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.

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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 Nursing Program Director.

ACCEPTED AND SIGNED

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Graduate Nursing Program Director

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Date

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DEDICATION

This manuscript is dedicated to my family, whose love, patience, and unwavering support made the completion of this journey possible.

Abstract

Substance use disorder (SUD) is associated with significant oral health complications due to poor hygiene practices, xerostomia, and the effects of substance use. Preventive oral health care is often overlooked in rehabilitation settings despite its impact on overall health, treatment engagement, and self-perception. This Doctor of Nursing Practice (DNP) quality improvement project evaluated the effect of implementing oral health education and distributing oral care kits in an outpatient rehabilitation facility. Participants received dental hygiene supplies and targeted education on proper oral care. A pre–post design using questionnaires assessed changes in oral health knowledge, hygiene practices, and self-esteem. Oral health knowledge scores remained stable, reflecting a high baseline level of awareness. Significant improvements were observed in oral hygiene practices. Self-esteem scores increased following the intervention; however, the change was not statistically significant, although it was clinically significant. Findings support integrating structured oral health interventions into comprehensive SUD rehabilitation programs to promote whole-person recovery and improve behavioral outcomes.

Keywords: oral health, substance use disorder, quality improvement, oral hygiene practices, self-esteem

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Chapter 1: Introduction to the Project

Oral health is a fundamental component of overall health and well-being; however, it remains frequently neglected in underserved populations, including individuals with substance use disorder (SUD). Poor oral health is associated with pain, infection, impaired nutrition, reduced self-esteem, and diminished quality of life, all of which may interfere with recovery and engagement in treatment. Individuals with SUD experience a disproportionate burden of oral disease due to factors such as xerostomia related to substance use, dietary changes, tobacco use, limited access to dental care, and decreased engagement in preventive health behaviors (World Health Organization [WHO], 2022; World Health Organization [WHO], 2023). Despite the well-established relationship between oral health and systemic health, oral health promotion is rarely integrated into routine care in outpatient rehabilitation settings. Nurses are uniquely positioned to address this gap through preventive education and low-cost interventions that align with holistic, patient-centered care models. This Doctor of Nursing Practice (DNP) quality improvement (QI) project focused on implementing a nurse-led oral health education intervention combined with the distribution of oral health care kits for adults with SUD in an outpatient rehabilitation program in Southern Arizona.

Background, Knowledge, and Significance

Substance use disorder is strongly associated with adverse oral health outcomes, including dental caries, periodontal disease, tooth loss, and oral infections. Substances such as methamphetamine, opioids, alcohol, and tobacco contribute to oral pathology through both physiological effects and behavioral mechanisms, including reduced salivary flow, bruxism, poor nutrition, and inconsistent oral hygiene practices (World Health Organization [WHO], 2023). In addition to these risk factors, individuals with SUD frequently encounter barriers to dental care, such as lack of insurance coverage, financial limitations, transportation challenges, stigma, and

competing priorities related to recovery and basic needs (World Health Organization [WHO], 2022).

Evidence suggests that preventive oral health education and access to basic hygiene supplies can improve oral health knowledge, attitudes, and self-care behaviors in underserved populations (Selvarajetal, 2022). Nurse-led educational interventions have been shown to be effective in promoting preventive health behaviors and addressing social determinants of health within community and outpatient settings (Polit & Beck, 2021). However, there remains a gap in the literature on the implementation and evaluation of structured oral health interventions in outpatient SUD treatment programs. Integrating oral health promotion into recovery-focused care supports a whole-person approach to health and aligns with national and global health equity priorities (WHO, 2022).

Problem Statement

Adults with substance use disorder enrolled in outpatient rehabilitation programs frequently experience poor oral health and limited access to preventive dental services. Oral health education and basic oral hygiene resources are not routinely incorporated into outpatient SUD treatment, resulting in missed opportunities to improve oral health knowledge, behaviors, and psychosocial outcomes. The lack of standardized nurse-led oral health interventions in these settings is a gap in clinical practice that may negatively affect overall health, self-esteem, and recovery outcomes.

Purpose of the Project

The purpose of this DNP QI project was to evaluate the effectiveness of a nurse-led oral health education intervention combined with the distribution of oral health care kits on oral health knowledge, behaviors, and self-esteem among adults with substance use disorder

participating in an outpatient rehabilitation program in Southern Arizona. This project addressed a gap in clinical practice by integrating preventive oral health education and providing oral health supplies into routine outpatient SUD treatment to support holistic, recovery-oriented care.

A quantitative, pre–post quasi-experimental design was used to achieve the project aims. Adult participants enrolled in the outpatient rehabilitation program completed self-reported questionnaires before and after receiving the nurse-led oral health education and oral health care kits. The intervention consisted of standardized education focused on oral hygiene practices, oral disease prevention, and the relationship between oral health and overall well-being, along with the provision of oral health care kits to support daily self-care. The population studied included adults actively engaged in outpatient substance use disorder treatment at a single clinical site in Southern Arizona.

The PICOT question guiding this DNP project was: In adults enrolled in a substance use disorder rehabilitation facility (P), how did 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 a critical gap in oral health care for individuals with SUD by promoting improved oral hygiene, enhancing self-esteem, and ultimately supporting overall recovery and quality of life.

The independent variable in this project was the implementation of a nurse-led oral health education intervention, which included distributing oral health care kits. The dependent variables included oral health knowledge and behaviors, as measured by the Oral Health Knowledge, Attitudes, and Behaviors (OHKAB) instrument (Selvarajetal, 2022), and self-esteem, as measured by the Rosenberg Self-Esteem Scale (Rosenberg, 1965). The relationship between the

variables was examined by comparing pre- and post-intervention outcomes within the same participant group. This purpose statement aligns with the project PICOT question and is used consistently throughout the manuscript to guide implementation and evaluation.

Clinical Questions

Q1: Did 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?

*Q2**:** For adults with SUD in a rehabilitation facility, did the distribution of oral health care kits, compared to no intervention, improve daily oral hygiene practices over eight weeks?*

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 eight weeks?

Significance of the Project

This project is significant to nursing practice, education, and population health. Nurses play a critical role in preventive care and health promotion, particularly for vulnerable populations with limited access to traditional dental services (American Association of Colleges of Nursing [AACN], 2021). By integrating oral health education into outpatient SUD treatment, nurses can address an important but often overlooked determinant of health. Improvements in oral health knowledge and behaviors may reduce oral disease burden, enhance comfort and function, and support psychosocial well-being, including self-esteem (World Health Organization [WHO], 2022). In addition, this project contributes practice-based evidence on feasible, low-cost oral health interventions that can be sustained in rehabilitation settings, thereby supporting nurses' leadership in quality improvement initiatives.

Rationale for Methodology

A quantitative pre–post quasi-experimental design was selected to evaluate changes in outcomes following the intervention's implementation. This methodology was appropriate because the project focused on improving clinical practice within a specific outpatient rehabilitation setting rather than testing a new intervention under experimental conditions. Quality improvement designs are commonly used in DNP projects to assess practice change, feasibility, and patient-centered outcomes in real-world clinical environments (Institute for Healthcare Improvement [IHI], 2023).

Pre–post designs are particularly well-suited for evaluating educational and behavioral interventions when the same participants are measured before and after an intervention, allowing each participant to serve as their own control (Polit & Beck, 2021). This approach reduces interparticipant variability and supports the detection of meaningful change over time. In addition, quantitative methods are appropriate when outcomes such as knowledge, behaviors, and self-esteem are measured with validated instruments and analyzed statistically to evaluate change following an intervention (Melnyk & Fineout-Overholt, 2023). The selected methodology aligned with the project aims, the clinical setting, and the principles of quality improvement, supporting timely evaluation and translation of findings into practice.

Definition of Terms

Substance use disorder is defined as a chronic, relapsing condition characterized by the compulsive use of substances despite harmful consequences, consistent with definitions used in contemporary clinical and public health literature (Substance Abuse and Mental Health Services Administration [SAMHSA], 2023). Oral health is defined as a state of the mouth, teeth, gums, and related structures that enables individuals to eat, speak, and socialize without pain, disease,

or discomfort, as described by the World Health Organization (WHO, 2023). Oral Health Knowledge, Attitudes, and Behaviors (OHKAB) is a multidimensional construct used to assess individuals' understanding of oral health concepts and their engagement in self-reported oral hygiene practices, as operationalized in the OHKAB instrument (Selvarajetal, 2022). Quality improvement is the systematic use of data-driven activities to improve health care processes and outcomes within specific clinical settings, emphasizing real-world applicability and sustainability (Institute for Healthcare Improvement [IHI], 2023). Self-esteem is defined as an individual's overall evaluation of self-worth and self-respect, as conceptualized in the empirical literature and operationalized by the Rosenberg Self-Esteem Scale (Rosenberg, 1965).

Assumptions

This project assumed that participants provided honest and accurate responses on self-reported questionnaires. It was also assumed that the oral health education was delivered consistently and that participants possessed the cognitive ability to understand and apply the information provided during the intervention period.

Limitations

The project had several limitations. Using a pre–post design without a comparison group limits the ability to establish causality. Outcomes were based on self-reported measures, which may be influenced by recall or social desirability bias. In addition, the project was conducted at a single outpatient rehabilitation site, which may limit the generalizability of the findings to other settings or populations.

Delimitations

This project was deliberately limited to adults with SUD enrolled in one outpatient rehabilitation program in Southern Arizona. The intervention focused on preventive oral health

education and the provision of basic oral hygiene supplies and did not include clinical dental treatment or long-term follow-up beyond the project period.

Summary

Chapter 1 provided an overview of the problem of poor oral health among adults with substance use disorder and the lack of integrated oral health interventions within outpatient rehabilitation settings. The background and significance of the problem were discussed, followed by the purpose, clinical questions, and methodological rationale for the DNP quality improvement project. By addressing an identified practice gap through a nurse-led oral health intervention, this project aimed to improve oral health knowledge, behaviors, and self-esteem while supporting holistic, recovery-oriented care. Chapter 2 reviews the current literature on oral health among individuals with substance use disorders, nurse-led preventive interventions, and evidence supporting oral health education and quality improvement initiatives in outpatient settings.

Chapter 2: Literature Review

Oral health disparities among individuals with substance use disorder (SUD) represent a persistent and under-addressed problem in outpatient rehabilitation settings. Adults receiving treatment for SUD experience high rates of dental caries, periodontal disease, xerostomia, and tooth loss, conditions that contribute to pain, infection, impaired nutrition, and diminished quality of life (Shekarchizadeh et al., 2013; World Health Organization [WHO], 2022). These oral health challenges may negatively affect treatment engagement and recovery outcomes. Despite frequent contact with health care providers in outpatient rehabilitation programs, oral health education and preventive interventions are not routinely integrated into standard care, thereby missing opportunities to address a significant determinant of health (Centers for Disease Control and Prevention [CDC], 2023).

The literature on oral health among individuals with SUD reflects growing recognition of its essential role in overall health and recovery. Research has examined the burden of oral disease in this population, barriers to accessing dental care, and the role of non-dental health professionals in delivering preventive oral health interventions. Evidence from nursing, public health, and behavioral science literature suggests that nurse-led educational interventions, particularly those grounded in behavioral theory and supported by access to hygiene resources, may improve oral health knowledge, promote positive hygiene behaviors, and support psychosocial well-being (Bandura, 1986; Kay & Locker, 1996; Proctor et al., 2011).

A structured literature review was conducted in CINAHL, PubMed/MEDLINE, Scopus, and Google Scholar, with emphasis on peer-reviewed sources published in the last five years and on seminal works, as needed to support the theoretical foundations.

Theoretical Foundation/Social Cognitive Theory

Bandura's Social Cognitive Theory (SCT) provided the primary theoretical foundation for the project. SCT explains health behavior as the product of reciprocal interactions among personal factors (e.g., knowledge and beliefs), behavioral patterns (e.g., daily hygiene practices), and environmental influences (e.g., access to supplies and supportive care) (Bandura, 1986). SCT is widely applied in health education because it explains how individuals acquire behavior through observational learning, reinforcement, and self-efficacy, or the belief in one's capacity to perform a behavior under specific conditions (Bandura, 1986, 1997).

Self-efficacy is central to the adoption and maintenance of behavior. For adults with SUD, oral hygiene routines may be inconsistent due to competing recovery priorities, limited resources, and prior negative healthcare experiences. Educational interventions that provide clear skills, realistic goals, and reinforcement can strengthen self-efficacy and increase the likelihood of sustained preventive behaviors. Contemporary studies and reviews in oral health education continue to emphasize self-efficacy and other SCT-related constructs as mechanisms for improving oral hygiene behaviors and related outcomes (He et al., 2024; Taheri et al., 2025).

SCT also underscores the importance of environmental supports. In this DNP project, distributing oral health care kits addressed a practical barrier by increasing access to toothbrushes, toothpaste, and related supplies, thereby facilitating translation of knowledge into action. This pairing of education with environmental support aligns with SCT's reciprocal determinism: individuals are more likely to enact and sustain a behavior when the environment makes the desired action feasible (Bandura, 1986).

Framework/PDSA

The project was also guided by QI principles to support implementation and evaluation in a real-world outpatient setting. The Plan–Do–Study–Act (PDSA) cycle provides a structured approach to testing and refining practice changes, guided by data to drive iterative improvement (Institute for Healthcare Improvement [IHI], 2023). In this project, SCT informed the educational and behavioral mechanisms of change, whereas the QI framework supported pragmatic implementation, outcome measurement, and the translation of results into sustainable practice.

Review of the Literature

Theme 1: Oral Health Burden and Access Barriers Among People With SUD

Recent evidence and national reports indicate that oral disease is highly prevalent and inequitably distributed, with vulnerable populations experiencing a disproportionate burden and reduced access to care (WHO, 2022; Jain, 2024). People with SUD face elevated risk for dental caries, periodontal disease, xerostomia, oral infections, and tooth loss, driven by substance-related physiological effects and behavioral factors such as inconsistent hygiene, high-sugar diets, and tobacco use (Alqarni et al., 2024; Smeda et al., 2025). Methamphetamine use has been repeatedly associated with severe oral manifestations (“meth mouth”), including rampant caries, xerostomia, bruxism, and poor oral hygiene, with recent reviews and case-based literature emphasizing both the severity and the clinical management challenges (Alqarni et al., 2024; Skrypnyk et al., 2025). Opioid use is also linked with dental morbidity and functional limitations, suggesting that oral health consequences extend across substance classes (Smeda et al., 2025).

The Agency for Healthcare Research and Quality (AHRQ) has identified persistent barriers to dental care among individuals with substance use disorder, including limited

insurance coverage, cost, transportation challenges, stigma, and competing recovery-related priorities (AHRQ, 2025; Poudel et al., 2023). AHRQ's rapid response review identified limited but concerning evidence gaps regarding the effectiveness of dental services for people with SUD and highlighted the need for better-integrated, accessible approaches across the continuum of SUD care (AHRQ, 2025). Collectively, these findings support the practice rationale for embedding preventive oral health strategies within outpatient rehabilitation settings, where contact is frequent, and support systems already exist.

Theme 2: Oral Health, Mental Health, and Psychosocial Outcomes

Oral health is increasingly recognized as intertwined with mental health and overall well-being. Population-based and clinical studies demonstrate associations between oral health behaviors, self-rated oral health, and mental health outcomes, including depressive symptoms and psychosocial functioning (Heaton et al., 2024; Takeuchi et al., 2026). In clinical populations, poorer oral health status is associated with worse oral health–related quality of life, underscoring the impact of oral disease on daily functioning and well-being (Flavin et al., 2025). Although direct evidence linking oral health interventions to self-esteem outcomes in adults with SUD remains limited, the broader literature supports the plausibility that improvements in self-care behaviors and perceived health can positively influence psychosocial outcomes.

Self-esteem is commonly conceptualized and measured as a global evaluation of self-worth, frequently operationalized using the Rosenberg Self-Esteem Scale (Rosenberg, 1965). Contemporary validation studies continue to support the scale's reliability and construct validity across populations (Moksnes et al., 2024). In DNP projects evaluating patient-centered outcomes, including self-esteem as a psychosocial indicator, is consistent with holistic care models that emphasize both functional and emotional well-being.

Theme 3: Nurse-Led Oral Health Education and Preventive Interventions in Non-Dental Settings

The nursing literature supports an expanded role for nurses in oral health promotion, particularly in settings with limited dental services. A recent systematic review described evolving nursing responsibilities in oral care and identified education, workflow integration, and interdisciplinary collaboration as key facilitators of improved oral health practices (Barzoki et al., 2025). Community and outpatient settings offer opportunities for nurse-led preventive interventions that can be incorporated into routine care with minimal disruption.

Educational interventions can improve oral health knowledge and support behavior change, especially when paired with practical tools. While some nurse-led oral hygiene programs have been studied in pediatric populations, the broader implications are transferable: structured education can improve knowledge and hygiene practices when interventions are feasible, acceptable, and reinforced over time (Mohamed et al., 2024). For adults in outpatient rehabilitation, combining nurse-led education with the distribution of oral hygiene supplies aligns with evidence that access barriers contribute to poor self-care behaviors and that low-cost, supportive interventions can improve preventive practices (Fisher et al., 2023).

Theme 4: Theory-Based Education, Behavior Change Mechanisms, and Intervention Fidelity

A consistent trend across oral health education research is the value of theory-based interventions. Reviews of psychological and behavioral approaches show improvements in oral health behaviors and related cognitive factors, including self-efficacy, particularly over the short term (He et al., 2024). Recent randomized and quasi-experimental studies similarly emphasize the role of self-efficacy and structured education in improving oral hygiene behaviors (Taheri et

al., 2025). These findings align directly with SCT and support the use of self-efficacy–consistent strategies, such as skills teaching, modeling, reinforcement, and goal setting.

Implementation literature also highlights intervention fidelity as a determinant of outcome validity and sustainability. Evaluations of complex behavior change interventions in oral health settings demonstrate the importance of standardized delivery, training, and monitoring to ensure that observed outcomes reflect the intervention rather than implementation variability (Lowers et al., 2025). For nurse-led outpatient rehabilitation programs, consistent educational content and standardized kit components enhance interpretability and support future scaling.

Theme 5: Quality Improvement Designs for Practice Change in Outpatient Settings

Quality improvement methodologies are commonly used to evaluate practice change when randomization or control groups are not feasible. Pre–post designs enable within-participant comparisons, are practical in clinical settings, and are frequently used in DNP projects to assess changes in knowledge, behaviors, and patient-centered outcomes following implementation (Melnyk & Fineout-Overholt, 2023). QI frameworks, such as PDSA, provide a structured approach for planning, testing, evaluating, and sustaining practice changes (IHI, 2023). Collectively, this literature supports selecting a quantitative pre–post quasi-experimental design to evaluate changes in oral health knowledge, hygiene behaviors, and self-esteem following a nurse-led intervention in an outpatient rehabilitation program.

Summary

The literature synthesized in this chapter demonstrates a persistent and clinically meaningful practice problem: adults with SUD experience a substantial oral health burden and face barriers to preventive dental care, and oral health challenges are intertwined with functional

and psychosocial well-being (AHRQ, 2025; Poudel et al., 2023; WHO, 2022). Evidence across public health, clinical, and nursing literature supports the feasibility and value of integrating preventive oral health education into non-dental settings, particularly when interventions address behavioral mechanisms and environmental barriers (Barzoki et al., 2025; Fisher et al., 2023). Theory-based education, especially approaches consistent with Social Cognitive Theory, supports improvements in knowledge and health behaviors through constructs such as self-efficacy and reciprocal determinism (Bandura, 1986; He et al., 2024; Taheri et al., 2025).

Collectively, this evidence provides the foundation for the DNP project's problem statement and supports the need for a nurse-led oral health intervention in an outpatient rehabilitation program. The clinical questions derived from this synthesis are: over an eight-week period, does participation in a nurse-led oral health education intervention with distribution of oral health care kits improve oral health knowledge, self-reported oral hygiene behaviors, and self-esteem among adults with SUD? The project uses a quantitative pre–post quasi-experimental design guided by PDSA to evaluate changes in these outcomes in a single-group outpatient population (IHI, 2023; Melnyk & Fineout-Overholt, 2023). The independent variable is the implementation of the nurse-led education plus oral health kit distribution, and the dependent variables are oral health knowledge and self-reported oral hygiene behaviors measured using the OHKAB instrument (Selvaraj et al., 2022) and self-esteem measured using the Rosenberg Self-Esteem Scale (Rosenberg, 1965; Moksnes et al., 2024).

Chapter 3 builds on this foundation by describing the project setting, population, recruitment approach, intervention procedures, data collection instruments, data management, and analytic methods used to evaluate pre–post changes over the eight-week project period.

Chapter 3: Methodology

This DNP project addressed a persistent practice problem in outpatient SUD treatment: the lack of routine, structured oral health education and preventive oral hygiene support despite the high burden of oral disease in this population. Adults with SUD frequently experience poor oral health outcomes that can contribute to pain, infection, impaired nutrition, and diminished self-esteem, which may interfere with engagement in treatment and recovery. Although outpatient rehabilitation programs provide regular patient contact, oral health promotion is not consistently integrated into standard care, creating a gap in holistic, recovery-oriented practice. This project was designed to address this gap through a nurse-led oral health education intervention combined with the distribution of oral health care kits.

Clinical Questions

The following clinical questions guided this quality improvement project:

Q1: Did 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?

*Q2**:** For adults with SUD in a rehabilitation facility, did the distribution of oral health care kits, compared to no intervention, improve daily oral hygiene practices over eight weeks?*

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

Project Methodology

A quantitative methodology with a quasi-experimental design was selected for this project. Quantitative methods are appropriate when the purpose of a project is to measure change in

predefined outcomes using numerical data and validated instruments (Polit & Beck, 2021; Melnyk & Fineout-Overholt, 2023). A quasi-experimental design was appropriate because participants were not randomly assigned to intervention and control groups, and the project was conducted in a natural clinical setting where withholding the intervention was neither practical nor ethical. Quasi-experimental designs are commonly used in quality improvement initiatives to evaluate practice changes in real-world settings without randomization (Polit & Beck, 2021). Quality improvement projects are inherently quantitative, as they focus on evaluating practice change and outcomes in clinical settings rather than generating generalizable theory.

Qualitative methodologies were not selected because the project did not aim to explore perceptions, experiences, or meanings related to oral health behaviors. Mixed-methods approaches were also not chosen, as adding qualitative data collection would not directly address the project's clinical questions and would increase complexity without a corresponding benefit. The selected quantitative methodology enabled systematic measurement of changes in oral health knowledge, oral hygiene behaviors, and self-esteem, thereby directly aligning with the clinical questions.

Project Design

A quantitative methodology guided this project. Within this methodological framework, a quasi-experimental pre–post design was used to evaluate changes in outcomes following the intervention's implementation. Baseline data were collected before the intervention and compared with follow-up data obtained after the eight-week intervention period using the same participants. Pre–post quasi-experimental designs are commonly used in quality improvement initiatives when randomization or control groups are not feasible and when the goal is to assess change over time within a defined clinical population (Institute for Healthcare Improvement

[IHI], 2023; Polit & Beck, 2021). This design allowed each participant to serve as their own comparison, reducing interparticipant variability and supporting the detection of meaningful change.

The independent variable was participation in a nurse-led oral health education intervention combined with the distribution of a standardized oral health care kit containing a toothbrush, toothpaste, dental floss, mouthwash, and lip balm. The dependent variables included oral health knowledge, self-reported oral hygiene behaviors, and self-esteem. These variables were selected to align with the project's clinical questions and to evaluate both cognitive and behavioral outcomes

Data for each variable were collected using validated self-report instruments selected based on alignment with the clinical questions and prior use in the literature. To assess oral health knowledge and daily oral hygiene behaviors, the project utilized the Oral Health Knowledge, Attitude, and Behavior Questionnaire (OHKAB-Q) developed and validated by Selvaraj et al. (2022). This self-administered tool comprises 39 items across four domains: demographic characteristics, knowledge, attitude, and behavior. For this project, only the knowledge and behavior domains were administered and analyzed, as they directly aligned with the clinical questions. A copy of the instrument is provided in Appendix E.

Self-esteem was measured using the Rosenberg Self-Esteem Scale (RSES). The RSES is a widely validated 10-item scale that assesses global self-worth by measuring positive and negative self-feelings (Rosenberg, 1965). A copy of the instrument is provided in Appendix E.

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.

Table 1
Project Variables

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

Note. The independent variable represents exposure to the nurse-led oral health education intervention combined with oral health care kit distribution. Dependent variables were measured at baseline and post-intervention using validated self-report instruments.

Population and Sample Selection

The project setting was an outpatient rehabilitation program located in Southern Arizona that provides treatment services for adults with SUD. Written authorization to conduct the project at the participating outpatient rehabilitation facility was obtained prior to implementation. Documentation of the site agreement is provided in Appendix A. The population of interest consisted of adults actively enrolled in outpatient SUD treatment at the site during the project period. The target population included individuals who were cognitively able to complete self-administered questionnaires.

A convenience sample was used. All eligible adults attending the outpatient program during the project implementation period were invited to participate. Recruitment materials, including the project brochure, are provided in Appendix D. Inclusion criteria included age 18 years or older, enrollment in outpatient SUD treatment, and the ability to read and understand English. Exclusion criteria included age younger than 18 years, individuals not enrolled in the outpatient substance use disorder rehabilitation program, and cognitive impairment that would interfere with understanding the educational content or completing questionnaires.

An a priori power analysis was conducted to estimate the minimum sample size required to detect meaningful change using a pre–post design. Based on an anticipated medium effect size, a significance level of .05, and a power of .80, a minimum sample size of 34 participants was recommended. However, 52 participants completed both pre- and post-intervention questionnaires, exceeding the required sample size.

This DNP project did not require informed consent because it was designed to evaluate a practice change through voluntary participation, and only de-identified data was provided to the project lead. There was no direct interaction between the participants and the project lead. Participation was voluntary, and refusal to participate did not affect access to site services. No participants were excluded after enrollment.

Sources of Data and Instrumentation

Data were collected using self-administered questionnaires completed before and after the intervention. Oral health knowledge and oral hygiene behaviors were measured using the Oral Health Knowledge, Attitudes, and Behaviors (OHKAB) instrument. Self-esteem was measured using the Rosenberg Self-Esteem Scale.

The OHKAB instrument was developed to assess oral health knowledge and self-reported behaviors among adults and has demonstrated acceptable validity and reliability in prior studies (Selvaraj et al., 2022). The instrument comprises multiple items assessing knowledge of oral health concepts and the frequency of oral hygiene practices. Scores are calculated by summing item responses, with higher scores indicating greater knowledge and more consistent hygiene behaviors.

The Rosenberg Self-Esteem Scale is a widely used measure of global self-esteem consisting of 10 items rated on a Likert-type scale. The scale has demonstrated strong internal consistency and construct validity across diverse populations (Moksnes et al., 2024). Higher scores indicate greater self-esteem. Permission to use both instruments was obtained and is included in the appendices.

Validity

Internal validity was supported by a standardized intervention, consistent data-collection procedures, and validated measurement instruments. Using the same participants for pre- and post-intervention measurement minimized selection bias and supported assessment of change over time. External validity was limited using a single clinical site and a convenience sample; however, the project population reflects typical outpatient SUD treatment settings, supporting relevance to similar clinical environments.

The OHKAB instrument has demonstrated content and construct validity in adult populations, while the Rosenberg Self-Esteem Scale has extensive evidence supporting its validity as a measure of global self-esteem (Selvaraj et al., 2022; Moksnes et al., 2024).

Reliability

Reliability was supported through use of established instruments with documented internal consistency. In validation studies, the Oral Health Knowledge, Attitude, and Behavior Questionnaire (OHKAB-Q) demonstrated acceptable internal consistency, with reported Cronbach's alpha coefficients of .79 for the relevant domains (Selvaraj et al., 2022). The Rosenberg Self-Esteem Scale has consistently demonstrated strong internal reliability, with Cronbach's alpha values typically ranging from .77 to .88 across diverse populations (Moksnes et al., 2024). Consistent administration of the instruments at both the pre- and post-intervention phases further supported reliability in this quality improvement project.

Data Collection Procedures

Data collection occurred over an eight-week period. At baseline, participants completed pre-intervention questionnaires before receiving nurse-led oral health education and standardized oral health care kits. The baseline assessment measured participants' oral health knowledge, self-reported hygiene behaviors, and self-esteem prior to intervention exposure.

Following completion of baseline measures, participants attended the education session delivered by the project lead and received their oral health care kits. The kits and associated supplies were funded through a donation from Delta Dental, with coordination and financial facilitation provided by Dr. Hoover, who served as the project's content expert. Distribution of the kits occurred immediately following the education session to reinforce application of the instructional content.

Throughout the eight-week implementation period, participants were encouraged to apply the educational material and utilize the provided supplies as part of their daily oral hygiene

routines. Informal reinforcement occurred during routine clinic interactions to support adherence to recommended practices.

At the conclusion of the eight-week period, participants completed the post-intervention questionnaires using the same validated instruments administered at baseline. Using identical pre- and post-intervention measures enabled direct comparisons of outcomes over time within the same participants.

All data were collected anonymously using unique identifiers assigned at baseline. No personal identifying information was recorded. Completed questionnaires were entered into a secure, password-protected electronic file accessible only to authorized personnel. Data will be retained for the institutionally required period and subsequently destroyed in accordance with established data security policies.

Data Analysis Procedures

Questionnaires were administered electronically via a secure online survey platform. Responses were exported to a secure database and screened by the project lead for completeness and accuracy prior to analysis. Descriptive statistics were used to summarize demographic characteristics, including age, gender, and race/ethnicity, as well as baseline outcome measures. Inferential statistical analyses were conducted to evaluate changes in oral health knowledge, self-reported oral hygiene behaviors, and self-esteem over time. Paired-samples *t*-tests were used to analyze changes in continuous outcome variables, including oral health knowledge scores and self-esteem scores. Changes in categorical oral hygiene behaviors were analyzed using chi-square tests. Statistical significance was established a priori at $p < .05$, consistent with conventional standards for inferential analysis (Polit & Beck, 2021). Data analysis was conducted using Intellectus Statistics software.

Ethical Considerations

This QI project was reviewed and approved by the Midwestern University Institutional Review Board (IRB) and the participating outpatient rehabilitation facility prior to implementation. The project was classified as a quality improvement initiative rather than human subjects research. Documentation of the IRB determination is provided in Appendix C.

Participation was voluntary, and participants were informed by the site leadership of the project's purpose and procedures, as well as their right to decline participation without penalty or impact on their treatment services. Completion of the pre- and post-intervention questionnaires implied consent to participate. Written informed consent was not required because the intervention posed minimal risk and was classified as a QI initiative.

To protect confidentiality, no identifying information was collected on questionnaires. Data were stored securely in password-protected electronic files accessible only to the project investigator. All data were reported in aggregate form to prevent identification of individual participants.

The intervention posed minimal risk, as it consisted solely of oral health education and provision of standard oral hygiene supplies consistent with routine preventive health practices. No experimental procedures or alterations to clinical treatment were introduced. The project was reviewed by the institutional review board and determined to meet the criteria for quality improvement rather than human-subject research; therefore, formal research consent was not required (see Appendix C).

Although written research consent was not required, participants were informed of the project's purpose and voluntary nature prior to completing the questionnaire. Participation was optional, and individuals could decline to complete questionnaires without affecting their

treatment services. Confidentiality was maintained by using unique identifiers, and no personally identifiable information was collected. Data were stored in a secure, password-protected electronic file in accordance with institutional policies.

Limitations

Several limitations should be considered when interpreting the project findings. Methodological limitations included the absence of a control group and reliance on a pre–post design, both of which limit causal inference. Sample-related limitations included the use of a convenience sample from a single outpatient site, which may affect generalizability. Instrumentation limitations included reliance on self-reported data, which may be subject to response bias. Data analysis limitations included a limited ability to control for confounding variables.

Summary

This chapter describes the methodology used to evaluate the effectiveness of a nurse-led oral health education intervention, combined with the distribution of oral health care kits, in an outpatient setting for substance use disorder treatment. The quantitative pre–post quasi-experimental design, project setting, population and sample selection, instrumentation, data collection procedures, and data analysis methods were presented to support replication. Ethical considerations and project limitations were also addressed. Chapter 4 presents the project's results, including descriptive and inferential findings on changes in oral health knowledge, oral hygiene behaviors, and self-esteem following the 8-week intervention period.

Chapter 4: Data analysis and Results

This chapter presents the data analysis and results of the DNP project evaluating the impact of a nurse-led oral health education intervention combined with the distribution of standardized oral health care kits in an outpatient SUD treatment setting in Southern Arizona. The purpose of the analysis was to determine whether participation in the intervention was associated with changes in oral health knowledge, oral hygiene behaviors, and self-esteem over an 8-week period. This chapter begins with a description of the sample and its demographic characteristics, followed by the data analysis procedures, detailed analysis steps, the presentation of results aligned with the clinical questions, and a summary of findings.

Descriptive Data

A total of 52 participants enrolled in the project and completed pre-intervention questionnaires. Participants were recruited using a convenience sampling approach from adults receiving services at the outpatient substance use disorder treatment facility during the implementation period. All eligible individuals who were present during the recruitment period were informed about the project and invited to participate. Inclusion criteria included being 18 years of age or older and currently enrolled in outpatient treatment services. Participation was voluntary, and individuals who declined participation continued to receive standard care without penalty. Of those invited, 52 individuals consented to participate in the quality improvement initiative and completed baseline questionnaires.

Demographic characteristics were collected to describe the sample and contextualize findings within the outpatient SUD population. Descriptive statistics were calculated for all demographic variables. Means and standard deviations were computed for continuous variables, and frequencies and percentages were calculated for categorical variables. The sample was

evenly split by gender: 26 (50%) identified as female and 26 (50%) as male. The largest age group was 35–40 years (39%), followed by 45–54 years (25%), 25–34 years (19%), and those aged 55 and older (17%). The group was racially and ethnically diverse, with 44% identifying as Caucasian or White, 30% as Hispanic/Latino, 10% as American Indian/Alaska Native, 8% as Black American, and 8% as mixed or of other ethnicities. Table 2 presents the demographic characteristics of the sample.

Table 2

Demographic Characteristics of Participants (N = 52)

Characteristic	n	%
Age		
25-34 years	10	19
35-44 years	20	39
45-54 years	13	25
>54 years	9	17
Gender		
Female	26	50
Male	26	50
Race/Ethnicity		
Caucasian/White	23	44
Hispanic/Latino	16	30
American Indian/Alaskan Native	5	10
Black American	4	8
Mixed/Other	4	8

Note. Percentages may not add up to 100 due to rounding.

Data Analysis Procedures

A quantitative pre–post design was used to evaluate changes in outcomes following participation in the intervention. Because the same participants completed questionnaires before and after the 8-week intervention, a paired analytical approach was appropriate. The independent variable was the implementation of the nurse-led oral health education intervention combined with the distribution of a standardized oral health care kit containing a toothbrush, toothpaste,

dental floss, mouthwash, and lip balm. The dependent variables included oral health knowledge, oral hygiene behaviors, and self-esteem.

Clinical Question 1 examined whether participation in the intervention improved oral health knowledge scores. Clinical Question 2 evaluated whether oral hygiene behaviors changed following the intervention. Clinical Question 3 assessed whether self-esteem scores improved over the 8-week period. Continuous variables were analyzed using paired t-tests when assumptions of normality were met. Categorical oral hygiene behaviors were analyzed using chi-square tests. An alpha level of .05 was used to determine statistical significance.

Potential sources of error included self-report bias, absence of a control group, maturation effects, and possible ceiling effects in baseline knowledge scores. These factors may have influenced the magnitude or detectability of change and were considered in the interpretation of findings.

Data Analysis Steps

Data were entered into statistical software and reviewed for completeness and accuracy. Data cleaning procedures included verifying entries, assessing missing values, and identifying outliers. Descriptive statistics were generated to examine distributional characteristics. Assumptions of normality were assessed for continuous outcome variables. Once assumptions were met, paired *t*-tests were conducted to compare pre- and post-intervention mean scores. Effect sizes were calculated to determine the magnitude of change. For categorical oral hygiene behaviors, frequency distributions were compared pre- to post-intervention using chi-square tests.

RESULTS:

Oral Health Knowledge

A paired samples *t*-test compared baseline and post-intervention oral health knowledge scores. At baseline, the mean knowledge score was 8.0 (SD = 1.0, range = 6–10). Following the intervention, the mean remained 8.0 (SD = 1.0, range = 3–10). Results indicated no statistically significant difference, t (51) = 0.417, p = .339. Table 3 presents the comparison of pre- and post-intervention oral health knowledge scores.

Table 3

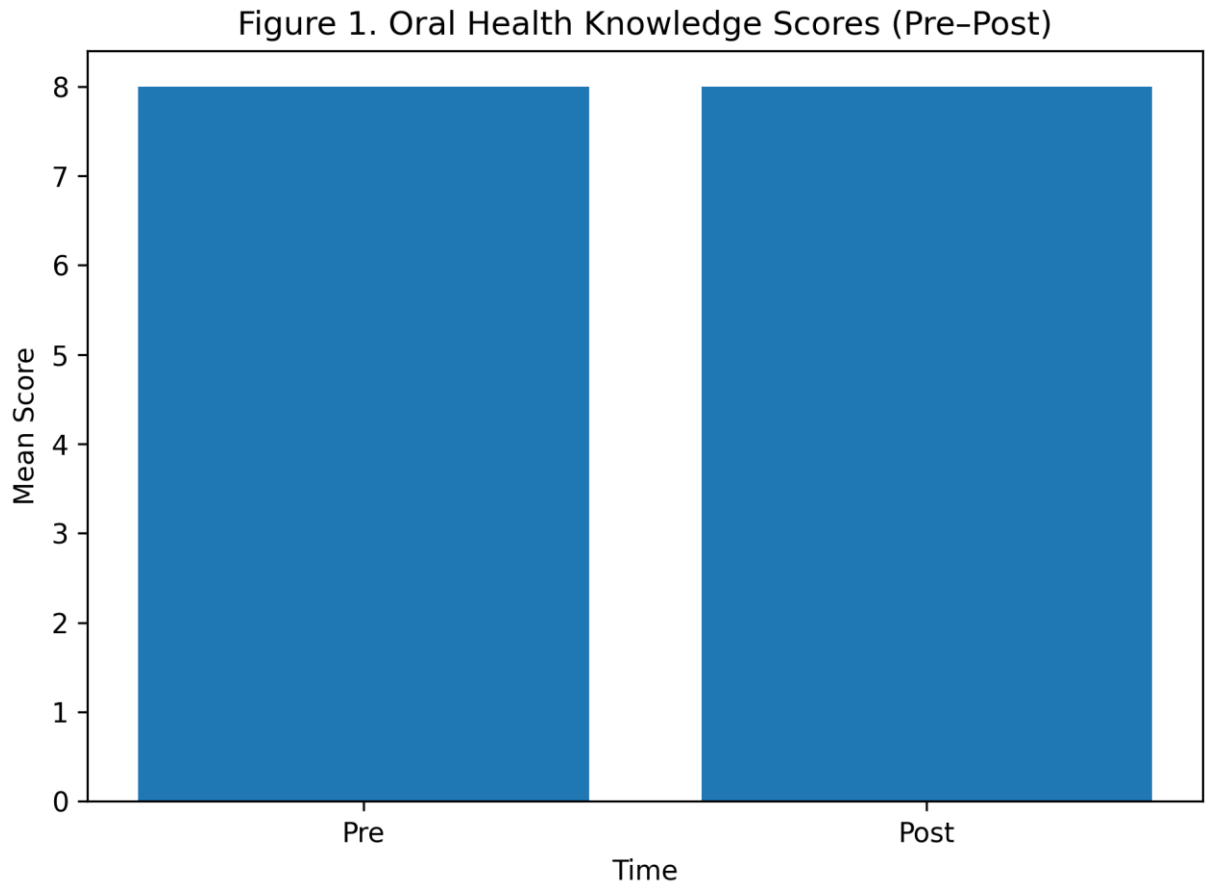
Paired Samples t-Test Results for Oral Health Knowledge (N = 52)

Time Point	M	SD	Range	t	df	p
Baseline	8.0	1.0	6-10			
Post-intervention	8.0	1.0	3-10	0.417	51	.339

Note. A paired-samples *t*-test showed no statistically significant difference between baseline and post-intervention oral health knowledge scores.

Figure 1

Pre- and Post-Intervention Oral Health Knowledge Scores



Oral Hygiene Practices

Oral hygiene behaviors were examined using a Chi-square test of independence. At baseline, 47 participants (90%) reported adequate hygiene behaviors, compared to 48 participants (92%) post-intervention. Conversely, inadequate behaviors decreased from 5 participants (10%) to 4 participants (8%). Results showed a statistically significant improvement, χ^2 (1, N = 52) = 8.132, p = .004, Cramer's V = .395. Table 5 presents pre- and post-intervention frequency distributions and chi-square results for oral hygiene behaviors.

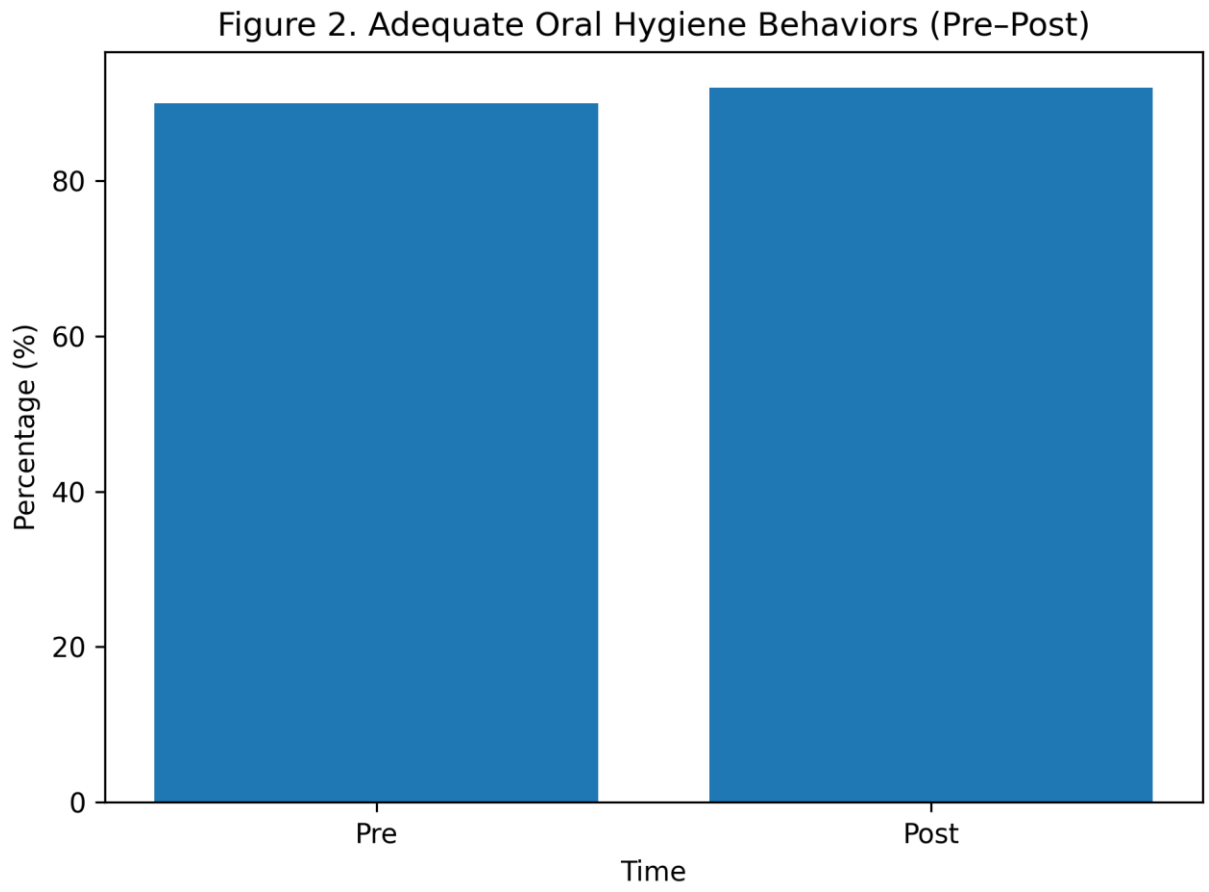
Table 4

Chi-Square Test Results for Oral Hygiene Practices (N = 52)

Behavior	Baseline n (%)	Post-intervention n (%)	χ^2	df	*p*	Cramer's V
Adequate	47 (90%)	48 (92%)	8.132	1	.004	.395
Inadequate	5 (10%)	4 (8%)				

Note. A Chi-square test of independence indicated a statistically significant improvement in oral hygiene behaviors from baseline to post-intervention.

Figure 2 compares pre- and post-intervention percentages of oral health hygiene practices.



Self-Esteem

The Rosenberg Self-Esteem Scale was analyzed using a paired samples *t*-test. At baseline, the mean score was 1.0 (SD = 0.64, range = 0–3). After the intervention, the mean score increased

slightly to 2.0 (SD = 0.61, range = 0–3). However, the change was not statistically significant, $t(51) = –0.405$, $p = .344$.

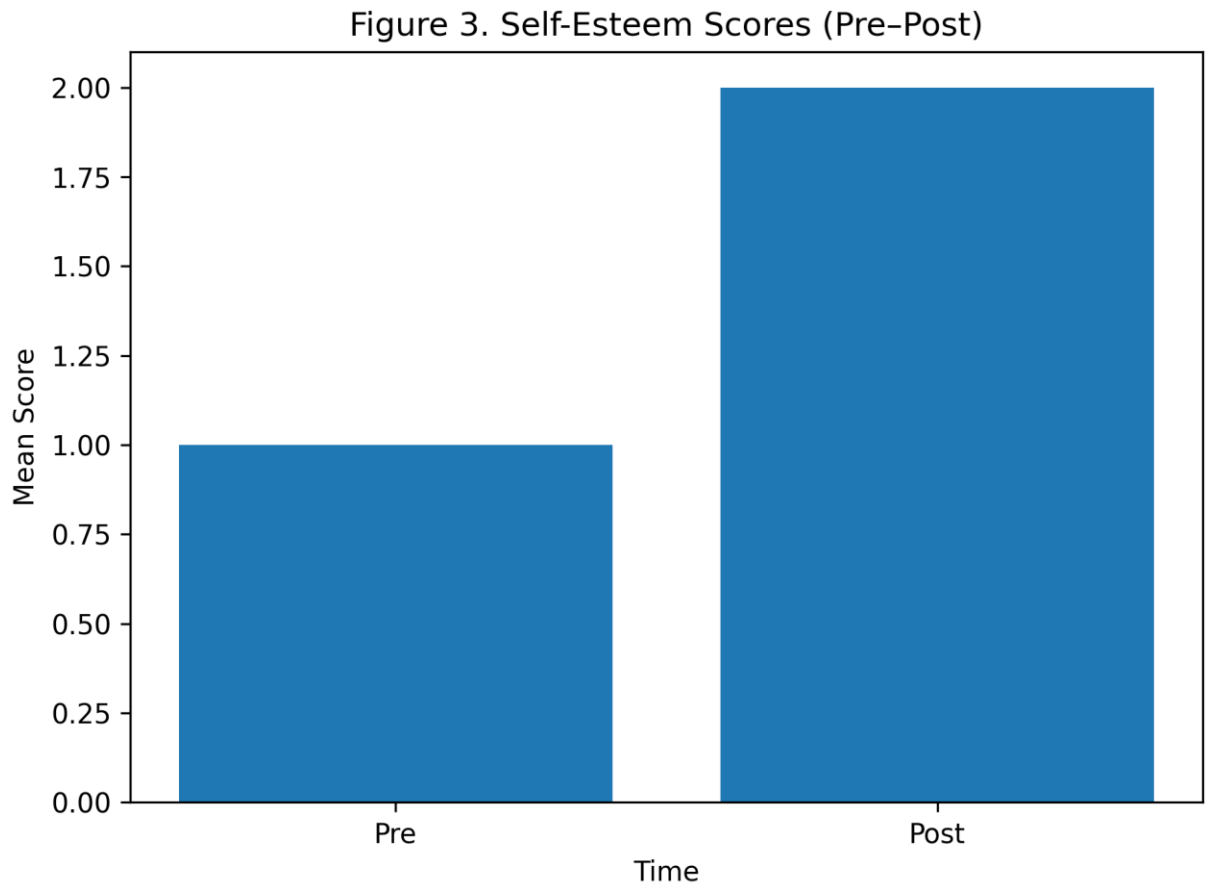
Table 5

Paired Samples t-Test Results for Rosenberg Self-Esteem (N = 52)

Time Point	M	SD	Range	*t*	df	*p*
Baseline	1.0	0.64	0-3			
Post-intervention	2.0	0.61	0-3	-0.405	51	.344

Note. A paired-samples t-test showed no statistically significant change in self-esteem from baseline to post-intervention.

Figure 3



Summary

This chapter presented descriptive data and inferential analyses evaluating the impact of a nurse-led oral health education intervention combined with the distribution of oral health care

kits in an outpatient SUD treatment setting. Statistical procedures were selected based on the level of measurement and aligned with the project's clinical questions. The next chapter interprets these findings within the context of existing literature and discusses clinical implications, limitations, and recommendations for sustainability and future practice.

Chapter 5: Summary of Findings and Conclusions

The purpose of this quality improvement project was to evaluate the impact of a nurse-led oral health education intervention, combined with the distribution of oral health care kits, on the oral health knowledge, hygiene behaviors, and self-esteem of adults with SUD enrolled in an outpatient rehabilitation program in Southern Arizona. Guided by Bandura's social cognitive theory (1986) and structured using the PDSA cycle from the Institute for Healthcare Improvement (IHI, 2020), the intervention aimed to promote behavior change, enhance self-efficacy, and address a commonly overlooked health disparity among individuals recovering from substance use.

The findings of this DNP project were organized according to the three clinical questions investigated. The first clinical question examined whether participation in the nurse-led oral health education intervention improved oral health knowledge over the 8-week period. Results indicated no statistically significant change in oral health knowledge scores from baseline to post-intervention. Knowledge scores remained stable, suggesting that participants entered the program with relatively high baseline oral health knowledge. This finding is consistent with the literature, indicating that knowledge alone may not be the primary barrier to improved oral health behaviors in populations with SUD. Although knowledge did not increase, maintaining baseline knowledge remains clinically relevant and supports the need to focus interventions on behavior reinforcement rather than information alone.

The second clinical question examined whether participation in the intervention improved self-reported oral hygiene behaviors. Findings demonstrated a statistically significant improvement in oral hygiene behaviors, with a higher proportion of participants reporting adequate hygiene practices after the intervention. This result is the most meaningful outcome of

the project and aligns with its theoretical foundation. By pairing education with tangible oral health care kits, the intervention addressed both cognitive and environmental factors that influence behavior change. This finding expands the existing body of knowledge by demonstrating that nurse-led, low-cost interventions can produce measurable improvements in preventive health behaviors within outpatient SUD treatment settings.

The third clinical question examined whether participation in the intervention resulted in changes in self-esteem. Although mean self-esteem scores increased slightly from pre-intervention to post-intervention, the change was not statistically significant. This finding suggests that self-esteem may be less responsive to short-term interventions and may require longer duration, repeated reinforcement, or additional psychosocial supports to achieve meaningful change. The result is consistent with literature describing self-esteem as a complex construct influenced by multiple social, psychological, and environmental factors.

Overall, the findings support the conclusion that while oral health knowledge and self-esteem did not change significantly over the eight-week period, oral hygiene behaviors improved in a statistically and clinically meaningful way. These results align with the content presented in Chapters 1-3 and support the effectiveness of nurse-led, resource-supported interventions in improving preventive health behaviors among underserved populations.

Implications

The findings of this DNP project have important implications for nursing practice, theory, and future quality improvement efforts.

Theoretical Implications

From a theoretical perspective, the findings support key constructs of Social Cognitive Theory. The lack of significant change in knowledge suggests that information alone may be

insufficient to drive behavior change. In contrast, the significant improvement in oral hygiene behaviors underscores the importance of self-efficacy and environmental support in facilitating behavior change. Providing oral health care kits reduced practical barriers and enabled participants to apply existing knowledge, reinforcing the reciprocal interaction between personal factors and the environment. The findings suggest that theory-based interventions emphasizing behavior reinforcement and resource access may be particularly effective in outpatient rehabilitation settings.

The project also highlights the strengths and limitations of applying behavioral theory within a short intervention period. While behavior change was observed, changes in more complex psychosocial constructs, such as self-esteem, may require longer time frames or integration with broader therapeutic interventions.

Clinical Implications

The findings of this project have meaningful clinical implications for the care of adults with SUD in outpatient rehabilitation settings. Improvements in oral hygiene behaviors suggest that brief, nurse-led preventive interventions can positively influence daily self-care practices that are closely linked to oral pain, infection risk, nutritional intake, and overall comfort. By addressing unmet preventive oral health needs, nurses can help reduce the risk of dental emergencies, untreated infections, and oral discomfort that can interfere with recovery, engagement, and quality of life.

Integrating oral health promotion into routine outpatient care supports whole-person, recovery-oriented nursing practice by recognizing oral health as an essential component of physical and psychosocial well-being. These findings reinforce nurses' role in early identification

of oral health risks and in implementing low-burden interventions to mitigate downstream complications and healthcare utilization.

Practical Implications

The practical implications of this project are significant for nursing practice. Nurses are well-positioned to integrate oral health promotion into outpatient SUD treatment through their frequent patient contact and their roles in health education and prevention. This project demonstrates that incorporating brief oral health education and distributing basic hygiene supplies is feasible, low-cost, and effective in improving self-reported oral hygiene behaviors.

Embedding oral health promotion into routine nursing care can enhance holistic, recovery-oriented treatment and may reduce oral health–related complications, discomfort, and emergency dental visits. The intervention requires minimal training, limited resources, and can be easily adapted to other outpatient or community-based settings serving vulnerable populations.

Future Implications

This project both identified effective strategies and highlighted areas requiring further exploration. The absence of significant changes in knowledge and self-esteem suggests that future interventions may need to focus on sustained reinforcement, repeated education sessions, or integration with counseling and behavioral health services. The findings also suggest that behavior-focused outcomes may be more sensitive indicators of short-term intervention success in outpatient SUD populations.

Future quality improvement initiatives may explore longer intervention periods, follow-up assessments to evaluate maintenance of behavior change, and integration of oral health

promotion into interdisciplinary treatment models. These efforts could further strengthen the evidence base for preventive oral health interventions in SUD care.

Recommendations for Future Research

Based on the project's findings, several recommendations are proposed for future research. First, researchers should examine the long-term sustainability of improved oral hygiene behaviors by incorporating follow-up assessments beyond the immediate post-intervention period. Evaluating outcomes at three- and six-month intervals would provide insight into whether behavior changes are maintained over time and whether additional reinforcement strategies are needed to support sustained improvement.

Second, future studies should explore the effects of extended or repeated oral health education sessions on psychosocial outcomes, including self-esteem and quality of life. While improvements in hygiene behaviors were observed, changes in more complex psychosocial constructs may require longer exposure to educational reinforcement. Examining dosage effects and structured follow-up education could clarify the relationship between intervention intensity and psychosocial outcomes.

Third, additional research should evaluate the implementation of similar nurse-led interventions across multiple outpatient rehabilitation sites and diverse geographic regions. Expanding the setting would improve external validity and provide insight into how contextual factors influence outcomes. Comparative evaluation across sites may also identify best practices for scaling and sustaining the integration of oral health within substance use disorder treatment programs.

Recommendations for Practice

Based on the project findings, outpatient SUD treatment programs should consider incorporating nurse-led oral health education and distribution of oral hygiene kits into routine care. This approach addresses an identified practice gap and supports holistic, patient-centered care by integrating preventive oral health into existing treatment services. Embedding oral health education into standard workflows may improve accessibility and reduce barriers to preventive care for vulnerable populations.

In addition, nursing staff should receive foundational training in oral health promotion to ensure consistent delivery of education and reinforcement of hygiene behaviors. Incorporating oral health screening questions into routine nursing assessments may further strengthen early identification of unmet needs. Establishing partnerships with community dental providers and securing sustainable funding sources for oral hygiene supplies may enhance long-term feasibility and program sustainability.

Plan for Sustainability

Sustainability of this DNP project is supported by its low cost, simplicity, and alignment with existing nursing workflows. Oral health education can be incorporated into routine group or individual education sessions without disrupting program operations and with minimal additional time or staffing requirements. The average cost per participant for each oral health care kit was approximately $8, indicating that the intervention is financially feasible for outpatient treatment programs.

Oral health care kits can be replenished using modest internal funding allocations or through partnerships with community organizations, dental programs, or philanthropic agencies. During the project's implementation, funding and supplies were secured through community

support from Delta Dental, demonstrating the viability of external sponsorship for preventive health initiatives. Establishing ongoing relationships with local dental providers or public health agencies may further enhance financial sustainability.

Continued engagement of staff and leadership remains essential to sustaining the intervention. Ongoing monitoring of oral health behaviors through informal check-ins or brief assessments can reinforce progress, promote accountability, and identify opportunities to refine the program. Integrating oral health metrics into routine quality improvement monitoring may further support long-term maintenance of practice change.

Plan for Dissemination

Dissemination of the findings from this DNP project is essential to promote broader practice improvement. The results of this project will be presented as a poster presentation at the Western Institute of Nursing (WIN) Conference in San Francisco, scheduled for April 22, 2026. This venue provides an opportunity to share findings with nursing scholars and clinicians across the western United States and to highlight nurses' role of nurses in addressing oral health disparities.

Additional dissemination strategies include sharing results with clinical stakeholders at the implementation site, presenting findings at nursing education forums, and submitting the project for consideration in professional nursing publications. These efforts support the translation of quality improvement findings into broader nursing practice.

Conclusion

This DNP quality improvement project demonstrated that a nurse-led oral health education intervention, combined with the distribution of oral health care kits, significantly improved self-reported oral hygiene behaviors among adults with SUD in an outpatient

rehabilitation setting. Although changes in oral health knowledge and self-esteem were not statistically significant, improvements in hygiene behaviors represent a clinically meaningful outcome that supports holistic, patient-centered care.

By addressing an important practice gap, this project contributes to the growing body of evidence supporting nurse-led preventive interventions in underserved populations. The findings underscore the value of behavior-focused, resource-supported strategies and highlight opportunities for future research, practice innovation, and sustained quality improvement.

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Appendix A:

DNP Project Committee Member Request/ Agreement Form

DNP STUDENT INFORMATION

Student Name: Susan Harris

Address: 6828 East Duane Lane Scottsdale, AZ 85264

Phone: 651-226-3658 Email: Susan.harris@midwestern.edu

(Student will include a copy of the DNP Project Summary and Timeline for the committee member)

COMMITTEE MEMBER INFORMATION

Requested Member Name: Gary Anderson

Academic Credentials/ Degree(s): DNP, CFNP, RN

Agency Employed: Gateway Clinic

Agency Address/ City/Zip Code: 707 Lundorff Drive, Suite 1, Sandstone, MN 55072

Contact Phone: 218-380-2164 **Email:** ganderson@gatewayclinic.com

Committee Member Qualifications:

The DNP project committee members must have a doctorate degree. The project committee member may be a MWU faculty member or may be external.

Committee Member Role Responsibilities: The committee member will provide:

1. Expert supervision typified by dialogue and scholarly discussion to foster critical inquiry and clinical reasoning in the conduct of the doctoral project.
2. Informal ongoing feedback and evaluation to enhance project proposal, implementation, defense submissions, and approval processes.
3. Effective communication with the student and the DNP chair on an agreed upon schedule during the DNP project courses.
4. Clinical and/or scholarly expertise specific to the DNP project and adhering to the DNP Essentials.

5. Ongoing advocacy, leadership, and scholarly advisement to ensure timely project progression.
6. Systematic feedback and evaluation of the draft manuscript preparation for project defense
7. Continued support and mentorship throughout completion of the DNP program
8. A Curriculum Vitae and DNP Project Committee Member Request/ Agreement form
9. An annual updated curriculum vitae, transcripts, and any additional requested credentialing documents

I agree to serve as a DNP project committee member for the DNP student named in this agreement.

Signature of Committee Member _____ Date 3/25/25

Signature of DNP Student Susan Harris Date 3-25-25

Approved: ☒ Yes ☐ No

Comments:

Signature of DNP Project Chair Dr. Pamela Love Date 3.25.2025

Approved: ☒ Yes ☐ No

Comments:

Signature of Graduate Nursing Program Director: Dr. Pamela Love

Date 3.25.2025

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Education:

Augsburg College	Minneapolis, MN	9/81-5/82	
Gustavus Adolphus College	St. Peter, MN	9/82-5/85	BS- Biology
College of St. Scholastica	Duluth, MN	1/89-5/91	BA- Nursing
U of MN- Twin Cities	Minneapolis, MN	9/96-5-98	MS- Nursing FNP program
U of MN- Twin Cities	Minneapolis, MN	1/14- 7/15	DNP program

Experience:

Registered Nurse-SICU	St. Mary's Medical Center, Duluth, MN	6/91-6/98
Family Nurse Practitioner	Gateway Family Health Clinic, Sandstone, MN	7-98-present
Family Nurse Practitioner	MedExpress, Cloquet, MN	2/2017- 5/2019

I worked as a locums ER/UC NP for the 20 years, approximately 5-6 shifts per month at hospitals across central Minnesota- Moose Lake, Cloquet, Two Harbors, Aitkin, Sandstone.

ANCC certified since 1998.

I have precepted NP students for greater than 10 years, usually 3-4 students a year, from colleges all over the country.

Appendix B: Site Authorization

Date: April 7, 2025

Avant Recovery
4507 E 22nd Street
Tucson, AZ. 85711

Re: Doctor of Nursing Practice Project

Dear Mr. KC Uber:

I am very pleased that "Avant Recovery" has agreed to assist me with completing the quality improvement project that is required for me to progress in my academic career at Midwestern University. As you know, I am a student enrolled in the Doctor of Nursing Practice ("DNP") program at Midwestern University. An essential part of the DNP program is assuring that attention to safe quality healthcare is achieved by and through understanding how to lead quality improvement initiatives. The translational, evidence-based research generally entails (1) analyzing and summarizing the current evidence related to the subject operations to make a case for why change is needed; (2) assessing the current practice to identify needs; (3) using an implementation science theoretical framework, quality improvement science methods, and quality process models to create a plan for implementation of an evidence-based practice intervention to impact practice change to address those needs; (4) implementing, monitoring, and revising the plan as needed; and (5) evaluating and disseminating findings, including recommendations (hereinafter collectively referred to as "DNP Project"). The Project Site has agreed to serve as the proposed site.

Attached to this letter is a copy of my DNP Project Overview, which is titled Improving Oral Health Care in the Underserved Population: A Quality Improvement Initiative. With your cooperation, I intend on completing this project no later than February 2026. The cooperation that is expected from Project Site includes allowing me access to office, staff, and de-identified, aggregate patient data needed to complete the project. You agree to ensure that Project Site provides this access in accordance with applicable state and federal laws, including without limitation the Health Insurance Portability and Accountability Act and the Federal Policy for the Protection of Human Subjects (Common Rule). You will also ensure that my access to requisite information complies with Project Site's internal policies and procedures. In allowing me this access, you understand and agree that neither I nor Midwestern University will provide you or Project Site with any remuneration of any kind.

Because the DNP Project requires dissemination of findings necessarily related to Project Site, I understand that Project Site may require me to submit any final manuscript to Project Site for review and approval. If such submission is required, I will be more than happy to comply. Upon completion of the DNP project, I will provide a final presentation of the project and results to key stakeholders at the Project Site. Regardless, Project Site agrees that I shall hereby have a perpetual, royalty-free, exclusive, and irrevocable license to reproduce, publish, or otherwise use for non-commercial purposes only the final approved (if required) manuscript I produce as a result of completing the DNP Project at, and with the cooperation of, Project Site.

I am excited that Project Site has agreed to work with me to complete the DNP Project!

Sincerely,

Susan Harris, DNP student

Authorization

By signing below, the signatory below acknowledges the scope and nature of the DNP Project and hereby represents and warrants that Susan Harris can perform the DNP Project title *Improving Oral Health Care in the Underserved Population: A Quality Improvement Initiative at Avant Recovery* ("Project Site"). Project Site shall endeavor to make the resources required for completion of the DNP Project available to Susan Harris and the signature below authorizes permission for Susan Harris to conduct the DNP Project at Project Site.

Name: _____ (Aaron Avery)

Title: Founder

Contact Information:

Address: 5425 E Broadway Blvd, STE 335

Tucson, AZ 85711

Telephone: 415-652-1594

Fax: 844-444-0207

Email: aaron@avantrecovery.com

Appendix C: IRB Approval

MIDWESTERN UNIVERSITY

Institutional Review Board (IRB): Care of Research Administration
Office of the Research and Sponsored Programs
555 31st Street
Downers Grove, Illinois 60515
Phone: 630/515-6395

Institutional Review Board

Date:	22-May-2025
To:	Pamela Love
From:	Institutional Review Board Clinical IRB
Re:	IRB Protocol #IRB-25-0304 "Improving Oral Health Care in the Underserved Population: A Quality Improvement Initiative"
Study Personnel:	Harris, Susan~Love, Pamela~

Dear Pamela Love:

The Clinical IRB has reviewed your Request for Determination of Human Subjects Research for your project, "Improving Oral Health Care in the Underserved Population: A Quality Improvement Initiative". As presented in the Request, this project does not meet the definition of human subjects research as defined in 45 CFR 46.102. Further review by the IRB is not required.

If the nature of the project changes due to the use of additional data or study procedures that may change this determination, please contact ORSP before implementing those changes. Good luck with your project.

Kind Regards,

Institutional Review Board
Clinical IRB

Appendix D: Recruitment Material

Brite Bite Bag:

Oral Health for a Brighter Recovery

Program Timeline:

June 23rd - 27th

Complete a brief self-reported questionnaire and receive an oral health care kit.

July 14th - 18th

Return to check-in and replenish supplies. Enter raffle to win prizes on July 17th (Presence not required to win)

August 11th - 15th

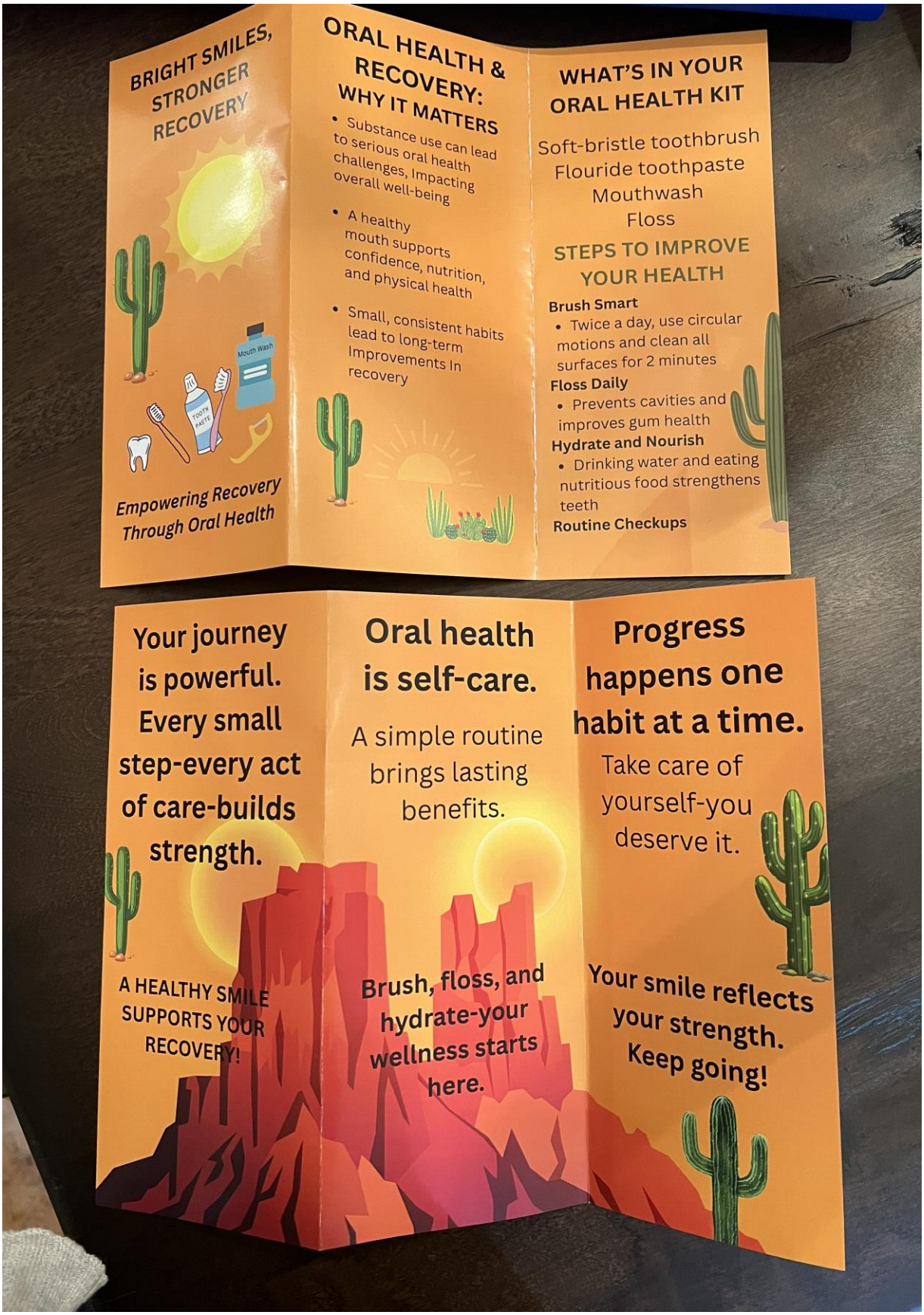
Final check-in, complete self-reported questionnaire, enter raffle to win prizes drawn on August 14th. (Presence not required to win)

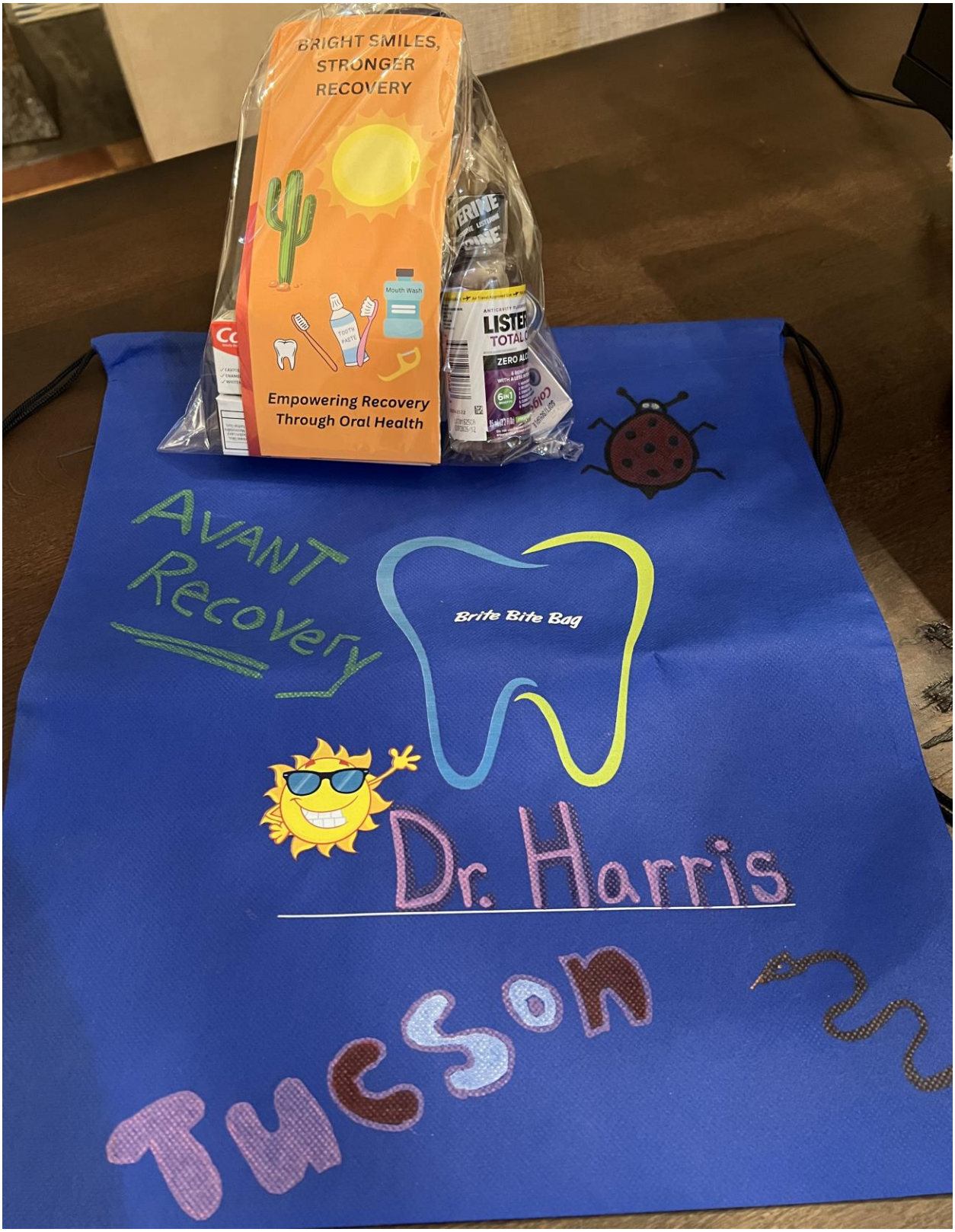
Kit Includes:

- Toothbrush
- Toothpaste
- Floss
- Mouthwash

Why Particpate?

- Improve your oral hygiene
- Boost your confidence and self-care
- Easy and voluntary
- Raffle prizes and support along the way!


BRIGHT SMILES, STRONGER RECOVERY
Mouth Wash
TOOTH PASTE
Empowering Recovery Through Oral Health
ORAL HEALTH & RECOVERY: WHY IT MATTERS
• Substance use can lead to serious oral health challenges, Impacting overall well-being
• A healthy mouth supports confidence, nutrition, and physical health
• Small, consistent habits lead to long-term Improvements In recovery
WHAT'S IN YOUR ORAL HEALTH KIT
Soft-bristle toothbrush
Flouride toothpaste
Mouthwash
Floss
STEPS TO IMPROVE YOUR HEALTH
Brush Smart
• Twice a day, use circular motions and clean all surfaces for 2 minutes
Floss Daily
• Prevents cavities and improves gum health
Hydrate and Nourish
• Drinking water and eating nutritious food strengthens teeth
Routine Checkups
Your journey is powerful. Every small step-every act of care-builds strength.
A HEALTHY SMILE SUPPORTS YOUR RECOVERY!
Oral health is self-care.
A simple routine brings lasting benefits.
Brush, floss, and hydrate-your wellness starts here.
Progress happens one habit at a time.
Take care of yourself-you deserve it.
Your smile reflects your strength. Keep going!


BRIGHT SMILES,
STRONGER
RECOVERY
Mouth Wash
Empowering Recovery
Through Oral Health
AVANT
Recovery
Brite Bite Bag
Dr. Harris
Tucson


BRIGHT SMILES,
STRONGER
RECOVERY
Mouth Wash
TOOTH
PASTE
Empowering Recovery
Through Oral Health
✓CAVITIES
✓ENAMEL
✓WHITENS
Air Travel Approved Size
ANTICAVITY
6 IN 1
95 mL (3.2 FL OZ)

Appendix E: Instruments Used & Permission to Use

Oral Health KAB Survey: Knowledge Scale

Knowledge:	Baseline		Post-implementation	
	N	*%*	*N*	*%*
1. There are two sets of teeth during a lifetime.				
Not Correct	6	11%	3	6%
Correct	46	89%	49	94%
2. Tooth infection causes gum bleeding.				
Not Correct	46	89%	49	94%
Correct	6	11%	3	6%
3. Replacement of a missing tooth improves oral hygiene.				
Not Correct	42	81%	47	90%
Correct	10	19%	5	10%
4. The dental caries of deciduous teeth (baby teeth) need not be treated.				
Not Correct	19	36%	12	23%
Correct	33	64%	40	77%
5. Bacteria is one of the reasons for gingival problems (swelling or bleeding gums).				
Not Correct	1	2%	2	4%
Correct	51	98%	50	96%
6. Fizzy soft drinks (acidic and full of sugar) affect the teeth adversely.				
Correct	52	100%	52	100%
7. Loss of teeth can interfere with speech.				
Not Correct	1	2%	4	8%
Correct	51	98%	48	92%

8. Irregularly placed teeth can be moved into the correct position by dental treatment.				
Not Correct	5	10%	5	10%
Correct	47	90%	47	90%
9. Decayed teeth can affect the appearance of a person.				
Not Correct	2	4%		
Correct	50	96%	52	100%
10. Tobacco chewing or smoking can cause oral cancer.				
Not Correct	1	2%	1	2%
Correct	51	98%	51	98%
11. White patches on teeth (enamel breakdown or fungal infection) are called dental plaques.				
Not Correct	44	85%	46	89%
Correct	8	15%	6	11%

Note. $N = 52$

Oral Health KAB Survey: Behavior Scale

Baseline characteristic	Baseline		Post-implementation	
	N	%	*N*	%
Behavior:				
1. I give importance to my teeth as much as any part of my body?				
Inadequate behavior (other response)	1	12%		
Adequate behavior (Strongly or agreed)	51	98%	52	100%
2. I have sensitive teeth?				
Inadequate behavior	5	10%	4	8%
Adequate behavior	47	90%	48	92%
3. I brush my teeth twice daily?				
Inadequate behavior	2	4%	1	2%
Adequate behavior	50	96%	51	98%
4. I use my teeth to open the cap of bottled drinks?				
Inadequate behavior	33	64%	38	73%
Adequate behavior	19	36%	14	27%
5. I experience toothache while chewing food?				
Inadequate behavior	18	35%	19	36%
Adequate behavior	34	65%	33	64%
6. I have bleeding gums during brushing?				
Inadequate behavior	10	19%	14	27%
Adequate behavior	42	81%	38	73%
7. I have routine dental check-ups?				
Inadequate behavior	16	31%	17	33%
Adequate behavior	36	69%	35	67%

Note. N = 52

Permission to Use Instrument:

The Oral Health Knowledge, Attitude, and Behavior Questionnaire used is an instrument developed and validated by Selvaraj et al. (2022) in *Medicina*. That article is explicitly published under a Creative Commons Attribution (CC BY 4.0) license, which means it is legally allowed to reuse, reproduce, and adapt the questionnaire items in the DNP project (including putting the full instrument in an appendix), as long as you provide proper attribution and indicate if you made any changes. MDPI+1

The Oral Health Knowledge, Attitude, and Behavior Questionnaire (OHKAB) used in this project is reproduced from Selvaraj et al. (2022), "Development and Validation of Oral Health Knowledge, Attitude and Behavior Questionnaire among Indian Adults,"* Medicina*, 58(1), 68. The article and instrument are distributed under the terms of the Creative Commons Attribution (CC BY 4.0) license (https://creativecommons.org/licenses/by/4.0/). No changes/Minor formatting changes were made to the original items.

Reference:

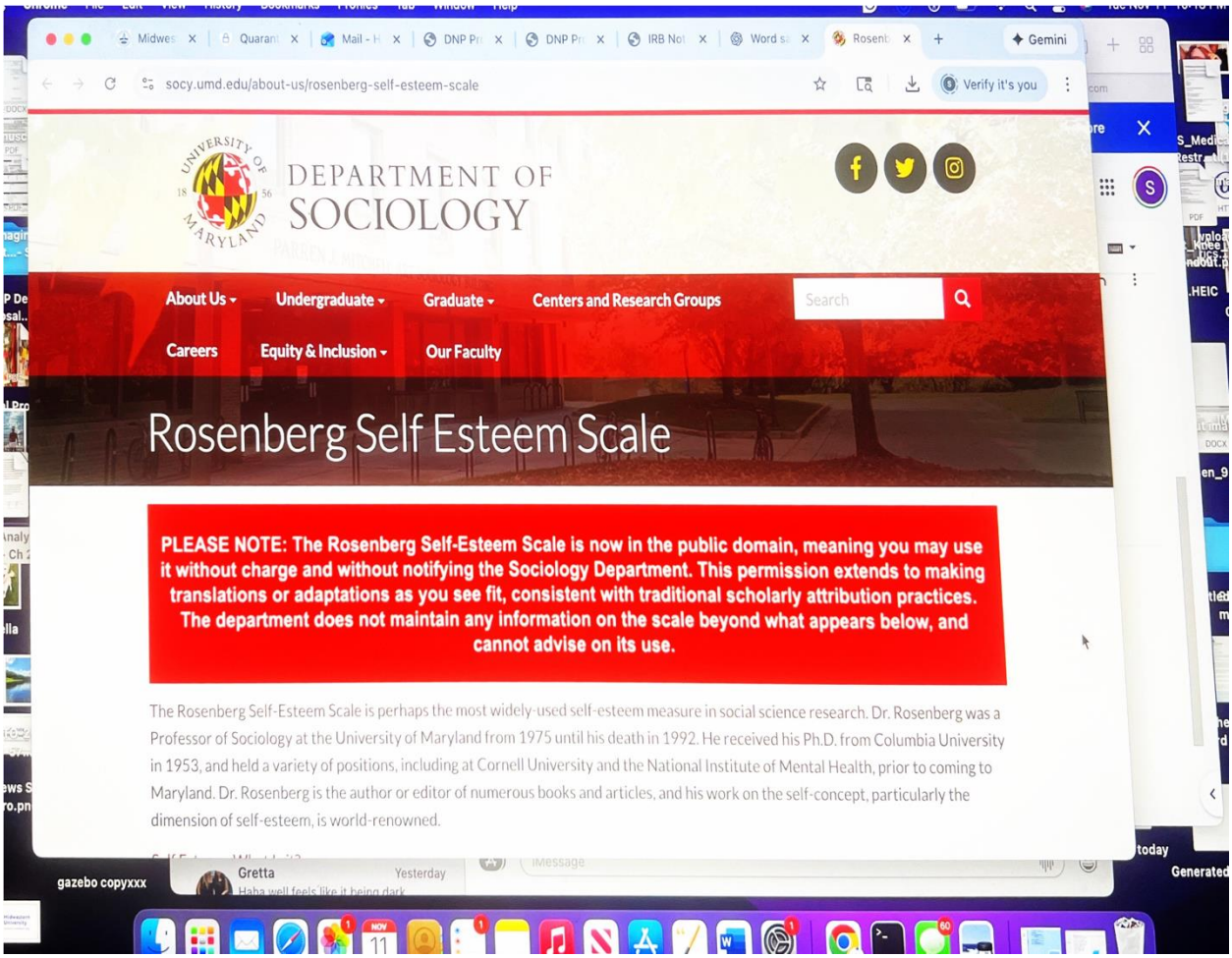
Selvaraj, S., Naing, N. N., Wan-Arfah, N., Karobari, M. I., Marya, A., & Prasadh, S. (2022). Development and validation of oral health knowledge, attitude and behavior questionnaire among Indian adults. *Medicina*, *58*(1), 68. https://doi.org/10.3390/medicina58010068

Appendix E: Rosenberg Self-Esteem Scale

Baseline characteristic	Baseline		Post-implementation	
	N	*%*	*n*	*%*
1 On the whole, I am satisfied with myself?				
Neither Agree or Disagree,	13	25%	7	14%
Strongly Agree	16	31%	16	31%
Agree	13	25%	19	37%
Disagree	7	14%	5	10%
Strongly Disagree	3	6%	5	10%
2 At times, I think I am no good at all?				
Neither Agree or Disagree,	3	6%	10	19%
Strongly Agree	26	50%	18	35%
Agree	19	37%	10	19%
Disagree	4	4%	8	15%
Strongly Disagree	0	0%	6	12%
3 I feel that I have a number of good qualities?				
Neither Agree or Disagree,				
Strongly Agree	7	14%	6	12%
Agree	18	35%	26	50%
Disagree	24	46%	19	36%
Strongly Disagree	2	4%	1	2%
	1	2%	0	0%
4 I am able to do things as well as most other people?				
Neither Agree or Disagree,	11	21%	5	10%
Strongly Agree	16	31%	24	46%
Agree	15	29%	22	42%
Disagree	7	14%	1	2%
Strongly Disagree	3	6%	0	0%
5 I feel I do not have much to be proud of?				
Neither Agree or Disagree,	14	27%	10	19%
Strongly Agree	14	27%	17	33%
Agree	11	21%	17	33%
Disagree	10	19%	3	6%
Strongly Disagree	3	6%	5	10%
6 I certainly feel useless at times?				
Neither Agree or Disagree,	8	16%	10	19%
Strongly Agree	20	39%	17	33%
Agree	21	40%	16	31%
Disagree	2	4%	4	8%
Strongly Disagree	1	2%	5	10%

7 I feel that I'm a person of worth, at least on an equal plane with others?				
Neither Agree or Disagree	12	23%	9	17%
Strongly Agree	4	8%	19	27%
Agree	14	27%	21	40%
Disagree	11	21%	2	4%
Strongly Disagree	11	21%	1	2%
8 I wish I could have more respect for myself?				
Neither Agree or Disagree,				
Strongly Agree	13	25%	12	23%
Agree	15	29%	8	15%
Disagree	16	31%	13	25%
Strongly Disagree	4	8%	6	12%
	4	8%	13	25%
9 All in all, I am inclined to feel that I am a failure?				
Neither Agree or Disagree,	11	21%	9	17%
Strongly Agree	20	39%	22	42%
Agree	20	39%	14	27%
Disagree	1	2%	6	12%
Strongly Disagree	0	0%	1	2%
10 I take a positive attitude toward myself?				
Neither Agree or Disagree,	3	6%	6	12%
Strongly Agree	27	52%	24	46%
Agree	20	39%	21	40%
Disagree	2	4%	1	2%
Strongly Disagree	0	0%	0	0%

Note. $N = 52$


socy.umd.edu/about-us/rosenberg-self-esteem-scale
DEPARTMENT OF SOCIOLOGY
About Us
Undergraduate
Graduate
Centers and Research Groups
Search
Careers
Equity & Inclusion
Our Faculty
Rosenberg Self Esteem Scale
PLEASE NOTE: The Rosenberg Self-Esteem Scale is now in the public domain, meaning you may use it without charge and without notifying the Sociology Department. This permission extends to making translations or adaptations as you see fit, consistent with traditional scholarly attribution practices. The department does not maintain any information on the scale beyond what appears below, and cannot advise on its use.
The Rosenberg Self-Esteem Scale is perhaps the most widely-used self-esteem measure in social science research. Dr. Rosenberg was a Professor of Sociology at the University of Maryland from 1975 until his death in 1992. He received his Ph.D. from Columbia University in 1953, and held a variety of positions, including at Cornell University and the National Institute of Mental Health, prior to coming to Maryland. Dr. Rosenberg is the author or editor of numerous books and articles, and his work on the self-concept, particularly the dimension of self-esteem, is world-renowned.
Gretta
Yesterday
gazebo copyxxx