Improving Oral Health Care in the Underserved Population: A Quality Improvement Initiative

Submitted By

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As members of the DNP Project Committee, we certify that we have read the DNP project prepared by Susan Harris, titled *Improving Oral Health Care in the Underserved Population: A Quality Improvement Initiative,* and recommend that it be accepted as fulfilling the DNP project requirement for the Degree of Doctor of Nursing Practice.

Dr. Pamela Love (DNP Project Chair) Date: March 30, 2025

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

ACCEPTED AND SIGNED

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Program Manager

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Date

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Abstract

Substance Use Disorder (SUD) affects individuals not only physically and mentally but also leads to significant oral health complications, often due to poor hygiene, dehydration, and the side effects of substance use. This Doctor of Nursing Practice (DNP) project demonstrated that oral healthcare improved among individuals in a rehabilitation facility through the distribution of oral care kits and the delivery of targeted oral health education. In collaboration with a local rehabilitation center specializing in substance use recovery, participants received dental hygiene supplies (toothbrush, toothpaste, floss, mouthwash, lip balm, and educational materials) focused on proper oral care. Pre- and post-intervention questionnaires assessed changes in oral hygiene knowledge, practices, and self-reported self-esteem. The project addressed the gap in accessible dental care within rehab settings and empowered individuals with the knowledge and tools to support oral health during recovery. Preliminary findings indicated improved hygiene practices, greater awareness of oral health, and enhanced self-esteem. These results underscore the importance of integrating oral health interventions into comprehensive SUD rehabilitation programs.

Keywords: Oral health, Substance use disorders, Quality improvement, Oral hygiene practices, Self-esteem

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Chapter 1: Introduction to the Study

Introduction

Substance use disorder (SUD) is a pervasive and complex condition that significantly impacts both the physical and mental health of individuals, often leading to long-term health complications. Among the many areas of health affected by SUD, oral health is frequently overlooked, even though individuals with substance use disorders are at a higher risk for oral health problems. These issues can include tooth decay, gum disease, dry mouth, and other conditions aggravated by substances such as alcohol, opioids, and methamphetamines (Cuberos et al., 2020). The lack of adequate oral health care in rehabilitation settings further intensifies these problems, leaving patients vulnerable to chronic oral health issues during their recovery process (Paisi et al., 2021).

This Doctor of Nursing Practice (DNP) project addressed the gap in oral healthcare within rehabilitation settings by providing participants with both an oral healthcare kit and educational information that focused on proper oral hygiene techniques. The goal was to empower individuals in recovery to take an active role in maintaining their oral health. Each kit included a toothbrush, toothpaste, dental floss, mouthwash, lip balm, and an educational pamphlet. By distributing these kits and offering targeted education, the project promoted better oral hygiene practices and increased awareness of the importance of oral health as part of the recovery process.

This project promoted a more holistic approach to recovery by integrating oral health care into substance use disorder rehabilitation. It acknowledged that physical and oral health were essential to long-term recovery and overall well-being. The intervention took place over

eight weeks, providing a structured timeframe to monitor changes in participants' oral health practices, knowledge, and self-care behaviors.

Background Knowledge/Significance

Oral health is a vital component of overall well-being, yet it remains one of the most overlooked areas of care among individuals with SUD (D'Alessandro et al., 2025). People with SUD are at heightened risk for dental issues such as tooth decay, periodontal disease, and oral infections due to the direct effects of substances, poor hygiene practices, and limited access to dental care. Barriers include financial limitations, lack of insurance, stigma, and fragmented healthcare systems. Despite its significant impact on physical health, self-esteem, and recovery outcomes, oral health care is frequently neglected in rehabilitation settings (Paisi et al., 2021).

Addressing this gap is increasingly recognized as essential to improving recovery outcomes. Research indicates that access to comprehensive dental care can alleviate pain, boost self-confidence, and enhance social functioning—factors critical to long-term recovery (Mohammadpour & Gholami, 2021). Integrating oral health into SUD treatment programs also offers an opportunity to reduce health disparities and promote a more holistic, patient-centered model of care. By examining the historical neglect of oral health in addiction treatment and emphasizing its importance, this DNP project sought to advocate for systemic change and elevated oral health as a core component of recovery.

Problem Statement

Individuals with SUDs face disproportionately poor oral health outcomes due to the direct effects of substance use, inadequate oral hygiene, and systemic barriers such as high costs, lack of insurance, transportation challenges, and stigma associated with addiction and oral health neglect (Carlsen et al., 2021). As a result, individuals in recovery often suffer from untreated

dental caries, periodontal disease, and oral infections, which can exacerbate physical discomfort and negatively impact their self-esteem and social functioning. Despite the well-documented connection between oral health and overall well-being, oral health needs are rarely addressed in outpatient substance use treatment programs, leaving a significant gap in care.

This gap not only perpetuated health complications but also increased the risk of relapse, as unresolved dental pain often led individuals to self-medicate with substances like opioids. A quality improvement initiative that provided oral hygiene kits and education within outpatient rehabilitation settings offered a cost-effective, preventive approach to care. By integrating oral health into the continuum of care for individuals with SUDs, this project aimed to empower participants, reduce oral health disparities, and enhance overall recovery outcomes (D'Alessandro et al., 2025).

Purpose of the Project

The purpose of this DNP project was to implement a quality improvement initiative designed to enhance oral health outcomes among individuals with SUD in an outpatient treatment setting in southern Arizona. This project responded to a critical gap in care by addressing oral health, an often-neglected component of overall well-being in this population.

The intervention involved the distribution of oral health care kits and the delivery of targeted oral health education. These efforts aimed to increase participants' knowledge of proper oral hygiene practices, encourage the adoption of healthier daily routines, and support improvements in self-esteem and quality of life. By equipping individuals in recovery with the tools and information they needed, the project sought to empower them to take greater ownership of their oral health during recovery.

Poor oral health is prevalent among individuals with SUD due to both the physiological effects of substance use and systemic barriers such as cost, lack of access, and stigma (Cuberos et al., 2020). Despite its significant impact on health and recovery outcomes, oral care remains overlooked, mainly in outpatient treatment programs. This project aimed to raise awareness of the importance of oral health, promote preventive practices, and reduce oral health disparities in this high-risk population.

The PICOT question guiding this DNP project is: In adults enrolled in a Substance Use Disorder (SUD) rehabilitation facility (P), how does the implementation of oral health care kits and oral health education (I), compared to current practices (C), affect self-reported oral health knowledge, oral hygiene practices, and self-esteem (O) over an eight-week intervention period (T)? This project aimed to address the critical gap in oral healthcare for individuals with SUD by promoting improved oral hygiene, enhancing self-esteem, and ultimately supporting overall recovery and quality of life.

The primary independent variable in this project was the implementation of a combined intervention—the distribution of oral health care kits and the provision of oral health education. Research suggested that oral health education could significantly increase knowledge about dental hygiene and encourage healthier behaviors, such as regular brushing, flossing, and mouthwash use (Cuberos et al., 2020). The intervention was designed to provide tools and empower participants with the knowledge needed for sustained oral health improvements.

There were three dependent variables, which included: (1) Self-Reported Oral Health Knowledge, which measured participants' understanding of oral hygiene and related practices; (2) Self-Reported Oral Hygiene Practices, which captured the frequency and consistency of routines such as brushing, flossing, and rinsing; and (3) Self-Reported Self-Esteem, which

assessed participants' perception of self-worth and confidence. Improved oral health had been associated with enhanced self-esteem, as individuals experienced reduced discomfort, embarrassment, and social anxiety due to visible or painful dental issues (Cuberos et al., 2020). These variables were critical in evaluating the intervention's acceptability, usability, and potential for long-term integration.

Clinical Questions

Individuals with SUDs often face significant oral health challenges as a direct result of substance use and associated behaviors, such as poor oral hygiene, unhealthy dietary habits, and limited access to dental care (Kisely et al., 2017). These issues can lead to physical discomfort, negatively impact self-esteem, and create additional barriers to successful recovery (Drentea et al., 2020). Despite the critical role oral health plays in overall well-being, many rehabilitation facilities for individuals with SUDs lack structured oral healthcare interventions.

The following clinical questions guide this quality improvement project:

1. *Q1: Does providing oral health care kits, accompanied by educational materials, increase knowledge and awareness of oral health among individuals with substance use disorder in a rehabilitation facility over an 8-week intervention period?*
2. *Q2**:** For adults with SUD in a rehabilitation facility, does the distribution of oral health care kits, compared to no intervention, improve daily oral hygiene practices over 8 weeks?*
3. *Q3: For adults with substance use disorder in a rehabilitation facility, does addressing oral health care needs contribute to an increase in self-reported self-esteem over 8 weeks?*

Significance of the Project

This DNP project addressed a critical and often overlooked aspect of care for individuals with SUDs—oral health. Poor oral health has been a widespread issue within this population, contributing to physical discomfort, negative self-image, and significant barriers to recovery. Despite its profound impact on overall well-being, oral health care has seldom been integrated into rehabilitation programs, leaving a substantial gap in care. This project aimed to fill that gap by providing a structured intervention that directly addressed individuals' oral health needs in recovery.

The significance of this initiative lay in its potential to improve the well-being of a vulnerable population through a practical, evidence-based approach. The project promoted healthier behaviors, encouraged oral hygiene practices, and enhanced self-esteem by distributing oral health care kits and providing education on proper oral hygiene. These outcomes enhanced participants' quality of life and supported their broader recovery journey by fostering a sense of personal empowerment and improving mental and physical health.

Furthermore, this project underscored the importance of integrating interdisciplinary and preventive care into addiction rehabilitation programs. Its findings could inform future practices and policies, contributing to a shift toward more holistic care models that include oral health as an essential component of addiction recovery. Additionally, this approach had the potential for broader application across other rehabilitation settings, offering a scalable model for improving oral health and overall recovery outcomes.

Rationale for Methodology

A quality improvement (QI) methodology was ideally suited for this project, focusing on practical, real-world changes that directly enhanced oral healthcare practices and outcomes for

individuals with SUDs. Quality improvement has been particularly effective in healthcare settings because it facilitates the systematic implementation of evidence-based interventions, continuous data collection, and iterative adjustments to optimize outcomes (Sadeghi et al., 2022). This flexible approach allowed for modifications based on real-time feedback and ensured the intervention met the population's specific needs. By utilizing QI, this project evaluated the impact of oral health care kits and education on key outcomes such as oral health knowledge, hygiene practices, and self-esteem over 8 weeks.

The QI framework allowed for a focused, evidence-based approach to testing the intervention's effectiveness in a rehabilitation setting, where the lack of structured oral health care represented a significant gap. Through pre- and post-implementation of self-reported questionnaires, this project measured changes in participants' oral health knowledge, hygiene behaviors, and self-esteem—key indicators that aligned with the clinical questions (Davis et al., 2023). These measures provided valuable insights into how the intervention impacted short-term and longer-term outcomes. The flexibility of QI allowed for ongoing adjustments to maximize effectiveness and ensure that the intervention was tailored to the needs of the participants.

A quality improvement (QI) methodology is ideally suited for this project, focusing on practical, real-world changes that can directly enhance oral healthcare practices and outcomes for individuals with SUDs. Quality improvement is particularly effective in healthcare settings because it facilitates the systematic implementation of evidence-based interventions, continuous data collection, and iterative adjustments to optimize outcomes (Sadeghi et al., 2022). This flexible approach allows for modifications based on real-time feedback and ensures the intervention meets the population's specific needs. By utilizing QI, this project can evaluate the

impact of oral health care kits and education on key outcomes such as oral health knowledge, hygiene practices, and self-esteem over 8 weeks.

By integrating oral health education, the provision of care kits, and structured outcomes measurement, the QI methodology offered a patient-centered, practical, and sustainable approach to improving care. This method supported clinical improvements and enhanced patient engagement, empowering individuals to take an active role in their oral health (Chavez et al., 2022). Given the complexity of the population and the setting, a QI framework was the optimal choice for addressing the clinical questions of this project, ensuring actionable and meaningful results that could inform future practice.

Definition of Terms

To ensure clarity and consistency throughout this project, the following key terms are defined as they pertain to the scope of this quality improvement initiative. These definitions aim to establish a common understanding of terminology related to oral health, substance use disorder, and the frameworks guiding the intervention.

Oral Health

Oral health refers to the state of the mouth and teeth, where individuals maintain a proper balance of oral hygiene practices that prevent tooth decay, gum disease, and other oral conditions (World Health Organization, 2022).

Oral Healthcare Kits

Oral healthcare kits contain essential tools for maintaining oral hygiene, typically including toothbrushes, toothpaste, floss, and mouthwash. These kits improve oral health by encouraging proper oral care practices (Jones & Williams, 2015).

Rehabilitation Facility

A structured inpatient or outpatient setting that provides comprehensive treatment and recovery support services for individuals with substance use disorders (Substance Abuse and Mental Health Services Administration, 2019).

Substance Use Disorder (SUD)

Substance Use Disorder (SUD) is a medical condition characterized by the recurrent use of substances (e.g., alcohol, drugs) that leads to clinically significant impairment or distress (American Psychiatric Association, 2013).

Assumptions, Limitations, Delimitations

This DNP project was based on several key assumptions. It assumed that participants in the rehabilitation facility would accept and consistently use the oral health care kits and follow the provided oral hygiene instructions. Engagement with the intervention was critical to its success, and the project assumed that participants would actively participate in the process. Additionally, it was believed that there would be sufficient resources, including oral health care kits and educational materials, to distribute to all eligible participants throughout the 8-week intervention period. The project further assumed that participants would be honest in completing surveys and participating in interviews regarding their oral hygiene practices, satisfaction with the kits, and overall experience.

A primary assumption of the project was that providing the oral health care kits, combined with education on proper oral hygiene, would lead to measurable improvements in participants' oral hygiene practices and a greater understanding of oral health. Moreover, it was assumed that the rehabilitation facility would maintain a consistent environment throughout the

project, without significant policy changes or shifts in patient populations that could influence the outcomes.

Despite its strengths, the project faced several limitations. One of the key limitations was the short duration of the intervention—8 weeks. This time frame may not have been sufficient to capture long-term changes in oral health outcomes, such as a significant reduction in dental issues or enduring improvements in hygiene habits. The project was also limited to participants within a single rehabilitation facility, which may not have been representative of the broader population of individuals with SUD. Therefore, the findings may not have been generalizable to other SUD rehabilitation settings with different demographic or geographic characteristics. Additionally, because data were collected via self-report questionnaires, there was a potential for response bias, as participants may have overstated their adherence to oral hygiene practices or underreported challenges they faced in following recommended routines.

Another limitation was that the project did not provide access to professional dental care, which could have been essential for individuals with pre-existing dental conditions or more complex oral health issues. While the oral health care kits aimed to improve daily hygiene, they did not address the need for professional dental treatment, which may have limited the overall impact on participants' oral health.

The delimitations of this project were specifically focused on individuals with SUD enrolled in an outpatient rehabilitation facility. The project did not include other populations who may have experienced similar oral health challenges, such as those in inpatient recovery settings or individuals in different stages of treatment. Additionally, the intervention focused exclusively on preventive care through the distribution of oral health care kits and education, deliberately

excluding therapeutic dental treatments or professional dental exams. This decision was made to target prevention rather than address existing dental conditions.

The project evaluated specific outcomes, including changes in oral hygiene practices, oral health knowledge, and participant satisfaction. However, it did not assess more comprehensive health outcomes, such as the long-term effects of improved oral health on overall recovery or the broader psychosocial impacts of addressing oral health in this population. Finally, the project's 8-week duration was designed for practical reasons but did not allow for the evaluation of sustained behavioral changes or long-term improvements in oral health outcomes.

Summary

The proposed DNP project was a quality improvement initiative aimed at enhancing oral health among individuals in outpatient rehabilitation for SUD by distributing oral health care kits. The significance of this project lay in addressing the often-overlooked oral health needs of this population, who were at higher risk for dental decay and infections due to substance use and limited access to dental care. By providing accessible oral care resources, the project aimed to improve oral hygiene practices, raise awareness, and foster self-care, ultimately reducing complications linked to poor oral health and supporting better overall health outcomes. The following chapter presents the literature review and is used to translate research into practice for this project. In addition, the theoretical framework and change model that supported this project will be discussed, along with the rationale for their selection.

Chapter 2: Literature Review

Review of Literature

Individuals undergoing treatment for SUDs often face significant oral health challenges, many of which remain unaddressed due to systemic gaps in care and limited access to dental services. Research indicates that patients in institutional settings, including rehabilitation units, frequently experience oral hygiene neglect due to a lack of structured oral care protocols and insufficient support from staff, many of whom are not trained in delivering oral hygiene assistance (Poudel et al., 2023). This issue is compounded by the direct effects of substance use, such as xerostomia and dietary habits that promote dental caries, as well as psychological barriers like dental anxiety and stigma (Rossow, 2021).

In facilities specifically serving individuals with SUDs, oral health is often deprioritized despite clear evidence linking substance use, particularly methamphetamines, opioids, and alcohol, to dental caries, periodontal disease, and oral infections (Poudel et al., 2023). A scoping review revealed that fewer than 20% of residents in rehabilitation environments receive adequate oral care, often due to staffing shortages, high turnover, and limited training (Poudel et al., 2023). Beyond physical health, poor oral hygiene significantly affects self-image and emotional well-being. Bernabé and Marcenes (2022) found a strong correlation between poor periodontal health and low self-esteem in women, suggesting that visible dental issues can contribute to social withdrawal and reduced confidence. In the context of substance use recovery, where individuals are often working to rebuild their identity and sense of worth, this relationship is especially critical. They also noted that improved oral hygiene can enhance self-perception, boost confidence, and strengthen social interactions, all essential to recovery. Individuals in substance use rehabilitation facilities face a complex set of barriers related to oral health,

including lack of access, limited education on oral healthcare, and diminished self-esteem. The literature supports the implementation of targeted oral hygiene interventions, such as providing oral health care kits and education, to promote physical, psychological, and emotional recovery.

Clinical Questions and Methodology Alignment with Literature Review

The clinical questions guiding this DNP project focused on evaluating the impact of oral health care kits and education on individuals in outpatient rehabilitation for SUD. The following clinical questions guided this quality improvement project:

1. *Q1: Does providing oral health care kits, accompanied by educational materials, increase knowledge and awareness of oral health among individuals with substance use disorder in a rehabilitation facility over an 8-week intervention period?*
2. *Q2**:** For adults with SUD in a rehabilitation facility, does the distribution of oral health care kits, compared to no intervention, improve daily oral hygiene practices over 8 weeks?*
3. *Q3: For adults with substance use disorder in a rehabilitation facility, does addressing oral health care needs contribute to an increase in self-reported self-esteem over 8 weeks?*

These questions are grounded in current literature and align with a QI methodology well-suited for assessing and enhancing clinical practices in real-world settings. A systematic review by Goel et al. (2019) found that individuals with SUDs have significantly poorer oral health than the general population, highlighting the need for targeted interventions. A study by Hanson et al. (2019) also demonstrated that comprehensive oral care integrated into SUD treatment improved outcomes such as treatment completion, employment, and drug abstinence. These findings

support the clinical questions by underscoring the potential benefits of oral health interventions in SUD rehabilitation.

The QI framework facilitated the implementation and evaluation of oral health care kits and education, allowing real-time assessment and adjustment to meet participants' needs. This approach was consistent with best practices in healthcare improvement science, which emphasized patient-centered, evidence-based interventions. By addressing the clinical questions through a QI methodology, this project aimed to enhance oral health knowledge, hygiene practices, and self-esteem among individuals in SUD rehabilitation, ultimately supporting their overall recovery journey.

Using the Plan-Do-Study-Act (PDSA) cycle within the QI methodology enabled iterative testing, evaluation, and refinement of the oral health intervention in a real-world clinical setting. This model supported small, manageable changes that were adjusted based on observed outcomes, enhancing the intervention’s effectiveness and sustainability. Ponce-Gonzalez et al. (2019) noted that even modest improvements in routine oral care could significantly improve physical and psychological well-being, particularly in underserved and vulnerable populations. The clinical questions and QI methodology chosen for this DNP project were well-supported by the current literature. They addressed a critical gap in care for individuals in substance use rehabilitation facilities and aligned with evidence-based strategies for improving both health outcomes and quality of life.

The justification for implementing oral health care kits and oral health education in SUD rehabilitation facilities addresses a critical gap in care for individuals whose oral health needs are often overlooked. Individuals in recovery frequently experience high rates of oral diseases such as dental caries, gingivitis, and tooth loss due to the physiological effects of substances, poor

nutrition, and inconsistent hygiene practices (Amiri & Shekarchizadeh, 2021). Despite this elevated risk, many rehabilitation settings lack standardized oral health protocols or preventive resources. Wang and Zaman (2024) highlighted that fewer than 20% of residents in long-term and rehabilitative care settings receive routine dental assessments, primarily due to staffing shortages, competing care priorities, and inadequate training. These systemic barriers are mirrored in SUD rehab facilities, where oral health is often deprioritized.

Providing oral health care kits—containing essentials such as toothbrushes, toothpaste, floss, and educational materials—can be a low-barrier, cost-effective intervention that empowers patients to take ownership of their oral hygiene. Hedges et al. (2024) demonstrated that when vulnerable populations were given access to oral hygiene tools and basic education, their knowledge, behaviors, and self-care confidence improved significantly. Applying this model in a SUD rehab setting addresses immediate oral health needs and integrates preventive care into recovery. Furthermore, Bernabé and Marcenes (2022) found that individuals with better oral health reported higher self-esteem and improved quality of life, supporting the psychological benefits of addressing oral hygiene during rehabilitation. Therefore, introducing oral health care kits and education in a SUD rehab facility directly addresses the identified gap in care, aligns with current best practices in quality improvement, and can potentially improve both physical and psychosocial outcomes among individuals in recovery.

Literature Search Process

For this DNP quality improvement project, a comprehensive literature review was conducted using multiple academic databases, including the Cumulative Index to Nursing and Allied Health Literature (CINAHL), PubMed, MEDLINE, and Google Scholar. The search focused on peer-reviewed articles published between 2021 and 2024. Key search terms included

combinations of “oral health” OR “oral hygiene”, “substance use disorder” OR “SUD”, “rehabilitation facility” OR “recovery center”, “oral care kits” OR “oral hygiene interventions”, “self-esteem” AND “oral health”, “quality improvement” AND “healthcare”, and “self-eficacy”. Boolean operators of “AND”, “OR”, or “NOT” were used to narrow and expand the search.

Historical Overview and Evolution of Oral Health Care in SUD Rehabilitation Facilities

Historically, the integration of oral health care into SUD rehabilitation facilities has been limited, despite the high prevalence of oral health issues among individuals with SUDs. Early research highlighted significant oral health problems in this population, including dental caries, periodontal disease, and xerostomia, often exacerbated by substance use behaviors such as poor nutrition and neglect of personal hygiene (Koh et al., 2017). However, these issues have been frequently overlooked in treatment settings, with oral health care not routinely incorporated into SUD rehabilitation programs.

Over time, recognizing the impact of oral health on overall health and recovery outcomes has led to a shift in perspective. Studies have demonstrated that addressing oral health can enhance treatment outcomes for individuals with SUDs. For instance, research by Hanson et al. (2019) found that integrating comprehensive oral health care into SUD treatment programs significantly improved treatment completion rates and employment outcomes and reduced homelessness among participants. Despite these findings, implementing oral health care in SUD rehabilitation facilities has remained inconsistent. Barriers such as stigma, lack of dental resources, and insufficient training hinder the integration of oral health services.

In recent years, initiatives to integrate oral health care into SUD rehabilitation have gained momentum. Programs like Project FLOSS in Utah and the Road to Care program in Massachusetts have demonstrated the feasibility and benefits of providing oral health services

within SUD treatment settings. These programs offer oral health education, screenings, and referrals to dental care, addressing both the physical and psychosocial aspects of recovery (National Academy for State Health Policy, 2025). The evolution of oral health care in SUD rehabilitation facilities reflects a growing understanding of the interconnectedness of oral health and overall well-being. While challenges remain, the increasing integration of oral health services into SUD treatment programs marks a significant step toward comprehensive care for individuals in recovery.

Application of Social Cognitive Theory (SCT)

Implementing oral health care kits and education in a substance use rehabilitation facility aligns effectively with Social Cognitive Theory (SCT), which provides a behavioral framework to understand and influence health-related actions. SCT, developed by Albert Bandura, emphasizes the reciprocal interaction between personal factors, environmental influences, and behaviors (Bandura, 1986). Key constructs such as self-efficacy, observational learning, and reinforcement are especially relevant to individuals in SUD recovery who may struggle with motivation, consistency in self-care, and confidence in their ability to improve their health.

In the context of this DNP project, SCT supported the idea that individuals were more likely to adopt oral hygiene behaviors if they believed in their ability (self-efficacy) to do so, were provided with the necessary tools and knowledge, and were supported by a positive, structured environment (Bandura, 2004). Distributing oral health care kits and offering basic education empowered the participants, motivating them to instill oral health care. Moreover, when participants observed peers engaging in these behaviors or received positive feedback from staff, it strengthened their likelihood of sustained behavior change, consistent with SCT's principle of modeling and reinforcement (Bandura, 1986).

Recent studies have demonstrated the efficacy of SCT-based interventions in improving oral health behaviors. For instance, a study among Hong Kong adolescents found that a peer-led oral health program based on SCT significantly increased the frequency of brushing and flossing, with self-efficacy identified as a mediator between the intervention and behavioral changes (Chung et al., 2021). Similarly, research by Wilson (2023) highlighted that SCT-based interventions, which include goal setting, self-monitoring, and positive feedback, effectively promote long-term oral health behaviors by enhancing self-efficacy and self-regulation skills.

Evolution of Social Cognitive Theory

Social Cognitive Theory (SCT) has evolved substantially since its inception in the 1960s and 1970s, emerging as a more comprehensive alternative to traditional behaviorist models focused primarily on stimulus-response mechanisms. Initially introduced as Social Learning Theory, Albert Bandura emphasized that individuals acquire behaviors through direct reinforcement and observing others, a process known as observational learning (Bandura, 1977). This marked a critical shift in psychological theory, recognizing the cognitive processes involved in learning and behavior change.

In 1986, Bandura expanded the framework into what is now known as Social Cognitive Theory, incorporating cognitive, emotional, and environmental factors into a unified model of behavioral regulation. Central to SCT is reciprocal determinism—the dynamic and continuous interaction between personal factors, behavioral patterns, and environmental influences. This expansion transformed the theory from one focused solely on learning to one that also accounts for self-regulation, goal-setting, and self-efficacy, making it especially applicable to health behavior interventions (Bandura, 1986).

Over the past few decades, SCT has become a cornerstone in public health and health promotion efforts, including chronic disease management, smoking cessation, physical activity, and oral health education. In his 2004 work, Bandura reinforced the pivotal role of self-efficacy—an individual's belief in their capacity to execute specific behaviors—in predicting and sustaining health-related behavior change. This refinement has made SCT particularly effective when designing interventions for vulnerable populations, including individuals recovering from SUD, who often face both internal and external barriers to change. SCT strongly supports interventions such as distributing oral health care kits paired with education, as they promote skill-building, encourage modeling through peer behaviors, and reinforce positive actions within a structured and supportive setting. As healthcare emphasizes holistic, person-centered care, SCT remains a relevant and adaptable framework for fostering self-care and long-term behavior change in populations with complex needs.

Literature Review of PDSA Change Model

The Plan-Do-Study-Act (PDSA) cycle, initially introduced by Walter A. Shewhart in 1939 and modified by W. Edwards Deming, is a foundational framework for continuous quality improvement (CQI) in healthcare settings. Deming's adaptation emphasized the importance of learning from results, leading to the current four-step model: Plan, Do, Study, and Act (Moen & Norman, 2015). This iterative process allows for testing changes on a small scale, assessing outcomes, and refining interventions to enhance patient care. In the context of SUD rehabilitation, the PDSA cycle offers a structured approach to address gaps in oral health care. Implementing oral health care kits and educational support aligns with the PDSA model by:

Plan*:* Identify oral hygiene as a priority, select appropriate tools and educational materials, and establish baseline data collection methods.

***Do**:* Implement the intervention with voluntary participants in a controlled setting.

***Study**:* Assessing outcomes such as improvements in oral hygiene knowledge, self-reported practices, and changes in self-esteem.

***Act**:* Determining whether the intervention should be expanded, modified, or repeated based on data analysis and participant feedback.

Recent studies underscore the efficacy of the PDSA cycle in improving healthcare practices. For instance, a systematic review by Cheung et al. (2018) found that 98% of PDSA-based quality improvement projects reported improvements, although only 27% met specific quantitative aims. This highlights the importance of rigorous design and documentation in achieving desired outcomes. Additionally, research by Langewitz et al. (2021) demonstrated the successful application of PDSA cycles in medical education, refining communication skills through iterative testing and feedback. By employing the PDSA cycle, this DNP project **ensured** that the oral health care intervention was responsive to the real-world challenges of the SUD population, aligned with quality improvement best practices, and could be adapted in future cycles based on outcome data and participant needs.

Summary

Research consistently demonstrates that individuals in SUD rehabilitation settings experience disproportionately high rates of dental disease, limited access to oral hygiene tools, and insufficient knowledge regarding proper oral care. These oral health challenges are frequently overlooked in recovery programs, despite their significant impact on physical well-being and psychosocial outcomes, such as self-esteem (Bernabé & Marcenes, 2022; Koh et al., 2017). The literature supports the implementation of simple, structured interventions, such as distributing oral health care kits paired with education, as practical strategies to improve oral

hygiene behaviors. For example, Hedges (2024) found that a universal oral hygiene initiative in inpatient rehabilitation settings, including staff training and providing oral hygiene kits, significantly improved patients' participation in self-care activities. This approach promoted better hygiene practices and enhanced patients' autonomy and dignity throughout recovery.

The theoretical foundation for this project is grounded in SCT, developed by Bandura (1986), which emphasizes the reciprocal interactions between personal factors, behavior, and environmental influences. Social cognitive theory highlights the importance of self-efficacy, observational learning, and reinforcement, particularly relevant in recovery environments where individuals may struggle with confidence and motivation. When individuals observe peers engaging in positive behaviors, receive encouragement from staff, and experience early success with self-care routines, they are more likely to adopt and sustain those behaviors (Bandura, 2004). In addition, the PDSA cycle was selected as the change model to guide implementation. Its adaptability and emphasis on continuous improvement make it well-suited to clinical environments such as SUD rehabilitation facilities, where patient needs and organizational dynamics can rapidly shift.

In summary, the literature reviewed for this project, the theoretical model, and the chosen quality improvement framework provided a strong, evidence-based justification for the DNP project. They collectively supported the feasibility, relevance, and potential impact of integrating oral health interventions into SUD rehabilitation programs to improve health outcomes and recovery experiences. The next chapter covers the methodology for this project.

Chapter 3: Methodology

This DNP quality improvement project focused on enhancing preventive oral health care among individuals undergoing treatment for SUD in an outpatient rehabilitation facility. Guided by the DNP essentials of improving population health and implementing evidence-based practice, this project aimed to fill a critical gap in care by promoting daily oral hygiene practices and increasing access to basic oral health resources within a high-risk population. This DNP project implemented a quality improvement initiative designed to enhance oral health outcomes among individuals with SUD in an outpatient treatment setting in southern Arizona. This project responded to a critical gap in care by addressing oral health, an often-neglected component of overall well-being in this population. Despite high rates of dental disease in this population, oral hygiene is often underprioritized in recovery programs, contributing to poor physical health, reduced self-worth, and lower quality of life. This project sought to address these challenges through a patient-centered, evidence-based approach that could be sustainably integrated into rehabilitation settings.

Clinical Questions

The following clinical questions guide this quality improvement project:

1. *Q1: Does providing oral health care kits, accompanied by educational materials, increase knowledge and awareness of oral health among individuals with substance use disorder in a rehabilitation facility over an 8-week intervention period?*
2. *Q2**:** For adults with SUD in a rehabilitation facility, does the distribution of oral health care kits, compared to no intervention, improve daily oral hygiene practices over 8 weeks?*

3. *Q3: For adults with substance use disorder in a rehabilitation facility, does addressing oral health care needs contribute to an increase in self-reported self-esteem over 8 weeks?*

Project Overview

To answer these questions, the project implemented a targeted oral health intervention that combined the distribution of oral hygiene kits with a brief, structured educational component tailored to individuals in recovery. The intervention empowered participants through increased access to resources and health literacy, promoted autonomy, and improved physical and psychosocial well-being. The independent variable of this project was the implementation of oral health care kits and oral health education. This project had three dependent variables: 1) Self-Reported Oral Health Knowledge – understanding of core oral hygiene principles and awareness of the effects of substance use on oral health; 2) Self-Reported Oral Hygiene Practices – frequency and consistency of daily activities such as tooth brushing and flossing; and 3) Self-Reported Self-Esteem – the extent to which participants perceived improved self-worth and confidence due to enhanced oral hygiene. This DNP project utilized outcome measures to evaluate the intervention's acceptability, usability, and short-term impact. This informed future efforts to integrate oral health into SUD treatment programs and supported the broader goals of health equity and recovery-oriented care.

VARIABLE	UNIT of MEASUREMENT	MEASUREMENT TOOL
Independent Variables		
Provision of Oral Health Care Kits	Number of kits distributed	Count of kits given to participants
Educational Component	Knowledge assessment	Pre- mid, and post-education self-reported survey/questionnaire on health knowledge
Dependent Variables		
Oral Hygiene Practices	Frequency of behaviors (e.g., brushing, flossing)	Self-reported survey/questionnaire (Likert scale)
Knowledge of oral health	Knowledge score	Pre- mid, and post-education survey/questionnaire on oral health knowledge
Quality of life/self esteem	Self reported survey	Oral Health Impact Profile- Rosenberg Self-Esteem Scale (RSES),
Oral health outcomes	Self reported survey	Impact or improvement of kit

Project Methodology

Quality Improvement (QI) is widely acknowledged as a critical approach for enhancing healthcare processes and outcomes. As Batalden and Davidoff (2007) noted, QI emphasizes the systematic use of data to identify areas of improvement, implement targeted changes, and assess the effectiveness of those interventions. In healthcare environments where systemic challenges must be addressed but traditional research methods (such as randomized controlled trials) may be impractical due to ethical concerns, resource limitations, or small sample sizes, QI provides a flexible and actionable framework. This methodology is especially valuable in settings like rehabilitation facilities, where it can address the specific healthcare needs of individuals with substance use disorders (SUD), such as the integration of oral health care into their recovery process.

For this DNP project, a pre-post intervention design has been chosen, allowing for a direct assessment of outcomes before and after the intervention. This design provides clear evidence of the impact of the oral health care kits and education on participants' oral hygiene behaviors, knowledge, and self-esteem. Polit and Beck (2021) highlight the value of the pre-post design in clinical settings, particularly when measuring changes in behavior or conditions due to a specific intervention within a manageable timeframe.

This design is feasible and efficient in real-world settings, such as rehabilitation facilities, where access to large sample sizes or randomized control groups may be limited. The pre-post design also lends itself well to assessing changes in health behaviors, as it allows for a direct comparison of data points, thereby making it easier to determine whether the intervention led to the desired changes in outcomes. Ultimately, this design aimed to evaluate the effectiveness of

implementing evidence-based strategies that improve care and health outcomes within a rehabilitation facility (Melnyk & Fineout-Overholt, 2023).

A qualitative or mixed-methods approach was not selected for this project due to its focus on quantifiable, specific outcomes. While qualitative methods are valuable for exploring participants' feelings and experiences, this DNP project sought to measure specific, measurable changes in oral hygiene knowledge, hygiene behaviors, and self-esteem. This project centered on evaluating an evidence-based intervention (oral health care kits and education), with the primary objective of assessing the intervention's impact rather than exploring participants' perceptions in depth. Furthermore, rehabilitation settings often present challenges regarding time and resources for conducting extended interviews or qualitative analysis. Given that quality improvement projects prioritized efficiency, practical implementation, and measurable change, a quantitative design was better suited to the goals of this project, enabling a streamlined and data-driven approach to assessing the effectiveness of the intervention (Melnyk & Fineout-Overholt, 2023).

Project Design

This QI project aimed to enhance oral health outcomes among individuals in a SUD rehabilitation facility. The intervention involved distributing oral health care kits and conducting brief educational sessions over 8 weeks. The independent variable was the oral health intervention itself, while the dependent variables were: (1) oral health knowledge, (2) daily oral hygiene behaviors, and (3) self-reported self-esteem.

To assess oral health knowledge and daily oral hygiene behaviors, the project utilized the Oral Health Knowledge, Attitude, and Behavior Questionnaire (OHKAB-Q) developed by Kumar and Sharma (2022). This self-administered tool comprised 39 items across four domains:

demographic characteristics (13 items), knowledge (11 items), attitude (8 items), and behavior (7 items). The knowledge domain evaluated participants' understanding of oral health, while the behavior domain assessed their oral hygiene practices. Responses were scored to quantify knowledge and behavior levels.

Self-esteem was measured using the Rosenberg Self-Esteem Scale (RSES). This widely validated 10-item scale assessed global self-worth by measuring positive and negative feelings about the self. Data were collected at baseline and after the 8-week intervention period. The OHKAB Questionnaire and RSES were administered at both time points to evaluate changes in knowledge, behavior, and self-esteem. The selection of these tools was supported by literature demonstrating their reliability and validity in assessing oral health-related constructs in similar populations.

Population and Sample Selection

The population of interest for this DNP project included adult individuals attending outpatient treatment at the SUD rehabilitation facility. This group was specifically chosen because they were likely to have poor oral health due to a history of substance use, inadequate oral care habits, and limited access to professional dental services during their period of active addiction. Additionally, oral health played a crucial role in the overall well-being and self-esteem of individuals, particularly those in recovery, making this a significant area of improvement.

This project's target population inclusion criteria included adults (ages 18 and older) who were in recovery or actively receiving treatment for SUD, were willing to participate in the intervention, could understand and communicate in English, were eager to participate in oral health education sessions, and were willing to use the oral health care kits. This population was chosen because poor oral health was prevalent among individuals with substance use disorders,

and providing oral health care kits and education had the potential to address their unmet needs, leading to improved hygiene behaviors, knowledge, and self-esteem.

The sample for this project consisted of a convenience sample of 86 individuals who met the inclusion criteria and verbally consented to participate. These individuals were selected based on their availability, willingness to participate in the study, eligibility, and alignment with the inclusion and exclusion criteria. The inclusion criteria included adult participants (age 18 or older) who were actively engaged in the rehabilitation process for SUD (outpatient participants) and could understand and communicate in English. They were willing to participate in oral health education sessions and use oral health care kits. The exclusion criteria included patients younger than 18 years old, individuals with severe cognitive impairments that prevented participation in the survey or educational sessions, those who were medically unstable or transitioning out of care during the data collection period, and participants who were uninterested in participating or refused to complete the necessary data collection tools.

Before recruiting participants, the DNP project obtained approval from the Institutional Review Board (IRB). The IRB reviewed the proposed project to ensure that ethical standards were met and participants' rights and confidentiality were protected. The DNP project also obtained approval from the leadership of the SUD rehabilitation facility where it took place. All parties received a signed site location agreement.

Once that occurred, staff and administrators provided a brief overview to explain the project's purpose, benefits, and procedures. The facility staff assisted in identifying eligible participants from the census of current residents. Participants were recruited through in-person invitations at the facility. The recruitment process included posting flyers in the facility's common areas, announcements during group sessions or education times, and one-on-one

engagement by staff. Interested participants were invited to a brief informational session where the project's purpose was explained, participation was described as voluntary and confidential, and verbal consent was given. This project fell under the QI initiative aimed at enhancing care within the facility. Typically, QI projects do not require formal informed consent because they are considered part of the routine clinical care process rather than research. The oral health care kits and educational materials were integrated into routine care. Therefore, no additional invasive procedures or experimental treatments were introduced that would necessitate informed consent in the traditional research sense. Even without the requirement for informed consent, all participant data were handled in compliance with HIPAA regulations to maintain confidentiality and anonymity throughout the project. The goal was to recruit a sample of 35–45 participants, allowing for meaningful pre- and post-intervention comparisons.

Sources of Data

This DNP project collected demographic and quantitative outcome data to evaluate the impact of an oral health intervention on individuals in a SUD rehabilitation facility. The data were gathered at two points—before the intervention (baseline) and after the intervention (post-intervention)—using validated instruments appropriate for the population and setting. There were several data types collected. The first was demographic data, which included age, gender, and ethnicity. This data was obtained to describe the sample and examine trends based on demographic subgroups.

Other data collected were related to the three outcomes. The first was oral hygiene knowledge. This was assessed through a self-reported questionnaire of participants' understanding of basic oral health principles, such as brushing techniques, flossing, the role of fluoride, and how substance use impacts oral health. The next was oral hygiene behaviors. This

data included a self-reported questionnaire of hygiene practices, including frequency of brushing/flossing, dental product use, and perceived barriers to oral care. Finally, self-esteem was measured, including self-reported measures of the participants' perceived self-worth and confidence, particularly related to their oral appearance and hygiene.

Several instruments and sources of data were used. First, a demographic questionnaire was administered. This instrument was a researcher-developed form tailored to the setting and was collected during baseline data collection. The format of this data source was paper or digital form (Jotform, data collection application) with closed-ended questions. Next, the Oral Hygiene Knowledge Questionnaire instrument was used, modified from existing oral health literacy tools, and was developed based on ADA guidelines. The format of this instrument consisted of yes/no questions from the *American Dental Association (2021). Oral Health Literacy Toolkit*.

The next instrument was the Oral Hygiene Practices Questionnaire, adapted from previous public health research tools. The content in this instrument consisted of the frequency of brushing, flossing, product use, and dental visits, and was also based on questions asked in a yes/no format. Finally, the Self-Esteem Assessment was conducted using the Rosenberg Self-Esteem Scale (RSES), a validated, 10-item Likert-scale tool widely used in health-related research. The questions ranged from strongly agree to strongly disagree on a four-point Likert scale (Rosenberg, 1965).

Validity and Reliability

This QI project utilized validated and reliable quantitative instruments to evaluate changes in oral health knowledge, hygiene practices, and self-esteem among individuals in a SUD rehabilitation setting. Each instrument was chosen based on its psychometric properties, relevance to the target population, and appropriateness for use in clinical environments.

Internal Validity

Internal validity ensured that an instrument accurately measured the intended construct. For this project, the RSES assessed self-esteem. It had demonstrated strong internal consistency and construct validity across diverse populations and settings, including clinical environments (Sinclair et al., 2010). Factor analyses consistently supported a unidimensional structure of the RSES, indicating that it effectively measured global self-esteem (Robins et al., 2001).

The Oral Health Knowledge, Attitudes, and Behavior Questionnaire (OHKAB-Q) evaluates oral health knowledge and hygiene behaviors. This tool was developed using expert input and validated through pilot testing and factor analysis. Its content validity index (CVI) is above 0.80, indicating acceptable content validity (Kumar & Sharma, 2022). It has been applied in adult populations with similar socioeconomic and educational profiles, making it relevant for SUD recovery settings.

External Validity

External validity refers to the generalizability of findings to other populations. The RSES has been translated into over 28 languages and validated in over 50 countries, including among individuals with substance use and behavioral health conditions, reinforcing its applicability in varied sociocultural contexts (Schmitt & Allik, 2005). Similarly, the OHKAB-Q has been applied in underserved communities, suggesting its usefulness in populations with limited dental care and health education (Kumar & Sharma, 2022).

Reliability

Reliability refers to the consistency of a measurement tool over time and across different contexts. The RSES has consistently demonstrated high internal consistency, with Cronbach's alpha values typically ranging from 0.77 to 0.88 in adult populations (Robins et al., 2001). Test–

retest reliability has also been established, with coefficients above 0.80 over two-week intervals (Blascovich & Tomaka, 1991).

The OHKAB-Q also demonstrates acceptable reliability. In a recent validation study, the instrument showed Cronbach's alpha values of 0.67 for the knowledge domain, 0.87 for attitudes, and 0.88 for behaviors, indicating good internal consistency (Kumar & Sharma, 2022). These reliability metrics exceed the widely accepted threshold of 0.70 for survey instruments used in health behavior research. By selecting tools with strong validity and reliability, this project ensures credible and interpretable measurement of the intervention's outcomes, enhancing the overall rigor and reproducibility of the quality improvement initiative.

Data Collection Procedures

The data collection process for this quality improvement project was carried out over an 8-week intervention period within a residential SUD rehabilitation facility. The goal was to evaluate the impact of a structured oral health care intervention on oral health knowledge, hygiene practices, and self-esteem among adult participants. The following step-by-step procedures were followed to ensure consistency, ethical integrity, and replicability.

Participant Recruitment:

Participants were recruited from residents who were enrolled in the SUD rehabilitation program. A project overview was presented during a scheduled group meeting, where interested individuals were invited to participate voluntarily.

Informed Consent:

This initiative was a QI project and did not meet the definition of human subjects research as outlined in the Belmont Report and 45 CFR 46.102(l). Specifically, the project was designed to evaluate and improve an internal care process and was not intended to contribute to

generalizable knowledge. Therefore, formal informed consent was not required. However, participants were notified of the project's purpose, were told that their participation was voluntary, and that their responses would be kept confidential. Verbal assent was obtained, and no identifiable personal information was collected or used in any public reporting of outcomes.

Data Collection Instruments:

Two tools were used to collect data:

1. OHKAB Questionnaire (Kumar & Sharma, 2022) – to assess oral health knowledge and hygiene behavior.
2. Rosenberg Self-Esteem Scale (RSES) – to measure self-esteem.

Data Collection Timeline and Procedure:

- Week 1 (Baseline): Participants completed the OHKAB Questionnaire and RSES. Each participant received a coded identifier to ensure confidentiality.
- Weeks 2–7: Participants received oral health care kits and an educational session. No formal data collection occurred during this period.
- Week 8 (Post-intervention): Participants completed the OHKAB Questionnaire and RSES again using their unique identifiers. They were guided through the questionnaires as needed.

***Data Security and Storage*:**

All hard-copy forms were stored in a locked cabinet at the facility during the data collection period. Digital data (after being entered into a secure, password-protected spreadsheet) were stored on an encrypted, access-controlled institutional drive. Per institutional policy, data will be retained for five years following the completion of the project. After five years, all digital

data will be permanently deleted, and paper documents will be shredded using a cross-cut shredder.

Variables and Comparison:

The independent variable was the oral health intervention (kits + education). The dependent variables were oral health knowledge (measured by the knowledge section of the OHKAB-Q), hygiene behavior (measured by the behavior section of the OHKAB-Q), and self-esteem (measured by RSES). Changes in these variables were calculated by comparing each participant's baseline and post-intervention scores. Analysis focused on detecting improvements in knowledge, hygiene practices, and self-esteem after the 8-week intervention.

Data Analysis Procedures

The data organization section included a description of the data collected and the data analysis. Quantitative data were entered into Intelletus for statistical analysis for this project. The data were cleaned and coded, and unique identifiers were assigned to maintain participant confidentiality. Data were analyzed using descriptive, inferential, and nonstatistical methods depending on the nature of the variables. The dependent variables were listed below, along with the type of analysis used to measure each outcome and the rationale for each. In addition, demographic data were also collected for this project to describe the patient population. The analysis type and rationale for choosing data analysis for the patient demographics were also listed below.

Variable	Analysis Type	Rationale
Oral health knowledge	Descriptive (means, frequencies), Inferential (paired t-test or Wilcoxon Signed-Rank Test)	To assess a statistically significant change in knowledge
Oral hygiene practices	Descriptive (frequency, cross-tabulation), Inferential (McNemar's test)	To determine a change in behaviors over time
Perceived self-esteem	Descriptive and Inferential (paired t-test)	To evaluate self-reported self-esteem
Demographics	Descriptive	To characterize the sample population

The data collection and analysis methods were directly aligned with the clinical questions guiding the project. Knowledge and hygiene practices were evaluated using validated pre-/post-questionnaire comparisons, enabling the project to measure the intervention's impact on key outcomes.

As listed above, this project included data analysis for each dependent variable and the patient demographics. Quantitative data analysis was applied using a combination of descriptive, inferential, and nonstatistical analysis methods to evaluate the impact of providing oral health care kits and education in a SUD rehabilitation setting. The analyses were selected based on the level of measurement for each variable and the nature of the clinical questions. All statistical analyses were conducted using Intellectus. The significance level for all tests was set using a two-tailed approach with $\alpha = 0.05$. A p-value less than .05 was considered statistically significant, indicating that observed changes were unlikely due to chance.

Descriptive statistics were used for patient demographic characteristics such as age, gender, and type of SUD, baseline oral hygiene knowledge scores, oral hygiene practices (e.g.,

frequency of brushing, flossing), and self-esteem. Frequencies and percentages were used for categorical variables (e.g., gender and SUD type), and measures of central tendency (mean, median) and dispersion (standard deviation, range) were reported for continuous and ordinal-level data (e.g., knowledge scores, Likert-scale responses). Descriptive statistics summarized the participant population and baseline values. These analyses were essential to understand the sample's characteristics and to inform further inferential testing.

Ethical Considerations

Ethical considerations were critical in any clinical or healthcare-related project, especially when working with vulnerable populations such as individuals with SUD. This DNP project incorporated several ethical safeguards to protect participants' rights, confidentiality, and well-being. One potential ethical issue involved the risk of data being shared outside the research team. All collected data were anonymized before analysis to mitigate this, preventing any direct link to participants' identities. Confidentiality was maintained by assigning unique identifiers to each participant instead of using names or other identifying information.

There was an inherent risk of privacy breaches if participant' identities were linked to their data. To prevent this, strict data handling procedures were followed. All digital data was stored in a secure, institution-approved, cloud-based database. In contrast, any paper-based data was locked in a secure file cabinet with access limited to authorized project personnel. Only the primary investigator and designated team members had access to the data. All data were destroyed once the study concluded and final analyses and reporting were completed. Digital data were securely erased using software such as Secure Erase or DBAN, and paper records were shredded to ensure they were unrecoverable.

Another important ethical issue was the possibility that participants might have felt coerced into participating, especially relevant in a rehabilitation facility where individuals may have perceived a need to comply with staff or feared that refusal could affect their treatment. To address this, participants were explicitly informed that their participation was entirely voluntary and that choosing not to participate would not impact their treatment or relationship with staff. Although formal informed consent was not required for this project, participants received clear and comprehensive information about the project's purpose, procedures, and voluntary nature.

This project adhered to the ethical principles outlined in the Belmont Report—respect for persons, beneficence, and justice (National Commission for the Protection of Human Subjects of Biomedical and Behavioral Research [NCPHS], 1979). These principles guided the ethical treatment of all participants, ensuring that the project promoted positive health outcomes while minimizing harm. Concrete actions were taken to align with these standards, including maintaining confidentiality, minimizing risk, providing transparent communication, and emphasizing voluntary participation.

After project completion, findings were compiled into a manuscript with an abstract, purpose, methodology, results, and conclusions. Efforts were then made to submit the manuscript to a peer-reviewed journal focused on oral healthcare. The submission process included journal selection, payment of associated fees, and revisions following peer review. Once accepted, the manuscript was published. An IRB letter of determination was included in the appendix of the final manuscript to confirm compliance with institutional ethical review.

By addressing these ethical considerations, the project ensured research integrity and upheld the rights and dignity of all participants involved. Even in a project like this, where participants were provided with educational materials and questionnaires, it was essential to

carefully consider potential ethical issues, particularly regarding informed consent, confidentiality, voluntary participation, and the vulnerable nature of the population. Through meticulous planning and addressing these concerns, the project maintained its ethical standards and avoided compromising the participants' well-being.

Limitations

Limitations for this project included generalizability, sample size, self-reports, lack of long-term follow-up, external factors, variability in participant engagement, and adherence. In addition, the conclusions drawn about the effectiveness of oral health kits might not have applied universally to all individuals with SUD, especially those in outpatient settings or with different levels of severity in their addiction.

Another limitation that presented itself was if the sample size was too small. The results may have lacked sufficient statistical power to detect meaningful differences or trends in the data. A small sample size could have led to Type II errors (failing to reject the null hypothesis when it should have been dismissed) or inaccurate conclusions. A smaller sample could have limited the ability to detect whether the oral health intervention significantly improved health behaviors or outcomes. In addition, since data were collected through self-reports, participants may have provided biased or inaccurate answers due to social desirability or recall bias. For example, participants may have over-reported positive behaviors (e.g., brushing teeth regularly) to please the research team or reduce the perceived stigma associated with oral health neglect.

The project only measured short-term outcomes (e.g., immediate changes in oral health behaviors after receiving the oral health kits), so it did not provide information on the long-term sustainability of the intervention. Participants may have initially improved their oral hygiene behaviors, but those behaviors might not have persisted once they left the rehab facility. Without

long-term follow-up, it was difficult to assess the effectiveness of the intervention over time or whether the behavior changes were sustained once the rehabilitation program was complete.

Health conditions, availability of dental care, social support, or access to additional healthcare resources may have influenced the outcomes. If these external factors were not controlled, they could have confounded the results, making it difficult to determine whether the oral health care kits themselves were responsible for any observed changes in oral health behavior.

The intervention focused solely on providing oral health kits. It did not address other underlying issues related to oral health in the SUD population, such as nutrition, mental health, access to professional dental care, or substance use relapse. A broad range of factors influenced oral health, and providing a kit alone might not have been sufficient to achieve lasting improvements.

Participants' engagement with the intervention (e.g., using the oral health kits as recommended) varied widely. Some individuals fully adhered to the suggested practices, while others did not, leading to inconsistent results. Adherence to the intervention depended on factors such as motivation, cognitive functioning, or perceived importance of oral health. Variability in engagement led to heterogeneous results, where some participants showed significant improvement, while others showed little to no change. This made it challenging to assess the overall effectiveness of the intervention.

Several potential limitations were identified that may have affected the outcomes and interpretation of the project. These included issues with external validity (limited generalizability to other SUD populations), small sample size, self-reported data (which may have been subject to bias), lack of long-term follow-up (to assess the sustainability of improvements), and external

factors such as the severity of addiction and access to professional care. Additionally, there was variability in participant engagement and adherence to the intervention, which could have influenced the results. Despite these limitations, the project's design was carefully crafted to provide valuable insights into the impact of oral health care kits within a rehabilitation context, emphasizing ethical considerations, transparency, and participant well-being.

Recognizing and addressing the project's limitations was crucial for interpreting and disseminating the findings. While these limitations may have impacted the generalizability or applicability of the results, they also provided a clear roadmap for future research. Discussing limitations transparently in the final manuscript demonstrated the project's rigor and ethical responsibility and suggested areas for improvement or further investigation.

Summary

This chapter outlined the design and methodology of the DNP quality improvement project aimed at enhancing oral health among individuals in a SUD rehabilitation facility. The project addressed a critical gap in preventive dental care for this underserved population by implementing a structured intervention consisting of oral health care kits and educational sessions. Key components included developing and distributing evidence-based oral hygiene kits, delivering targeted oral health education, and collecting pre- and post-intervention data using validated self-report instruments.

A detailed explanation of the data collection process, instrumentation, and strategies was provided to ensure the tools' internal and external validity and reliability. Ethical considerations and adherence to research standards were also described to ensure participant safety and project integrity. These methodological foundations supported a rigorous evaluation of the intervention's effectiveness in improving oral health knowledge, behaviors, and self-esteem.

The next chapter will present the data analysis and results. It will shift the focus from methodology to empirical findings, using descriptive and inferential statistics to assess the impact of the intervention. The project’s clinical questions will guided the analysis. They determined whether implementing oral health care kits and education significantly improved participants' oral hygiene practices and perceived self-esteem. The findings will inform future quality improvement efforts and contributed to the evidence base for integrated oral health interventions in SUD recovery settings.

References

American Dental Association. (2020). *Oral health care kits*. https://www.ada.org/en/member-center/oral-health-care-kits

American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). Arlington, VA: American Psychiatric Publishing.

Amiri, S., & Shekarchizadeh, H. (2021). Oral health-related quality of life among a group of patients with substance use disorders in rehabilitation treatment: A cross-sectional study. *BMC Oral Health, 21*(1), 409. https://doi.org/10.1186/s12903-021-01764-0

Bandura, A. (1977). *Social learning theory*. Englewood Cliffs, NJ: Prentice-Hall.

Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory*. Prentice-Hall.

Bandura, A. (2004). *Health promotion by social cognitive means*. Health Education & Behavior, 31(2), 143–164. https://doi.org/10.1177/1090198104263660

Batalden, P. B., & Davidoff, F. (2007). What is quality improvement and how can it transform healthcare? *Quality and Safety in Health Care, 16*(1), 2-3. https://doi.org/10.1136/qshc.2006.022046

Bernabé, E., & Marcenes, W. (2022). Periodontal disease and low self-esteem: A systematic review and meta-analysis. *Journal of Clinical Periodontology, 49*(4), 349–358. https://doi.org/10.1111/jcpe.13629

Blascovich, J., & Tomaka, J. (1991). Measures of self-esteem. In J. P. Robinson, P. R. Shaver, & L. S. Wrightsman (Eds.), *Measures of personality and social psychological attitudes* (pp. 115–160). Academic Press.

Carlsen, S.-E. L., Isaksen, K., Fadnes, L. T., Lygren, O. J. S., & Åstrøm, A. N. (2021). Non-financial barriers in oral health care: A qualitative study of patients receiving opioid maintenance treatment and professionals' experiences. *Substance Abuse Treatment, Prevention, and Policy, 16*(1), Article 44. https://doi.org/10.1186/s13011-021-00379-6

Chavez, K., Harris, R., & Williams, B. (2022). Patient engagement and quality improvement: A framework for implementing patient-centered care. *Journal of Clinical Nursing*, 31(7-8), 1189-1197. https://doi.org/10.1111/jocn.16398

Cheung, Y. Y., Riblet, N. B. V., & Osunkoya, T. O. (2018). Can quality improvement improve the quality of care? A systematic review of reported effects and methodological rigor in plan-do-study-act projects. *Journal of the American College of Radiology, 15*(11), 1587–1602. https://doi.org/10.1016/j.jacr.2018.06.007

Chung, K. H., Wong, M. C., & Lo, E. C. (2021). The efficacy of peer-led oral health programs based on Social Cognitive Theory and Health Belief Model among Hong Kong adolescents: A cluster-randomized controlled trial. *Journal of Behavioral Medicine, 44*(4), 533–543. https://doi.org/10.1007/s10865-021-00202-1

Cuberos, M., Chatah, E. M., Zegarra Baquerizo, H., & Weinstein, G. (2020). Dental management of patients with substance use disorder. *Clinical Dentistry Reviewed, 4*(1), 14. https://doi.org/10.1007/s41894-020-00078-8

D'Alessandro, M., Greene, K., & Hraber, M. (2025, March 17). *Making the connection to care: Oral health and substance use disorder*. National Academy for State Health Policy. https://nashp.org/making-the-connection-to-care-oral-health-and-substance-use-disorder/

Davis, L., Thompson, M., & Walker, P. (2023). Implementing evidence-based interventions in substance use rehabilitation programs: A quality improvement approach. *Journal of Substance Abuse Treatment*, 45(1), 56-64. https://doi.org/10.1016/j.jsat.2023.05.003

Drentea, P., Copes, H., & Valles, J. (2020). Hope, dignity, and oral health for women in recovery. *Contexts, 19*(2), 24–29. https://doi.org/10.1177/1536504220920198

Goel, R., Vyas, S., Choudhary, A., & Goel, D. (2019). Oral health status and treatment needs among individuals with substance use disorders in India: A cross-sectional study. *Journal of International Society of Preventive & Community Dentistry, 9*(6), 597–602. https://doi.org/10.4103/jispcd.JISPCD_326_19

Hanson, G. R., McMillan, S., Mower, K., Bruett, C. T., Duarte, L., Koduri, S., Pinzon, L., Warthen, M., Smith, K., Meeks, H., & Trump, B. (2019). Comprehensive oral care improves treatment outcomes in male and female patients with high-severity and chronic substance use disorders. *Journal of the American Dental Association, 150*(7), 591–601. https://doi.org/10.1016/j.adaj.2019.02.016

Hanson, G. R., Sood, M. P., & Yadav, M. (2019). Integration of oral health into substance use disorder treatment programs: Opportunities and challenges. *Journal of Substance Use, 24*(1), 56–62. https://doi.org/10.1080/14659891.2018.1490395

Halvari, H., & Halvari, A. (2023). The impact of oral health on self-esteem and quality of life: A systematic review. *Journal of Oral Rehabilitation, 50*(1), 1–10. https://doi.org/10.1111/joor.13189

Hedges, I., Flynn, B., Vujicic, M., Smith, A., Ward, L., & Tampio, C. (2024). Improving dental care access for vulnerable populations. *American Dental Association Health Policy Institute*. https://decisionsindentistry.com/2024/08/the-ada-and-adso-use-policy-reform-to-expand-dental-care-access-for-vulnerable-populations/

Jones, M., & Williams, J. (2015). The impact of oral health kits on preventive care in underserved populations. *Journal of Public Health, 42*(3), 202–210. https://doi.org/10.1016/j.jph.2015.05.003

Kisely, S., Baghaie, H., Forbes, M., & Siskind, D. (2017). A systematic review and meta--analysis of the association between poor oral health and substance abuse. *Addiction, 112*(5), 765–779. https://doi.org/10.1111/add.13712

Koh, H. K., Graham, G. R., & Glied, S. A. (2017). Improving access to oral health care: The role of public health. *American Journal of Public Health, 107*(9), 1453–1455. https://doi.org/10.2105/AJPH.2017.303957

Kumar, S., & Sharma, S. (2022). Development and validation of an oral health knowledge, attitudes, and behavior questionnaire among Indian adults. *Journal of Indian Association of Public Health Dentistry, 20*(2), 123–130. https://doi.org/10.4103/jiaapd.jiaapd_123_22

Langewitz, W., Pleines Dantas Seixas, U., Hunziker, S., Becker, C., Fischer, M. R., Benz, A., & Otto, B. (2021). Using the Plan-Do-Study-Act (PDSA) model for continuous quality improvement of an established simulated patient program. *GMS Journal for Medical Education, 38*(4), Doc81. https://doi.org/10.3205/zma001477

Melnyk, B. M., & Fineout-Overholt, E. (2023). *Evidence-based practice in nursing & healthcare: A guide to best practice*(4th ed.). Wolters Kluwer.

Moen, R. D., & Norman, C. L. (2015). Circling back: Clearing up myths about the PDSA cycle. *Quality Progress, 48*(1), 22–27.

Mohammadpour, M., & Gholami, M. (2021). Oral health-related quality of life: A review of measurement tools and their application in clinical practice. *Dental Research Journal*, *18*(1), 1–9. https://doi.org/10.4103/1735-3327.305255

National Academy for State Health Policy. (2025). Making the connection to care: Oral health and substance use disorder. https://nashp.org/making-the-connection-to-care-oral-health-and-substance-use-disorder/

National Commission for the Protection of Human Subjects of Biomedical and Behavioral Research. (1979). *The Belmont report: Ethical principles and guidelines for the protection of human subjects of research*. U.S. Department of Health, Education, and Welfare. https://www.hhs.gov/ohrp/regulations-and-policy/belmont-report/read-the-belmont-report/index.html

Paisi, M., Witton, R., & Plessas, A. (2021). Is there an association between drug use and oral health conditions? *Evidence-Based Dentistry, 22*(1), 46–47. https://doi.org/10.1038/s41432-021-0158-2

Polit, D. F., & Beck, C. T. (2021). *Nursing research: Generating and assessing evidence for nursing practice* (11th ed.). Wolters Kluwer.

Ponce-Gonzalez, I., Cheadle, A., Aisenberg, G., & Cantrell, L. F. (2019). Improving oral health in migrant and underserved populations: Evaluation of an interactive, community-based oral health education program in Washington state. *BMC Oral Health, 19*(1), 30. https://doi.org/10.1186/s12903-019-0723-7

Poudel, P., Kong, A. C., Hocking, S., Whitton, G., Srinivas, R., & Borgnakke, W. S. (2023). Oral health-care needs among clients receiving alcohol and other drugs treatment—a scoping review. *Drug and Alcohol Review, 42*(2), 346–366. https://doi.org/10.1111/dar.13568

Robins, R. W., Hendin, H. M., & Trzesniewski, K. H. (2001). Measuring global self-esteem: Construct validation of a single-item measure and the Rosenberg Self-Esteem Scale. *Personality and Social Psychology Bulletin, 27*(2), 151–161. https://doi.org/10.1177/0146167201272002

Rosenberg, M. (1965). *Society and the adolescent self-image*. Princeton University Press.

Rossow, I. (2021). Alcohol and other drug use and oral health: A review of the literature. *Addiction, 116*(8), 2073–2082. https://doi.org/10.1111/add.15389

Sadeghi, N., Shah, R., & Arnold, M. (2022). Leveraging quality improvement methodologies to enhance healthcare outcomes in underserved populations. *Health Care Management Review*, 47(4), 302-309. https://doi.org/10.1097/HMR.0000000000000328

Schmitt, D. P., & Allik, J. (2005). Simultaneous administration of the Rosenberg Self-Esteem Scale in 53 nations: Exploring the universal and culture-specific features of global self-esteem. *Journal of Personality and Social Psychology, 89*(4), 623–642. https://doi.org/10.1037/0022-3514.89.4.623

Sinclair, S. J., Blais, M. A., Gansler, D. A., Sandberg, E., Bistis, K., & LoCicero, A. (2010). Psychometric properties of the Rosenberg Self-Esteem Scale: Overall and across demographic groups living within the United States. *Evaluation & the Health Professions, 33*(1), 56–80. https://doi.org/10.1177/0163278709356187

Substance Abuse and Mental Health Services Administration. (2019). *Behavioral health and substance use disorders*. https://www.ahrq.gov/ncepcr/research/behavioral-health/index.html

Wang, Z., & Zaman, M. (2024). Barriers to oral health care in long-term and rehabilitative care settings: A systematic review. *Journal of Aging & Social Policy, 36*(1), 1–15. https://doi.org/10.1080/08959420.2023.2154567

Wilson, M. (2023). Behavioural medicine theory-based intervention strategies for promoting oral health. *Community Dentistry and Oral Epidemiology, 51*(1), 1–10. https://doi.org/10.1111/cdoe.12825

World Health Organization. (2022). *Achieving oral health for all through public health approaches, interprofessional, and transdisciplinary education*.https://nam.edu/achieving-oral-health-for-all-through-public-health-approaches-interprofessional-and-transdisciplinary-education/