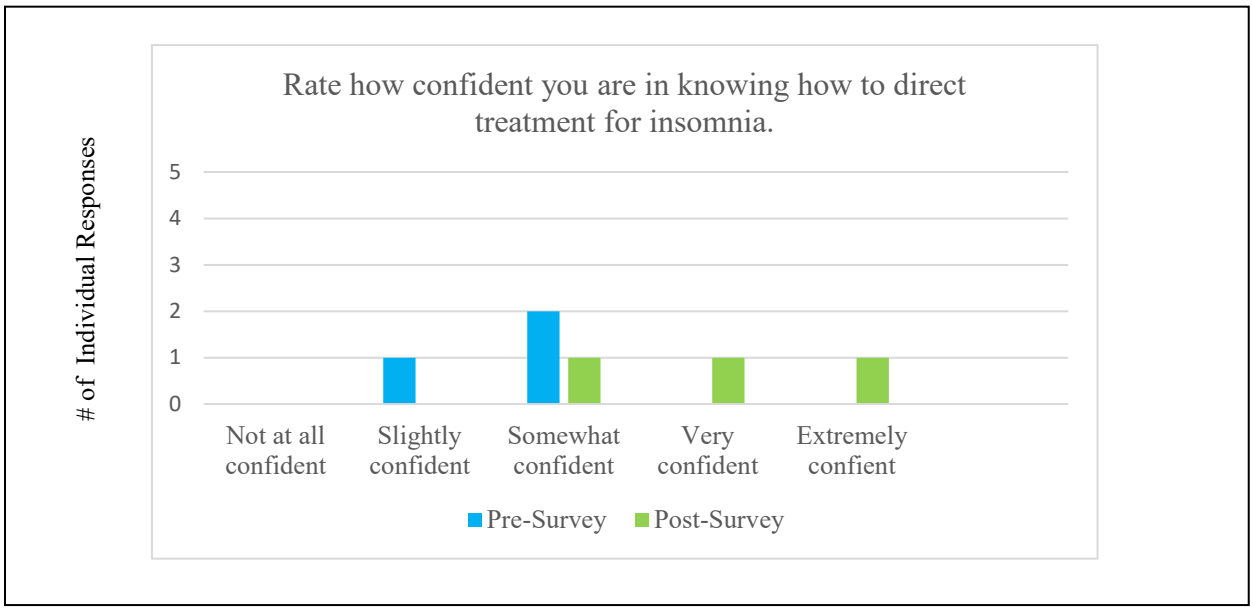


Figure 11 reflects an increase in participants' confidence in directing treatment for insomnia after the intervention. Initially, most participants rated themselves as only "Slightly" or "Somewhat confident." Post-survey responses show a shift toward higher confidence levels, with participants selecting "Very confident" and "Extremely confident." This suggests that the intervention was effective in strengthening provider confidence in managing insomnia treatment strategies.

Figure 12

Pre- and Post-Survey Knowledge Data: Likert Statement 5: Confidence – Individual Responses

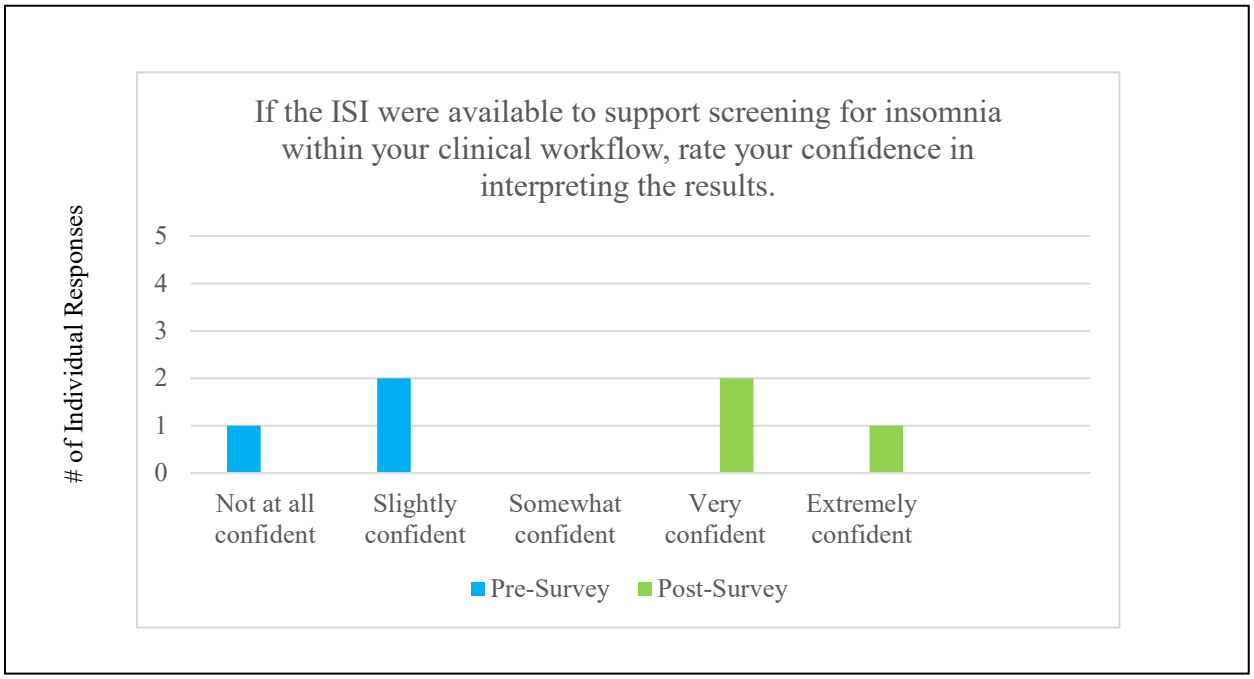


Figure 12 reveals a marked improvement in participants' confidence in interpreting ISI results within their clinical workflow. Pre-survey responses were concentrated in the "Not at all confident" and "Slightly confident" categories. Following the intervention, responses shifted to "Very confident" and "Extremely confident," suggesting the training effectively enhanced participants' ability to understand and apply ISI scores in practice.

Figure 13

Pre- and Post-Survey Knowledge Data: Likert Statement 6: Confidence – Individual Responses

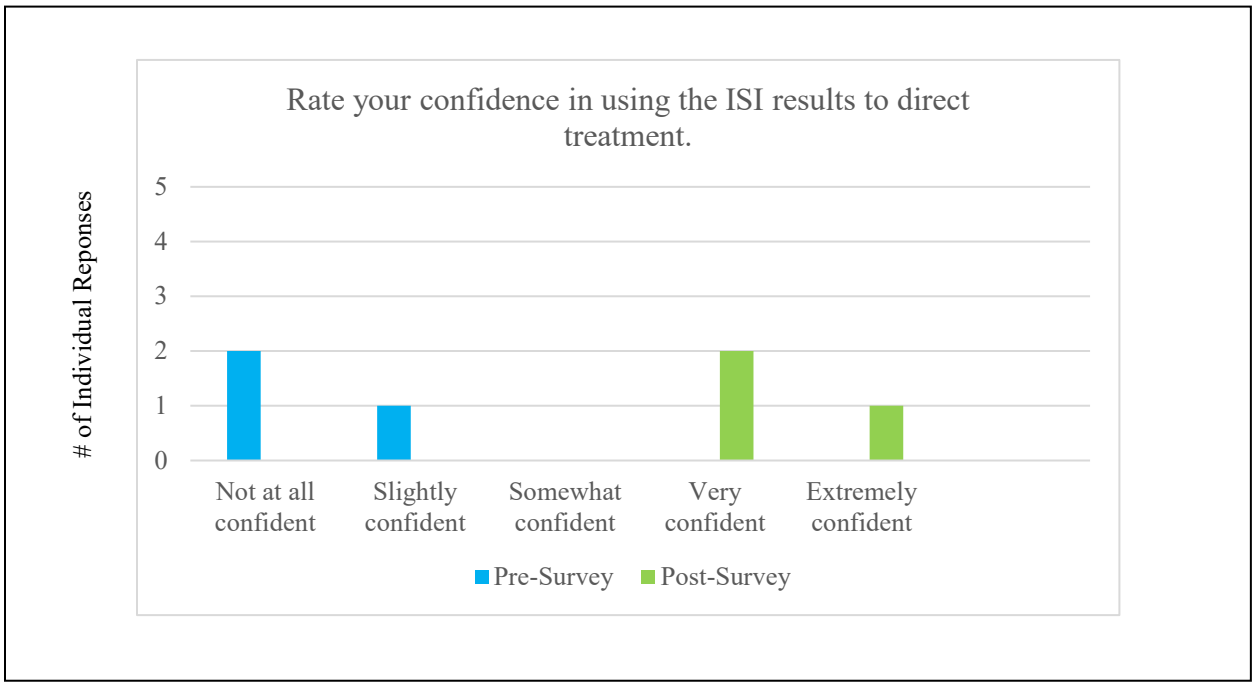


Figure 13 demonstrates a substantial increase in participants' confidence in using ISI results to guide treatment decisions. Pre-survey responses were limited to "Not at all confident" and "Slightly confident," indicating low baseline confidence. Post-survey results shifted entirely to "Very confident" and "Extremely confident," suggesting the intervention was highly effective in building provider confidence in applying ISI data to inform treatment planning.

Perceived Importance, Practice Patterns, Implementation Intent, and Presentation Feedback

To evaluate changes in provider intent, the survey included a combination of multiple-choice and two Likert-type questions. These items assessed current screening practice, the importance of insomnia screening, and the likelihood of implementing insomnia screening in

clinical practice. Additionally, participants were asked to rate how instructive they found the presentation and asked to provide open-ended feedback on how the project could be improved. However, no responses were provided for the open-ended feedback question, so qualitative analysis could not be conducted.

Figure 14

Pre-Survey Data: Current Screening Practice

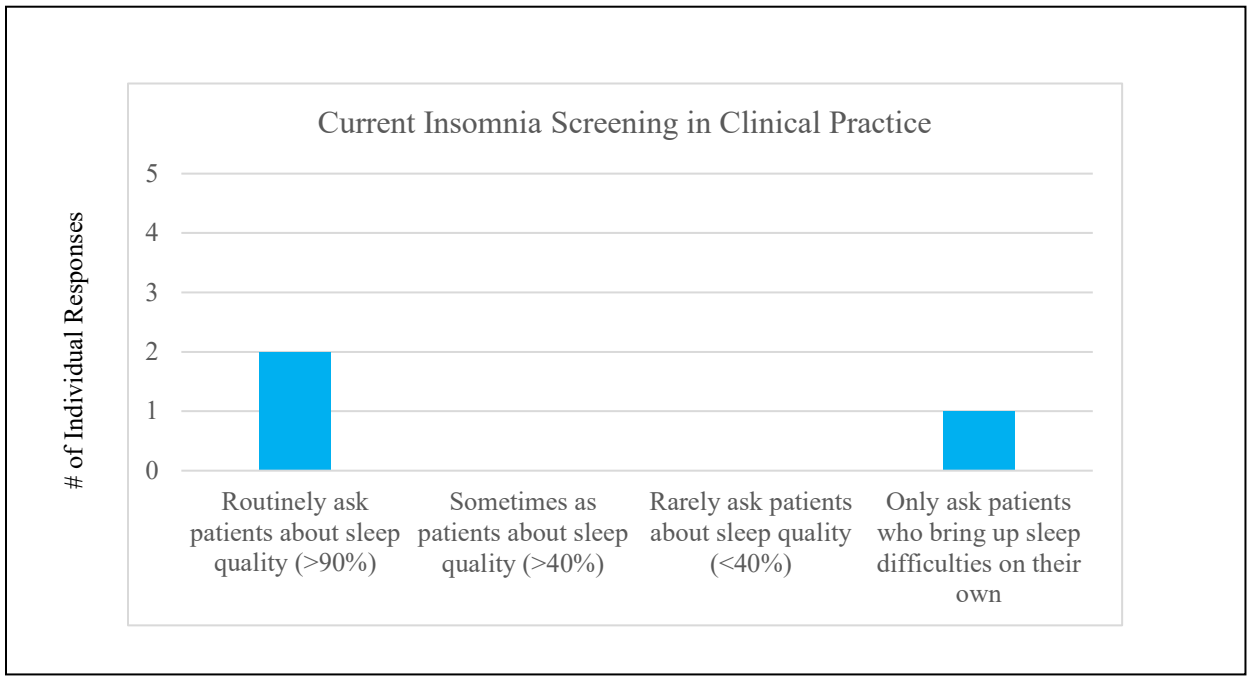


Figure 14 presents pre-intervention data on current practices for screening insomnia. While two participants routinely reported asking patients about sleep quality, one indicated that screening only occurs when patients mention sleep concerns themselves. This variability highlights inconsistent screening practices and underscores the need for standardized approaches, such as incorporating the ISI, to ensure routine assessment of sleep health in clinical settings.

Figure 15

Pre- and Post-Survey Knowledge Data: Likert Statement 7: Importance – Individual Responses

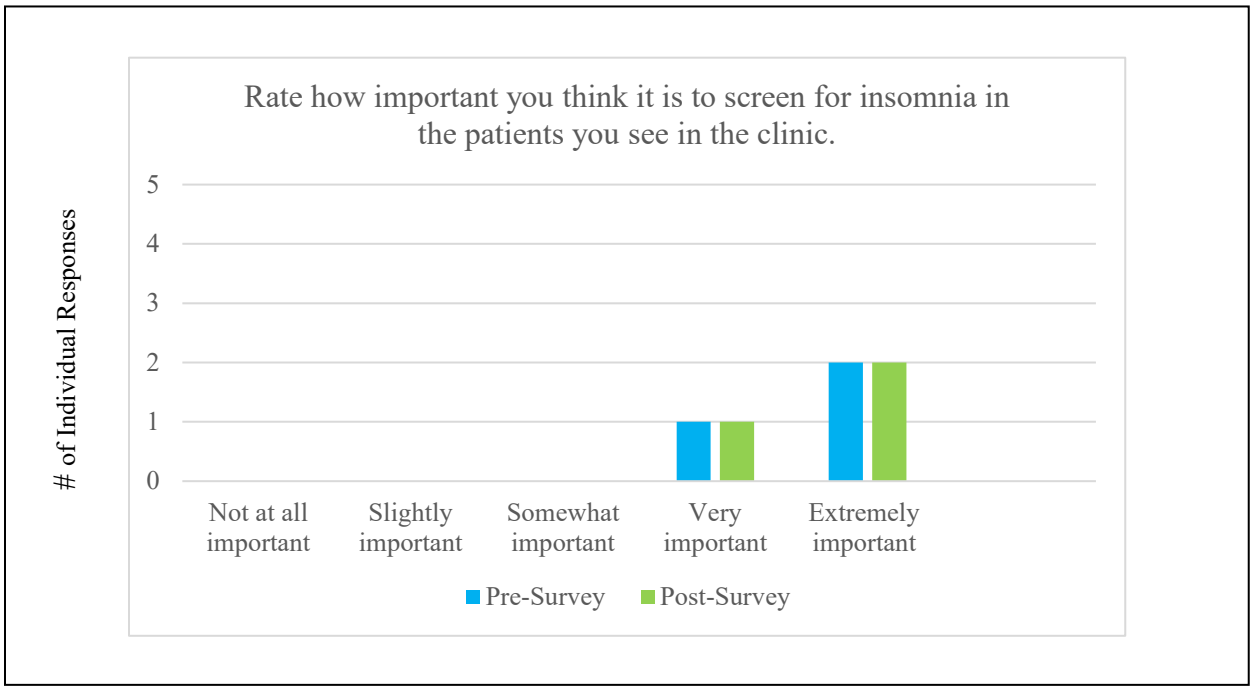


Figure 15 indicates that participants already recognized the importance of screening for insomnia prior to the intervention, with most rating it as “Very important” or “Extremely important.” Post-survey responses remained consistent, suggesting that while the intervention may not have significantly shifted perceptions of importance, it likely reinforced existing attitudes about the clinical relevance of insomnia screening.

Figure 16

Post Survey Data: Intent to Utilize Insomnia Severity Index (ISI)

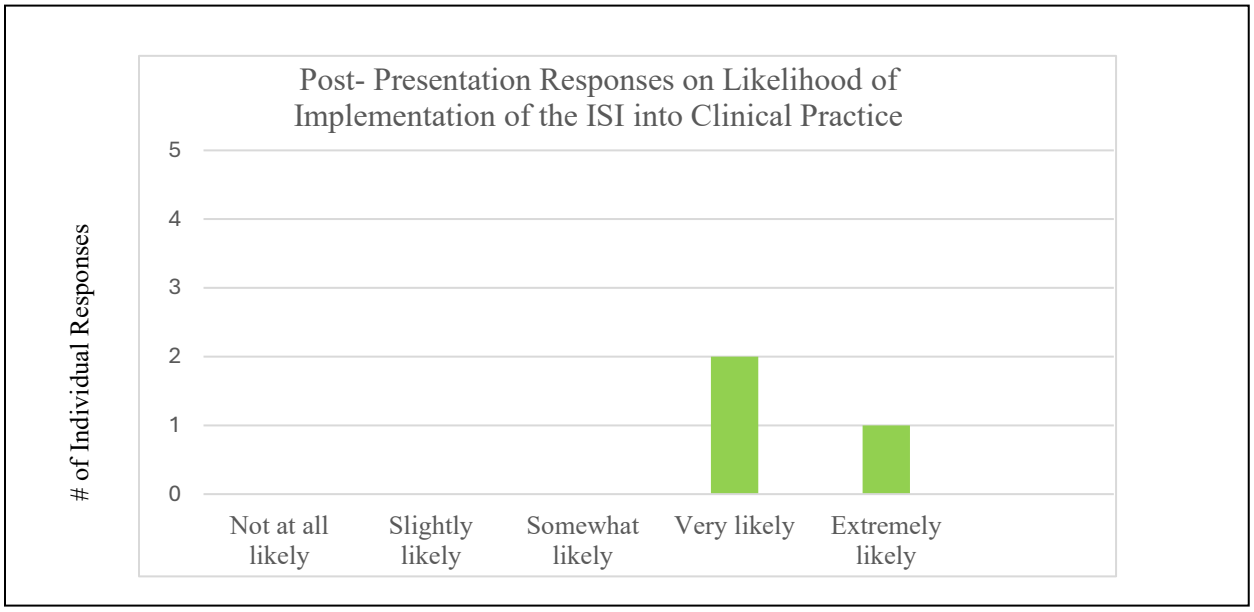


Figure 16 displays post-intervention data on participants' intent to implement the ISI in clinical practice. All respondents indicated a strong likelihood of use, with responses falling in the "Very likely" and "Extremely likely" categories. This suggests the intervention was effective in encouraging future application of the ISI and may lead to more consistent screening and treatment of insomnia in clinical settings.

Figure 17

Post Survey Data: Insomnia Screen Presentation Rating

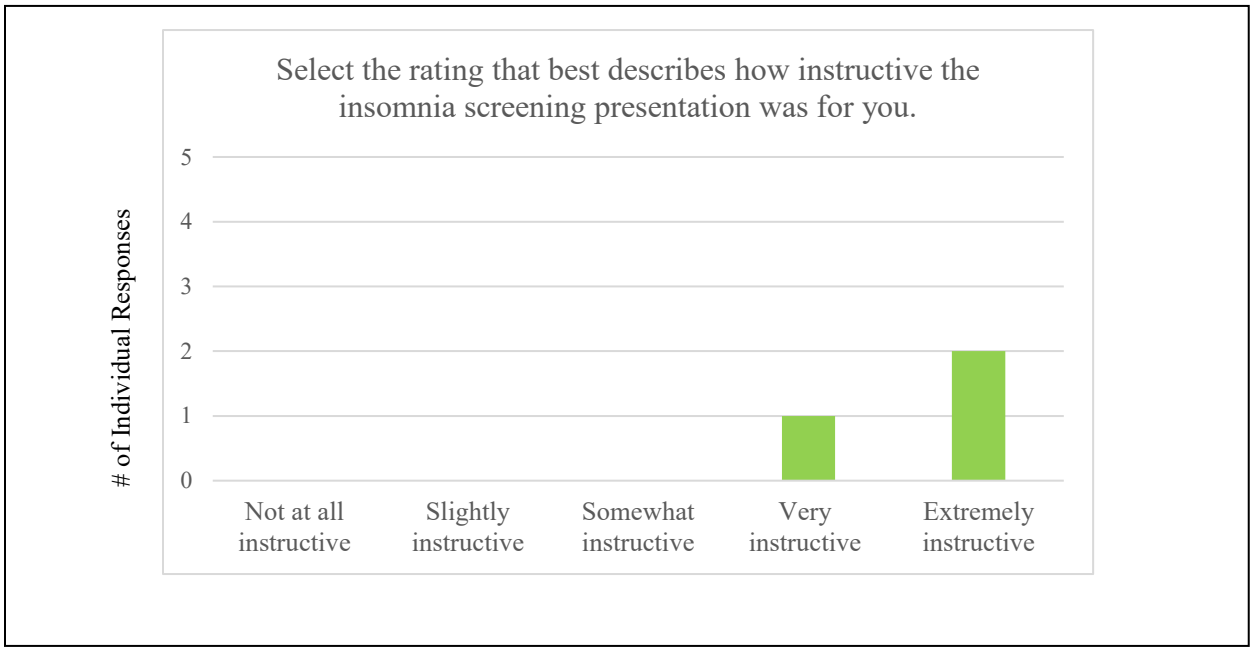


Figure 17 shows that all participants rated the insomnia screening presentation as either "Very instructive" or "Extremely instructive." These responses suggest the presentation was highly effective in delivering valuable content and increasing understanding, supporting its utility as an educational tool for improving clinical practice related to insomnia screening.

DISCUSSION

Summary

Insomnia is a common and often under-assessed, under-diagnosed, and under-treated sleep disorder that negatively affects physical and mental health, quality of life, and overall well-being. It can present as a short-term issue or develop into a chronic condition that significantly impairs daytime functioning. Standardized screening tools, such as the Insomnia Severity Index

(ISI), are crucial in enhancing recognition, guiding treatment, and improving patient outcomes in clinical practice.

The aim of this QI project was to determine if a brief educational intervention could enhance healthcare providers' knowledge of insomnia screening, confidence in using the ISI, and intent to implement an insomnia screening tool, specifically the ISI, into clinical practice. Following the 14-minute presentation, participants demonstrated increased familiarity with the ISI and significantly improved accuracy in identifying the correct threshold score for clinically significant insomnia, rising from no correct responses in the pre-survey to all participants answering correctly in the post-survey. Confidence levels also increased across multiple domains, including screening for insomnia, interpreting ISI results, and using those results to guide treatment decisions. Knowledge regarding insomnia prevalence and DSM-5 diagnostic criteria remained consistently high, indicating a strong baseline understanding. Additionally, all participants reported being very or extremely likely to incorporate the ISI into their clinical workflow and rated the educational presentation as highly instructive, suggesting the intervention was both informative and well-received.

Interpretation

The findings of this project suggest that a concise, targeted educational intervention can meaningfully enhance providers' readiness to screen for insomnia using a validated tool such as the ISI. The intervention was particularly effective in addressing specific knowledge gaps, notably in ISI scoring and clinical application, while also reinforcing existing foundational knowledge of diagnostic criteria and prevalence. The observed increases in confidence and stated intent to implement the ISI indicate a positive shift in provider engagement with standardized

screening practices. Although the small sample size limits the ability to generalize results, the consistency and direction of change across all measured domains strengthen the internal validity of the intervention's impact. These findings support the feasibility and potential value of incorporating brief educational modules into clinical training initiatives to improve the identification and management of insomnia in routine practice.

Implications

Implications for Practice

This quality improvement project highlighted the need for greater integration of insomnia screening into routine clinical care. Insomnia is a highly prevalent yet underrecognized condition that negatively impacts physical, mental, and emotional well-being. By introducing providers to validated tools such as the Insomnia Severity Index (ISI), this project encouraged earlier identification and treatment of sleep disturbances. The increased awareness and confidence reported by provider(s) following the educational intervention suggested that even brief, focused training can enhance clinical decision-making and promote more comprehensive patient assessments.

Implications for Education

The findings of this project underscore the importance of incorporating sleep health and screening strategies into continuing education and graduate-level nursing curricula. Despite the widespread impact of insomnia, many providers receive limited formal training in sleep assessment and management. This project demonstrated that educational initiatives targeting foundational knowledge and tool use can enhance provider competence. As a result, nursing programs and clinical organizations should consider integrating sleep health content and

validated screening instruments into existing educational structures to prepare clinicians for more holistic patient care.

Implications for Research

Although a small sample size limited this project, it raised important questions for future research. There is a need for larger-scale studies to evaluate the long-term impact of provider education on insomnia screening practices, patient outcomes, and healthcare utilization. Additionally, research could explore barriers to implementation in various clinical settings, as well as the effectiveness of digital or asynchronous learning formats for disseminating evidence-based tools. Future studies should also investigate patient-reported outcomes following improved screening and referral processes.

Implications for Policy

This project highlighted the importance of policy initiatives that promote standardized screening protocols for prevalent yet frequently underrecognized conditions, such as insomnia. Incorporating validated tools, such as the Insomnia Severity Index (ISI), into organizational protocols or electronic health record templates can help normalize screening within busy clinical workflows. Furthermore, at a broader level, sleep health should be recognized as a priority in public health initiatives and clinical guidelines. Policymakers and institutional leaders can support provider education and tool adoption by funding, offering incentives, and providing evidence-based clinical practice recommendations.

Limitations

This project had several limitations that should be taken into account when interpreting the findings. Most notably, the small sample size (n = 3) limits the generalizability of results and

the ability to conduct meaningful statistical analyses. Although an informal presentation was delivered during UCHC's monthly provider meeting to encourage participation, it is unclear how many providers were actually present, which may have contributed to the low response rate. As participation was voluntary and limited to providers at a single clinic, there is potential for selection bias, as those who chose to participate may have had a preexisting interest in sleep health. Additionally, the reliance on self-reported data through Likert-type scales may introduce response bias, as participants might overestimate their confidence or intent to implement changes. Lastly, the post-survey was administered immediately after the educational intervention, allowing for evaluation of short-term knowledge gains but not long-term retention or sustained changes in clinical behavior.

DNP Essentials Addressed

The American Association of Colleges of Nursing (AACN) published the *Essentials of Doctoral Education for Advanced Nursing Practice* in 2006 to outline the core competencies expected of all graduates from Doctor of Nursing Practice (DNP) programs. These eight Essentials provide a comprehensive framework for developing advanced practice nurses who are prepared to lead quality improvement initiatives, translate evidence into practice, and influence healthcare systems and outcomes. According to the AACN (2006), these foundational elements are intended to ensure that DNP-prepared nurses can meet the complex demands of modern healthcare environments. This project aligned with several of these Essentials through its focus on improving provider knowledge and use of validated insomnia screening tools in clinical practice. Among the eight essential competencies outlined by the American Association of

Colleges of Nursing [AACN] (2006) for doctoral-level nursing education, this quality improvement project addressed the following:

DNP Essential I: Scientific Underpinnings for Practice

This project is deeply rooted in nursing science and the integration of evidence-based behavioral and psychological principles. The educational intervention was informed by research on the prevalence of insomnia, its clinical consequences, and the effectiveness of validated screening tools, such as the Insomnia Severity Index (ISI). By selecting an evidence-supported instrument and aligning its content with best practices, the project demonstrated the DNP-level ability to synthesize nursing theory and science, thereby enhancing clinical decision-making. It also illustrated how theoretical knowledge can be translated into practical strategies that directly influence provider behavior and patient care.

DNP Essential II: Organizational Leadership for Quality Improvement and Systems Thinking

This project exemplified the scholarly process central to DNP education. It began with a comprehensive review of the literature to identify gaps in provider knowledge and screening practices for insomnia. The development of pre- and post-surveys enabled the assessment of provider knowledge, confidence, and intent to implement change. Although the small sample size limited statistical testing, the project employed descriptive analysis and a methodologically sound framework nonetheless. The application of evidence, data collection, and reflection on outcomes underscored the translation of research into practice, a hallmark of clinical scholarship.

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

Insomnia is a widespread but underdiagnosed condition with significant implications for physical and mental health. By educating providers on how to screen for insomnia and intervene early, this project contributed to preventive care and population-level health promotion. It encouraged integration of sleep assessments into routine clinical encounters, particularly in primary care and behavioral health settings. The use of an accessible, evidence-based screening tool (ISI) aligned with the goal of addressing modifiable risk factors early, thereby preventing long-term adverse health outcomes associated with chronic sleep disturbances.

DNP Essential VII: Clinical Prevention and Population Health for Improving the Nation's Health

The project reflected the application of advanced nursing competencies, including leadership, clinical expertise, and systems-level thinking. The DNP student independently developed and implemented the intervention, created accompanying resources, managed the survey platform (Qualtrics), and synthesized the results to evaluate its impact. Essential VIII supports the idea that DNP-prepared nurses are capable not only of delivering direct care but also of improving care delivery processes. This project highlighted the ability to function autonomously, identify practice gaps, and deliver education that empowers other clinicians to enhance patient outcomes.

Conclusions

Insomnia is a prevalent yet often overlooked sleep-wake disorder that is significantly under-assessed, under-diagnosed, and under-treated in clinical settings. It is associated with a

wide range of adverse physical and mental health outcomes, as well as substantial societal and economic burdens. Contributing to this gap in care is a persistent lack of provider awareness, knowledge, and training in the use of validated insomnia screening tools. This quality improvement project demonstrated that a brief, asynchronous educational intervention can effectively enhance healthcare providers' knowledge, confidence, and intent to implement the Insomnia Severity Index (ISI), a validated and practical screening tool. The use of an accessible, on-demand educational format proved beneficial for engaging providers with varying schedules and supported self-directed learning.

Findings from this project support the integration of insomnia screening into routine clinical workflows through targeted education of healthcare providers. By equipping providers with the necessary tools and knowledge to identify insomnia early, healthcare systems can more effectively intervene and improve patient outcomes. Continued efforts are needed to address gaps in screening practices, expand provider training, and promote the routine use of evidence-based tools, such as the ISI. Ultimately, improving recognition and management of insomnia in everyday clinical practice is a critical step toward delivering comprehensive, patient-centered care.

Plan for Sustainability

To ensure continued access to educational materials after the Qualtrics link was deactivated, the principal investor provided UCHC's Chief Medical Officer with a PowerPoint version of the recorded presentation, along with the resource document that contains hyperlinks to relevant, evidence-based information. These materials can be stored or shared via email, ensuring they remain available for ongoing reference, staff onboarding, or future training

initiatives. As part of this project's sustainability efforts, the principal investigator encourages the implementation site to consider formally integrating the Insomnia Severity Index (ISI) into existing clinical workflows. Doing so would promote the early identification and treatment of insomnia, supporting long-term improvements in patient care outcomes.

Plan for Dissemination

The findings, conclusions, and recommendations of this QI project were delivered to the UCHC's Chief Medical Officer via a concise executive summary (Appendix H). The summary will include the project overview, key objectives and findings, implications for practice, and suggestions to support sustainability. The results of this quality improvement project will be presented to the University of Arizona Psychiatric-Mental Health Nurse Practitioner (PMHNP) faculty during the formal project defense and submitted to the university's repository as part of the final project requirements. This author may also consider submitting for a poster presentation at a professional conference.

APPENDIX A

SITE APPROVAL/AUTHORIZATION LETTER

University of Arizona IRB
845 N Park Ave., Suite 537A
Tucson, AZ 85719
Fax: 520-621-9810
VPR-IRB@arizona.edu

NOT HUMAN RESEARCH

June 23, 2025

Denise Meitl

Dear Denise Meitl:

On 6/23/2025, the IRB reviewed the following submission:

Type of Review:	Initial Study
Title:	Increasing Provider Awareness of Evidence-Based Screening Tools to Identify Insomnia
Investigator:	Denise Meitl
IRB Submission ID:	STUDY00006574
Sponsor:	None
Prime Sponsor:	None
IND, IDE, or HDE:	None
Documents Reviewed:	• ADVISOR ATTESTATION , Category: Institutional Approval; • Denise Meitl IRB Protocol for Determination of Human Research , Category: IRB Protocol; • DISCLOSURE/CONSENT FORM , Category: Consent Form; • INSOMNIA SEVERITY INDEX, Category: Participant Material; • MEITL UCHC PRESENTATION, Category: Participant Material; • RECRUITMENT LETTER , Category: Recruitment Materials; • SITE AUTHORIZATION LETTER , Category: External Site Authorization; • UCHC POST SURVEY QUESTIONNAIRE, Category: Data Collection Tool; • UCHC PRE-SURVEY QUESTIONNAIRE, Category: Data Collection Tool;

Research & Partnerships

University of Arizona IRB
845 N Park Ave., Suite 537A
Tucson, AZ 85719
Fax: 520-621-9810
VPR-IRB@arizona.edu

The IRB determined that the proposed activity is not research involving human subjects as defined by DHHS and FDA regulations.

IRB review and approval by this organization is not required. This determination applies only to the activities described in the IRB submission and does not apply should any changes be made. If changes are made and there are questions about whether these activities are research involving humans in which the organization is engaged, please submit a new request to the IRB for a determination.

All Covered Individuals must disclose all sponsored and non-sponsored Research Projects to the Office for Responsible Outside Interests (OROI) prior to Conducting Research if the individual is an Investigator. Please visit the OROI website for more information.

We value your feedback and would appreciate you taking the time to complete our survey about your experience with the IRB staff:
https://uarizona.co1.qualtrics.com/jfe/form/SV_ehQ04WxNA06b42i.

If questions arise at any time during your study, please email the general IRB inbox at VPR-IRB@arizona.edu.

United Community Health Center
1260 S. Campbell Ave. Bldg. 2
Green Valley, AZ 85614

May 12, 2025

University of Arizona Institutional Review Board
c/o Office of Human Subjects
1618 E Helen St
Tucson, AZ 85721

Please note that Ms. Denise Meitl, a UA Doctor of Nursing Practice student, has permission from the United Community Health Center to conduct a quality improvement project at our facility for her project, "Increasing Provider Awareness of Evidence-Based Screening Tools to Identify Insomnia."

Ms. Meitl will conduct a survey of healthcare providers at United Community Health Centers. She will recruit providers through email. The email will describe the project, what they will be asked to do, the time involved, and a link to the online surveys. Ms. Meitl's activities will be completed by July 31, 2025.

Ms. Meitl has agreed to provide my office with a copy of the University of Arizona Determination before she recruits participants. She will also present aggregate results to the providers at their request. If there are any questions, please contact my office.

Signed,

Dr. Bynum Neal
Chief Medical Officer

APPENDIX B

DISCLOSURE AND CONSENT FORM

DISCLOSURE FORM

An Educational Intervention to Improve Provider Awareness of Evidence-Based Screening Tools to Identify Insomnia

Denise M. Meitl, BSN

You are invited to participate in a research study as part of my Doctor of Nursing Practice (DNP) project at the University of Arizona. You have been invited because you are a healthcare provider who assesses, diagnoses, or treats patients aged 13 or older. If this does not reflect your current practice, you may exclude yourself from this study. Before participating, please carefully review the information below.

Purpose of the Study

This study aims to evaluate whether an educational session enhances healthcare providers' understanding and utilization of insomnia screening tools in clinical practice.

Important Information Before You Decide to Participate

- **Voluntary Participation:** Participation is entirely voluntary, and you may withdraw at any time without penalties or consequences.
- **Confidentiality & Anonymity:** Your responses will remain anonymous and strictly confidential. Data will be used solely for group-related project evaluation.
- **No Foreseeable Risks:** There are no anticipated risks associated with participation.
- **Benefits:** Not participating will not affect any rights, benefits, or opportunities you are entitled to. This study may help improve insomnia screening practices and patient care.
- **Freedom to Skip Questions:** You may skip any question you do not wish to answer.
- **Consent & Authorization:** By participating, you provide consent and authorization for your responses to be included in this study.

- **Compensation:** There is no financial compensation for participation in this study.

Study Procedures

If you agree to participate, you will be asked to:

- Complete a brief pre-intervention survey (~3-5 minutes) to assess current knowledge and views.
- Review a pre-recorded PowerPoint-based educational YouTube video on insomnia screening tools (14 minutes).
- Complete a short post-intervention survey (~3-5 minutes) to assess the effectiveness of the training.

Thank you for your time and consideration. I would greatly appreciate your insights upon participating. If you have any questions or concerns, please email dmeitl@arizona.edu

APPENDIX C

RECRUITMENT LETTER

RECRUITMENT EMAIL

Dear Healthcare Provider,

My name is Denise Meitl, and I am a Doctor of Nursing Practice (DNP) student at the University of Arizona. I am conducting a research project with the United Community Health Center that aims to educate healthcare providers about insomnia screening tools and their role in improving patient care.

I invite you to participate in this study, which aims to assess current screening practices and enhance provider knowledge of validated insomnia assessment tools. Your participation would involve completing a brief 11-question pre-survey, viewing a 14-minute pre-recorded PowerPoint-based educational video presentation on YouTube, and completing a short 13-question post-survey. The link to the pre-survey, educational video presentation, and post-survey will be provided to you via email as soon as they become available.

Your insights and expertise would be invaluable in helping to improve screening practices for insomnia. Participation is entirely voluntary, and all responses will be kept confidential. If you are interested or would like more information, please do not hesitate to reply to this email to learn more. Thank you for your time and consideration. I appreciate your support in advancing this important area of healthcare.

Best regards,

Denise Meitl, BSN, RN, DNP-PMHNP student
dmeitl@arizona.edu
University of Arizona

APPENDIX D

EVALUATION INSTRUMENTS (PRE- AND POST-SURVEY QUESTIONNAIRES)

Pre-Survey Questionnaire

1. To match your pre- and post-survey results, please create a unique and anonymous patient identifier according to the following parameters: First three letters of the city where you were born and the first two numbers of your current address: Example Chi11

   _____

Knowledge Questions:

2. Rate how familiar you are with the Insomnia Severity Index (ISI) as a screening tool for identifying insomnia symptoms.
   - Not at all familiar
   - Slightly familiar
   - Somewhat familiar
   - Very familiar
   - Extremely familiar
3. Choose the range score that is the threshold for clinically significant insomnia when using the ISI.
   - 0-7
   - 8-14
   - 15-21 (correct answer)
   - 22-28
   - Unsure

4. Based on the evidence of insomnia prevalence, choose the proportion of adults who report symptoms of sleep difficulties indicative of sleep insufficiency (insomnia).
    - ~ 15% of adults
    - ~ 30% of adults
    - ~ 60% of adults
    - Fewer than 5%
    - Unsure
5. Rate how familiar you are with the DSM-5 criteria for diagnosing Insomnia Disorder.
    - Not at all familiar
    - Slightly familiar
    - Somewhat familiar
    - Very familiar
    - Extremely familiar
6. Select which of the following statements closely reflects the criteria for meeting the DSM-5 diagnosis of Insomnia Disorder. Assume patients indicate that they give themselves adequate time to attempt sleep.
    - For at least 3 months, reported dissatisfaction with sleep and with one or more of the following: difficulty falling asleep, staying asleep, or waking prematurely.
    - For at least a month, report dissatisfaction with sleep quality at least 5 nights a week that interfere with important areas of personal functioning.
    - For at least 3 months and with no other signs of sleep, mental, or bodily disorders (diseases) or substance use, reported dissatisfaction with sleep along with

difficulty falling asleep, staying asleep, or waking prematurely at least 3 nights/week that interfere with important areas of personal functioning. (correct answer)

- For a month or more and with no signs of other sleep, mental, or bodily disorders (diseases) or substance use, reported difficulty falling asleep, staying asleep, and/or waking prematurely at least 5 nights/week.

Confidence questions:

7. Rate how confident you are in knowing how to screen patients for insomnia.
    - Not at all confident
    - Slightly confident
    - Somewhat confident
    - Very confident
    - Extremely confident
8. Rate how confident you are in knowing how to direct treatment for insomnia.
    - Not at all confident
    - Slightly confident
    - Somewhat confident
    - Very confident
    - Extremely confident
9. If the Insomnia Severity Index (ISI) were available to support screening for insomnia within your clinical workflow, rate your confidence in interpreting the results.
    - Not at all confident

- Slightly confident
- Somewhat confident
- Very confident
- Extremely confident

10. Rate your confidence in using the Insomnia Severity Index (ISI) results to direct treatment.
    - Not at all confident
    - Slightly confident
    - Somewhat confident
    - Very confident
    - Extremely confident

Intent to Implement Questions:

11. Select the rating closest to your current practice of screening patients (with non-sleep related presenting symptoms) for insomnia.
    - Routinely ask patients about sleep quality (>90% of patients) (4)
    - Sometimes ask patients about sleep quality (>40% of patients) (3)
    - Rarely ask patients about sleep quality (<40% of patients) (2)
    - Only ask patients who bring up sleep difficulties on their own (1)
12. Rate how important you think it is to screen for insomnia in the patients you see in the clinic.
    - Not at all important
    - Slightly important

- Somewhat important
- Very important
- Extremely important

Post-Survey Questionnaire

1. To match your pre- and post-survey results, please re-enter your unique and anonymous patient identifier according to the following parameters: First three letters of the city where you were born and the first two numbers of your current address: Example Chi11

   _____

Knowledge questions:

2. Rate how familiar you are with the Insomnia Severity Index (ISI) as a screening tool for identifying insomnia symptoms.
   - Not at all familiar (0)
   - Slightly familiar (1)
   - Somewhat familiar (2)
   - Very familiar (3)
   - Extremely familiar (4)
3. Choose the score range that is the threshold for clinically significant insomnia when using the Insomnia Severity Index (ISI).
   - 0-7
   - 8-14
   - 15-21 (correct answer)

- 22-28
- Unsure

4. Based on the evidence of insomnia prevalence, choose the proportion of adults who report symptoms of sleep difficulties indicative of sleep insufficiency (insomnia).
    - ~ 15% of adults
    - ~ 30% of adults
    - ~ 60% of adults
    - Fewer than 5%
    - Unsure
5. Rate how familiar you are with the DSM-5 criteria for diagnosing Insomnia Disorder.
    - Not at all familiar
    - Slightly familiar
    - Somewhat familiar
    - Very familiar
    - Extremely familiar
6. Select which of the following statements closely reflects the criteria for meeting the DSM-5 diagnosis of Insomnia Disorder. Assume patients indicate that they give themselves adequate time to attempt sleep.
    - For at least 3 months, report dissatisfaction with sleep and with one or more of the following: difficulty falling asleep, staying asleep, or waking prematurely.
    - For at least a month, report dissatisfaction with sleep quality at least 5 nights a week that interfere with important areas of personal functioning.

- For at least 3 months and with no other signs of sleep, mental, or bodily disorders (diseases) or substance use, reported dissatisfaction with sleep along with difficulty falling asleep, staying asleep, or waking prematurely at least 3 nights/week that interfere with important areas of personal functioning. (correct answer)
- For a month or more and with no signs of other sleep, mental, or bodily disorders (diseases) or substance use, reported difficulty falling asleep, staying asleep, and/or waking prematurely at least 5 nights/week.

Confidence questions:

7. Rate how confident you are in knowing how to screen patients for insomnia.
    - Not at all confident
    - Slightly confident
    - Somewhat confident
    - Very confident
    - Extremely confident
8. Rate how confident you are in knowing how to direct treatment for insomnia.
    - Not at all confident
    - Slightly confident
    - Somewhat confident
    - Very confident
    - Extremely confident

9. If the Insomnia Severity Index (ISI) were available to support screening for insomnia within your clinical workflow, rate your confidence in interpreting the results.
    - Not at all confident
    - Slightly confident
    - Somewhat confident
    - Very confident
    - Extremely confident
10. Rate your confidence in using the Insomnia Severity Index (ISI) results to direct treatment.
    - Not at all confident
    - Slightly confident
    - Somewhat confident
    - Very confident
    - Extremely confident

Intent to Implement Questions:

11. How likely are you to implement the Insomnia Severity Index (ISI) in your clinical practice if provided with education and training?
    - Not at all likely
    - Slightly likely
    - Somewhat likely
    - Very likely
    - Extremely likely

12. Rate how important you think it is to screen for insomnia in the patients you see in the clinic.
    - Not at all important
    - Slightly important
    - Somewhat important
    - Very important
    - Extremely important
13. Select the rating that best describes how instructive the insomnia screening presentation was for you
    - Not at all instructive
    - Slightly instructive
    - Somewhat instructive
    - Very instructive
    - Extremely instructive
14. What improvements would you suggest? Open-ended.

APPENDIX E

PARTICIPANT MATERIAL (POWERPOINT EDUCATIONAL PRESENTATION, INSOMNIA SEVERITY INDEX, PROVIDER RESOURCES)

POWERPOINT EDUCATIONAL PRESENTATION

Standardized Insomnia Screening: Improving Our Patient Care

Presented by:
Denise Meitl
DNP-PMHNP Student
University of Arizona

Agenda

1. Why should we screen for insomnia?
2. Clinical Insomnia: What to note
3. Insomnia assessment & treatment: Using Insomnia Severity Index (ISI) scores
4. What should we do at patient visits?

Why We Should Screen for Insomnia:
Widespread Prevalence & Multiple Contributors

- ~1 in 3 U.S. adults report sleep difficulties (insomnia)
- **Women:** higher rates (all age groups) than men (18.2% vs.12.4)
- **Older adults:** 50% in aged 60+
- **Pediatric populations:** up to 38% of children & adolescents
- **Marginalized groups** low SES status & underserved populations

- Elicited by **emotional stress, depression/anxiety, medications, chronic pain, aging, or hormonal changes**

CDC, 2024; Irwin et al., 2022; Kalmach et al., 2019; Kalmbach et al., 2020; McCrae et al., 2021; Meltzer et al., 2021

Why We Should Screen for Insomnia:
Negative Health Consequences & Impact

- **Physical Health Associated Risks:**
  - Dementia, stroke, kidney disease, & cardiovascular disease
  - Hypertension, diabetes, obesity, & metabolic syndrome
- **Mental Health Associated Risks:**
  - Strongly linked to suicidal ideation.
  - Independent risk factor for mood, anxiety, & substance use disorders
- **Economic & Occupational Impact:**
  - *Estimated $100 billion/year* in healthcare costs & lost productivity
  - Workplace accidents & absenteeism

Drake & Fernadez-Mendoza, 2021; Espie et al., 2019; Glick et al., 2023; Grandner, 2017; McCrae et al., 2017; Rosenberg et al., 2023

Clinical Insomnia: What to note

- Sleep difficulty at least **3 nights/week**x **3 months**
- **High distress**or **daily function impairment**
- Occurring despite **adequate sleep opportunities**
- **Not explained**by other medical, psychiatric, or substance-related factors

APA, 2022

Why The Insomnia Severity Index (ISI)

- Performance:
  - ✓ Strong sensitivity, specificity, diagnostic accuracy
  - ✓ Robust internal consistency, psychometric validity
- Suitability:
  - ✓ Adults & adolescents
  - ✓ Diverse settings

Ali et al., 2020; Cerri et al., 2023, Chui et al., 2023; Filosa et al., 2020; Manzar et al., 2021; Seow et al., 2018

Insomnia Severity Index (ISI)

Subject ID: _____ **Date:** _____

For each question below, please circle the number corresponding most accurately to your sleep patterns in the **LAST MONTH.**

For the first three questions, please rate the **SEVERITY** of your sleep difficulties.

1. Difficulty falling asleep:

None	Mild	Moderate	Severe	Very Severe
0	1	2	3	4

2. Difficulty staying asleep:

None	Mild	Moderate	Severe	Very Severe
0	1	2	3	4

3. Problem waking up too early in the morning:

None	Mild	Moderate	Severe	Very Severe
0	1	2	3	4

4. How **SATISFIED**/dissatisfied are you with your current sleep pattern?

Very Satisfied	Satisfied	Neutral	Dissatisfied	Very Dissatisfied
0	1	2	3	4

5. To what extent do you consider your sleep problem to **INTERFERE** with your daily functioning (e.g., daytime fatigue, ability to function at work/daily chores, concentration, memory, mood).

Not at all Interfering	A Little Interfering	Somewhat Interfering	Much Interfering	Very Much Interfering
0	1	2	3	4

6. How **NOTICEABLE** to others do you think your sleeping problem is in terms of impairing the quality of your life?

Not at all Noticeable	A little Noticeable	Somewhat Noticeable	Much Noticeable	Very Much Noticeable
0	1	2	3	4

7. How **WORRIED**/distressed are you about your current sleep problem?

Not at all	A Little	Somewhat	Much	Very Much
0	1	2	3	4

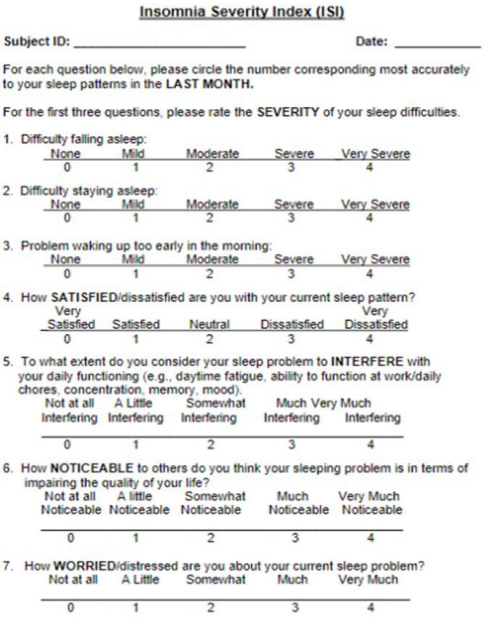
Insomnia Assessment: Using Insomnia Severity Index (ISI) Scores

7-item self-report questionnaire (scores 0-28)

- Falling asleep, staying asleep & premature awakenings
- Sleep satisfaction & functional impairment
- Distress caused by sleep disturbances
- Noticed by others
- Worried/distressed

- Caveat: Frequency & duration omitted

Bastien, C. H., Vallieres, A., & Morin, C. M. (2001)



Insomnia Severity Index (ISI)

Subject ID: _____ **Date:** _____

For each question below, please circle the number corresponding most accurately to your sleep patterns in the **LAST MONTH.**

For the first three questions, please rate the **SEVERITY** of your sleep difficulties.

1. Difficulty falling asleep:

None	Mild	Moderate	Severe	Very Severe
0	1	2	3	4

2. Difficulty staying asleep:

None	Mild	Moderate	Severe	Very Severe
0	1	2	3	4

3. Problem waking up too early in the morning:

None	Mild	Moderate	Severe	Very Severe
0	1	2	3	4

4. How **SATISFIED**/dissatisfied are you with your current sleep pattern?

Very Satisfied	Satisfied	Neutral	Dissatisfied	Very Dissatisfied
0	1	2	3	4

5. To what extent do you consider your sleep problem to **INTERFERE** with your daily functioning (e.g., daytime fatigue, ability to function at work/daily chores, concentration, memory, mood).

Not at all Interfering	A Little Interfering	Somewhat Interfering	Much Interfering	Very Much Interfering
0	1	2	3	4

6. How **NOTICEABLE** to others do you think your sleeping problem is in terms of impairing the quality of your life?

Not at all Noticeable	A little Noticeable	Somewhat Noticeable	Much Noticeable	Very Much Noticeable
0	1	2	3	4

7. How **WORRIED**/distressed are you about your current sleep problem?

Not at all	A Little	Somewhat	Much	Very Much
0	1	2	3	4

Insomnia Treatment: Using Severity Index (ISI) Scores

- ❑ 0-7: No clinically significant insomnia
  - ➢ No necessary treatment typically
- ❑ 8-14: Subthreshold insomnia (mild severity)
  - ➢ Rx: Sleep hygiene education
    - ➢ Resources: National Sleep Foundation, Sleep Health Foundation
  - ➢ Recommend follow-up appointment in 4-6 weeks if sleep difficulties worsen or persist – repeat ISI

Insomnia Treatment: Using Insomnia Severity Index (ISI) Scores

❑15-21: Clinical insomnia (moderate severity)

- Sleep hygiene education
- Sleep diary: National Sleep Foundation
- Brief mental health (MH) assessment (depression, PTSD, suicide). Treat as needed.
- Sleep apnea screening
- Cognitive behavioral therapy for insomnia (CBT -I) as 1st line treatment. Resources include:
  - Society of Behavioral Sleep Medicine
  - American Board of Sleep Medicine
- Prescribe short -acting sleep aides for no longer than 3 months:
  - Zaleplon (Sonata) • Zolpidem (Ambien) • Ramelteon (Rozerem)
- Follow up in 3 -4 weeks. Repeat ISI

(Winkelman, 2025)

Insomnia Treatment Guidance Using the Insomnia Severity Index (ISI)

❑ 22-28: Clinical insomnia (Severe) Immediate intervention

- Complete brief MH assessment (depression, PTSD, suicide). Treat as needed. Sleep apnea screening.
- Determine the presence of emotional stressors. Temporary or persistent?
  - Temporary stressors
    - CBT-I resources
    - Short-acting sleep medications (no longer than 3 months)
      - Zaleplon (Sonata) • Zolpidem (Ambien) • Ramelteon (Rozerem)
  - Persistent stress OR very severe symptoms:
    - Refer to an accredited sleep center or sleep specialist for a comprehensive assessment & chronic insomnia treatment (usually CBT-I or CBT-I & sleep aid medication in the short term)
    - American Academy of Sleep Medicine
    - Banner University Medical Center Tucson Sleep Center
  - Reassess in 4 weeks. Repeat ISI.

(Winkelman, 2025)

What we should do at patient visits

- At every encounter for adults & adolescents, ask: "Are you having sleep difficulties that bother you?"
- If the answer is yes:
  - ✓ Administer ISI . Insomnia Severity Index PDF
  - ✓ Use ISI scores to assess insomnia severity and guide treatment as outlined prior - especially for ISI scores of:
    - ➢ 15-21 - moderately severe insomnia
    - ➢ 22-28 - severe insomnia

Resources/Hyperlinks

Sleep Hygiene

- Sleep Foundation: Better Sleep Complete Guidebook
- Sleep Health Foundation

Sleep Diary

- National Sleep Foundation

Insomnia Severity Index Screening Tool

- University of Pennsylvania Center for CBT-I

CBT-I Insomnia Providers

- Society of Behavioral Sleep Medicine: CBT-I providers

Sleep Specialists and Sleep Centers

- American Academy of Sleep Medicine
- Banner University Medical Center Tucson Sleep Center

Additional Resources/Hyperlinks

- American Academy of Sleep Medicine (AASM)/ Sleep Education
- Harvard Medical School/ Division of Sleep Medicine: Sleep & Health Education Gateway
- National Heart, Lung, and Blood Institute (NIH)
- National Sleep Foundation
- Sleep Health Foundation

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INSOMNIA SEVERITY INDEX (ISI)

Name: _____ **Date:** _____

1. Please rate the current (i.e., last 2 weeks) **SEVERITY** of your insomnia problem(s).

	None	Mild	Moderate	Severe	Very
Difficulty falling asleep:	0	1	2	3	4
Difficulty staying asleep:	0	1	2	3	4
Problem waking up too early:	0	1	2	3	4

2. How **SATISFIED**/dissatisfied are you with your current sleep pattern?

Very Satisfied				Very Dissatisfied
0	1	2	3	4

3. To what extent do you consider your sleep problem to **INTERFERE** with your daily functioning (e.g. daytime fatigue, ability to function at work/daily chores, concentration, memory, mood, etc.).

Not at all Interfering	A Little	Somewhat	Much	Very Much Interfering
0	1	2	3	4

4. How **NOTICEABLE** to others do you think your sleeping problem is in terms of impairing the quality of your life?

Not at all Noticeable	Barely	Somewhat	Much	Very Much Noticeable
0	1	2	3	4

5. How **WORRIED**/distressed are you about your current sleep problem?

Not at all	A Little	Somewhat	Much	Very Much
0	1	2	3	4

Guidelines for Scoring/Interpretation:

Add scores for all seven items (1a+1b+1c+ 2+3+4+5) = _____
Total score ranges from 0-28

0-7	= No clinically significant insomnia
8-14	= Subthreshold insomnia
15-21	= Clinical insomnia (moderate severity)
22-28	= Clinical insomnia (severe)

Fig. 1. Insomnia Severity Index (Copyright, Charles M. Morin, 1993).

Bastien, C. H., Vallieres, A., & Morin, C. M. (2001). *Validation of the insomnia severity index as an outcome measure for insomnia research.* Sleep Medicine, 2(4), 297–307. https://doi.org/10.1016/s1389-9457(00)00065-4

Standardized Insomnia Screening: Improving Our Patient Care

RESOURCES

SLEEP HYGIENE

- **Sleep Foundation: Better Sleep Complete Guidebook**

  https://www.sleepfoundation.org/wp-content/uploads/2022/05/28uykmq_SF_SleepRegimen_Guidebook_r2_compressed.pdf

- **Sleep Health Foundation: Sleep Hygiene Good Sleep Habits**

  https://cdn.prod.website-files.com/64b4b7e38dda973fdbb7faf2/65a08f52cafc76a5b710bed3_Sleep%20Hygiene%20Good%20Sleep%20Habits.pdf

SLEEP DIARY

- **National Sleep Foundation**

  https://www.thensf.org/wp-content/uploads/2021/02/NSF-Sleep-Diary-Rev-2-_2021.pdf

INSOMNIA SEVERITY INDEX SCREENING TOOL

- **University of Pennsylvania – Center for CBT-I**

  https://www.med.upenn.edu/cbti/assets/user-content/documents/Insomnia%20Severity%20Index%20%28ISI%29.pdf

CBT-I PROVIDERS

- Society of Behavioral Sleep Medicine

  https://www.behavioralsleep.org/

SLEEP SPECIALISTS & SLEEP CENTERS

- **American Academy of Sleep Medicine**

  https://sleepeducation.org/sleep-center

- **Banner University Medical Center Tucson – Sleep Center**

  https://www.bannerhealth.com/locations/tucson/banner-university-medical-center-tucson-sleep-center

ADDITIONAL RESOURCES

- **American Academy of Sleep Medicine (AASM)/ Sleep Education**

  https://sleepeducation.org

- **Harvard Medical School/ Division of Sleep Medicine: Sleep & Health Education Gateway – Insomnia**

  https://sleep.hms.harvard.edu/education-training/public-education/sleep-and-health-education-program/sleep-health-education-18

- **National Heart, Lung, and Blood Institute (NIH)**

  https://www.nhlbi.nih.gov/health-topics/education-and-awareness/sleep-health

- **National Sleep Foundation (United States)**

  https://www.thensf.org/

- **Sleep Health Foundation (Australia)**

  https://www.sleephealthfoundation.org.au/

APPENDIX F

PROJECT TIMELINE

Completion Date	Planning	Pre-implementation	Implementation	Evaluation
August 2024	Research on insomnia and insomnia screening tools			
December 2024	Literature review and synthesis. Identify project aims.			
February 26, 2025	Finalize DNP Committee members			
March 5, 2025		Informal meeting with CMO at UCHC.		
March 13, 2025	Submission of project proposal to committee chair			
March 14, 2025	Submission of project proposal to committee members			
March 19, 2025	Submission of Oral Defense presentation to committee chair			
March 28, 2025		Oral Defense Proposal		
May 12, 2025		Submission of QI project presentation and site authorization letter to CMO at UCHC		

Completion Date	Planning	Pre-implementation	Implementation	Evaluation
May 16, 2025		Received site authorization from CMO at UCHC		
June 11, 2025		Informal presentation of QI project to UCHC providers		
June 17, 2025		Submission of IRB Application		
June 23, 2025		IRB Approval		
July 7, 2025			Start QI project recruitment. Deliver pre-post surveys and an educational presentation. Begin data collection.	
July 15, 2025				Complete data collection, analysis, and conclusion.
July 22, 2025				Submission of final draft to committee chair.
July 25, 2025				Submission of final draft to committee members.
August 8, 2025				Final Defense Presentation.

APPENDIX G

LITERATURE REVIEW GRID

Pub. Year Author's Last Name	Title of Publication, DOI link (if available)	Type of Study	Main Outcomes or Findings	Support for and/or Link to Project	Study Strengths	Study Weaknesses, Limitations, Gaps
2024 Hung, C.T. et al.	The evaluation of synchronous and asynchronous online learning: student experience, learning outcomes, and cognitive load https://doi.org/10.1186/s12909-024-05311-7	Randomized controlled trial	A study aimed to compare the effectiveness of online synchronous and asynchronous teaching formats for undergraduate medical students, including academic performance, self-efficacy, and cognitive load (n=170) Findings: * Both formats improved learning outcomes. * No significant difference in student satisfaction. *Cognitive load is significantly lower in the synchronous method.	Supports asynchronous learning format to improve knowledge and retention.	Use of multiple outcome measures. Data collection included subjective and objective measures. Inclusion of both immediate post-test and retention testing allows for the assessment of long-term learning.	Potential selection bias due to self-selection of online learning methods. Limited generalizability due to data from a single Taiwanese university and medical students.
2024 Zeng & Luo	Effectiveness of synchronous and asynchronous online learning: a meta-analysis https://doi.org/10.1080/10494820.2023.2197953	Meta-analysis	14 articles (n=1,902) were evaluated to determine the effectiveness of synchronous and	Supports an asynchronous teaching format to promote learning.	PRISMA flow chart provides clarity and structure for the study	Moderate heterogeneity (I^2 = 47.9% (95% CI: 17-67%)

Pub. Year Author's Last Name	Title of Publication, DOI link (if available)	Type of Study	Main Outcomes or Findings	Support for and/or Link to Project	Study Strengths	Study Weaknesses, Limitations, Gaps
			asynchronous online learning formats on academic achievement. Findings: *Asynchronous learning was more effective in promoting student knowledge; the difference was minimal (Hedges' g = –0.16, 95% CI [–0.26, –0.05], $p <$ .01). * Small effect was consistent across different education levels and subject areas.		selection process. Funnel plots were used, and publication bias was deemed unlikely. Forest plots were utilized to represent effect sizes.	Study included both RCTs and quasi-experimental studies. Small number of studies.
2023 Cerri, L.Q. et al.	Insomnia Severity Index: A reliability generalisation meta-analysis https://doi.org/10.1111/jsr.13835	Meta-analysis	33 articles (n=29,688) were evaluated for ISI internal consistency (Cronbach's alpha). The pooled Cronbach's alpha is α = 0.83, which	Supports the use of ISI as a quality assessment tool for adolescents and adults in community health settings.	The REGEMA flowchart provides clarity and structure for the study selection process. Forest plot utilized to	High heterogeneity (I^2 = 97.83% and Q-statistic = 1101.170) suggests that the results should be interpreted cautiously.

Pub. Year Author's Last Name	Title of Publication, DOI link (if available)	Type of Study	Main Outcomes or Findings	Support for and/or Link to Project	Study Strengths	Study Weaknesses, Limitations, Gaps
			suggests good reliability. Finding: The ISI is a validated screening tool suitable for use with adolescents, young adults, adults, and older individuals in both clinical and community settings.		evaluate ISI Cronbach's alpha reliability coefficient. Funnel plots were utilized to assess publication bias. Large sample size (n=29,688)	Funnel plot assessment (Egger's regression test intercept = -3.981 and $p<0.001$) showed asymmetry, suggesting publication bias.
2023 DeSimone & Hansen	The Impact of Measurement-Based Care in Psychiatry: An Integrative Review https://doi.org/10.1177/10783903231177707	Integrative review	9 articles were evaluated to identify the effect of measurement-based care in behavioral health settings. Findings: *MBC provides a systematic, objective approach for providers in tracking outcomes, identifying worsening symptoms, and	The evidence demonstrates the implementation of MBC assessments is beneficial for diagnosis, monitoring outcomes, adjusting treatment, increasing remission rates, and improving medication	PRISMA flow chart provides clarity and structure for the study selection process. All nine articles, on an A, B, and C quality grading scale, were considered B or good quality.	Identifying reasons for gaps in MBC in psychiatry is needed; strategies are required to address perceived barriers to MBC implementation. Limited number of studies and variability in study designs.

Pub. Year Author's Last Name	Title of Publication, DOI link (if available)	Type of Study	Main Outcomes or Findings	Support for and/or Link to Project	Study Strengths	Study Weaknesses, Limitations, Gaps
			cueing changes in treatment. *MBC is associated with increased remission rates, improved medication adherence, and increased patient engagement in shared decision-making. *Providers find MBC tools helpful in diagnosis and tailoring treatment; MBC assessment tools should be administered and analyzed at every patient encounter, which providers may perceive as a burden.	adherence leading to improved patient outcomes. MBC enhances therapeutic alliance and promotes shared decision-making.	Findings are consistent with prior research that demonstrates MBC enhances patient outcomes.	
2021 Fabbri, M. et al.	Measuring Subjective Sleep Quality: A Review https://doi.org/10.3390/ijerph18031082	Systematic review	To assess subjective sleep quality, 49 articles were evaluated for their psychometric qualities, factorial structures, and construct validity	The study supports using ISI in insomnia screening owing to reported good psychometric properties	PRISMA flow chart provides clarity and structure for the study selection process.	Further research is warranted to define the factor model for sleep questionnaires, enabling the meaningful

Pub. Year Author's Last Name	Title of Publication, DOI link (if available)	Type of Study	Main Outcomes or Findings	Support for and/or Link to Project	Study Strengths	Study Weaknesses, Limitations, Gaps
			using self-report questionnaires (PSQI, AIS, ISI, MSQ, JSS, LSEQ, SLEEP-50, ESS). Findings: * Generally, self-report sleep questionnaires have good psychometric properties, high internal consistency, and test-retest reliability. * The reliability generalization estimation of Cronbach's alpha for the ISI is $\alpha = 0.82$, which suggests good reliability.	(reliability and validity).	Two independent authors performed literature screening using a pre-defined extraction form. When a disagreement arose, a third author (who was blind to the issue of disagreement) evaluated the article.	interpretation of scores. The factor structure of some questionnaires made it challenging to accurately distinguish between poor and good sleepers; reliable cut-off scores are needed to do so.
2021 Manzar, M.D. et al.	Structural validity of the Insomnia Severity Index: A systematic review and meta-analysis https://doi.org/10.1016/j.smrv.2021.101531	Systematic review and meta-analysis	20 articles were evaluated (n=13,480) for the ISI's psychometric properties and factor structure. Findings:	The ISI is a valid screening tool for adolescents and adults across various clinical populations	PRISMA flow chart provides clarity and structure for the study selection process.	High heterogeneity ($I^2 = 94\%$) suggests results should be interpreted cautiously.

Pub. Year Author's Last Name	Title of Publication, DOI link (if available)	Type of Study	Main Outcomes or Findings	Support for and/or Link to Project	Study Strengths	Study Weaknesses, Limitations, Gaps
			* The ISI has a high pooled Cronbach's alpha, ≥0.8, indicating good-strong reliability. Confirmatory factor analysis (CFA) is more reliable than exploratory factor analysis (EFA) for evaluating the factor structure of the ISI. * Compared to the three-factor model, the two-factor model can best explain the dimensionality of the ISI.	and community settings.	Forest plots were used to evaluate the ISI Cronbach's alpha reliability and inter-factor correlation coefficients for the selected studies. Two independent researchers conducted the data extraction and resolved disagreements through discussion to reach a consensus. Funnel plot assessment (Egger's regression test intercept = -0.561, t= -0.292. and P = 0.77) showed	Multiple studies have not reported or conducted CFA or EFA to probe the potential factor structure.

Pub. Year Author's Last Name	Title of Publication, DOI link (if available)	Type of Study	Main Outcomes or Findings	Support for and/or Link to Project	Study Strengths	Study Weaknesses, Limitations, Gaps
					no asymmetry, suggesting no evidence of publication bias.	
2020 Ali, R.M. et al.	A Systematic Review of Instruments for the Assessment of Insomnia in Adults https://doi.org/10.2147/NSS.S250918	Systematic review	107 articles were evaluated for validated instruments for assessing insomnia screening, consequences of poor sleep, cognitive aspects of insomnia, and sleep hygiene in the adult population. The study also aimed to identify sleep assessment questionnaires available in Arabic. Findings: *31 instruments for assessing insomnia were identified; only the ISI and Functional Outcome of Sleep (FOSQ) were extensively	Supports the use of the ISI as a reliable insomnia screening tool.	PRISMA flow chart provides clarity and structure for the study selection process. Two separate literature searches were conducted to identify sleep assessment questionnaires available in Arabic.	The psychometric properties of several instruments are incomplete or were not reported in the articles; future studies should focus on the disclosure of psychometric properties to accurately assess instruments. Limited availability of sleep questionnaires available in Arabic.

Pub. Year Author's Last Name	Title of Publication, DOI link (if available)	Type of Study	Main Outcomes or Findings	Support for and/or Link to Project	Study Strengths	Study Weaknesses, Limitations, Gaps
			analyzed for responsiveness, interpretability, reliability, and validity. * The two studies included in the systematic review, specifically about the ISI, demonstrated Cronbach's alpha scores ranging from 0.74 to 0.91, suggesting good reliability. * Only four insomnia assessment instruments were available in the Arabic language.			
2020 Filosa, J. et al.	Validation of insomnia questionnaires in the general population: The Nord-Trøndelag Health Study (HUNT) https://doi.org/10.1111/jsr.13222	Cross-sectional validation study	The study was designed to evaluate the ISI and Karolinska Sleep Questionnaire (KSQ) against a face-to-face diagnostic interview, stratified by age category (<	The ISI demonstrated very good validity against a tentative diagnosis and good validity against a definitive diagnosis.	Random selection of participants from a large general population. Minimal time between completion of	The minimum age of participants was 21 years of age. Low percentage of participants (19%) (n=232); 1200 individuals

Pub. Year Author's Last Name	Title of Publication, DOI link (if available)	Type of Study	Main Outcomes or Findings	Support for and/or Link to Project	Study Strengths	Study Weaknesses, Limitations, Gaps
			or > 65 years of age). Secondary aims: a) Validate questionnaires against tentative vs. definite interview diagnosis b) Investigate how estimates of insomnia may depend on assessment type, gender, and age categories. Findings: *The ISI and several KSQ-based diagnoses demonstrated higher validity (κ = 0.74) against a tentative insomnia diagnosis and good validity (κ = 0.61) against a definitive insomnia diagnosis, especially in those under 65.	As part of routine screening, the ISI may identify sleep problems in those unaware they have insomnia or who would not usually seek help.	the questionnaire and clinical interview.	were invited to participate. For participants over 65, there was lower validity of questionnaire-based diagnosis. Lack of general psychological and medical screening before intervention. Selection bias was suggested owing to the over-representation of women and the elderly, which limits the generalisability of prevalence estimates.

Pub. Year Author's Last Name	Title of Publication, DOI link (if available)	Type of Study	Main Outcomes or Findings	Support for and/or Link to Project	Study Strengths	Study Weaknesses, Limitations, Gaps
			*33% of participants were definitively diagnosed with insomnia, 42% of participants received a tentative insomnia diagnosis.			
2018 Seow, L.S.E., et al.	Identifying the best sleep measure to screen clinical insomnia in a psychiatric population https://doi.org/10.1016/j.sleep.2017.09.015	Observational, cross-sectional study	The study was designed to identify the best insomnia screening measure for patients with comorbid mental disorders in an outpatient psychiatric setting (n=400). Finding: According to DSM-5 and ICD-10 criteria based on outcome measures (specificity, sensitivity, positive/negative predictive values), the ISI was the most accurate measure for identifying insomnia disorder	The ISI is an appropriate assessment measure for identifying clinical insomnia according to DSM-5 and ICD-10 criteria and is suitable for use in outpatient psychiatric settings.	Strong validation of ISI with precise optimal diagnostic cutoffs. ICD-10: 95% CI: 0.84 – 0.92 Cut-off score of ≥ 14 DSM-5: 95% CI: 0.78-0.86 Cut-off score of ≥ 11	The study was conducted in a single clinical setting; results may not be generalizable to a broader psychiatric population.

Pub. Year Author's Last Name	Title of Publication, DOI link (if available)	Type of Study	Main Outcomes or Findings	Support for and/or Link to Project	Study Strengths	Study Weaknesses, Limitations, Gaps
			out of 6 sleep-related questionnaires.			
2017 Fortney, J.C. et al.	A Tipping Point for Measurement-Based Care https://doi.org/10.1176/appi.ps.201500439	Narrative review	51 articles were evaluated to discuss symptoms rating scales, ineffective assessment methods, empirical evidence, and feasibility for measurement-based care (MBC), and secondary benefits of MBC. Finding: MBC advances clinical decision-making, improves patient outcomes, and lessens treatment inertia.	Demonstrates the necessity of MBC by utilizing an insomnia screening tool to ensure consistent insomnia screening.	Comprehensive analysis of MBC benefits and strong clinical relevance.	Findings may be influenced by variability in studies (RCTs, meta-analyses, implementation studies, observational studies), bias, or confounders.
2017 Wong, M.K. et al.	Psychometric properties of the Sleep Condition Indicator and Insomnia Severity Index in the evaluation of insomnia disorder https://doi.org/10.1016.05.019	Observational, cross-sectional study	The study was designed to assess the Sleep Condition Indicator (SCI) and Insomnia Severity Index (ISI) measurement properties against insomnia diagnosed	Supports the use of the ISI as a reliable tool for evaluating insomnia in clinical settings with young	Findings were validated under 2 diagnostic systems (DSM-5 and ICSD-3). The SCI and ISI demonstrated	A moderate sample size and age demographic (young adults) (n = 158) may limit generalizability.

Pub. Year Author's Last Name	Title of Publication, DOI link (if available)	Type of Study	Main Outcomes or Findings	Support for and/or Link to Project	Study Strengths	Study Weaknesses, Limitations, Gaps
			with a structured clinical interview and insomnia symptoms evaluated by the Consensus Sleep Diary or actigraphy. Findings: The SCI and ISI can successfully discriminate insomnia against a structured clinical interview. They also showed moderate correlation with actigraphy and the Consensus Sleep Diary.	adult populations.	high reliability, strong specificity, and robust sensitivity.	
2016 Chui, H. et al.	A meta-analysis of diagnostic accuracy of three screening tools for insomnia https://doi.org/10.1016/j.jpsychores.2016.06.010	Meta-analysis	19 articles (n=4,693) were evaluated to estimate and compare the diagnostic accuracy of the Athens Insomnia Scale (AIS), Insomnia Severity Index (ISI), and	Supports the use of the ISI as a preferred tool for insomnia screening.	PRISMA flow chart provides clarity and structure for the study selection process. Forest plot utilized to evaluate ISI	Risk of bias in most domains was found to be high or unclear due to inadequate reporting. Cultural differences may alter the

Pub. Year Author's Last Name	Title of Publication, DOI link (if available)	Type of Study	Main Outcomes or Findings	Support for and/or Link to Project	Study Strengths	Study Weaknesses, Limitations, Gaps
			Pittsburgh Sleep Quality Index (PSQI) for insomnia screening. Finding: All 3 screening tools yielded similar diagnostic properties for insomnia screening, but the ISI had the best balance of sensitivity and specificity.		Cronbach's alpha reliability coefficient. 2 independent reviewers assessed the quality of the included studies according to Quality Assessment of Diagnostic Accuracy Studies (QUADAS-2) Large sample size (n=4,693) which included studies in clinical and community settings across various countries and continents.	reporting of insomnia symptoms. Some studies had sample sizes of less than 50 participants.
2013 Ganon, C. et al.	Validation of the Insomnia Severity Index in Primary Care https://doi.org/10.3122/jabfm.2013.06.130064	Cross-sectional,	The study was conducted to evaluate the	The ISI is an appropriate screening tool	25 randomly selected interviews	The study was limited to

Pub. Year Author's Last Name	Title of Publication, DOI link (if available)	Type of Study	Main Outcomes or Findings	Support for and/or Link to Project	Study Strengths	Study Weaknesses, Limitations, Gaps
		observational study	psychometric properties of the ISI in primary care health clinics, with the goal of identifying individuals with clinically significant insomnia. A total of 410 patients completed the ISI, and 101 patients subsequently underwent diagnostic interview. Findings: Reinforces the use of the ISI as an insomnia screening tool in primary care settings.	that can be used to screen for insomnia in primary care	were audio recorded by the first interviewer and submitted to a 2nd blind interviewer for an unbiased clinical assessment. The Cronbach's alpha is $\alpha = 0.92$, suggesting excellent internal consistency and reliability.	patients in primary care. Moderate sample size (n= 410) completed ISI; small sub-sample (n=101) completed the clinical interview

APPENDIX H

EXECUTIVE SUMMARY

Executive Summary: Increasing Provider Awareness of Evidence-Based Screening Tools to Identify Insomnia – Denise Meitl

Project Overview & Aim:
Insomnia is a common but frequently under-assessed, under-diagnosed, and under-treated condition linked to significant physical and mental health consequences, placing a substantial burden on healthcare systems. Inconsistent screening practices contribute to missed opportunities for early intervention. This quality improvement project aimed to evaluate the impact of a brief Insomnia Severity Education (ISE) intervention on healthcare providers' knowledge of insomnia and the Insomnia Severity Index (ISI), confidence in using the ISI, and intention to integrate it into clinical practice.

Methodology & Intervention:
This project was conducted at the United Community Health Center with the voluntary participation of healthcare providers. A pre- and post-intervention design evaluated changes in knowledge, confidence, and intent related to insomnia screening. Participants accessed a single Qualtrics link that contained the informed consent, pre-survey, a 14-minute educational video on the ISI, post-survey, and a supplemental resource document. Surveys included multiple-choice and Likert scale items, with responses anonymously matched using self-generated identifiers. Descriptive statistics were used for analysis.

Key Objectives and Findings: Survey results showed measurable improvements in all three domains:

- **Objective #1**: Improve provider knowledge regarding the ISI and its application in clinical practice.
  Finding: Providers demonstrated increased familiarity with the ISI, including accurate identification of the clinical cutoff score.
- **Objective #2**: Enhance provider confidence in utilizing the ISI for insomnia screening and clinical decision making.
  Finding: Post-intervention results indicated greater confidence in administering the ISI, interpreting scores, and guiding treatment decisions.
- **Objective #3:** Promote provider intention to integrate the ISI into routine clinical practice.
  Finding: Participants reported a stronger intent to incorporate ISI-based screening into their standard patient assessments.

Implications & Sustainability:
This project demonstrates that brief, self-paced educational interventions can effectively improve provider knowledge, confidence, and intent to screen for insomnia. For sustained impact, UCHC leadership may consider developing or adopting similar evidence-based training modules as part of routine provider education. Incorporating insomnia screening into clinical protocols and exploring opportunities for periodic reinforcement—such as staff meetings or EHR prompts—could help normalize and maintain consistent screening practices over time.

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