Assessing and Educating Harm Reduction Interventions for Methamphetamine Users in a Psychiatric Emergency Setting

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NURS 703B: DNP Project

Winter, 2025

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This paper is submitted in partial fulfillment of the requirements for

the Doctor of Nursing Practice degree.

Problem Description

Methamphetamine is a synthetically manufactured central nervous system psychostimulant that is smoked, snorted, injected, and ingested orally or rectally and is frequently used with other substances (Centers for Disease Control and Prevention [CDC], 2024; Substance Abuse and Mental Health Services Administration [SAMHSA], 2023). Methamphetamine is classified as a Schedule II under the Controlled Substances Act, with only one legally available prescription product (Drug Enforcement Administration [DEA] Factsheet, 2020). Methamphetamine is a potent, highly addictive substance that can produce severe consequences with frequent problematic use, which includes psychosis, exacerbation of preexisting psychiatric illness, cardiovascular damage, renal dysfunction, malnutrition, dental disease, and an increased risk for infectious disease (National Institute on Drug Abuse [NIDA], 2023).

In the United States, approximately 2 million individuals over the age of 12 use methamphetamines, and many of them experience co-occurring mental illness (SAMHSA, 2023). In 2023, there were more than 4,000 visits to emergency departments due to non-fatal methamphetamine use (CDC, 2024). Additionally, many methamphetamine users will engage in poly-substance use, which includes illegally manufactured fentanyl, to manage the effects of both substances. In Oregon, 58% of unintentional methamphetamine overdoses involved other substances, disproportionately affecting Black and Indigenous males between the ages of 35 and 64 (Oregon Health Authority [OHA], n.d.). Additionally, 43% of fatal overdoses in Multnomah County involved both methamphetamine and fentanyl (Multnomah County Health Department [MCHD], 2023).

Available Knowledge

Substance use rates have steadily been increasing in recent decades, with psychostimulants such as methamphetamine sharply on the rise. Methamphetamine toxicity was responsible for more than 8.5% of drug overdose deaths in 2023 (CDC, 2024). Within the central nervous system, methamphetamine increases the release of dopamine, serotonin, and norepinephrine while simultaneously blocking the reuptake of dopamine, resulting in the loss of dopamine transporters (Richards & Laurin, 2023; Volkow et al., 2001). Methamphetamine abuse contributes to vasoconstriction, cardiovascular excitation, stroke, psychosis, cognitive impairment, decreased memory, risk for Parkinsonism, and death. (Richards & Laurin, 2023; CDC, 2023; Volkow et al., 2001). Nationally, in 2023, there were 20,816 deaths involving methamphetamine, affecting Black, Indigenous, and individuals aged 45-54 the greatest, with 28.7% also having a mental health diagnosis (CDC, 2024). In Oregon, the annual number of nonfatal emergency department visits related to stimulant overdoses was 339, with 163.6 per

100,000 persons in Multnomah County (CDC, 2024). Moreover, prevention and harm reduction (HR) have been identified as the primary strategies for reducing the risks related to methamphetamine use (MCHD, 2023). HR is a public health approach that aims to meet substance users with their care goals and tailor treatment to their needs (Tatarsky, 2003). Limited data is available to indicate how many clinicians have received HR training and their ability to implement HR techniques effectively.

Rationale

This project was firmly grounded in the HR model, a significant framework developed by G. Alan Marlatt, PhD, the Director of the Addictive Behaviors Research Center and Professor of Psychology at the University of Washington until he died in 2011. This framework was selected due to the duration of successful implementation in multiple areas of high-risk behavioral activity on a global scale. The project design was influenced by the IHI Model for Improvement, a method of structuring change within the quality improvement, which has proven effective in achieving improvement through short Plan-Do-Study-Act (PDSA) cycles Institute for Healthcare Improvement (n.d.). PDSA cycles follow a four-stage approach, significantly improving care and patient outcomes (Taylor et al., 2014).

Having a better grasp of practical interventions to decrease the risks linked with methamphetamine use, including understanding, recognizing positive change, and respecting patient autonomy as a fundamental human right, forms the basis of the HR approach (Hawk et al., 2017). Moreover, HR strategies' effectiveness is closely linked to psychosocial determinants. Community-focused strategies are more effective in reducing substance-related adverse outcomes (Erinoso et al., 2024). Psychiatric emergency service centers in the Pacific Northwest may benefit from using HR to address patient safety risks related to methamphetamine use and improve therapeutic alliances with methamphetamine-using patients.

Specific Aims

This quality improvement project aimed to increase the competency and confidence of clinicians working directly with people who use methamphetamine (PWUM) in implementing harm reduction interventions for methamphetamine use in a substance use disorder clinic within a psychiatric emergency services department at a behavioral health hospital in Multnomah County by 50% or more by January 1, 2025.

Context

PWUM may choose not to pursue treatment or stop using methamphetamine. To address this phenomenon, communities are opting to implement HR interventions to reduce the negative effects of methamphetamine-using behaviors without requiring complete cessation (Hawk et al., 2017). Moreover, HR seeks to address substance use and potentially

dangerous behaviors without requiring total abstinence to reduce harmful consequences (Tatarsky & Marlatt, 2010). These responses are multifaceted, seeking to minimize overdose risks, healthcare burdens, and social or legal impacts and, ultimately, prevent death (Jones et al., 2022; Multnomah County Health Department, 2023). Research has shown that HR can facilitate well-being in individuals and populations by preventing overdoses and disease transmission while decreasing utilization of emergency department services and healthcare costs (NIDA, 2022). In 2023, the Multnomah County Harm Reduction program provided services to over 4,000 individuals and connected at least 300 adults to services (MCHD, 2023). Lindefield et al. (2023) found that non-profit hospitals nationwide increased harm reduction and risk education programs by 44.8% from 2019 to 2021. Additionally, HR strategies are well-received by PWUM, can be implemented easily in a hospital workflow, and can improve patient and organizational outcomes (Lindenfield et al., 2023). The site selected for this study serves individuals aged 18 and older who are facing psychiatric emergencies in the Portland, Oregon, metropolitan area region.

Interventions

An initial HR competency assessment utilizing an anonymous survey system was created to enhance HR effectiveness and implementation among clinicians, including physicians, nurse practitioners, social workers, nurses, and peer specialists working in the emergency substance use disorder (ESUD) clinic associated with the psychiatric emergency services department, who work directly with PWUM. The initial evaluation had five quantitative questions and a qualitative free-text section. After administering the initial assessment, educational resources, including a 30-minute recorded presentation, were created based on the survey responses. This intervention ran from October 10th, 2024, until January 6th, 2025, with the initial round of data analysis occurring on November 1st, 2024. Clinicians in the initial survey were also invited to participate in an anonymous satisfaction survey consisting of three quantitative questions and a qualitative free-text section from December 12th, 2024, until January 6th, 2025. The evaluation of the subsequent data occurred until January 30th, 2025. A detailed description of the project timeline can be found in Appendix B.

Study of the Interventions

The study of this intervention included an HR utilization assessment, which consisted of ongoing monitoring for available resources in Multnomah County, national treatment guidelines, and HR strategies for PWUM. Questionnaire results and subjective reporting were compared to determine the intervention's efficacy and the completion percentages of those selected to participate. The study of interventions also included monitoring for additional methamphetamine-related information at the local, state, and national levels.

Measures

The primary outcome measured for this quality improvement project assessed the knowledge of HR strategies for clinicians directly working with PWUM. Process measures included the number of clinicians who finished the initial survey, participated in the educational intervention, and completed the follow-up evaluation—balancing measures included clinician burnout, increased workload distress, and varying clinical capacities. Clinical surveys were evaluated in an ongoing process to ensure the accuracy of the results. Furthermore, monthly literature reviews were conducted to identify new treatment guidelines and recommendations that could have benefited this intervention.

Analysis

Survey response data was compiled and analyzed using SurveyMonkey data analytics. No statistical analyses were conducted, including paired t-tests, as new questions were designed to evaluate participant responses to the educational materials. The assessment results were compared to identify any deficits in HR knowledge. Educational materials were developed based on the results of the initial questionnaire. After the educational presentation, a follow-up clinician satisfaction assessment was provided. The initial and follow-up surveys also included a free-text subjective reporting section to elicit participants' feedback on the intervention's effectiveness.

Ethical Considerations

The focus of this project is to ensure that participating clinicians are not unduly distressed. Professional burnout has increased due to various factors, so participation in the project will be voluntary. In addition, this project received approval from the Institutional Review Board (IRB), ensuring that the identities of participating clinicians remain anonymous and do not involve any patient information. Furthermore, all educational materials are designed with the well-being of PWUM in the spirit of beneficence, aiming to reduce risks, promote safety, and foster positive relationships with care providers through HR interventions.

Results

The first PDSA cycle began in October 2024, with 14 staff members from various disciplines who worked directly with PWUM responding to the initial survey. After distributing the study, the site was visited, and staff were encouraged to participate. Ten respondents (71.43%) felt confident in their knowledge of HR strategies and believed HR approaches were effective. The frequency at which HR principles were incorporated into treatment planning varied, with six respondents (42.86%) always doing so and one (7.14%) rarely implementing them. Eleven participants (78.57%) responded to the free text

component of the survey, where they described specific cases in which they used HR strategies with PWUM, how they stay updated with HR practices, and how these are applied to their clinical practices. Responses to the free text portion included specific examples from direct patient care, resources utilized to foster continued education, and anecdotal education acquired from on-the-job experience. The responses to all surveys were used to develop an educational presentation and a participation satisfaction survey. The individual survey questions for the first PDSA cycle, and the results are available in Appendix C.

In December 2024, a pre-recorded educational presentation and follow-up survey were provided to staff working with PWUM. Additionally, the site was revisited to encourage staff participation after distributing the educational materials and survey. Three (100%) participants completed the satisfaction survey during the second PDSA cycle and agreed on the effectiveness of the presentation. Furthermore, one respondent (33.33%) felt that the presentation significantly enhanced their understanding of harm reduction strategies, while the remaining two respondents (66.67%) reported only a moderate or minimal enhancement. Two respondents (66.67%) indicated they were likely to incorporate the knowledge from the educational presentation, while 33.33% stated they were unlikely to do so. The free-text comments provided feedback ranging from the benefits of learning about harm reduction and clinician resources to concerns that the presentation was aimed at individuals with less education and issues with background noise. No data was available to determine how many staff members received the surveys and educational presentation compared to those who completed them. Moreover, the low response rate was likely attributed to the lack of designated paid time to view the educational and survey materials, high acuity patients requiring care, and staffing shortages. The results of the individual survey questions for the second PDSA cycle can be found in Appendix D.

Based on feedback from the second PDSA cycle, the educational presentation was revised to include more comprehensive materials for a deeper understanding of methamphetamine at a neurobiological level. It expanded strategies for HR, which also incorporated additional psychopharmacological approaches.

Summary

The results of this QI project revealed the need for staff evaluation, comprehensive educational resources, and ongoing development of HR programming for emergency clinical sites offering psychiatric services for PWUM. Emergency psychiatric service sites, like the one involved in this project, are uniquely positioned to engage with vulnerable members of our society and foster positive therapeutic relationships, which can lead to reductions in morbidity and mortality for PWUM (Linfield et al.,

2023; Tartarsky, 2003). The participants recognized that their understanding of methamphetamine and HR practices was extensive, and those who received further education would be more likely to utilize these strategies in their practices.

Interpretation

Participation in this project was varied yet insightful. In the first PDSA cycle, 86-93% (N=14) of emergency SUD clinic clinicians felt confident in delivering HR interventions. Approximately 91% (N=10) could identify specific HR interventions they had used and stay updated with best practices. In the second PDSA cycle, 100% (N=3) found the HR education materials effective, although only 67% (N=2) observed moderate improvements in understanding HR strategies. To enhance participation, scheduling compensated training sessions during work hours may be beneficial.

This 12-week investigation successfully examined clinical knowledge and HR interventions for people who use PWUM. With Oregon ranking third in methamphetamine overdose deaths among 38 areas, educating clinicians on methamphetamine and HR strategies is crucial for reducing morbidity and mortality (CDC, 2024). This project is replicable, cost-effective, and adaptable to various healthcare settings. It can be easily incorporated into organizational learning modules for continuing education or onboarding.

Limitations

The QI project encountered several limitations that affected its overall effectiveness and scope. One major challenge was the simultaneous launch of the new ESUD clinic, which likely disrupted the continuity and focus of the project. Furthermore, the project's short duration restricted the amount of data that could be collected and analyzed. Additionally, there was a lack of access to demographic information about the site, making it challenging to tailor interventions specifically to the needs of the staff and patients. Another limitation was the inability to track how many participants viewed the educational video, which obstructed assessing its reach and impact.

Conclusion

The completion of this project highlighted the critical importance of educating clinicians about HR strategies for PWUM in psychiatric emergency settings. The initiative aimed to foster a safer and more effective treatment environment by equipping clinicians with comprehensive knowledge and practical skills. Ongoing training and readily accessible educational resources emerged as essential components to ensure the sustained application of these strategies.

Methamphetamine continues to have a profound negative impact on individuals who use it, posing significant challenges for clinicians treating them and placing substantial burdens on public and psychiatric emergency services. The

absence of standardized, evidence-based psychological and pharmacological treatment protocols urgently requires exploring all possible interventions. Often, people who use methamphetamine are either unable or unwilling to engage with abstinence-based treatment options, complicating their care management.

Future QI initiatives must enhance clinician training programs and monitor patient outcomes, focusing on comprehensive education about HR strategies for PWUM in psychiatric emergencies. These initiatives aim to improve the safety and effectiveness of treatment by equipping clinicians with essential knowledge. Ongoing training and easy access to educational resources are critical for implementing HR strategies. Psychiatric mental health nurse practitioners can educate staff at all levels, using their expertise to strengthen the healthcare team's competency and readiness. This approach ensures clinicians are prepared to address the complex needs of PWUM and enhances the quality of care in psychiatric emergency settings.

Funding

No funding was allocated for the project. One author, a per diem employee at the adjunctive psychiatric emergency services clinical site, did not conduct project-related work during paid hours as a psychiatric mental health nurse practitioner. All research and educational materials for the project were created outside of regular working hours.

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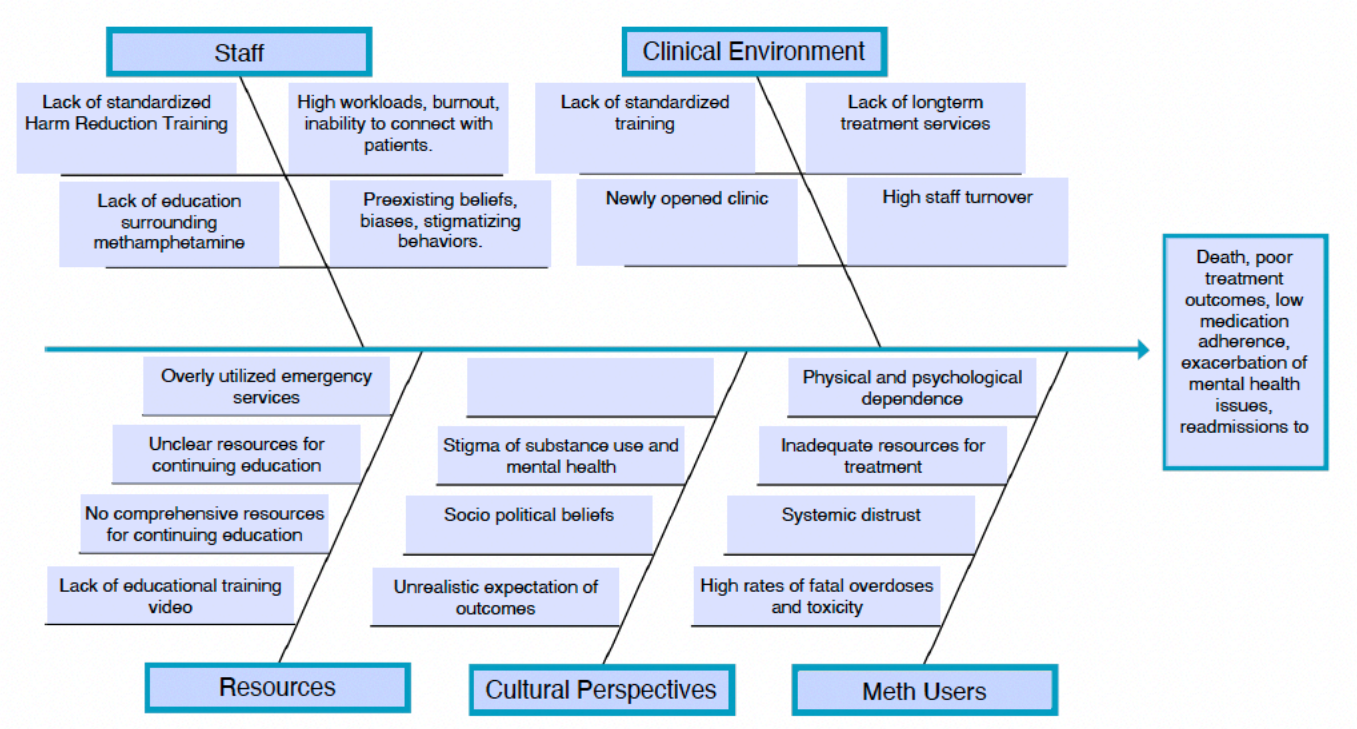
Appendix A: Cause and Effect Diagram



Appendix B: Project Timeline

Spring and Summer 2024:

- Discovery period for quality improvement project
- Determination of interest and benefit for clinician surveys and harm reduction education
- Investigation of relevant information regarding the impact of methamphetamine use, harm reduction protocols, and research evidence

Fall 2024:

- Continued research for emerging data related to methamphetamine use and harm reduction
- An initial Likert-style and free-text comments survey was created

October 2024:

PDSA Cycle 1:

- Initial clinician knowledge assessment administered, including free-text comments
- Site visited and staff informed of forthcoming survey
- Collection and interpretation of initial survey data completed
- Educational presentation created and recorded based on first survey responses

- Patient-centered safety plan created for substance use
- Follow-up satisfaction Likert style survey created, with free text comment

December 2024:

PDSA Cycle 2:

- Recorded educational presentation, Substance Use Safety Plan, and satisfaction survey provided
- Site visited and staff encouraged to view educational materials and complete the follow-up survey

Appendix C: Pre-Intervention Survey and Results:

Q1 1. How confident are you in your knowledge of harm reduction strategies specific to methamphetamine use?

Answered: 14 Skipped: 0

ANSWER CHOICES	RESPONSES	
Strongly agree	7.14%	1
Agree	71.43%	10
Neither agree nor disagree	7.14%	1
Disagree	14.29%	2
Strongly disagree.	0.00%	0
Total Respondents: 14		

Q2 1. Rate the extent to which you believe harm reduction approaches are effective in supporting methamphetamine users on their journey to recovery.

Answered: 14 Skipped: 0

ANSWER CHOICES	RESPONSES	
A great deal	57.14%	8
A lot	14.29%	2
A moderate amount	21.43%	3
A little	7.14%	1
None at all	0.00%	0
Total Respondents: 14		

Q3 How frequently do you incorporate harm reduction principles into your treatment plans for methamphetamine users?

Answered: 14 Skipped: 0

ANSWER CHOICES	RESPONSES	
Always	42.86%	6
Usually	28.57%	4
Sometimes	21.43%	3
Rarely	7.14%	1
Never	0.00%	0
Total Respondents: 14		

Appendix D: Post-Intervention Survey and Results

Q1 Rate the overall effectiveness of the harm reduction for methamphetamine users' educational presentation.

Answered: 3 Skipped: 0

ANSWER CHOICES	RESPONSES	
Strongly agree (1)	0.00%	0
Agree (2)	100.00%	3
Disagree (4)		
Strongly disagree (5)		
TOTAL		
Neither agree nor disagree (3)	0.00%	0

Q2 To what extent did the presentation enhance your understanding of harm reduction strategies specific to methamphetamine use?

Answered: 3 Skipped: 0

ANSWER CHOICES	RESPONSES	
A great deal (1)	33.33%	1
A lot (2)	0.00%	0
A moderate amount (3)	33.33%	1
A little (4)	33.33%	1
None at all (5)	0.00%	0
TOTAL		3

Q3 How likely are you to incorporate the knowledge gained from the presentation into your practice when working with methamphetamine users?

Answered: 3 Skipped: 0

ANSWER CHOICES	RESPONSES	
Very likely (1)	0.00%	0
Likely (2)	66.67%	2
Unlikely (3)	0.00%	0
Very unlikely (4)	33.33%	1
TOTAL		3