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Aline M. Bales

University of San Francisco, abales@usfca.edu

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**Trauma-Informed Treatment for Alcohol Use Disorder: Improving Long-Term
Recovery**

Aline Bales

University of San Francisco

Committee Chair: Dr. Trinette Radasa

Committee Member: Dr. Alexa Curtis

TABLE OF CONTENTS

Section I: Title and Abstract

Title1

Abstract 5

Section II: Introduction

Problem Description.....7

Background16

 Setting21

Specific Aim22

Available Knowledge23

 PICOT Question.....23

 Search Methodology35

 Integrated Review of the Literature25

 Summary/Synthesis of the Evidence33

Rationale35

Section III: Methods

Context37

Interventions39

 Gap Analysis.....40

 Gantt Chart41

 Work Breakdown Structure41

 Responsibility/Communication Plan42

 SWOT Analysis43

Budget and Financial Analysis45

Outcome Measures45

 CQI Method and/or Data Collection Instruments.....

Analysis47

Ethical Considerations48

Section IV: Results.....49

Section V. Discussion

 Summary.....50

 Interpretation..... 51

 Limitations53

 Conclusion54

Section VI: Funding..... 55

Section VII. References56

Section VIII: Appendices

 Appendix A. Evidence Evaluation Chart.....62

 Appendix B. Gap Analysis70

 Appendix C. Gantt Chart71

 Appendix D. Work Breakdown Structure.....72

 Appendix E. Communication Matrix.....73

 Appendix F. SWOT Analysis74

 Appendix G. Budget75

 Appendix H. Certifications and Additional Training76

 Appendix I. Measurement Tools.....80

Appendix J. Descriptive Statistic Results85

Appendix K. DNP Healthy Minds Counseling Center Letter of Support.....89

Appendix L. DNP Final Briefing Email90

Appendix M. DNP Statement of Non-Research (SOD) Letter91

Appendix N. Addiction Cycle graphic 92

Trauma and Alcohol Use Disorder in Recovery Treatment

Background: This DNP project aimed to assess the feasibility of implementing trauma-informed care to Ria Health's telehealth AUD MAT recovery treatment model for patients with co-occurring PTSD, targeting high relapse rates due to cravings. Trauma-informed care addresses traumatic histories that can potentiate emotional dysregulation leading to maladaptive coping responses manifesting as cravings with addiction memory.

Methods: An integrated review assessed the prevalence of co-occurrence of AUD and PTSD, assessed interest in Ria Health patients, patients recruited from Ria Health if they mentioned cravings, offered concurrent trauma-informed care with medicated assisted treatment for 16-20 sessions, trauma-informed care used Polyvagal Theory techniques and EMDR to address addiction memory in the craving cycle manifesting as a craving. The OCDS and NPSS were used pre/post to assess cravings and patients' perceptions of internal safety.

Outcome: Trauma-informed care pre/post-participant self-reporting data showed statistically significant improvements in all scales and subscales post-treatment, including total cravings (55%) and compulsion on the OCDS, NPSS showed statistically significant changes in total score (79%), social engagement (85%), compassion demonstrating trauma-informed care interventions effective and warrants more research.

Conclusion: Concurrent trauma-informed care effectively improved the felt sense of safety and capability, helped control cravings, prevented relapse, and enabled the ability for trauma reprocessing.

Keywords: PTSD, AUD, Cravings, EMDR, concurrent treatment, addiction

Introduction

Individuals with co-occurring post-traumatic stress disorder (PTSD) and alcohol use disorder (AUD) often face psychological and emotional triggers that can lead to craving cycles, resulting in relapse, and hindering long-term recovery success. The co-occurrence of PTSD and AUD presents a complex challenge for healthcare professionals, highlighting the need for effective, integrated treatment approaches to address the underlying causes and improve patient outcomes. Statistics such as relapse rates approximating 40-60% within one month after treatment (SAMHSA, 2018) and rates of co-occurring trauma and AUD seen as high as 75% in military populations (Dworkin et al, 2014). During a clinical rotation, verbal expressions from patients began to raise red flags in patient care indicating the need to explore holistic options to address potential underlying trauma observed in the AUD population. Evidence supports a correlation between trauma, PTSD, cravings, and relapse (Simpson et al., 2014). There is evidence demonstrating trauma-informed care approaches such as monitoring cravings to predict relapse (Iliakis, 2021), the use of polyvagal theory techniques (PVT), and eye movement desensitization and reprocessing (EMDR) as part of concurrent treatment have great potential to improve patient recovery outcomes. (Rogers et al., 2016). Current treatment approaches for AUD often do not adequately address the trauma component, which is crucial for individuals with co-occurring AUD and PTSD. This quality improvement project aims to assess the feasibility of implementing trauma-informed care approaches, PVT, and EMDR therapy and assess patient interest and satisfaction with these interventions. By bridging the gap between addiction treatment and trauma therapy, the project seeks to improve treatment outcomes and provide a more comprehensive and effective solution for individuals struggling with both disorders.

The articles and clinician experiences referenced in this manuscript aim to provide readers with a comprehensive understanding of the relationship between PTSD and AUD, the role of addiction memory in craving cycles, and how trauma drives these cycles. Furthermore, this manuscript explores the feasibility of incorporating trauma-informed care for individuals with co-occurring AUD/PTSD in Ria Health's AUD treatment model.

Problem Description

Gap in Service

During USF psychiatric mental health nurse practitioner (PMHNP) clinical preceptorship at Ria Health, the DNP project lead observed with empathy and concern that numerous individuals receiving AUD MAT treatment were experiencing recurring resurfacing of unaddressed trauma, which could potentially cause harm to the patient during treatment, increase the risk of relapse, increase the risk of drop-out, increased emotional distress. The re-experiencing of traumatic material can create additional trauma, and disrupt patients' progress in AUD treatment, making it more challenging for them to engage in therapy, adhere to their medication regimen, or maintain motivation for recovery (Wise, A., & Marich, J. (2016). These situations can strain the patient's support system, including family, friends, and healthcare providers, potentially reducing the availability or effectiveness of their support network. To provide more compassionate and effective care, the DNP project lead is trained in psychotherapeutic treatments such as EMDR, Ego State Therapy, dissociative disorders, and somatic psychotherapy approaches, recognizing the potential benefits of incorporating trauma-informed care strategies like EMDR and polyvagal theory into the treatment process.

Ria Health currently offers supportive coaching sessions for patients, which include cognitive-behavioral techniques, motivational interviewing, and psychoeducation groups.

However, for patients grappling with the dual challenges of AUD and PTSD, these 20-minute sessions might not fully address their complex emotional needs. By implementing trauma-informed care approaches, such as EMDR and polyvagal theory, Ria Health could better assist patients in managing emotional dysregulation during treatment.

The compassionate observation of patients during clinical rotations at USF revealed various concerns and symptoms, including fear of a future without alcohol as a coping mechanism, anxiety about relapse, general anxiousness, hopelessness, depression, hyper/hypo-arousal, agoraphobia, difficulty experiencing internal stillness, and a lack of internal safety. These insights highlighted the need for a more comprehensive and trauma-informed care approach to address the intensity and compulsive nature of cravings when patients are emotionally triggered or facing habitual patterns at the end of the day.

Definitions

AUD and PTSD are defined and assessed by the Diagnostic and Statistical Manual of Mental Disorders guidelines, 5th edition (DSM-5, [ANA. 2013]). AUD is a problematic pattern of alcohol use leading to clinically significant impairment, while PTSD is a mental health condition that can develop after experiencing or witnessing traumatic events. Behavioral signs and symptoms in AUD can manifest as drinking alone or in secret, neglecting responsibilities or social activities due to alcohol use, continuing to drink despite health or legal problems, experiencing blackouts or memory loss, and developing physical or psychological dependence on alcohol (ANA,2013). Physical manifestations of AUD might be slurred speech, poor coordination, and changes in appetite or sleep pattern. PTSD is characterized by increased cortisol production, impairing hippocampal function, exacerbating memory deficits, and contributing to alcohol-seeking behaviors (Roberts et al., 2016).

AUD/PTSD Diagnosis

Diagnosis of AUD and PTSD is based on the DSM-5 guidelines, with AUD, requiring at least two of the 11 criteria to be met within 12 months and PTSD requiring criteria A through H to be fulfilled (APA, 2013). Both disorders can be assessed, diagnosed, and treated pharmaceutically and therapeutically by psychiatric mental health nurse practitioners (PMHNP), with collaboration among patients' healthcare providers being highly encouraged. A strong, collaborative, and positive support system for the patient, especially in mental health, significantly enhances the healing process. The DSM-5 specifier criteria categorize the severity of AUD based on the number of symptoms present: mild, two to three symptoms; moderate, four to five; or severe, 6 or more. The PTSD diagnosis applies to adults, adolescents, and children over six years old, with the disturbance lasting more than one month and causing significant impairment in important areas of functioning. Specifiers for PTSD are related to dissociative qualities, such as derealization and depersonalization.

Statistics

The Substance Abuse and Mental Health Services Administration (SAMHSA) National Survey on Drug Use and Health Report (NSDUH, [2020]) estimated that 138.5 million people aged 12 or older are current alcohol users, with 61.6 million, predominantly among 18-25-year-olds, reporting binge drinking within the past month. SAMHSA NSDUH (2021) revealed that 29.5 million individuals aged 12 years and up were diagnosed with AUD. The Wave 3 National Epidemiologic Survey on Alcohol and Related Conditions (NESARC-III) study stated that PTSD was associated with an increased risk of comorbid substance use disorder, mood disorder, and anxiety disorder with impairments in functioning (National Center for PTSD, 2022). Substance misuse that develops after the onset of PTSD makes it more difficult to stop using and emotional

triggers related to trauma increase drug cravings in people with co-occurring trauma and substance abuse (NCTSN, 2008).

Co-occurrence of AUD/PTSD

The co-occurrence of AUD and PTSD is more prevalent than initially expected. Studies and reports from the Veterans Affairs National Center for PTSD (2022), Dworkin et al. (2014), and Seal et al. (2011) found a high prevalence of comorbid PTSD and AUD among veteran and civilian populations. Seal et al. (2011) emphasized that AUD and PTSD symptoms exacerbate each other, resulting in increased emotional dysregulation, avoidance behaviors, intrusive memories, and substance cravings. The evidence continues to show relationships between alcohol use and those with traumatic backgrounds that commonly complain of emotional triggers leading to cravings resulting in relapse, guilt, and shame, just as the addiction cycle outlines. Simpson et al. (2014) concluded that the relationship between PTSD and AUD manifested most significantly when PTSD symptoms flared and the motivation to consume alcohol increased to cope with negative affect and emotion.

Socioeconomic Status

Lower socioeconomic status or occupation can create social and economic disparities that limit access to AUD/PTSD treatment. Ghaderi et al. (2021) found that individuals with lower educational, occupational, and income status or living in a disadvantaged neighborhood had a higher risk of developing AUD than those with higher socioeconomic status. SAMHSA (2021) reports that racial and ethnic minorities in the U.S., including Native Americans and Alaska Natives, are also at an increased risk of AUD compared to non-Hispanic whites. Other groups at higher risk for AUD include multiracial individuals, immigrants, refugees, and ethnic minorities

due to social and cultural pressures, language barriers, limited social support, and beliefs about addiction.

Costs

Financial spending to manage AUD in the U.S. is significant. In 2010, the Centers for Disease Control and Prevention (CDC) estimated that the cost of excessive alcohol consumption was \$249 billion due to binge drinking, with workplace productivity losses (72%), increased healthcare costs for AUD-related issues (11%), motor vehicle crashes (5%), and criminal justice expenses (10%) involving alcohol (CDC, 2010). The updated 2019 CDC estimate for AUD-related costs was \$223.5 billion. These findings suggest that addressing the social determinants of health, such as socioeconomic status and cultural factors, can significantly reduce the incidence of AUD and improve access to care. The substantial financial cost of AUD further emphasizes the need for effective prevention and treatment strategies. As a DNP, these findings could inform the development of interventions and policies that aim to reduce the impact of AUD and address the underlying social and economic factors that contribute to health disparities.

Structural Brain Changes

Addressing health disparities is crucial in providing equitable healthcare, particularly for individuals affected by AUD/PTSD. These conditions often exacerbate each other due to overlapping neurobiological mechanisms, including dysregulation of stress response systems, such as the hypothalamic-pituitary-adrenal axis and the autonomic nervous system (ANS), and shared effects on brain structures like the amygdala, hippocampus, and prefrontal cortex, and balance of neurotransmitters (NT) (Stahl, 2019).

Disruptions in neurotransmitter function develop with chronic alcohol misuse in dopamine, serotonin, gamma-aminobutyric acid (GABA), and glutamate pathways. The body

upregulates GABA and glutamate receptors in response to alcohol consumption, which can lead to withdrawal symptoms, including seizures or death if substances are abruptly stopped instead of tapered (Stahls, 2019). Using substances seizes temporary control of the body's dopamine system to increase dopamine levels in the nucleus accumbens, a key feature in the reward neurocircuitry (Uhl et al., 2019).

Neurocircuitry

In Pavlov's classical conditioning experiments, repetitive exposure to a specific stimulus leads to a conditioned response. For example, Pavlov's dog eventually associated the sound of a bell with receiving food, causing the dog to salivate at the sound alone. This conditioning process, where an initially neutral stimulus becomes linked to a specific response, also applies to humans. In humans, craving is the cue for the euphoric recall of the substance being used as a reward in the past. The now conditioned and automatic compulsion response comes with great intensity, and all negative consequences of using become amnesic, as if consuming was a matter of survival. The person tries hard to resist, but ultimately, if the person does not have a cue of safety to weigh the cue of danger the ANS is responding to, then relapse will most likely occur.

The impulse cycle in humans originates in the anterior cingulate cortex and ventral medial prefrontal cortex of the brain. The signal then travels to the ventral striatum, communicating emotions to and from the thalamus (Stahl, 2019). These emotions may include desires for pleasure, relaxation, or intoxication. Impulsivity arises when there is a lack of control or ability to resist these initial desires. With the repetition of impulsive behavior, control, and circuitry shift to the dorsal striatum, where compulsion develops (Stahl, 2019).

In AUD/PTSD, an individual may consume alcohol to alleviate discomfort, linking the behavior with the euphoric relief sensation. Subsequently, when an emotional stimulus arises, the

impulse to drink to cope with the discomfort recurs. As this behavior becomes increasingly frequent, the person becomes more susceptible to using substances with all triggering experiences of internal sensations of unsafety, discomfort, shame, and other emotions.

The development of compulsion occurs when the impulse to engage in the behavior becomes so frequent that it evolves into an automatic reaction or habit in response to specific stimuli. In the case of individuals with AUD/PTSD, their vulnerability stems from the co-occurring disorders, which increase the likelihood of dysregulated responses and retraumatization as alcohol consumption decreases. The pain, suffering, and remembrance contribute to relapse in this population, as they struggle to process the internal information without resorting to alcohol-induced dissociation, avoidance, and relief.

When the substance is removed, the body may attempt to regulate itself by seeking alternative sources of dopamine, such as gambling, eating, or consuming sugary foods, to regain a sense of pleasure and safety. This highlights the core challenge of resisting cravings tied to addiction memory, as the body relies on these mechanisms for daily functioning and emotional regulation.

The realization that alcohol is an emotional regulator led the DNP project to focus on implementing trauma-informed care approaches. Techniques derived from polyvagal theory can help individuals learn to regulate their autonomic nervous system (ANS). Substance use, in this case, becomes a maladaptive coping mechanism triggered each time an emotion the ANS interprets an emotionally dysregulated stimulus readdressing the root cause of emotional dysregulation, and teaching healthier coping strategies can potentially improve emotional outcomes for individuals with AUD/PTSD.

Addiction Memory

In the addiction memory process, the initial link between alcohol use and the of emotional distress is established when an individual first consumes alcohol to create the internal experience of connectedness or to dissociate from dysregulated internal experiences (Brown, 2019; Hase, 2008). This connection is reinforced through repeated exposure to emotionally triggering stimuli, activating the neural circuitry in the impulse-to-compulsion pathway. Law et al. (2016) and Carletto et al. (2011) saw a direct link between high emotional stress states increasing intensity and frequency of cravings using the OCDS, eventually leading to relapse. The correlation between emotionally high-stress states and craving scores repeated so often that monitoring cravings was used to predict future relapse based on the previous visits scores demonstrating how effective monitoring cravings in practice can be.

The development of AM is similar to the process of conditioning observed in Pavlov's dog experiment. When an individual experiences emotional triggers such as stress, discomfort, or shame, their body's conditioned response is to seek relief through substance use. As this behavior is reinforced, it becomes an automatic reaction, or a maladaptive coping mechanism, that the person relies on for emotional regulation (Stahl, 2019).

For individuals coping with AUD and PTSD, this vulnerability may lead to a harmful cycle of dysregulated reactions and retraumatization, which could intensify as alcohol consumption decreases. This demonstrates the ingrained protective nature of AM and the challenge of resisting cravings.

Metabolism

Toxicity from alcohol begins as soon as it is consumed due to direct damage to the squamous cells and can damage the esophagus by causing inflammation and irritation, potentially leading to conditions like esophagitis. Metabolism follows zero-order kinetics,

meaning the body can only metabolize approximately one standard drink per hour. Faster consumption leads to acetaldehyde accumulation, contributing to hangovers, cellular damage, and increased risk of myocardial infarction (MI) and post-MI mortality (Rajendram et al., 2016).

Liver enzymes primarily metabolize alcohol dehydrogenase (ADH) and aldehyde dehydrogenase (ALDH), which break down into Acetaldehyde, a highly toxic and known carcinogen with 20-80% being absorbed in the small intestine (Most et al., 2008, SAMHSA, 2019). In the stomach, consuming alcohol can disrupt the protective mucosal lining, increasing the risk of ulcers and gastritis (Most et al., 2008). Traveling into the large intestine, serotonin is primarily produced in the gut; alcohol-related intestinal damage may lead to depression or gastrointestinal issues such as fatty liver, alcoholic hepatitis, or cirrhosis (NIH,2021)

Emotional Regulation

Psychologically, trauma is the proverbial “elephant in the room that will inevitably creep into the reality of the person attempting recovery treatment and the many organ systems within the body. As healthcare providers, we must look at addiction more realistically, break the pattern that is not working, and be open to productive ways.

In recognizing the critical role of emotional regulation in addiction, trauma-informed care approaches such as EMDR and polyvagal therapy can be employed as part of a comprehensive treatment plan. Law et al. (2016) found a direct link between high stress and increased cravings that lead to relapse. Carletto et al. (201) also found a stress-related system in maintaining substance use behaviors. Resources such as polyvagal work, monitoring of cravings, and addressing AM and underlying trauma with EMDR could significantly increase chances for long-term sobriety.

These methods can help individuals develop healthier coping mechanisms for emotionally triggering stimuli while addressing the underlying trauma contributing to their addiction. By focusing on healing and building resilience, these interventions aim to improve daily functioning, social relationships, and overall quality of life for those struggling with addiction and PTSD.

Background

Individuals with PTSD /AUD often experience more severe symptoms, poorer treatment outcomes, and an increased risk of relapse than individuals with either disorder alone (Seal et al.,2011). As a result, it is crucial to address the physiological processes and effects of alcohol on the body and the complex interplay between PTSD and AUD in developing effective treatment strategies for this population (Straus et al., 2018; Roberts et al., 2015).

During USF PMHNP clinical rotations at Ria Health, a telehealth AUD MAT recovery program established in San Francisco, CA, patients frequently reported that emotional triggers, daily habits, and cravings contributed to their alcohol consumption. As their treatment progressed, patients struggled with managing the intensity and frequency of cravings. Moreover, they observed that as their drinking decreased, unresolved trauma resurfaced, intensifying their cravings and making sobriety more challenging to maintain. The combined effects of trauma and alcohol consumption significantly impacted the patients' experience, motivation for recovery, and overall health and well-being. This observation was brought up in psychotherapeutic supervision, part of the DNP lead's USF PMHNP clinical rotations, and agreed that PVT could be a great starting point for addiction stabilization and teaching emotional regulation.

As a result of these observations, the potential benefits of applying previously learned EMDR and PVT trauma-informed care approaches to address craving issues and improve

emotional regulation in the AUD/PTSD population. The DNP student quality improvement project lead received training in EMDR and PVT techniques in 2021 and believed they could help patients manage the resurfacing of traumatic experiences, including somatic flashbacks—sensations and emotional flashbacks within the body (Sweeton, 2019).

When these observations and suggestions were presented to Dr. John Mendelson, Chief Medical Officer (CMO) of Ria Health, he found the idea compelling and approved a feasibility assessment. By integrating EMDR and PVT into the treatment process, patients would hopefully experience enhanced recovery outcomes and better overall health and well-being. Ria Health's CMO endorsement further reinforced the potential value of incorporating these trauma-informed care approaches into the AUD/PTSD treatment process.

High relapse rates, with 85% of individuals experiencing relapse within the first year and 40-60% within one-month post-AUD treatment, underscore the heightened vulnerability of those grappling with co-occurring trauma and AUD (NIH, 2018). Trauma-informed care approaches include monitoring cravings using OCDS, evaluating internal perceptions of safety with NPSS assessments, and incorporating polyvagal theory and EMDR interventions. Monitoring cravings during and after seems to provide valuable information for healthcare providers regarding a patient's implicit triggers and experiential struggles, which may not be immediately apparent through autobiographical accounts. By monitoring the intensity and frequency of cravings, healthcare providers can assess the effectiveness of daily medications and potentially identify underlying issues hindering successful treatment outcomes. Evidence shows that cravings can be implemented as a predictor of relapse but rarely are they monitored during treatment (Sinha et al., 2011; Iliakis, 2021, & Schmidt, 2014). This highlights the importance of incorporating

craving monitoring into addiction treatment protocols to inform clinical decision-making better and optimize patient outcomes.

Emotional triggers holding traumatic material ignite a maladaptive coping mechanism that utilizes a process of AM to fuel a compulsion to use a substance. These craving cycles, like trauma, are stored implicitly in the brain, which is why most cognitive approaches are impractical (Sweeton, 2021). The AM in a craving cycle is a maladaptively linked euphoric sensation memory linked to the behavior of using the substance (Hase, 2008). AM will recreate an intense recall of the euphoric sensations, thoughts, and emotions of using the substance to dissociate or feel reconnected after using and regulating the emotional upset (Brown, 2019). The body learns a conditioned response that manifests as a craving. The AM involved in that process drives the compulsion and makes all negative consequences of the behavior amnesic. When the body system has implemented this defense mechanism against the emotional trigger, the patient cannot name one reason, even if offered to them, why it would be a bad idea to use the substance right now. Patients who cannot emotionally regulate are likelier to experience more frequent cravings (Law et al., 2016).

Given these challenges, it is essential to explore trauma-informed care approaches like PVT and EMDR options. PVT addresses emotional dysregulation and EMDR addresses traumatic material, and AM in addiction protocols. Incorporating these evidence-based interventions in AUD treatment plans may offer more comprehensive support to patients, ultimately improving treatment outcomes and reducing relapse rates.

Both trauma and addiction necessitate somatic or “in the body experiencing” approaches that emphasize a sense of safety and mastery of emotional regulation. This enables patients to progress through treatment with a better understanding and tolerance for identifying the root

causes of their addiction and comprehending past traumatic experiences. Furthermore, PVT emotional regulation skills bring a sense of control, autonomy, and hope that recovery is possible and achievable. Polyvagal techniques can be employed to readjust the nervous system and improve emotional regulation in individuals. The techniques target the ANS to promote social engagement and feelings of safety, teaching the person to balance, assess, and regulate the internal cues of safety and danger. According to Dr. Stephen Porges' Polyvagal Theory, the ANS consists of three primary neural circuits: the parasympathetic social engagement system located in the face, the sympathetic fight-or-flight response located in the chest, and the parasympathetic dorsal vagal shutdown response located in the belly (Porges & Dana, 2018). These circuits are organized hierarchically, with social engagement being the most evolved and adaptive.

In people with AUD/PTSD, chronic stress or trauma may lead to nervous system dysregulation, resulting in difficulties with emotional regulation, increased anxiety, and maladaptive coping behaviors (Porges & Dana, 2018). Polyvagal techniques stimulate the vagus nerve, which regulates the parasympathetic nervous system and promotes relaxation, restoring balance to the ANS and enhancing emotional regulation (Dana, 2018). Techniques included diaphragmatic breathing, mindfulness and meditation, social engagement, vocalization and humming, and progressive muscle relaxation. By incorporating these practices into treatment, individuals with AUD/PTSD can experience improved emotional regulation and a greater sense of safety, contributing to more effective recovery and long-term success in overcoming their addiction and trauma-related challenges. Polyvagal theory emphasizes the role of the autonomic nervous system, particularly the vagus nerve, in regulating emotional responses and social engagement.

While empirical evidence for the direct application of polyvagal theory in trauma, PTSD, substance relapse, or AUD is limited, there is a growing body of research supporting the use of polyvagal principles can help improve emotional regulation and reduce symptoms of trauma and PTSD (Porges & Dana, 2018). Furthermore, some evidence suggests that interventions based on somatic approaches can positively impact substance use disorders, including AUD (Sweeton, 2019). These interventions may help individuals develop better emotional regulation skills, improve coping mechanisms, and reduce the likelihood of substance relapse.

EMDR is an evidence-based, eight-phase therapy model for reprocessing complex and single-event trauma. The neurobiological imprint associated with addiction and trauma appears resistant to change but has been shown to respond to EMDR therapy when intense cravings or relapse memories are targeted (Rousseau, 2019). Weibren and Hornsveld's (2017) article critically examines the literature on EMDR addiction protocols, noting that certain populations are more susceptible to relapse due to comorbid psychiatric diagnoses such as trauma, depression, and high stress. Their study found that reprocessing memories related to cravings resulted in decreased cravings and an increased sense of control over them (Weibren & Hornsveld, 2017). EMDR-specific addiction protocols target different triggers related to cravings and relapse and can be applied to various forms of addiction, including substance abuse, food, gambling, and more. The CravEx protocol in EMDR therapy, for example, focuses on unlinking the association between the euphoric recall of a substance and the subsequent behavior (Hase et al., 2008). By doing so, patients are liberated from uncontrollable compulsions to use substances when emotionally triggered. Without the amnesic effects of addiction memory, patients can recall negative consequences and make informed choices about whether to use substances. This is

further supported by teaching PVT emotional regulation skills, which enhance patients' internal relationships with themselves.

Both EMDR and PVT emotional regulation employs somatic, bottom-up approaches. By viewing cravings as part of a conditioned response controlled by addiction memory and its amnesic qualities, patients can better understand why their cravings seem impossible to ignore, particularly when associated with trauma. EMDR addiction-specific protocols naturally address trauma, with CravEx shown to reduce the intensity and frequency of cravings. Some patients experience complete remission, and their addiction memory is disabled, allowing them to make choices free from compulsions manifested as cravings (Hase et al., 2008).

Integrating PVT to interrupt emotional triggers and targeting addiction memory with EMDR addiction protocols stabilizes addiction during treatment by significantly reducing cravings' intensity and frequency. This allows patients to remember negative consequences and break the amnesic quality of addiction memory. Monitoring cravings provides valuable information to care teams and providers regarding patients' struggles with intense cravings and relapse. The OCDS is useful for predicting treatment outcomes (Schmidt et al., 2011).

Addressing emotional triggers and reducing cravings driven by maladaptive coping mechanisms in response to trauma significantly improve long-term recovery for the AUD/PTSD population. Incorporating craving monitoring into addiction treatment protocols can better inform clinical decision-making and optimize patient outcomes. Monitoring the intensity and frequency of cravings allows healthcare providers to evaluate medication effectiveness and identify underlying issues that may impede successful treatment.

Setting

It was observed that some patients at Ria Health might be holding complex trauma that requires concurrent treatment for both PTSD and AUD. Patients who present with trauma symptoms and struggle with cravings and relapse risk are noticing AUD medications reduce drinking and their trauma resurfaces. A total of 11 patients volunteered to participate in trying trauma-informed care approaches to see if it helps overcome cravings and manage emotional dysregulation without using substances. The setting for this DNP project includes a private practice office where one participant is seen in person while the remaining 10 participants receive treatment via telehealth. Two private practices support this DNP project, Ria Health's telehealth AUD MAT program in San Francisco, CA, and Healthy Minds Counseling Center in Brentwood, CA. Ria Health primarily addresses the medical aspects of AUD treatment, including medication and weekly coaching sessions to support recovery. Current assessment of staff procedures it was identified that Ria Health's telehealth AUD MAT program lacked a trauma-informed care approach. In contrast, Healthy Minds Counseling Center, a private therapeutic practice owned by Kira Monterrey, LCSW, offers a licensed therapist to address trauma but does not have an active provider prescribing AUD medication. Monterrey precepts the DNP project lead manuscript while executing the therapeutic process with the 11 participants.

Observations during clinical rotations patients at Ria Health reported a diagnosis of PTSD or uncontrollable cravings during the medical team appointments. As patients' alcohol consumption decreases, trauma can resurface, leading to destabilization and potential relapse during treatment. With further assessment and questioning of the patient, it became apparent that trauma was driving the craving and causing the relapse due to emotional triggers. Patients also observed that they have no control over the self when a triggered craving occurs. When a patient expressed these concerns, they were recruited for possible treatment. There were 22 patients

recruited, with 12 responses, and one dropped out after the second session to try dialectical behavioral therapy.

Specific Aim

Over 3 months, 16-20 sessions of trauma-informed care approaches, EMDR, and polyvagal theory with AUD/PTSD patients at the Ria Health AUD MAT treatment program to assess their feasibility and interest. In addition, the project will assess the feasibility of a larger pilot study based on the findings of the improvements observed.

The project aims to highlight and inform readers about the value of trauma-informed care strategies, which can be particularly beneficial for patients recovering at Ria Health and other recovery programs. By promoting collaborative treatment planning between medical professionals and licensed therapists, we can effectively address the complex connection between addiction and trauma. Introducing changes in practice, such as monitoring cravings using OCDS or educating individuals about addiction-related memory processes that perpetuate uncontrollable cycles, may have a significant impact. This project seeks to enhance the understanding of both patients and providers about the role trauma plays in addiction processes and addiction memory, as well as emphasize the importance of somatic bottom-up approaches, including PVT, EMDR, and mindfulness, in stabilizing addiction and fostering long-term recovery.

Available Knowledge

PICOT

In patients with concurrent AUD/PTSD in medication-based treatment with coaching at Ria Health and Healthy Minds Counseling Center (P), will the addition of trauma-informed care approaches (I), compared to the current treatment without trauma-

informed care approaches (C), improve patient emotional regulation ability and experience increased craving control (O) within 16-20 weeks (T)?

Search Methodology

The Johns Hopkins Nursing Evidence-Based Practice (JHEBP) Research Evidence Appraisal Tool and the JHNEBP Evidence Rating Scale were employed to search and evaluate the quality and level of evidence for selected empirical articles between August 2021 and July 2022. The search strategy used relevant terms such as PTSD/AUD, trauma-informed approaches, concurrent treatment, AUD, cravings, relapse, and PTSD/AUD concurrent treatment. The search used the Gleeson library databases, PubMed, CINAHL, and Cochrane.

When a search was completed in PubMed for *concurrent AUD/PTSD treatment*, Roberts et al. (2016) found evidence from a systematic review. Six more level II Quality A articles were found to support monitoring of cravings, use of EMDR, and concurrent psychological trauma treatment and SUD.

A Gleeson Library search for *PTSD/AUD* resulted in 2,667 articles, mainly addressing the treatment of military veterans with co-occurring disorders. A CINAHL search for *AUD and PTSD*, and relapse yielded four articles, with one appropriate for evidence. In contrast, a search for *AUD and PTSD and concurrent treatment* produced seven articles, predominantly about exposure treatment in military and SUD treatment contexts. No valuable articles were found when searching for *AUD, PTSD, and trauma* in the Gleeson library, which returned 34 articles. The Cochrane database provided limited results, with only one pertinent article discovered when adding the term trauma, discussing trauma-focused care approaches in the concurrent treatment of addiction and trauma.

When analyzing each topic separately, Gleeson's research yielded millions of results, whereas Cochrane produced less than 30 results for the same three terms. The total number of articles referenced in this paper is 45, which includes 16 focused Level three or above articles as supporting evidence. These search results highlight the possibility of undiscovered research and novel treatment combinations. Implementing trauma-informed care techniques with the project's participants led to improvements that exceeded expectations.

Integrated Review of Literature

Roberts et al. (2015) Level I, Quality A systematic review and meta-analysis highlights the importance of utilizing trauma-focused and non-trauma-focused treatments when addressing this population's needs. A total of 13 RCTs, including 959 participants, were included in the meta-analysis. The meta-analysis resulted in a significant effect of psychological interventions on PTSD symptom reduction ($p = 0.59$; 95% CI: 0.35 to 0.82) and substance use reduction ($p = 0.29$; 95% CI: 0.11 to 0.47). When analyzing the subgroups, trauma-focused treatments, including EMDR, cognitive processing therapy, and prolonged exposure therapy, significantly reduced PTSD symptoms ($p = 0.67$; 95% CI: 0.39 to 0.95). Non-trauma-focused treatments, such as coping skills training and relapse prevention, significantly reduced substance use ($p = 0.35$; 95% CI: 0.12 to 0.58). This study supports concurrent treatment reviews of psychological trauma-informed care approaches and emphasizes the vastness of the co-occurrence of AUD. PTSD has become.

Seal et al. (2011) Level III Quality A, investigated the Veterans Affairs healthcare records between 2001 and 2010 to find correlations between AUD and PTSD among the military. Substance use disorders are a significant concern among veterans, particularly those who served in Iraq and Afghanistan. This review focuses on the article by Seal et

al. (2012), which explores the prevalence of SUDs in veterans receiving healthcare from the Veterans Affairs (VA) system between 2001 and 2010. The study emphasizes the importance of screening, diagnosis, and treatment for SUDs in this population. The study found that 11.7% of the veterans had a SUD diagnosis, with alcohol use disorder being the most prevalent (8.7%), followed by drug use disorder (4.4%) and opioid use disorder (1.8%). The authors also discovered a high prevalence of comorbid mental health disorders, with 44.6% of the SUD-diagnosed veterans having a concurrent mental health diagnosis. Notably, only 33.0% of the veterans diagnosed with SUD received evidence-based treatments, such as pharmacotherapy or psychosocial interventions, for their disorder.

Relapse Risk

Law et al. (2016) Level III asserted, "Patients reporting higher stress levels experienced more intense and frequent alcohol cravings, with higher craving levels predicting lapse during treatment" (p. 1062). Additionally, the study identified that both early and late lapse patients experienced significantly more cravings than the abstinent group. Patients who reported higher stress levels experienced more intense and frequent alcohol cravings. The study also revealed that both early and late relapse patients had significantly more cravings than the abstinent group. Significant differences in ACE scores were observed between the early relapse and abstinence groups (ACE-S: $H(1) = 70.78$, $p < 0.001$; ACE-F: $H(1) = 46.77$, $p = 0.008$) and between the late relapse and abstinence groups (ACE-S: $H(1) = 50.74$, $p = 0.006$; ACE-F: $H(1) = 62.79$, $p = 0.001$). However, no significant differences were found between early and late relapse groups.

Kharb et al. (2018) Level III Quasi-Experimental examined the effect of cravings on short-term relapse in patients seeking treatment for AUD and how cravings changed following

treatment. The study included 34 male patients enrolled in an addiction recovery program. The results emphasized the role of cravings as a primary factor contributing to relapse. The researchers compared pre- and post-treatment scores using the Clinical Institute Withdrawal Assessment Scale-Alcohol-Revised (CIWA-AR), Severity of Alcohol Dependence Questionnaire (SADQ), and the Penn Alcohol Craving Scale (PACS). Statistically significant differences in PACS scores were observed between relapsed and non-relapsed patients at discharge and follow-up ($t = 4.15, p < 0.0001$; $t = 4.01, p < 0.0001$), with higher PACS scores linked to relapse. This relationship between higher craving scores and relapse highlights the potential for predicting relapse, which can help tailor treatment plans accordingly.

At the one-month follow-up, 21 out of 34 patients (71%) experienced relapse after treatment. Higher PACS scores at discharge were associated with an increased risk of early relapse, with scores nearly doubling compared to non-relapsed patients (Kharb et al., 2018). Furthermore, Kharb et al. (2018) used the severity of cravings reported at the end of treatment to predict relapse at three, six, and twelve months, finding a 72% probability of relapse in the sample, which was statistically significant ($p < 0.001$).

Stohs et al. (2019) Level III Quality A recruited 190 patients in a residential AUD program and monitored cravings at admissions, discharge, and then at three, six, nine, and twelve weeks with the PACS. When this study compared Cox regression models, high PACS craving scores and relapse were statically significant for increased relapse risk within the third and the twelfth month ($p = 0.032, p = 0.045$). The study outcome strongly associated relapse after treatment with monitoring cravings using scores as outcome predictors. A high three-month PACS score was observed to increase the likelihood of relapse by ITT univariate analysis ($p =$

0.0001, HR = 1.10). The multivariable analysis found no other relationships besides PACS and three months.

Iliakis et al. (2021), a Level II Quality A study, was an RCT with 408 adult AUD participants recruited from community-based alcohol services. The study aimed to evaluate the effectiveness of the OCDS in predicting treatment outcomes and guiding treatment decisions. The study found that using the OCDS scale was significantly associated with improved alcohol abstinence rates and reduced craving intensity. Specifically, the researchers reported a statistically significant decrease in craving intensity ($p < 0.001$) and alcohol use frequency ($p < 0.05$) among participants who completed the OCDS. Additionally, participants who completed the OCDS were significantly more likely to achieve abstinence from alcohol ($p < 0.001$) compared to those who did not complete the OCDS. These findings suggest that the OCDS scale may help improve, guide, and predict treatment outcomes in individuals with alcohol use disorder.

Anton et al. (1999) is a Level IV qualitative study exploring the OCDS scale's internal reliability compared to the Yale-Brown Obsessive Compulsive Scale-heavy drinker (Y-BOCS-hd) on 60 participants. Pearson's r correlation showed the relationship between scores for YBOCS and OCDS were obsessive subscales 0.82. The compulsive subscales were 0.69, and the total score was 0.83. This result indicates that the OCDS and YBOCS are agreeable to each other ($p=0.001$). The amount of alcohol consumed and its relation to the OCDS score found Pearson's r correlations statistically significant in the obsessive subscale ($r = 0.42, p=0.01$) and the compulsion subscale ($r = 0.43, p = 0.001$). The OCDS score will get higher, demonstrating increases in the intensity and frequency of the craving. Those with high OCDS scores show a higher risk of relapse.

Schmidt et al. (2011), Level II Quality A, investigates the predictive value of the OCDS for outcomes in alcohol-dependent inpatients and conducted a 24-month observational study in 104 patients treated for alcohol with reliable validity test scores for OCDS. They also found it reliable to predict relapse outcomes based on the previous follow-up OCDS scores at the sixth, twelfth, and 24-month post-treatment follow-up. Of the 104 participants interviewed at the 24-month post-follow-up, 72% had been continuously abstinent until six months after discharge and 67% until the 12-month follow-up, and 60% abstinent until the 24-month follow-up (Schmidt, 2011). There was a significant correlation between OCDS scores in the six-month follow-up and the relapse outcome in the 12-month and 24-month follow-ups. The mean 12-month OCDS scores of patients abstinent or non-abstinent at 24 months were 1.4 in abstainers vs. 4 in non-abstainers (OR = 0.8, $p < .05$, 95% CI = 0.7, 0.9) in the Compulsion subscale; 0.9 (abstainers) vs. 2.5 (non-abstainers) in the obsessive subscale (OR = 0.8, $p < .05$, 95% CI = 0.6, 0.9); and 2.1 (abstainers) vs. 6.7 (non-abstainers) in the total score (OR = 0.8, $p < .05$, 95% CI = 0.7, 0.9).

Morton et al. (2021) is a Level III Quality A study and guide for the NPSS. They created and tested a 29-item self-reporting measure of the internal felt sense of perceived safety before and after the clinical use of polyvagal theory techniques for 318 participants. The NPSS assesses the experiential perception of psychological, relational, and physiological perceived safety. The assessment also has - three subscales specific to evaluate social engagement, bodily sensation, and compassion towards the self and others. The NPSS is compatible with the PVT clinical applications and is the most reliable measurement of the emotional regulation techniques used for this project. It measures the felt sense of safety as the nervous system experiences it. If the system feels safe, then social interaction and connection will be accessible to that person. Descriptive

statistics showed initial reliability statistically significant in all subscales for Cronbach's α (total 0.95, social engagement .93, compassion .94, bodily sensations 0.92), and the entire NPSS Cronbach is an internal reliability of 0.95. An independent t-test was done to see if there was a difference in scores between gender, and there were no statistically significant results. NPSS measures are an excellent way to see a project's impact on the patient's life due to the projects implemented and executed quality improvement to patient care.

Intervention evidence

Kullack and Laugharne (2016) conducted a Level IV study that investigated the effectiveness of EMDR in a small concurrent treatment trial at the Fremantle Research Hospital. The study aimed to evaluate the impact of EMDR on reducing PTSD symptoms, alcohol, and substance abuse in four patients. To assess the outcomes, the 16-item Mini-International Neuropsychiatric Interview (MINI) was administered via telephone before and after EMDR treatment, and the results were analyzed using descriptive statistics.

The participants in the study included one patient with substance use disorder (SUD) and three with alcohol use disorder (AUD). All four patients met the criteria for adult-onset PTSD as per the civilian PTSD checklist (PCL-C), with scores higher than 44 and lower than seven on the Dissociative Experience Scale (DES). The three AUD participants, a firefighter, a police officer, and a correctional officer, had experienced trauma related to their first responder roles. The patient with SUD underwent five EMDR sessions, while the AUD patients received between four and six sessions each. At the 12-month follow-up, all four patients reported reduced substance use and cravings. The SUD patients no longer relied on marijuana for anxiety relief, and the AUD patients experienced decreased alcohol cravings, with two achieving abstinence

and one reducing consumption. Consequently, the two patients no longer met the criteria for an AUD diagnosis. The PCL-C scores also significantly reduced from 55.25 at the initial assessment to 21.5 post-treatment (Kullack & Laugharne, 2016).

Hase et al. (2008), rated at a Level IV the creator of EMDR's CravEx protocol, did an RCT clinical trial with 34 randomly assigned patients in an alcohol-addicted inpatient detoxification program in a German Regional Psychiatric Center. The study aimed to assess the efficacy of his own EMDR addiction protocol, called Crave Extinction or CravEx for short. The focus was working with addiction memory and unlinking the behavior from the experience that bound the behavior as a conditioned response. Measurement tools included the Beck Depression Inventory (BDI), the Posttraumatic stress scale (PTSS-10), and the OCDS. Upon the treatment program's termination, the patients receiving EMDR felt a significant decrease in alcohol cravings and depressive symptoms (Hase et al., 2008). Descriptive statistics t-tests and Chi-square tests were used to look for significance. At the one-month follow-up, post-treatment BDI revealed a statically significant difference from the EMAR+TAU (8.7 SD 6.7, $T = 4.0$, $p = 0.01$) treatment compared to the control TAU group with a slight reduction (15.4 SD 7.8, $T = 0.9$, $p = .37$). This was completed in about two sessions of EMDR CravEx. The OCDS scores showed a statistically significant reduction compared to the pretreatment OCDS scores (13.7 SD 5.7, $T = 6.2$, $p < .001$). CravEx was shown to reduce the intensity and frequency of cravings, with some patients experiencing complete remission.

Weibren and Hornsveld (2017) is a Level II Quality B Quasi-experimental literature review of 25 quasi-experimental and prospective cohort studies on using EMDR therapy in addiction treatment. The authors found that EMDR therapy may be effective in treating substance use disorders, including alcohol and drug addiction, and that it can improve mental

health symptoms and reduce cravings. However, limitations include small sample sizes and lack of control groups. They also present the protocols in a successive order that they felt would be the most efficacious way to target and treat all facets of the addiction process. The article examines EMDR addiction protocols used in addictions and outlines ways to use all the addiction protocols in one treatment to reduce every aspect of relapse potential. This qualitative grounded theory design is based on existing literature, theoretical considerations, and clinical experience. The study found that reprocessing memories related to cravings led to decreased cravings and a more significant experience of control over the craving (Weibren & Hornsveld, 2017).

Rousseau et al. (2019) are Level III Quality A showing neurologic changes and brain activity during an emotional task before and after EMDR. During “negative” emotional face recognition tasks using functional magnetic resonance imaging (fMRI) and a self-reporting PTSD symptom checklist, PCL-5. An fMRI measures brain activity by detecting blood-oxygen-level-dependent (BOLD) imaging changes. The brain structures pinpointed for this study were the limbic structures-amygdala, the insula, the thalamus, and the hippocampus and cortical activities, especially in the dorsolateral prefrontal cortex. Hyperactive bilateral amygdala activation while processing emotional safety and danger cues is a consistent finding in those with PTSD (Rousseau, 2019). The study included 16 healthy non-PTSD patients and 16 PTSD patients that met DSM-5 criteria for a single traumatic event with no history of neurologic or psychiatric disorders in either group (Rousseau et al., 2019). No set number of EMDR sessions was outlined, and sessions were planned every 7 to 15 days. A Pearson correlation was performed between the PCL-5 score and BOLD changes in the patient’s brain structures performing the same task before the EMDR session and after the EMDR session. The study

found a significant decrease in thalamus BOLD signal after EMDR therapy. It decreased the PCL-5 score ($r=0.62$, $n=16$, $P<0.01$) with PTSD symptom remission.

Polyvagal Theory

Porges and Dana (2018) and Dana (2018) are texts that inform on the clinical use of PVT. The books explain how to teach and perform the exercises to help retrain the nervous system to accurately assess for safety and danger cues in rebalancing the system's ability to respond. PVT is holistic healing based on experiential experience (Dana, 2018). The gentle befriending of the ANS brings a common language and understanding between the everyday acting adult and the internally felt sense of knowing. PVT describes how the nervous system is subconsciously looking for cues of safety and threat by the ANS that leads to physiological, affective, and behavioral responses (Porges & Dana, 2018). Trauma reprocessing relieves the patient of early defense mechanisms that are no longer necessary (Porges & Dana, 2018). PVT helps re-teach the nervous system how to properly regulate the current environment with adaptive resources for regulation and accurate cueing for safety and danger (Dana, 2018). Please see ***Appendix A***

Evidence Table.

Synthesis of the Evidence

Somatic psychotherapy, such as PVT, offers a holistic and experiential approach to healing by addressing the ANS and fostering a sense of internal safety (Dana, 2018). PVT recognizes the ANS's subconscious role in seeking safety cues and regulating physiological, affective, and behavioral responses (Porges & Dana, 2018). Trauma reprocessing through PVT can help individuals overcome maladaptive defense mechanisms that are no longer necessary.

Addictive behaviors often serve as coping and survival strategies in response to chronic stress or perceived threat. Law et al. (2016) found that patients with higher stress levels

experienced stronger and more frequent alcohol cravings, which accurately predicted relapse outcomes. In the absence of internal safety, survival responses dominate daily life, contributing to the development of addiction as a solution for managing pain or anxiety.

PVT helps retrain the nervous system to interpret and respond to environmental cues accurately, fostering adaptive regulation and differentiation between safety and danger (Dana, 2018). Although empirical evidence directly linking polyvagal theory to trauma, PTSD, substance relapse, or AUD is limited, research supports using polyvagal principles for improving emotional regulation and reducing symptoms of trauma and PTSD (Porges & Dana, 2018). Somatic approaches, such as PVT, have shown potential for positively impacting substance use disorders, including AUD (Sweeton, 2019), by promoting emotional regulation, healthier coping mechanisms, and reducing the likelihood of substance relapse.

Monitoring cravings with the OCDS and personal perceptions of internal safety with the NPSS are great tools to help track symptom intensity and frequency. Anton et al. (1999) found OCDS to be a reliable measure compared to the Yale-Brown Obsessive Compulsive Scale-heavy drinker (Y-BOCS-hd). The study showed a significant relationship between relapses reported at the current visit and higher OCDS scores at the previous visit. Schmidt et al. (2011) confirmed OCDS's reliability in predicting relapse outcomes in a 24-month observational study. Iliakis et al. (2021) found that using the OCDS scale was significantly associated with improved alcohol abstinence rates and reduced craving intensity. Law et al. (2016) identified a significant association between stress-induced cravings and relapse. Kharb et al. (2018) demonstrated the predictability of relapse based on the severity of cravings reported at the end of treatment. Stohs et al. (2019) also confirmed the association between high craving scores and relapse. Morton et

al. (2021) developed the NPSS to assess patients' internal feelings of safety, demonstrating the scale's reliability. The study highlighted the importance of internal safety in addressing addiction.

Rousseau et al. (2019) showed neurological changes and brain activity during an emotional task before and after EMDR therapy. Kullack and Laugharne (2016) conducted a small concurrent treatment study that reduced PTSD, alcohol, and substance abuse in patients using EMDR. Hase et al. (2008) further supported the efficacy of EMDR therapy in chronic alcohol dependence by measuring cravings with the OCDS.

In conclusion, the OCDS and NPSS have been shown to be reliable in predicting relapse outcomes and assessing internal safety. EMDR therapy has demonstrated effectiveness in addressing addiction, PTSD, and trauma. High craving scores are correlated with increased relapse risk, emphasizing the importance of monitoring cravings during treatment.

Rationale

The quality improvement rationale is multifaceted and highlights some of the most significant challenges facing individuals with AUD/PTSD. The evidence demonstrates that individuals with co-occurring AUD and PTSD have higher relapse rates than those with either condition alone (Sinah2011), emphasizing the importance of identifying and addressing the underlying trauma.

Quality improvement is driven by the Plan-Do-Study-Act (PDSA) cycle to assess, develop, implement, and study results of the potential of trauma-informed care approaches. Theoretical frameworks and concepts from EMDR's Adaptive Information Processing (AIP) model, Polyvagal Theory for emotional regulation, and the SAMHSA Treatment Improvement Protocol (TIP 57) Trauma-Informed Care in Behavioral Health Services guides the implementation of trauma-informed care approaches.

The project's Planning phase activities were the assessment and recruitment of participants, design, and preparation to implementation care approaches, EMDR for processing traumatic memories, and polyvagal therapy for emotional regulation. Next, in the Do phase, we will conduct 16-20 sessions, monitoring patient engagement, satisfaction, and outcomes using relevant scales and observation in each session. The Study phase will involve evaluating the effectiveness of the interventions, assessing improvements in treatment experiences and success rates, and determining if a larger pilot study is warranted. Finally, in the Act phase, we will use the gathered data to inform and potentially create increased improvement in the treatment program for each participant and assess the integration of the approaches into Ria Health's current treatment program. Throughout the project, we will emphasize the importance of addressing trauma and enhancing emotional regulation to improve patient outcomes and overall treatment success.

Trauma-informed care is a theoretical framework for treating individuals who have experienced trauma. This approach emphasizes the importance of understanding the impact of trauma on individuals and the need to create a safe, supportive, and empowering environment that supports the framework from the SAMHSA TIP 57. The TIP 57 provides comprehensive guidelines for integrating trauma-informed care in behavioral health settings, emphasizing the importance of recognizing the prevalence of trauma, understanding its impact on individuals, and incorporating trauma awareness into all aspects of service delivery. Using this guideline ensures that the approach is grounded in evidence-based practices and incorporates the core principles of trauma-informed care of safety, trustworthiness, choice, collaboration, and empowerment. This framework has enabled the project to effectively address the complex relationship processes of AUD and PTSD.

The framework is the EMDRs adaptive information processing (AIP) model. These frameworks work hand in hand to create change in life. For those that have underlying trauma, additional tools will be needed. The AIP model aids in case conceptualization and assesses readiness for EMDR. Trauma triggers and cravings cycles in addiction aim to protect the body system from events that look or feel like past traumatic events. EMDR is used to reprocess the traumatic memory or AM, and bilateral stimulation (BLS) helps access the stored memory and bring it into working memory. When this process is successful, reprocessed memories can hardly be experienced somatically, emotionally, or cognitively.

Polyvagal Theory as a framework to address emotional dysregulation in addiction treatment. This theory, developed by Dr. Stephen Porges, provides valuable insights into the role of the autonomic nervous system in emotional regulation, stress responses, and social engagement. By applying Polyvagal theory concepts, we have assessed, identified, and targeted specific physiological and emotional dysregulation patterns in our patients, helping them develop effective stress management strategies, enhancing emotional resilience, and fostering healthier coping mechanisms. This approach complements the trauma-informed care framework, ensuring a comprehensive and integrated treatment plan for those struggling with PTSD and AUD.

Methods

Context

The population served by Ria Health and Healthy Minds Counseling Center consists primarily of individuals struggling with addiction, mental health challenges, and co-occurring disorders, such as PTSD. Both organizations are committed to providing comprehensive, evidence-based care to help clients achieve lasting recovery and improved mental well-being. Ria Health caters to a diverse population, including individuals from various cultural, socio-

economic, and age backgrounds. Ria Health's mission, values, and aims to understand the complex nature of addiction and mental health issues and recognize the need to address each client's unique needs and challenges.

The context for using Ria Health and Healthy Minds Counseling Center in this DNP project is their expertise in concurrently addressing addiction and mental health issues. As research shows a strong link between addiction and trauma, it is adopting a trauma-informed approach to care for individuals with co-occurring disorders is essential. Health and Healthy Minds have demonstrated their commitment to this approach by integrating evidence-based practices in trauma therapy with addiction treatment and felt motivated to support this DNP project.

The intervention for this project focused on identifying individuals with trauma and providing them with appropriate care. To identify someone with trauma for this project, the patient had to mention trouble coping with cravings or signs of trauma-related symptoms, such as flashbacks, nightmares, avoidance behaviors, and heightened arousal.

Once an individual with trauma is identified, the Ria Health and Healthy Minds care team can implement a resource, referral, or further trauma treatment. This plan included trauma-focused therapies, such as EMDR and PVT to help clients process and heal from their traumatic experiences. In addition, the team provided ongoing support, education, and resources to help clients develop coping skills, manage cravings, and maintain sobriety.

A feasibility assessment for incorporating trauma-informed care into existing pharmaceutical-assisted treatment to address cravings and emotional dysregulation, which may drive addiction. This approach uses craving measurements to potentially identify underlying trauma and predict relapse outcomes, thereby enhancing treatment

effectiveness. The combination of trauma-informed care approaches, PVT, and EMDR, addressed underlying emotional dysregulation related to trauma. PVT was implemented to address this gap to provide emotional regulation and trauma reprocessing during AUD treatment. In addition, the OCDS was used to monitor cravings before and after trauma reprocessing, providing insights into underlying trauma.

Intervention

Eleven participants received trauma-informed care approaches, six of whom will receive AUD MAT at Ria Health from July 15, 2022, to Dec 28, 2022. The intervention will consist of approximately 16 to 20 - 90-minute sessions. The OCDS and NPSS were administered pre- and post-treatment to measure reduced craving experiences and improved internal felt sense of safety. The results were assessed using SPSS descriptive statistic paired, two-sided t-test to determine statistical significance.

To replicate this project, certain prerequisites and training must be completed before beginning. First, basic training in EMDR and PVT is necessary. While PVT training materials can be purchased and practiced independently, it is beneficial for a therapist with formal training to facilitate the process. Additionally, it is advantageous for the professional administering the psychological treatment to have personal experience with PVT and EMDR, although this is not a strict requirement. Such experience can provide a deeper understanding of the changes experienced while using these techniques. Once the training is completed, the next step is to recruit participants or patients interested in trying the intervention. It is essential to understand the basics of dissociation, depersonalization, and derealization, as outlined and guided by the DSM-5

This understanding is particularly important when dealing with Complex-PTSD,

characterized by a chronic history of traumatic or abusive experiences. EMDR can only be successful if the person remains stable while reprocessing trauma, which is why PVT is incorporated as the stabilizing factor for the treatment. Even if a patient only learns PVT and never engages in reprocessing, the ability to emotionally regulate in stressful situations can still contribute to a higher success rate.

Session outline:

1. 1-4: Stabilizing addiction and emotional responses to stimuli using PVT, psychoeducation on addiction cycles, AM and its role in cravings and trauma, establishing the therapeutic alliance.
2. 5-8: Continue with PVT, re-teaching the ANS to respond adaptively, introducing EMDR techniques, and installing resources for trauma work.
3. 9-16: mostly EMDR trauma reprocessing and continuing with PVT techniques.
4. 17-20: Ending sessions, comparing then and now.

Gap Analysis

Gap analysis of Ria Health's telehealth AUD MAT recovery program showed a lack of knowledge in trauma-informed care and inadequate screening procedures for cravings on the new patient intake form—just the opposite issue in Healthy Minds Counseling Center, where pharmaceutical treatment is unknown. Quality improvement research began when statements from patients regarding not finding enough support and resources from coaching sessions and medical appointments to guide them on psychological issues and cravings. Patients are not receiving enough education on addiction and the internally experienced process, and Ria Health care teams are not adequately addressing aspects of the trauma. Gap Analysis Chart *Appendix B*.

Gantt Chart

The Gantt chart provides a comprehensive overview of the timeline from August 2021 to May 2023, outlining critical steps necessary to accomplish the project's objectives. The initial and most crucial step was obtaining EMDR training to implement the intervention. The Gantt chart reflects the ample time spent reviewing and analyzing relevant research to support the project's concepts, which underwent several revisions before reaching the final iteration. The execution phase was particularly intense, involving four to six EMDR CravEx addiction protocol sessions to extinguish cravings and stabilize addiction. However, integrating PVT into the treatment plan resulted in the rapid emergence of trauma. As a result, the EMDR sessions were open-ended, ranging from 16 to 20 sessions, held one to two times a week for 90 minutes each. This intensive approach to treatment resulted in profound, long-lasting change, as demonstrated in the t-test results. The Gantt chart provides a clear roadmap of the project's progress, outlining the necessary steps to achieve its objectives. Please see *Appendix C* for the Gantt Chart.

Work Breakdown Structure

The work breakdown structure for the narrative section of the DNP project begins with the Initiation phase, which identifies quality-of-service opportunities for addiction treatment and recovery processes at Ria Health. The next step involved building the PICOT for the AUD/PTSD population and conducting a literature review to find evidence-based treatments to address the gap. In the Planning phase, basic EMDR training and additional training in PVT, addictions, and dissociative disorders were completed through EMDRIA and ISSTD. Two facilities partnered with USF to support the project, and a prospectus was prepared and approved for implementation. The Execution phase started in July 2023 and ended in December 2023, with

weekly patient sessions for trauma therapy and assigned days for managing AUD MAT treatment at Ria Health. Weekly supervision with Kira Monterrey ensured the integrity of therapeutic modalities, while Dr. Trinette Radasa supervised medication at Ria Health. In the Control phase, pre/post data for craving intensity and frequency, quality of life, and provider knowledge were compared using a two-tailed t-test. The OCDS represented craving intensity and frequency, while the 95% confidence interval (CI) showed the results were repeatable and not due to chance. Cronbach's alpha calculation in SPSS demonstrated the impact or effect size of the intervention.

See WBS Chart in Appendix D.

Communication Matrix

The stakeholders for my project are held in Ria Health and Healthy Minds Counseling Center, a privately owned psychology practice that includes a psychiatrist on the team. Both practices support my project by allowing me to work with willing patients currently enrolled in Ria Health's recovery treatment. Kira Monterrey of Healthy Minds Counseling Center supervises the integrity of the EMDR process. Other significant stakeholders include Dr. Trinette Radasa, who is precepting and mentoring me, and Kira Monterrey, LCSW, owner of Healthy Minds, and my supervising psychologist. Kira provides my supervision for EMDR and other psychological trauma treatment, and Ria Health offers leadership for pharmaceutical management when treating clients at Ria Health. I am directly supervised at Ria Health by Dr. Trinette Radasa, a nurse practitioner who precepts and mentors me for most of my clinical requirements.

Weekly supervision with Kira ensures the therapeutic integrity of the modalities used. At the same time, Dr. Radasa has basic training in EMDR but is not currently practicing the technique. She has helped me understand how to incorporate trauma treatment into the

Ria Health recovery model. Communication with Dr. John Mendelson, CMO of Ria Health, is bi-monthly to update on project progress. The communication matrix *Appendix E*.

SWOT Analysis

A SWOT analysis was completed to identify the strengths, weaknesses, opportunities, and threats to implementing a practice change for concurrent AUD/PTSD treatment. The analysis focused on the internal organization treatment structure and experiential results by the patient. Specifically, the experiential analysis was based solely on the experience of treatment by the patient and how this treatment has helped them or not in the recovery process.

The project's findings suggest that patient and provider buy-in are significant strengths in helping this project succeed. Most trauma treatment participants decided to continue treatment beyond the project, highlighting the positive impact of the treatment. The internal strength of Ria Health and Healthy Minds is the provider buy-in and willingness to learn new methods for improving patient outcomes. The organizations involved in the project are incredibly supportive of improving patient recovery outcomes, and increased knowledge in concepts such as AM and trauma, EMDR, PVT techniques, and why cravings are so resistant to change was well received by all participants. Additionally, the availability of telehealth treatment by both organizations provides more accessible patient care.

However, several weaknesses were also detected. Poor internet connections or lost connections affecting appointments were identified as possible barriers to success. No-show appointments and time zone miscommunications were also identified as potential issues.

The opportunities identified where the therapy work was provided free of charge, but patients were required to fill out the necessary assessments when requested to provide the data for the project. Monetary opportunities are using EMDR addiction protocols as a concurrent

treatment with addiction is an excellent service to add to any private practice. This type of work can be advantageous. As more PMHNPs are opening up to the idea of providing EMDR and somatic therapeutic services, CravEx would be an excellent service for patients recovering at any point in their journey.

Threats identified found the biggest threat to the project, which is a flat-out denial of incorporating the suggestions of this project. Patients may have no interest or need to pay a higher cost to cover the cost of concurrent treatment options. Trauma treatment is a specialized practice and is not something every provider can provide, but they should know the recommended treatments specific to the afflictions they are treating. Providers are responsible for being fully informed on different avenues of support that work for the population being served. Working in addictions and not becoming trauma-informed is irresponsible.

The SWOT analysis provides valuable insights into the strengths, weaknesses, opportunities, and threats to implementing a practice change for concurrent AUD/PTSD treatment. It highlights the importance of patient and provider buy-in, the availability of telehealth treatment, and specialized trauma treatment. The identified weaknesses, such as poor internet connection, and the potential threats, such as a flat-out denial of incorporating the suggestions of this project, should be addressed to maximize the project's success. For the SWOT analysis chart, *Appendix F*.

Budget

The budget for this project was thought to lie mainly in the money spent on getting trained in EMDR to work with the complex trauma population. The EMDR classes for basic training and the hours paid to become fully qualified in 2021 equated to \$2500.00. EMDR consultation after that and other training with ISSTD pushed the budget to \$12, 891.00 more than

anticipated bringing preparation and learning to \$15,391. However, the training has been an invaluable experience and facilitated a priceless life-enhancing transformation, and for that, I am forever grateful to every person supporting this project. Lastly, SPSS for data analysis costs \$50.00 for six-month licensing, bringing the total project cost to \$15,441.

However, had a charge for therapy, the cost would have been \$180.00 per session multiplied by 20 sessions, totaling \$3,600 per client. The total cost for all eleven patients to do the program totals \$39,6 which would have been paid to the provider by Ria Health, Healthy Minds, or the clients. The return on investment (ROI) would have covered the monetary investment and provided a profit for the provider totaling \$24,159. Please see Budget Chart in *Appendix G*. Please see Certifications and Additional Training *Appendix H*.

Outcome Measures

This project's outcome measures utilized for pre/post assessment are the OCDS and the NPSS. Initially, the project focused on military veterans with post-combat PTSD and the use of EMDR as a first-line therapeutic intervention. However, upon working with Ria Health, trauma was observed in almost every patient encountered during USF clinical rotations, leading to a shift in focus toward addressing emotional dysregulation and trauma during AUD treatment.

Originally, the quality improvement project at Ria Health aimed to examine the impact of four to six sessions of EMDR CravEx protocol on cravings. While the CravEx protocol addresses trauma, some patients require more time to develop emotional regulation skills in the preparatory stabilization phase. Consequently, the project was modified to include two weekly sessions, lasting 60-90 minutes each. This approach effectively addressed emotional regulation and reinforced techniques to enhance patients' perceptions of safety and self-trust.

Each participant received one to two sessions per week of PVT and EMDR when appropriate. At least two childhood traumatic memories causing significant distress in daily life were reprocessed for each participant. The PVT was used for emotional regulation due to its ability to help individuals befriend their nervous system. By viewing the nervous system as a hierarchy, individuals can interpret bodily sensations, affect, and behaviors as cues of safety or danger from a distanced perspective.

The distancing created in PVT enables individuals to examine their reactions to stimuli as cues of safety or danger, fostering understanding and self-compassion. The ability to communicate with the ANS allows for emotional regulation by recognizing and addressing cues using learned tools. Once individuals can regulate their emotions, the ANS and body learn to continue the process automatically. This integrative approach involves acknowledging alerts and attending to one's own needs.

It is important to note that for four of the 11 NPSS post-treatment tests, the data did not load correctly and could not be used. Since the tests were administered anonymously through Qualtrics, retakes were not possible. This limitation should be considered in interpreting the project's results and addressed in future studies.

OCDS Outcome goal:

- Increased control over cravings and reduced craving frequency • Decreased anxiety levels in patients • At least a 35% overall reduction in craving intensity and frequency post-treatment • Successful unlinking of behavior and euphoric recall promoted by addiction memory through trauma-informed care approaches

NPSS Outcome goal:

- Enhanced patient-internal sense of safety • Decreased anxiety levels in patients • Successful application of regulating resources during stressful experiences • Reduced depression levels • At least a 35% overall increase in the psychological sense of safety

Total Score Pre/Post-Treatment:

- Patient outcome measures demonstrate satisfaction with the intervention • Recommendation for a larger scale pilot study further to explore the efficacy of trauma-informed care approaches in treatment.

Please see Measurement Tools in *Appendix I*.

Data Collection

Analysis

Qualtrics was used for provider surveys due to the ease of embedding a link into the PowerPoint or participants' emails. All data was anonymized using an anonymous connection, a feature of the Qualtrics program. For the concurrent treatment groups, the OCDS and NPSS were collected and exported to SPSS the same way, but four of the NPSS test did not load correctly and became unusable, resulting in eleven OCDS and seven NPSS. After collecting and entering all data into SPSS, a Paired two-sided t-test, Cohen's d, and CI% were calculated. A one-tailed dependent t-test was used to see if there was a statistically significant difference between the providers' pre- and post-scores for knowledge and buy-in to improve their practice. The statistical significance of paired t-tests was determined using an alpha level of less than 0.05. Cohen's d was determined to assess the depth of impact size; 0.8 is the target value for demonstrating that concurrent treatment and educational initiatives are essential in improving patient outcomes.

Ethical Considerations

Ensuring lasting recovery in addiction treatment requires assessing patients' readiness for change and willingness to engage with various treatment options—assessing patient motivation and creating tailored interventions that align with individual needs and preferences to increase motivation and buy-in for treatment. Incorporating trauma-focused strategies, such as polyvagal therapy, craving monitoring, and EMDR, into addiction treatment may improve outcomes. Future research should explore the effectiveness of combining trauma-informed interventions with patient-centered assessments. This approach could contribute to more adaptive and effective treatment models, ultimately reducing relapse rates and promoting long-term sobriety and harm reduction.

Ethical considerations in this DNP project align with Jesuit ideals and nursing values outlined in the American Nurses Association (2015) Code of Ethics for Nurses. Jesuit values emphasize understanding and respecting diversity in others and recognizing how cultures address mental health and healthcare issues. They call for compassionate self-inquiry and empathy for others. As compassion forms the core of these values, the Jesuit belief of *Cura Personalis* embodies the commitment to caring for the entire human system, including physical, emotional, and spiritual aspects (USF, 2023). Integrating all systems into the care plan and fostering collaboration among care teams, patients, and treatment plans is essential.

The ANA Nurses Code of Ethics highlights the importance of patient privacy rights, with sections 3.1 and 3.2 emphasizing the protection of patients' privacy concerning research participation and the right to confidentiality (ANA, 2015). Addiction is a sensitive issue, and the therapeutic alliance between providers and patients must be built on trust. Nurse Practitioners (NPs) are uniquely positioned to bridge the gap between the registered nurse's scope of practice

and the more rigid guidelines followed by medical doctors within the American Medical Association.

NPs follow guidelines emphasizing critical thinking and problem-solving for individual situations rather than one-size-fits-all approaches. Patients may feel more at ease with an NP due to the caring nature ingrained in the ethical value of nursing and the commitment to providing compassionate care. Informed consent and privacy are non-negotiable ethical considerations that all parties must understand, particularly when addressing sensitive topics like addiction.

Results

The results revealed a significant decrease in overall craving intensity and frequency, with a 55% reduction in OCDS total mean scores. Moreover, there were substantial reductions in the subscales for obsessive thoughts (38% decrease), compulsive behaviors (57% decrease), and the ability to resist or control cravings (33% decrease).

The NPSS demonstrated pre/post total score increased by 79%, with notable gains in social engagement (85% increase), compassion (70% increase), and body sensations (77% increase). Respect Privacy

OCDS

The paired sample t-test revealed statistically significant reductions in scores from pre-intervention to post-intervention across all measures. The OCDS total score reduced from a mean of 36.18 pre-intervention to 16.45 post-intervention, $t(10) = 6.575$, $p < .001$, indicating a substantial decrease in symptoms. In terms of effect size, we found a large effect (Cohen's $d = 1.982$), suggesting a meaningful change.

For *subscale A obsession*, the mean score decreased from 21.00 pre-intervention to 13.45 post-intervention, $t(10) = 3.107$, $p = .011$. This represents a significant reduction, and the effect size was also large (Cohen's $d = 0.937$).

In *subscale B compulsion*, we found a mean decrease from 14.09 pre-intervention to 6.73 post-intervention, $t(10) = 4.748$, $p < .001$. This significant reduction was associated with a large effect size (Cohen's $d = 1.432$).

Finally, for *subscale C Interference*, scores reduced from a mean of 6.09 pre-intervention to 3.82 post-intervention, $t(10) = 2.930$, $p = .015$. Although the effect size was slightly smaller (Cohen's $d = 0.883$), it still represented a significant decrease.

NPSS

For the total NPSS score, there was an increase from an overall total mean of 64.71 pre-intervention to 115.57 post-intervention, $t(6) = -9.055$, $p < .001$. The effect size was large (Cohen's $d = -3.422$), indicating a meaningful change.

For the subscale *Social Engagement* score, we observed a significant increase from a pre-intervention mean of 28.57 to a post-intervention mean of 53.00, $t(6) = -10.985$, $p < .001$. The effect size was large (Cohen's $d = -4.152$), suggesting a substantial improvement.

For the subscale *Compassion score*, we observed a significant increase from a pre-intervention mean of 17.86 to a post-intervention mean of 30.43, $t(6) = -6.447$, $p < .001$. The effect size was large (Cohen's $d = -2.437$), indicating a meaningful change.

Lastly, for the subscale *Body Sensations score*, there was a significant increase from a mean of 18.14 pre-intervention to 32.14 post-intervention, $t(6) = -3.353$, $p = .015$. The effect size was large (Cohen's $d = -1.268$), indicating a meaningful change.

Trauma-informed care has shown to have significant potential in both increasing the NPSS total and subscale scores and decreasing the OCDS total and subscale scores. T-test results with low p-values, considerably less than 0.05, are found in all pairs of pre/post-tests. This statistical evidence allows us to confidently reject the null hypothesis of no significant difference, favoring instead the alternative hypothesis of a notable difference. Put simply, results show a statistically significant divergence between the pre- and post-scores for both the OCDS and NPSS tests.

The results for co-occurring AUD/PTSD treatment and implementing evidence-based approaches led to notable improvements in patients' symptoms and overall well-being. Considering these findings, we can assert the efficacy of implementing trauma-informed care approaches could yield substantial improvements in both NPSS and OCDS measures. The observed results included enhanced coping abilities, increased optimism regarding recovery, and reduced anxiety, depression, and cravings. Additionally, participants experienced improvements in their quality of life, sociability, boundary-setting, and understanding of addiction medicine.

As patients gained insight into their needs and learned strategies to regulate their emotions, they were better equipped to address the overwhelming aspects of their lives. This understanding, coupled with the reprocessing of traumatic material through techniques such as EMDR, led to the reduced shame associated with their addiction. These trauma-informed care approaches allowed participants to see how their substance use may have initially served as a protective mechanism. Please see Descriptive Statistics Result in *Appendix J*.

Discussion

Summary

Effective addiction treatment should address trauma concurrently within the treatment plan. The proposed intervention targets emotional dysregulation at the core of addiction and trauma in individuals with co-occurring AUD and PTSD.

This holistic patient-centered quality improvement project teaches patients to regulate their emotional triggers using polyvagal techniques, fostering emotional and psychological flexibility to manage difficult internal experiences. The intervention also incorporates EMDR to reprocess traumatic memories, alternating between trauma processing and polyvagal techniques.

Examining the gap in substance abuse treatment for individuals with co-occurring PTSD and AUD revealed the significant influence of emotional and traumatic triggers, often linked to PTSD, on relapse rates in individuals with AUD. The existing approach of treating AUD independently seems insufficient, and concurrent treatment has demonstrated superior outcomes, potentially improved long-term recovery rates, and reduced relapse.

The OCDS and the NPSS were employed as pre-treatment and post-treatment self-report measures for the 11 participants. The OCDS, which evaluates the intensity and frequency of alcohol-related craving thoughts and behaviors, was administered before and after the concurrent AUD/PTSD intervention to assess cravings and drinking behavior changes. The NPSS, measuring perceived psychological safety, was administered to simultaneously examine shifts in participants' sense of safety and overall well-being.

The project results indicated substantial improvements in craving intensity, frequency, and the internal sense of safety. Specifically, there was a statistically significant average reduction of 68% in craving intensity and frequency on the OCDS scale. Furthermore, an average improvement of 62% on the NPSS scale signified a significant increase in overall psychological satisfaction. These findings underscore the importance of addressing AUD and

PTSD concurrently and emphasize the potential benefits of trauma-informed care in substance abuse treatment.

Based on these results, this quality improvement project demonstrates the feasibility of implementing such an intervention, the satisfaction of patients, and the improvements experienced by patients. It also suggests the potential for conducting a future pilot study on a larger scale to assess the effectiveness of this trauma-informed approach in treating individuals with co-occurring AUD and PTSD.

Interpretation

Concurrent treatment of AUD and PTSD has proven to the participants of this project that it is effective and needs to successfully realize addiction for what it is truly doing for the body system as a defense and the root reasons why the habit was created. Looking at how addiction is experienced is essential when planning concurrent treatment. It is in the experience of the craving that the underlying trauma will reveal itself to the trauma-informed provider.

The specific data obtained from these measures revealed a significant decrease in OCDS scores after treatment, indicating reduced cravings and alcohol-related thoughts. In addition, the NPSS scores showed a substantial increase post-treatment, suggesting improvements in the participants' perception of psychological safety. These findings support the effectiveness of the concurrent treatment approach in addressing both alcohol use and trauma-related symptoms, highlighting the potential for improved patient outcomes when incorporating trauma-focused interventions such as EMDR into AUD treatment.

Limitations

It is important to note that research in this area is still relatively limited and recent. More empirical studies are needed to establish the efficacy of polyvagal-based interventions for emotional regulation in trauma, PTSD, substance relapse, and AUD. Further research will help to solidify the evidence base and provide a clearer understanding of the potential benefits of incorporating polyvagal theory into treatment approaches for these populations.

The present study had several limitations that warrant consideration. First, the small sample size of 11 participants reduces the generalizability of the findings, making it essential for future studies to involve larger, more diverse populations to better understand the effectiveness of concurrent treatment across various demographic groups. Second, the study relied solely on self-report measures, susceptible to social desirability and recall biases. Incorporating objective measures, such as biological markers or collateral reports from family members, could provide a more comprehensive assessment of treatment outcomes. Third, the study did not include a control group or utilize random assignment, which limits the ability to draw causal inferences about the observed changes in OCDS and NPSS scores. Future research should consider using randomized controlled trials to establish a stronger causal link between concurrent treatment and observed improvements. Lastly, the study focused on a single treatment modality, EMDR, for addressing trauma symptoms. Investigating other evidence-based trauma treatments in combination with AUD interventions could further expand our understanding of the most effective approaches for treating patients with comorbid AUD and PTSD.

Other potential barriers to treatment were seen in telehealth connectivity issues and coordination of time zone changes. A few sessions had to be rescheduled due to human error in time zone changes. This was resolved by ensuring the session time for therapy was outlined in all appropriate time zones in the session reminder email.

Ultimately, provider buy-in is crucial for successfully implementing any new treatment approach. Addressing concerns and providing support and education for providers may be necessary for the widespread adoption of concurrent treatment for AUD and PTSD.

Conclusion

Incorporating trauma-informed care approaches, such as EMDR and polyvagal theory, could not only enhance patients' ability to cope with emotional dysregulation. At the same time, Ria Health treatment also serves as a valuable addition to the skillset of coaches and medical providers. By understanding and applying these concepts in treatment, they can more effectively monitor patients' cravings and use this information to guide and inform the care they provide. This empathetic and trauma-informed perspective could significantly improve the overall quality of care and support patients as they navigate their recovery journey.

Benefits of the Project: The project highlights the importance of addressing trauma concurrently with AUD treatment, significantly improving patients' ability to enjoy life. By incorporating trauma-informed care, healthcare professionals can better understand and respond to the emotional and somatic triggers that drive cravings, ultimately supporting more effective addiction treatment and long-lasting recovery.

Limitations: The limitations of this project include the reliance on self-report measures, which can be subject to recall bias or social desirability bias. Additionally, the study's scope may not capture the full range of patient experiences, and the results may not be generalizable to all individuals with co-occurring AUD and PTSD.

Implications for Practice: The findings of this project underscored the need for healthcare professionals to expand their knowledge and skills in trauma-informed care. By integrating evidence-based practices such as EMDR therapy into addiction treatment, providers can help

patients address the root causes of their addiction, improve emotional regulation, and promote long-term recovery. Addressing trauma alongside AUD treatment is essential for fostering more profound levels of change and ensuring patients feel safe and supported throughout their recovery journey.

Sustainability: The sustainability of this approach depends on ongoing collaboration between healthcare professionals, addiction treatment providers, and mental health specialists. By maintaining open lines of communication, continuously sharing best practices, and adapting care approaches to the evolving needs of patients, the positive outcomes observed in this project can be sustained and scaled. Furthermore, continued research on the efficacy of trauma-informed care in addiction treatment will help refine these methods and contribute to a more sustainable, effective, and compassionate approach to addressing the complex interplay between trauma and addiction.

Funding

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Appendix A

Evidence Evaluation Table

Citation: Anton, R.F., Moak, D.H., & Latham, P. (1999). The obsessive-compulsive drinking scale: A self-rated instrument for quantifying thoughts about alcohol and drinking behavior. *Alcoholism: Clinical and Experimental Research*, 19(1), 92-99.

Evidence Type	Sample Size	Frame work	Findings supporting EBP	Limitations	Evidence and Quality
cross-sectional study	N= 15 Clinical	Stages of Change	Explores the efficacy of the OCDS in predicting relapse. Found significant relationship between previous high OCDS score and relapse reported at the current visit.	Limit's ability to establish causality	Level II Quality B

Citation: Dana, D. (2018). *The polyvagal theory in therapy: Engaging the rhythm of regulation*. W.W. Norton & Company.

Evidence Type	Sample Size	Framework	Findings supporting EBP	Limitations	Evidence and Quality
Clinical Guideline, non-research	NA	Trauma-informed care, AIP	Clear aims and objectives; formal quality improvement or consistent recommendations with thorough reference to scientific evidence	NA	Level IV, Quality A

Citation: Hase, M., Schallmayer, S., & Sack, M. (2008). EMDR reprocessing of the addiction memory: Pretreatment, posttreatment, and -month follow-up. *Journal of EMDR Practice and Research*, 2(3), p. 170-179.

Evidence Type	Sample Size	Framework	Findings supporting EBP	Limitations	Evidence and Quality
Clinical Guideline, RCT	N= 21	EMDR AIP	OCDS and descriptive statistics	Potential bias, limited internal validity	Level III, Quality B

		Trauma-informed care			
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Citation: Iliakis, E. A., Vrana, E., Kallioniemi, E., Mokosaki, E., & Tsartsara, E. (2021). The Obsessive-compulsive drinking scale: A systematic review of psychometric properties and a narrative synthesis of measurement properties. *Journal of Substance Abuse Treatment, 121*, p. 108-152. <https://doi.org/10.1016/j.jsat.2020.108152>

Evidence Type	Sample Size	Framework	Findings supporting EBP	Limitations	Evidence and Quality
RCT	N=408 community-based	Trauma-informed care	systematically reviews the psychometric properties of the OCDS used to measure the severity of alcohol dependence.		Level II Quality A

Citation: Kharb, R. Shekhawat, S., Beniwal, R.P., Bhatia, T., & Deshpande, S.N. (2018). *Indian Journal of Psychological Medicine, 40(4)*, p. 315-321

Evidence Type	Sample Size	Framework	Findings supporting EBP	Limitations	Evidence and Quality
Quasi-Experimental	N= 34 males with AUD	Stages of change, Trauma-informed care	Studied the relationship between relapse and craving intensity and frequency; higher PACS scores linked to relapse.	Only males, mainly pt from surrounding areas, and other psych dx were excluded, only those	Level III Quality A

				with AUD and ptsd	
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Citation: Kullack, C. & Laugharne, J. (2016). Standard EMDR protocol for alcohol and substance dependence comorbid with posttraumatic stress disorder: Four cases with 12-month follow-up. *Journal of EMDR Practice and Research*, 10(1), p. 33-46.

Evidence Type	Sample Size	Framework	Findings supporting EBP	Limitations	Evidence and Quality
Single descriptive, qualitative	N= Fremantle Research Hospital	EMDR AIP Trauma-informed care	investigated the effectiveness of EMDR in a small concurrent treatment trial, PCL-C scores also demonstrated a significant mean reduction from 55.25 at the initial assessment to 21.5 post-treatment	Small sample size	Level IV, Quality A

Citation: Law, B., Gullo, M.J., Danglish, M., Kavanagh, D.J., Feeney, G.F.X., Young, R.M., & Connor, J.P. (2016). Craving mediates stress in predicting lapse during alcohol dependence treatment. *Alcoholism: Clinical and Experimental Research*, 40(5), 1058–1064

Evidence Type	Sample Size	Framework	Findings supporting EBP	Limitations	Evidence and Quality
nonexperimental descriptive studies	N=539	Stages of Change, Trauma-informed care	more intense and frequent alcohol cravings, with higher craving levels predicting relapse during treatment. ACE scores were observed between the early relapse and abstinence groups (ACE-S: H	Medication was not randomized but based on doctor assessment, those with	Level III, Quality A

		<p>(1) = 70.78, $p < 0.001$; ACE-F: H (1) = 46.77, $p = 0.008$) and between the late relapse and abstinence groups (ACE-S: H (1) = 50.74, $p = 0.006$; ACE-F: H (1) = 62.79, $p = 0.001$). However, no significant differences were found between early and late relapse groups.</p>	<p>med may have been more severe in symptoms</p>
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Citation: Morton, L., Cogan, N., Kolacz, J., Calderwood, C., Nikolic, M., Bacon, T., Pathe, E., Williams, D., & Porges, S. (2021). Neuroception of psychological safety scale (NPSS) manual and scoring guide. *Psychological Trauma; Theory, Research, Practice, and Policy*, p. 1–26.

Evidence Type	Sample Size	Framework	Findings supporting EBP	Limitations	Evidence and Quality
evidence from multiple time series designs with or without the intervention	N=318	Trauma-informed care NPSS measurement	Descriptive statistics showed initial reliability statistically significant in all subscales for NPSS		Level III, Quality A

Citation: Porges, S., & Dana, D. (2018). *Clinical applications of the polyvagal theory. The emergence of polyvagal-informed therapies.* W.W. Norton & Company.

Evidence Type	Sample Size	Framework	Findings supporting EBP	Limitations	Evidence and Quality
Clinical practice guidelines, non-research	N/A	Trauma-informed care	Clear aims and objectives; formal quality improvement or consistent recommendations with thorough reference to scientific evidence	NA	Level IV, Quality A

Citation: Roberts, N. P., Roberts, P. A., Jones, N., & Bisson, J. I. (2015). Psychological interventions for post-traumatic stress disorder and comorbid substance use disorder: A systematic review and meta-analysis. *Clinical Psychology Review*, 38, p. 25-38.

Evidence Type	Sample Size	Framework	Findings supporting EBP	Limitations	Evidence and Quality
Systematic Literature Review	N= 1506 and 13 RCT studies with PTSD/SUD	Trauma-informed care	highlights the importance of utilizing both trauma-focused and non-trauma-focused treatments when addressing this population's needs, psychological interventions on PTSD symptom reduction (g = 0.59; 95% CI: 0.35 to 0.82) and substance use reduction (g = 0.29; 95% CI: 0.11 to 0.47)	Indirect evidence, some inconsistency in results, imprecision of effect estimates	Level I Quality A

Citation: Rousseau, P.F., El Khoury-Malhame, M., Reynaud, E., Zendjidjian, X., Samuelian, J.C., & Khalfa, S. (2019). Neurobiological correlates of EMDR therapy affect PTSD. *European Journal of Trauma & Dissociation*, 3, p. 103-111

Evidence Type	Sample Size	Framework	Findings supporting EBP	Limitations	Evidence and Quality
evidence from multiple time series designs with or without the intervention	N= 12 Clinical cohort	EMDR AIP Trauma-informed care	The study found a significant decrease in thalamus BOLD signal after EMDR therapy. It decreased the PCL-5 score (r=0.62, n=16, P<0.01) with PTSD symptom remission, neurobiological changes pre/post-EMDR	No set limit to EMDR, small sample size sessions was outlined,	Level III Quality A

Citation: Schmidt, P., Helton, C, & Soyka, M. (2014). Predictive value of obsessive-compulsive drinking scale (OCDS) for outcome in alcohol-dependent inpatients: Results of a 24-month follow-up study. *Substance Abuse Treatment, Prevention, and Policy*, 6(14), pg. 1-7. Doi:10.1186/1747-597x

Evidence Type	Sample Size	Framework	Findings supporting EBP	Limitations	Evidence and Quality
Observational study	N=104	Trauma-informed care Stages of change	predictive value of OCDS for pt. outcome, significant between OCDS scores in the six-month follow-up and the relapse outcome in the 12-month and 24-month follow-ups.	Some results may be inconsistent, possible bias	Level II, Quality A

Citation: Seal K.H., Cohen G, Waldrop A, (2011). Substance use disorders in Iraq and Afghanistan veterans in VA healthcare, 2001–2010: Implications for screening, diagnosis and treatment. *Drug Alcohol Depend.* 116(1-3):93-101. PMID: 21277712

Citation: Shapiro, F. (2018). *Eye movement desensitization and reprocessing therapy basic principles, protocols, and procedures (3rd ed.)*. The Guildford Press

Evidence Type	Sample Size	Framework	Findings supporting EBP.	Limitations	Evidence and Quality
EMDR Clinical Practice guidelines	NA	EMDR AIP Trauma-informed care	A complete manual for EMDR	NA	Level IV, Quality A

Citation: Stohs, M.E., Schneekloth, T.D., Geske, J.R., Biernacka, J.M., & Karpyak, V.M. (2019). Alcohol craving predicts relapse after residential addiction treatment. *Alcohol and Alcoholism*, 54(2), p. 167-172. Doi:10.1093/alcalc/agy093

Evidence Type	Sample Size	Framework	Findings supporting EBP	Limitations	Evidence and Quality
Clinical trial cohort	N=190 residential AUD program	Trauma-informed care, stages of change	monitored cravings at admissions, discharge, and then at three, six, nine, and twelve weeks with the PACS, high PACS craving scores and relapse were statically significant for increased relapse risk (P = 0.034) and in the intent-to-treat analysis (P = 0.0001).	Small sample size, limited power for assessment of associations with primary outcome	Level III, Quality A

Citation: Weibren, M., & Hornsveld, H.K. (2017). EMDR interventions in addiction. *Journal of EMDR Practice and Research*, 11(1), p. 3-29. DOI: 10.1891/1933-3196

Evidence Type	Sample Size	Framework	Findings supporting EBP	Limitations	Evidence and Quality
Quasi-Experimental literature review	N= 25 quasi-experimental and prospective cohort studies	EMDR AIP Trauma-informed care	EMDR therapy may be effective in treating substance use disorders, including alcohol and drug addiction, and it can improve mental health symptoms and reduce cravings, but it has limitations, such as small sample sizes and lack of control groups; the study found that reprocessing memories related to cravings led to decreased cravings and a more significant experience of control over the craving	Small sample size and lack of control groups	Level II, Quality B

Appendix B



Gap Analysis

Gap Analysis		
<p>The Gap in Practice: Lack of trauma-informed providers in a MAT treatment program and lack of pharmaceutical MAT in private trauma treatment practice. Concurrent treatment will provide the best recovery for AUD./PTSD population.</p>		
Desired State	Current State	Action Steps
<p>The OCDS is used to assess cravings intensity and frequency on intake and during treatment</p>	<p>One question on pt intake “Do you have cravings?” Verbal check ins with coaches and medical appointments about cravings. No standardized form used to track cravings across treatment</p>	<p>Use OCDS to assess the intensity and frequency of cravings in concurrent treatment pre/post for evaluation</p>
<p>Polyvagal techniques are used to help emotionally regulate triggers causing dysregulation</p>	<p>MI or CBT used mostly for exploration of thoughts, behaviors, and coping tools for emotional regulation, mindfulness.</p>	<p>Understanding how trauma drives the emotional dysregulation and using PVT to teach the client how to ally with the ANS to bring internally based embodied regulating resources</p>
<p>Use EMDR to reprocess trauma driving the addictive behavior and maladaptive coping responses</p>	<p>Subpar psychological or trauma informed support or no knowledge of pharmaceutical addiction MAT</p>	<p>Educate providers on concurrent treatment and demonstrate improvements with DNP quality improvement project addressing gaps</p>

**Appendix D
WBS**

Engaging AUD Providers about EMDR CravEx Craving Reduction Program for an AUD MAT Telehealth Program	1. Initiation	1.1 Identify Topic 1.2 Develop PICOT Question 1.3 Conduct Literature Review 1.4 Develop the Manuscript
	2. Planning	2.1 Identify and Connect with Supporting Facilities 2.2 Build Educational Presentation 2.3 Design Data Collection Tools (Pre/Post-Test/1-month F-U and Pt. Satisfaction Survey) 2.4 Develop Prospectus with Approval from Advisor
	3. Execution	3.1 Organize Schedule with Supporting Facilities 3.2 Recruit Ria Health Participants 3.3 Conduct Therapy 3.4 Collect Data 3.5 Record Data
	4. Control	4.1 Run Paired Two-Tailed T-Test on OCDS 4.2 Run Paired Two-Tailed T-Test OCDS Pre/Post 4.3 Determine Statistical Significance and Determine Power of Study
	5. Closeout	5.1 Debrief Partners and Seek Feedback 5.2 Create a Presentation about the Project for the DNP presentation. 5.3 Present Presentation before DNP Committee 5.4 Send Out Thank You Letters to Partners and Involved Faculty

**Appendix E
Communication Plan**

 Level of Power	Keep Satisfied High Power, Low Interest	Manage Closely High Power, High Interest
	Dr. John Mendelson Consultation mentors for Ego State. PVT and other EMDR addiction consultants EMDRIA	All therapeutic participants Kira Monterrey Dr. Trinette Radasa
	Monitor Low Power, Low Interest	Keep Informed Low Power, High Interest
	Healthy Minds Staff NPSS, OCDS licensing administrator	Ego State and EMDR Community
 Level of Interest		

**Appendix G:
SWOT Analysis**

<p>Strengths:</p> <ul style="list-style-type: none"> • Strong patient and provider buy-in for concurrent AUD/PTSD treatment. • Positive impact of treatment demonstrated. • Internal strength of Ria Health and Healthy Minds in their willingness to learn new methods for improving patient outcomes. • Increased knowledge in AM, trauma, EMDR, and PVT techniques well-received by all participants. • Availability of telehealth treatment providing more accessible care for patients 	<p>Opportunities:</p> <ul style="list-style-type: none"> • Free therapy work provided to patients for the project. • Use of EMDR addiction protocols as a concurrent treatment with addiction can be an excellent service to add to any private practice. • Offering CravEx as a service to patients recovering at any point in their journey can be advantageous for private practice.
<p>Weaknesses:</p> <ul style="list-style-type: none"> • Poor internet connections or lost connections are affecting appointments. • No-show appointments • Time zone miscommunications • Working in addictions and not becoming trauma-informed is irresponsible. 	<p>Threats:</p> <ul style="list-style-type: none"> • Flat-out denial of incorporating the suggestions of this project • Patients may have no interest or need to pay a higher cost. • Trauma treatment is a specialized practice; not every provider can provide it. • Providers are responsible for being fully informed on different avenues of support that work for the population being served.

**Appendix G:
Cost Breakdown**

Essential Items	COSTS
ALL Student Training	\$ 15,391.00
SPSS Rental	\$ 50.00
Hours spent working and learning	\$ Priceless
Total from Student to fund the project	\$15,441
Charges to Patient	
Cost to Pt \$180.00 per session x 20 sessions	\$ 3,600
All 11 participants \$3600 x 11	\$ 39,600
The total cost of the project includes training, the cost to the pt	\$ 55,041.00
Potential profit to the provider for treatment	
Participants Total Costs minus	\$39,600
Providers Project Costs	\$ 15,441
Difference	\$ 24,159

Appendix H

Certifications and Additional Training

CERTIFICATIONS

Eye Movement Desensitization and Reprocessing Basic Training (EMDR)

Ego State Therapy North America Level I and II

- Clinical Hypnosis Levels I and II

Mentalization-Based Treatment: Basic Training

Mentalizing and Mentalization-Based Treatment with Adults: An Introduction

Deb Dana's Foundations of Polyvagal Informed Practice APR 2022 Cohort

Certified Trauma Treatment Professional (CTP II)

ADDITIONAL TRAINING/CERTIFICATES

ISSTD

- Current-EMDR Basic Training Auditor Module 1-4

Jun 6, 2022, 6 CE credits

- Dissociation 101: A Comprehensive Exploration into the Field of Dissociation and Complex Trauma

May 19, 2022, 1.5 CE credits

- Organizing Disorganization: Case Conceptualization for Structural Dissociation

May 7, 2022, 3.0 CE credits

- EMDR Introject Decathexis Protocol: An Integrative Approach to Unbind Perpetrator Parts

April 27, 2022, 1.50 continuing education (CE) credits

- Assigned Functions or "Jobs" of Internal Parts in Personality Systems Created by Organized Abuser Groups

APR 28, 2022, 1.00 CE Credit

- Working with Ritual Abuse Survivors: Patterns and Challenges

Apr 30, 2022, 1.5 CE credits

- Assigned Functions or "Jobs: of Internal Parts in Personality Systems Created by Organized Abuser Groups

March 17, 2022, 1.5 CE Credits

- EMDR and Dissociation: An introduction to the Progressive Approach

EMDRIA

Jun 10, 2022, 3.0 CE credits

- EMDR with Substance abuse Use & co-Occurring Addictive Behaviors

Jan 29, 2022, 1.5 CE credits

- Comparison of EMDR Approaches for Managing Over-Accessing

Jan 29, 2022, 1.5 CE credits

- EMDR Therapy for Veterans with PTSD Transitioning Out of the Military

Dec 29, 2021, 3.0 CE credits

- EMDR 2.0 An Enhanced Version of EMDR Therapy

Nov 21, 2021, 1.5 CE credits

- Demystifying and Humanizing Dissociation in EMDR Therapy Practice

Oct 31, 2021. 3.0 CE credits

- EMDR Treatment of Simple, Complex, and Dissociative Panic

EMDR ADVANCED TRAINING AND DISTANCE LEARNING

Aug 29, 2022

- EMDR Therapy to Treat Substance Abuse and Addiction

Aug 18, 2022

- Trauma Focused, EMDR Integrated Approaches to Complex Trauma, Schizophrenia, and Psychoses

May 5, 2022

- EMDR For Personality Disorders 3-days of Learning with Dolores Mosquera

POLYVAGAL INSTITUTE

Jan 23, 2023

- Revolutionizing Trauma and Addiction Treatment with the Felt Sense Polyvagal Model

Jan 10, 2023

- Polyvagal Theory and ACT

Jan 2, 2023

- Replacing Stockholm Syndrome with a New Framework of Appeasement

PESI

Jan 11, 2023

- Shock and Terror: Tracking (Down) Their Persistent Clinical Effects Through Deep Brain Reorienting (DBR)

Oct 26, 2022

- Diabetes Certificate Course: Update Your Practice with New Guidelines, Medications, and Monitoring Technology

May 20, 2022

- Gabor Mate Compassionate Inquiry Master Class: A Powerful approach for healing, anxiety, addictions, ADHD, and more

Apr 29, 2022, 3.0 CE credits

- Deb Dana's Foundations of Polyvagal Informed Practice: Getting to Know the Nervous System

Dec 11, 2021, 12.5 CE credits

- 2-Day Intensive Trauma Treatment Certification Workshop: EMDR, CBT, and Somatic-Based Interventions to Move Clients from Surviving to Thriving

STEVE FRANKEL GROUP (SFG)

July 01, 2022

- Working with Trauma Survivors; What you'll Wish You'd Known & what will Help You Move Forward

May 15, 2022

- It was not the problem; it was the solution: Addiction, The Adverse Childhood Experience Study, and the Role of ENDR Therapy

March 11, 2022

- When There are No Words, Still Again: The Basic Procedure for Temporal Integration from the Beginning of life

Jan 19, 2022

- Toward an Embodied Self

Jan 20, 2022

- When There Are No Words

Jan 21, 2022

- Looking Through the Eyes of Trauma and Dissociation Revisited: Assembling the Patchwork Quilt through Fractionated Processing

March 15, 2022

- Neuroaffective Embodied Self-System Therapy Toward an Integrated Approach

March 14, 2022

- S is for the Self-system Looking Through the Eyes: Using Ego State Therapy to Shift Loyalty from the Aggressor to Self and More

March 18, 2022

- How the Story Tells itself in Preverbal and Non-Verbal EMDR

GABOR MATE

Dec 2023, 25.0 CE credits

- Compassionate Inquiry Self-Study Short Course

ROBIN SHAPIRO

June 2022 12.0 CE credits

Easy Ego States Interventions: A Pre-recorded 2-day Video Program

HARVARD MEDICAL SCHOOL

Apr 27, 2022, 8.0 CE credits

- General Psychiatric Management for BDP

PHILLIP MANFIELD

Jan 15, 2022, 6 CE credits

- The Flash Technique and EMDR

Feb 5, 2022, 6 CE credits

- The Flash Technique & EMDR Advanced Webinar

Appendix I Measurement Tools

Obsessive Compulsive Drinking Scale (OCDS)

Directions: The questions below ask you about your drinking alcohol and your attempts to control your drinking **in the last week**. Please circle the number next to the statement that best applies to you.

1. How much of your time when you are not drinking is occupied by ideas, thoughts, impulses or images related to drinking?

- (0) None
- (1) Less than 1 hour a day
- (2) 1-3 hours a day
- (3) 4-8 hours a day
- (4) Greater than 8 hours a day

2. How frequently do these thoughts occur?

- (0) Never
- (1) No more than 8 times a day
- (2) More than 8 times a day but most hours of the day are free of those thoughts
- (3) More than 8 times a day and during most hours of the day
- (4) Thoughts are too numerous to count and an hour rarely passes without several such thoughts occurring

3. How much do these ideas, thoughts, impulses or images related to drinking interfere with your social or work (or role) functioning? Is there anything you do not or cannot do because of them? (If you are not currently working, how much of your performance would be affected if you were working?)

- (0) Thoughts of drinking never interfere – I can function normally.
- (1) Thoughts of drinking slightly interfere with my social or occupational activities, but my overall performance is not impaired
- (2) Thoughts of drinking definitely interfere with my social or occupational performance, but I can still manage.
- (3) Thoughts of drinking cause substantial impairment in my social or occupational performance.
- (4) Thoughts of drinking interfere completely with my social or work performance.

4. How much distress or disturbance do these ideas, thoughts, impulses, or images related to drinking cause you when you are not drinking?

- (0) None
- (1) Mild, infrequent and not too disturbing
- (2) Moderate, frequent and disturbing, but still manageable
- (3) Severe, very frequent and very disturbing
- (4) Extreme, nearly constant, and disabling distress

5. How much of an effort do you make to resist these thoughts or try to disregard or turn your attention away from these thoughts as they enter your mind when you are not drinking? (Rate your effort made to resist these thoughts, not your success or failure in actually controlling them.)

My thoughts are so minimal that I do not need to resist actively. If I have thoughts, I make an effort to always resist.

- (0) I can resist the urge to drink
- (1) I try to resist most of the time.
- (2) I make some effort to resist.
- (3) I give in to all such thoughts without attempting to control them, but I do so with some reluctance.
- (4) I completely and willingly give in to all such thoughts.

6. How successful are you in stopping or diverting these thoughts when not drinking?

- (0) I am completely successful in stopping or diverting such thoughts.
- (1) I am usually able to stop or divert such thoughts with some effort and concentration.
- (2) I am sometimes able to stop or divert such thoughts.
- (3) I am rarely successful in stopping such thoughts and can only divert such thoughts with difficulty.
- (4) I am rarely able to divert such thoughts even momentarily.

7. How many drinks do you drink each day?

- (0) None
- (1) Less than 1 drink per day
- (2) 1-2 drinks per day
- (3) 3-7 drinks per day
- (4) 8 or more drinks per day

8. How many days each week do you drink?

- (0) None
- (1) No more than 1 day per week
- (2) 2-3 days per week
- (3) 4-5 days per week
- (4) 6-7 days per week

9. How much does your drinking interfere with your work functioning? Is there anything that you do not or cannot do because of your drinking? (If you are not currently working, how much of your performance would be affected if you were working?)

- (0) Drinking never interferes – I can function normally
- (1) Drinking slightly interferes with my occupational activities, but my overall performance is not impaired.
- (2) Drinking definitely interferes with my occupational activities, but I can still manage.
- (3) Drinking causes substantial impairment in my occupational performance.
- (4) Drinking problems interfere completely with my work performance.

10. How much does your drinking interfere with your social functioning? Is there anything you cannot or cannot do because of your drinking?

- (0) Drinking never interferes – I can function normally.

- (1) Drinking slightly interferes with my social activities, but my overall performance is not impaired.
- (2) Drinking definitely interferes with my social performance.
- (3) Drinking causes substantial impairment in my social performance.
- (4) Drinking problems interfere completely with my social performance.

11. If you were prevented from drinking alcohol when you desired a drink, how anxious or upset would you become?

- (0) I would not experience any anxiety or irritation.
- (1) I would become only slightly anxious or irritated.
- (2) The anxiety or irritation would mount but remain manageable.
- (3) I would experience a prominent and very disturbing increase in anxiety or irritation.
- (4) I would experience incapacitating anxiety or irritation.

12. How much of an effort do you make to resist consumption of alcoholic beverages? (Only rate your effort to resist, not your success or failure in actually controlling the drinking).

- (0) My drinking is so minimal that I do not need to resist actively. If I drink, I make an effort to always resist.
- (1) I try to resist most of the time.
- (2) I make some effort to resist.
- (3) I give in to almost all drinking without attempting to control it, but I do so with some reluctance.
- (4) I completely and willingly give in to all drinking.

13. How strong is the drive to consume alcoholic beverages?

- (0) No drive
- (1) Some pressure to drink
- (2) Strong pressure to drink
- (3) Very strong drive to drink
- (4) The drive to drink is completely involuntary and overpowering.

14. How much control do you have over drinking?

- (0) I have complete control.
- (1) I am usually able to exercise voluntary control over it.
- (2) I can control it only with difficulty.
- (3) I must drink and can only delay drinking with difficulty.
- (4) I am rarely able to delay drinking even momentarily.

Total _____ *(sum all items adjusting for combined items)*
Obsessive Subscale _____ *(Sum items 1 to 6 adjusting for combined items)*
Compulsive Subscale _____ *(Sum items 7 to 14 adjusting for combined items)*

Neuroception of Psychological Safety (NPSS)

Please rate how well the following statements describe your feelings over the past week.

Strongly Disagree (score = 1), *Disagree* (score = 2), *Neither Agree or Disagree* (score = 3), *Agree* (score = 4), *Strongly Agree* (score = 5).

1	I felt valued	1	2	3	4	5
2	I felt comfortable expressing myself	1	2	3	4	5
3	I felt accepted by others	1	2	3	4	5
4	I felt understood	1	2	3	4	5
5	I felt like others got me	1	2	3	4	5
6	I felt respected	1	2	3	4	5
7	There was someone who made me feel safe	1	2	3	4	5
8	There was someone that I could trust	1	2	3	4	5
9	I felt comforted by others	1	2	3	4	5
10	I felt heard by others	1	2	3	4	5
11	I felt like people would try their best to help me	1	2	3	4	5
12	I felt cared for	1	2	3	4	5
13	I felt wanted	1	2	3	4	5
14	I did not feel judged by others	1	2	3	4	5
15	I felt able to empathize with other people	1	2	3	4	5
16	I felt able to comfort another person if needed	1	2	3	4	5
17	I felt compassion for others	1	2	3	4	5
18	I wanted to help others relax	1	2	3	4	5
19	I felt like I could comfort a loved one	1	2	3	4	5
20	I felt so connected to others I wanted to help them	1	2	3	4	5
21	I felt caring	1	2	3	4	5

22	My heart rate felt steady	1	2	3	4	5
23	Breathing felt effortless	1	2	3	4	5
24	My voice felt normal	1	2	3	4	5
25	My body felt relaxed	1	2	3	4	5
26	My stomach felt settled	1	2	3	4	5
27	My breathing was steady	1	2	3	4	5
28	I felt able to stay still	1	2	3	4	5
29	My face felt relaxed	1	2	3	4	5

**Appendix J:
Descriptive Statistic Result**

Pre/Post-Paired Two-Tailed T-Test

Obsessive-Compulsive Drinking Scale (OCDS)

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	OCDS pre total	36.1818	11	10.50541	3.16750
	OCDS post total	16.4545	11	7.76355	2.34080
Pair 2	subscale A pre total	21.0000	11	6.60303	1.99089
	subscale A post total	13.4545	11	7.94183	2.39455
Pair 3	subscale B pre total	14.0909	11	4.67877	1.41070
	subscale B post total	6.8182	11	5.05605	1.52446
Pair 4	subscale C pre total	6.0909	11	1.81409	.54697
	subscale C post total	4.0000	11	2.44949	.73855

Paired Samples Effect Sizes

		Standardizer ^a	Point Estimate	95% Confidence Interval		
				Lower	Upper	
Pair 1	OCDS pre total - OCDS post total	Cohen's d	9.95079	1.982	.927	3.007
		Hedges' correction	10.78389	1.829	.856	2.775
Pair 2	subscale A pre total - subscale A post total	Cohen's d	8.05436	.937	.205	1.638
		Hedges' correction	8.72869	.864	.189	1.511
Pair 3	subscale B pre total - subscale B post total	Cohen's d	5.10080	1.426	.556	2.263
		Hedges' correction	5.52785	1.316	.513	2.088
Pair 4	subscale C pre total - subscale C post total	Cohen's d	2.38556	.876	.159	1.563
		Hedges' correction	2.58529	.809	.147	1.443

a. The denominator used in estimating the effect sizes.

Cohen's d uses the sample standard deviation of the mean difference.

Hedges' correction uses the sample standard deviation of the mean difference, plus a correction factor.

Paired Samples Test

		Paired Differences					t	df	Significance	
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				One-Sided p	Two-Sided p
					Lower	Upper				
Pair 1	OCDS pre total - OCDS post total	19.72727	9.95079	3.00028	13.04224	26.41230	6.575	10	<.001	<.001
Pair 2	subscale A pre total - subscale A post total	7.54545	8.05436	2.42848	2.13446	12.95645	3.107	10	.006	.011
Pair 3	subscale B pre total - subscale B post total	7.27273	5.10080	1.53795	3.84596	10.69949	4.729	10	<.001	<.001
Pair 4	subscale C pre total - subscale C post total	2.09091	2.38556	.71927	.48827	3.69355	2.907	10	.008	.016

Hypothesis Test Summary

	Null Hypothesis	Test	Sig. ^{a,b}	Decision
1	The median of differences between OCDS pre total and OCDS post total equals 0.	Related-Samples Wilcoxon Signed Rank Test	.003	Reject the null hypothesis.

a. The significance level is .050.

b. Asymptotic significance is displayed.

Neuroception of Psychological Safety Scale (NPSS)

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	OCDS pre total	36.1818	11	10.50541	3.16750
	OCDS post total	16.4545	11	7.76355	2.34080
Pair 2	subscale A pre total	21.0000	11	6.60303	1.99089
	subscale A post total	13.4545	11	7.94183	2.39455
Pair 3	subscale B pre total	14.0909	11	4.67877	1.41070
	subscale B post total	6.8182	11	5.05605	1.52446
Pair 4	subscale C pre total	6.0909	11	1.81409	.54697
	subscale C post total	4.0000	11	2.44949	.73855

Paired Samples Test

		Paired Differences					t	df	Significance	
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				One-Sided p	Two-Sided p
					Lower	Upper				
Pair 1	OCDS pre total - OCDS post total	19.72727	9.95079	3.00028	13.04224	26.41230	6.575	10	<.001	<.001
Pair 2	subscale A pre total - subscale A post total	7.54545	8.05436	2.42848	2.13446	12.95645	3.107	10	.006	.011
Pair 3	subscale B pre total - subscale B post total	7.27273	5.10080	1.53795	3.84596	10.69949	4.729	10	<.001	<.001
Pair 4	subscale C pre total - subscale C post total	2.09091	2.38556	.71927	.48827	3.69355	2.907	10	.008	.016

Paired Samples Effect Sizes

			Standardizer ^a	Point Estimate	95% Confidence Interval	
					Lower	Upper
Pair 1	Patient gender - Ria Health patient or not	Cohen's d	.53452	.000	-.741	.741
		Hedges' correction	.61537	.000	-.643	.643
Pair 2	Total Score Pre - Total Score Post	Cohen's d	12.12828	-4.193	-6.609	-1.768
		Hedges' correction	13.96259	-3.642	-5.741	-1.536
Pair 3	Mean of Total Pre - Mean of Total Post	Cohen's d	.41711	-4.202	-6.623	-1.772
		Hedges' correction	.48019	-3.650	-5.753	-1.540
Pair 4	Total Social Engagement Pre - Total Social Engagement Post	Cohen's d	5.92814	-4.121	-6.499	-1.733
		Hedges' correction	6.82473	-3.579	-5.645	-1.505
Pair 5	Compassion Pre - Compassion Post	Cohen's d	4.10864	-3.060	-4.886	-1.208
		Hedges' correction	4.73005	-2.658	-4.244	-1.049
Pair 6	Body sensations Pre - Body sensstions Post	Cohen's d	6.59365	-2.123	-3.487	-.718
		Hedges' correction	7.59089	-1.844	-3.029	-.624

a. The denominator used in estimating the effect sizes.

Cohen's d uses the square root of the average variance of measures.

Hedges' correction uses the square root of the average variance of measures, plus a correction factor.

**Appendix K:
Healthy Minds Letter of Support**



Kira Monterrey, LCSW, MPA, CFTP
1120 2nd St. STE C
Brentwood, CA 94513
Email: kira@healthymindscenter.com
Web: www.healthymindscenter.com
Phone: 925-852-3987

January 31, 2022

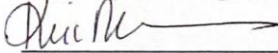
RE: Letter of Support

TO WHOM IT MAY CONCERN:

This is a letter of support for Aline Bales to implement her DNP Comprehensive Project EMDR for Combat-related PTSD in the Military Population at Healthy Minds Counseling Center.

We give her permission to use the name of our agency in their DNP Comprehensive Project Paper and in future presentations and publications. Sincerely,

Kira Monterrey, LCSW, MPA, CFTP
Owner
Monterrey Counseling and Wellness



1-31-22

Date

**Appendix L:
Final Briefing**

Aline Bales
Attachments
Thu, Mar 2, 10:49 AM
to John, Trinette

Dear John Mendelson, M.D., CMO of Ria Health,

I am pleased to provide an update on the progress of my DNP project, which aims to address the current gap in substance abuse treatment by concurrently treating AUD and PTSD using PVT, EMDR therapy, and EST. The study included 11 participants, five of whom were Ria Health patients.

The study showed significant improvements in all scales and subscales post-treatment. OCDS scores decreased by 55% in the intensity and frequency of cravings, and the NPSS showed a 79% increase in pre/post-total and an 85% increase in pre/post-social engagement.

I would like to highlight the use of the OCDS as a tool for predicting relapse/abstinence outcomes based on previous scores, identifying underlying trauma, and informing treatment planning. The OCDS is easy to use, provides valuable information, and can be graphed over time and monitored. I suggest integrating it into the patient intake and treatment planning alongside the app's breathalyzer results.

Thank you for your support with this project. I plan to continue working with the AUD/PTSD population after graduation, and I look forward to maintaining our working relationship.

Warmly,

Aline Bales

Aline

Appendix M: SOD



Doctor of Nursing Practice Statement of Non-Research Determination (SOD) Form

The SOD should be completed in NURS 7005 and NURS 791E/P or NURS 749/AE

General Information

Last Name:	Bales	First Name:	Aline
CWID Number:	20578507	Semester/Year:	SP 2023
Course Name & Number:	NURS 789M1 DNP Project		
Chairperson Name:	Dr Trinette Radasa	Advisor Name:	Dr Trinette Radasa

Project Description

1. Title of Project

Trauma and Alcohol Use Disorder in Recovery Treatment

2. Brief Description of Project

Clearly state the purpose of the project and the problem statement in 250 words or less.

Addiction treatment can be more successful if trauma is a secondary focus in the treatment plan. Ria Health provides brief coaching, and during clinicals, it was noticed that patients stated that it did not feel like enough. Patients were decreasing in consumption with the help of the medications, but nothing directly addressed the trauma that comes up once the substance is not masking symptoms. Ria Health uses top-down cognitive behavioral techniques and motivational interviewing to explore reasons for addiction. Top-down approaches like this are not usually efficacious because the problem lies within the emotional dysregulation that comes from emotional triggers and “in the body” somatic flashbacks. Emotional and somatic trigger sets off a maladaptive coping mechanism in the body that manifests as a craving. Teaching the patient how to regulate with polyvagal techniques emotionally and looking for signs of underlying trauma by monitoring cravings opens the window of tolerance for emotional/psychological flexibility and healing. EMDR is used to reprocess trauma that shows up during this process, possibly the reasons the addiction exists in the first place.



3. AIM Statement: What are you trying to accomplish?

- What do you hope to accomplish with this project? Aims should be SMART, specific, clear, and well-defined, and at a minimum, describe the target population, the desired improvement, and the targeted timeframe.
- To improve (your process) from (baseline)% to (target)%, by (timeframe), among (your specific population)

Complete this statement:

To increase the quality of life and a “felt sense” of safety as observed (process/outcome)

From pre-treatment NPSS scores (baseline %, rate, #, etc.)

to at least a 35% increase in post-treatment scores (goal/target %, rate, #, etc.)

by 16 – 20 sessions (date, 3 - 6-month timeframe)

in the AUD/PTSD population (population impacted)

4 Brief Description of Intervention (150 words).

The NPSS pre/post comparison is the overall quality of life improvement of concurrent AUD/PTSD treatment. If the quality of life has improved, this demonstrates the patient’s ability to find safety within the bodily experience and bodily system. It also demonstrates attending to the nervous system’s needs and finding more peace and calm daily. When there is safety within the self, there is safety in the world. Eye movement desensitization and reprocessing (EMDR) therapy is used to help resolve and reconsolidate traumatic events so they can finally find relief and healing. As these traumatic experiences are dealt with and reprocessed, the patient experiences profound experiential shifts that apply directly to healing the parts of the self that hold the addictive qualities.

4a. How will this intervention be implemented?

- Where will you implement the project? Telehealth private therapeutic practice, Health Minds Counseling Center
- Attach a letter from the agency with the approval of your project. Yes
- Who is the focus of the intervention? AUD/PTSD population



- How will you inform stakeholders/participants about the project and the intervention?

Ria Health and Healthy Minds support this project and have MOAs with USF. The participants are fully aware of the shared information between the project's start and end dates. They have agreed to take all needed assessments to gather evidence and data for the project. Participants understand that no personal information will be shared directly unless written permission is given first. No name or initials will be made known; only a number and pre/post data will be publicly shared to show efficacy to support the theory of concurrent AUD/PTSD treatment and tools.

Weekly supervision takes place for the therapeutic aspects of treatment to ensure the integrity of the therapeutic modalities used. The medication side of things is supervised by Dr. Trinette Radasa, who also works at Ria Health. Permission has been granted by the owner of Ria Health, Dr. John Mendelson.

5. Outcome measurements: How will you know that a change is an improvement?

- Measurement over time is essential to QI. Measures can be the outcome, process, or balancing measures. Baseline or benchmark data are needed to show improvement.
- Align your measure with your problem statement and aim.
- Try to define your measure as a numerator/denominator.
 - What is the reliability and validity of the measure? Provide any tools that you will use as appendices. The OCDS craving scale and NPSS measure are highly recommended peer-reviewed measurement tools. These tools also measure the experiential experience and the intensity and frequency of events or cravings for the measurement. Both measurements will show either an increase or decrease in treatment. It's a concept that is easy to comprehend, only taking moments to feel impressed to buy in and change practice going forward or not.
 - Describe how you will protect participant confidentiality. All patients are only known as numbers, and no personal information will be shared. Only the supervising stakeholders know which participants have agreed to this treatment.



DNP Statement of Determination

Evidence-Based Change of Practice Project Checklist*

The SOD should be completed in NURS 7005 and NURS 791E/P or NURS 749/A/E

Project Title:

Trauma and Alcohol Use Disorder in Recovery Treatment

Mark an "X" under "Yes" or "No" for each of the following statements:	Yes	No
The aim of the project is to improve the process or delivery of care with established/ accepted standards, or to implement evidence-based change. There is no intention of using the data for research purposes.	X	
The specific aim is to improve performance on a specific service or program and is a part of usual care . All participants will receive standard of care.	X	
The project is not designed to follow a research design, e.g., hypothesis testing or group comparison, randomization, control groups, prospective comparison groups, cross-sectional, case control). The project does not follow a protocol that overrides clinical decision-making.	X	
The project involves implementation of established and tested quality standards and/or systematic monitoring, assessment or evaluation of the organization to ensure that existing quality standards are being met. The project does not develop paradigms or untested methods or new untested standards.	X	
The project involves implementation of care practices and interventions that are consensus-based or evidence-based. The project does not seek to test an intervention that is beyond current science and experience.	X	
The project is conducted by staff where the project will take place and involves staff who are working at an agency that has an agreement with USF SONHP.	X	
The project has no funding from federal agencies or research-focused organizations and is not receiving funding for implementation research.	X	
The agency or clinical practice unit agrees that this is a project that will be implemented to improve the process or delivery of care, i.e., not a personal research project that is dependent upon the voluntary participation of colleagues, students and/ or patients.	X	
If there is an intent to, or possibility of publishing your work, you and supervising faculty and the agency oversight committee are comfortable with the following statement in your methods section: <i>"This project was undertaken as an Evidence-based change of practice project at X hospital or agency and as such was not formally supervised by the Institutional Review Board."</i>	X	

To qualify as an Evidence-based Change in Practice Project, rather than a Research Project, the criteria outlined in federal guidelines will be used: <http://answers.hhs.gov/ohrp/categories/1569>



**DNP Statement of Determination
Evidence-Based Change of Practice Project Checklist Outcome**

The SOD should be completed in NURS 7005 and NURS 791E/P or NURS 749/A/E

Project Title:

Trauma and Alcohol Use Disorder in Recovery Treatment

This project meets the guidelines for an Evidence-based Change in Practice Project as outlined in the Project Checklist (attached). **Student may proceed with implementation.**

This project involves research with human subjects and **must be submitted for IRB approval before project activity can commence.**

Comments:

Student Last Name:	Bales _____	Student First Name:	Aline _____
CWID Number:	20578507 _____	Semester/Year:	SP 2023 _____
Student Signature:	<i>Aline Bales</i> _____	Date:	02/04/2023 _____
Chairperson Name:	Dr Trinetta Radasa _____	Date:	02/04/2023 _____
Chairperson Signature:	<i>Dr Trinetta Radasa</i> _____	Date:	_____
DNP SOD Review Committee Member Name:	Dr. Alexa Curtis _____	Date:	02/04/2023 _____
DNP SOD Review Committee Member Signature:	<i>Dr. Alexa Curtis</i> _____	Date:	_____

**Appendix N:
Addiction Cycle**

