



# Belitung Nursing Journal

E-ISSN: 2477-4073 | P-ISSN: 2528-181X

Volume 10, Issue 2  
March - April 2024

Edited by Assoc. Prof. Dr. Yupin Aungsueroch & Dr. Joko Gunawan

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The Official Publication of  
**Belitung Raya Foundation**  
Department of Publication, Indonesia





# Effects of the mindfulness program for male substance abusers in Thailand on stress, deliberate self-harm, and drug abstinence intention: A repeated-measure design

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## Abstract

**Background:** Substance abuse is prevalent among males, and mindfulness could serve as a means of helping individuals suffering from the adverse effects of substance abuse find relief.

**Objective:** This study employed a one-group repeated-measure design and aimed to evaluate the effects of the mindfulness program on stress, deliberate self-harm, and drug abstinence intention among male substance abusers.

**Methods:** The mindfulness program was implemented for Thai males with a history of narcotic drug use. Five participants were recruited from a rehabilitation institute in Thailand using convenience sampling. The program consisted of eight sessions over four weeks. The study outcomes were measured at three time points: pre-intervention (Time 1, Week 1), post-intervention (Time 2, Week 4), and follow-up (Time 3, Week 6). Research instruments included the Deliberate Self-Harm Inventory, the Perceived Stress Scale, and the Drug Abstinence Intention Questionnaire, all of which had Cronbach's alpha values above 0.80. Data analysis was carried out using the Friedman test and Dunn-Bonferroni post-hoc test.

**Results:** The eight-session program was implemented as intended, with a retention rate of 100%. The mean scores of deliberate self-harm and drug abstinence intention were significantly different across the three time points ( $\chi^2 = 10.000$  and  $\chi^2 = 9.579$ ,  $p < 0.01$ , respectively). After conducting pairwise comparisons, the mean scores of deliberate self-harm at Time 2 and Time 3 were significantly lower than those at Time 1. Additionally, the mean scores of drug abstinence intention at Time 2 and Time 3 were higher than those at Time 1. However, the mean score of stress did not have a significant difference.

**Conclusion:** This program was both acceptable and effective in reducing deliberate self-harm and improving drug abstinence intention. These findings suggest that nurses and healthcare teams involved in caring for individuals with substance abuse issues could utilize this intervention alongside other therapies or hospital treatments. Consequently, relapse prevention among substance abusers could be achieved.

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## Article info:

Received: 21 December 2023

Revised: 1 February 2024

Accepted: 19 March 2024

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E-ISSN: 2477-4073 | P-ISSN: 2528-181X

Thai Clinical Trials Registry Number: TCTR20230404001

## Keywords

deliberate self-harm; drug addicts; male; mindfulness; substance abstinence; stress; Thailand

## Background

Drug abuse refers to the utilization of a narcotic drug in quantities or via methods that are detrimental to the individual or others (Davis & Spillman, 2011). It represents a significant global issue affecting individuals across all sectors. In 2017, it was estimated that 271 million people worldwide, constituting 5.5% of the world population, engaged in drug use, including cannabis (188 million people), opium and its derivatives (53

million people), and amphetamines (29 million people) (United Nations, 2021).

As for the situation in Thailand in 2019, drugs were distributed online or through intermediaries to 3,440 villages or communities, with the highest incidence of drug abuse observed in the 15-24 age group. According to surveys, 3.72% of the Thai male population reported drug use, with half of them being junior high school students. These surveys also indicated a rising prevalence of cannabis, kratom leaf, and heroin use, as well as a continuing trend of polydrug use,

which included substances such as Ketamine powder, pro drug, or Si Khun Roy, among others, and the use of intravenous drugs. Furthermore, a concerning issue was the observation that male drug abusers tended to be younger, with an increase in drug abuse observed in the 12-19 age group (Pengpid & Peltzer, 2013).

Kratom leaf and kratom drink, methamphetamine, and cannabis were the most commonly used drugs, respectively. Additionally, it was found that male methamphetamine and cannabis abusers under the age of 25 had the highest access to voluntary treatment. Consequently, the occupations with the highest treatment access were school/university students, employees, and laborers. However, in the study regarding arrest dimensions categorized according to charges during arrest procedures, the most frequent charge was drug abuse (specifically methamphetamine) and possession for sale. This level of drug usage led to individuals needing treatment or facing arrest. In this context, the Thai government incurred an annual cost of over 0.16 - 0.29 million USD for treatments and prosecutions against individuals on probation and compulsory treatment (Ganpet & Teerawatsakul, 2019).

Drug abuse problems in Thai men stem from various reasons, resulting in domestic violence, learning-related issues, unhealthy relationships, toxic relationships, and co-dependent relationships (Ruangritchankul & Srisuma, 2019; Thumwong & Kanato, 2020). These reasons may be rooted in environmental factors or the emulation of certain behaviors observed in society or on social media, while individual curiosity may also play a role. Therefore, early awareness of the causes of drug abuse is crucial and has a significant impact on treatments and the prevention of drug abuse recurrence.

The causes of drug abuse are related to several intrinsic factors, including thoughts, beliefs, knowledge, attitudes, values, life skills, or stress-prone personalities (such as perfectionism or being highly sensitive individuals). All these intrinsic factors can induce stress, eventually leading to drug abuse and deliberate self-harm (DSH) as a means of psychological pain relief (Chomsri et al., 2017; Singtakaew et al., 2021). Consequently, stress and DSH have been associated with drug abuse. Research has indicated that stress plays a role in triggering DSH behaviors (Singtakaew et al., 2021).

Stress is perceived as an emotional state and a feeling of being under pressure, resulting in various physical symptoms. Typically, individuals employ various self-adaptation methods to cope with such stressful situations, depending on their stress-management skills. However, some individuals experience persistent stress and struggle to find effective coping mechanisms or face stressors so frequently that it leads to mental anguish affecting their daily lives. These individuals may also lack proper stress management, resorting to drug abuse as a means to alleviate depressive feelings or psychological pressure. As a result, there exists a correlation between stress, drug abuse, and intentions for deliberate self-harm (Freud, 2019; Jullao, 2019).

Moreover, according to Sigmund Freud's Psychoanalysis Theory and relevant literature (Freud, 2019; Jullao, 2019; Singtakaew & Chaimongkol, 2021), stress, DSH, and drug abuse are dynamically interrelated factors. The presence of one factor may lead to the occurrence of the other two in a

forward circular motion or a constant backward cycle. This cause-and-effect scenario implies that stress, on the one hand, can induce DSH, eventually leading to drug abuse, or, on the other hand, stress can cause drug abuse, resulting in DSH. Individuals may harbor resentment toward society due to drug abuse, which could provoke stress and trigger DSH. Conversely, loss of consciousness resulting from an individual's drug abuse may also lead to DSH. Once the drug effects wear off and consciousness normalizes, stress reemerges while unresolved problems persist. To alleviate these negative feelings, drug abuse may be repeated. If none of the factors are eliminated from this cycle, it continues dynamically, and no endpoint can be identified. This pattern aligns with previous studies indicating an association between drug abuse and mental health factors such as DSH behaviors and suicide attempts (Freud, 2019; Jullao, 2019; Singtakaew & Chaimongkol, 2021).

DSH is a prevalent phenomenon among drug abusers, considered a form of self-violence, and a leading cause of illness and disability (Aishvarya et al., 2014). Poor stress management in drug abusers contributes to DSH behavior, which is related. This behavioral pattern aligns with Sigmund Freud's Psychoanalysis Theory, which attributes these behaviors to internal conflicts within the individual. Furthermore, stress refers to the experience of an emotional state disrupting the psychological balance of a person through their own cognition, irrespective of the environment's positive or negative effects on mental health. This may accelerate the development of DSH (Banjongrewadee et al., 2020; Singtakaew & Chaimongkol, 2021).

The MP was developed based on mindfulness-based stress reduction (MBSR) theory, developed by Professor Jon Kabat-Zinn (Kabat-Zinn, 2018), originally as a treatment model for patients with chronic pain and stress-related disorders. MBSR posits that stress, DSH, and drug abuse are dynamically interrelated factors, where the presence of one factor may lead to the occurrence of the other two in a forward circular motion or a constant backward cycle. Specifically, the therapy involves various activities focused on mindfulness and meditation practices. These activities include body scans, breath awareness meditation, mindful yoga practice, mindfulness practice during daily activities such as walking, standing, or eating, discussions on stress and adjustment, and mindfulness practice assignments. In this model, patients are instructed to observe their thoughts and emotions without exploring the specifics of thought content and to be fully present in their consciousness. Mindfulness practice leads to the realization that sensory perceptions, thoughts, and feelings are transient phenomena. This MP differs from cognitive behavioral therapy (CBT) in several key aspects. While CBT emphasizes changing thought contents by identifying the source of thoughts and beliefs and offering alternatives for a more positive worldview, the MP focuses on the awareness of the birth and cessation of thoughts. It acknowledges thoughts as transient events in one's mind and promotes the cultivation of new and healthier behavior through a broader perspective on the world based on the principles of the MP itself (Kabat-Zinn, 2018).

The MP, which adopts a quasi-experimental research design, aligns with Sanghirun's mindfulness study (Sanghirun et al., 2021). The sample comprises patients under the

Narcotics Act who received treatment at the Psychosocial Therapy Demonstration Center of Suan Saranrom Hospital, totaling 44 cases. Among these, the sample group was selected based on inclusion criteria and randomized into experimental and control groups, each comprising 22 patients. They were assessed three times before and after participating in the program. The study results indicated that the mean scores of self-efficacy for relapse prevention in the experimental group immediately after program enrollment and during the one-month follow-up period after program completion were mean = 146.22 (SD = 14.07) and mean = 149.50 (SD = 14.56), respectively, with a statistically significant difference of 0.05 immediately after program enrollment.

In contrast, Western therapy is conducted in groups, with each group consisting of 30 patients who engage in sessions lasting 2-2.5 hours per week for 8-10 weeks. In the sixth week, a day-long mindfulness practice activity is incorporated. These activities involve guidance on mindfulness and meditation, such as body scanning, conscious breathing meditation, mindful yoga practice, and mindfulness during daily activities like walking, standing, and eating. Additionally, discussions about stress and adjustment take place, along with allocating at least 45 minutes for mindfulness homework to be completed at home. The emphasis is on managing one's emotions without delving into the specifics of thought content and returning to mindfulness in the present (Kabat-Zinn, 2018).

From the examples of studies on MPs, it is evident that both studies focused on therapeutic interventions and preventing recurrences. Additionally, most of the literature reviews revealed that there have been few studies addressing the issue of violence among men with substance abuse. Therefore, nurse professionals should emphasize and prioritize multidisciplinary teams tasked with caring for substance users having DSH or violent behaviors (Kabat-Zinn, 2018; Lakthong & Chaimongkol, 2018; Singtakaew & Chaimongkol, 2021).

Accurate nursing care protocols or interventions are crucial to addressing drug abuse issues in Thai men. Based on evidence-based global analysis, a research gap related to the Mindfulness Program for Thai Male Substance Abusers on Stress, Deliberate Self-Harm, and Drug Abstinence Intention was identified. Empirical studies in this area are relatively limited, particularly focusing on Stress, Deliberate Self-Harm, and Drug Abstinence Intention. Nurses, educators, family members, and other healthcare team members would benefit from this present study in developing suitable planning programs to reduce stress and DSH, enhance drug abstinence, and prevent relapse among substance users. Therefore, the principal investigator (PI) developed instruments to respond to the national strategic health policy focusing on manpower development. Thus, the non-engagement of Thai male drug abusers in repeated drug abuse would reduce instances of self-violence (a form of DSH) and violence against others (such as harming others with aggressive, frantic, and irritable behaviors). The program would also decrease long-term treatment costs. Hence, ongoing care provided to these drug abusers is crucial for developing a program in this research project that could serve as a rehabilitation and treatment guideline for preventing recurrence and reducing the severity of repeated drug abuse.

The outcomes include stress, DSH behavior, and the intention to abstain from drug use in Thai male drug abusers. Consequently, they would be able to enjoy a better quality of life and live peacefully in harmony with their society or community.

The focal point of this study involved testing the effects of the MP on stress, DSH, and drug abstinence intention among Thai males with drug abuse. It was hypothesized that after completing the MP, participants would experience reduced stress and DSH and have a stronger intention to abstain from drug use compared to before participating in the program.

## Methods

### Study Design

A one-group within-subjects repeated-measure design was conducted to examine the effect of the Mindfulness Program (MP) on stress, deliberate self-harm (DSH), and drug abstinence intention among male substance abusers. The study protocol (TCTR ID: TCTR20230404001) was registered by the principal investigator (PI) and can be found on the website of the Thai Clinical Trials Registry (<https://www.thai-clinicaltrials.org/show/TCTR20230404001>). Strict adherence to the protocol was maintained to minimize bias and enhance the validity and reliability of the study.

### Samples/Participants

The participants consisted of five Thai males with substance abuse who were selected using convenience sampling from the Drug Addicts Rehabilitation Center Department of Probation in Pathum Thani Province, Thailand. The inclusion criteria were as follows: 1) aged between 18 and 59 years; 2) being a substance abuser who had received treatment until their mental symptoms were stable and were currently in the rehabilitation stage; 3) fluency in reading and communicating in Thai; and 4) no diagnosis of severe mental health disorders such as major depressive disorder, schizophrenia, psychosis, Alzheimer's, or other dementias. Specifically, participants needed to pass two screening tests: the Montreal Cognitive Assessment with a score of 25 or higher and the Brief Psychiatric Rating Scale below 30 (Bruijnen et al., 2019; Dazzi et al., 2016). They were excluded if their Montreal Cognitive Assessment scores were lower than 25, indicating cognitive problems, or if their Brief Psychiatric Rating Scale scores were 30 or higher, suggesting psychosis.

A power calculation using the G\*power program (Version 3.1.9.7) was employed to determine the sample size. Power analysis involved  $\chi^2$  tests for the Goodness of fit test with a power of 0.50, a significance level of 0.05, and a large effect size of 1.0, derived from a previous study on group therapy intervention for Thai men with substance abuse (Lakthong & Chaimongkol, 2018). The measures were repeated three times, requiring a minimum sample size of 4 participants. Considering an estimated attrition rate of 20 percent based on previous studies, a total of 5 participants were recruited for the present study.

### Instruments

Four instruments were used in this study as the following:

*Demographic Characteristics.* The demographic questionnaire comprised the following participant



characteristics: age, marital status, occupation, education level, monthly income, regular daily expenses, age at first drug use, reasons for drug use, types of drugs used, frequency of drug use, and the number of previous treatments received.

*The Thai version of the Perceived Stress Scale-10*, developed by [Wongpakaran and Wongpakaran \(2011\)](#), was used to assess stress levels. Participants responded to 10 five-point scale questions to gauge the frequency of certain feelings or thoughts experienced in the past six months. The scale ranged from 0 ("never"), 1 ("almost not"), 2 ("sometimes"), 3 ("relatively often"), and 4 ("very often"), with total scores ranging from 0 to 40. A higher composite score indicated higher perceived stress levels. Internal consistencies in previous studies ranged from 0.82 to 0.84 ([Singtakaew & Chaimongkol, 2021](#); [Wongpakaran & Wongpakaran, 2011](#)). The Cronbach's alpha for this study was 0.82.

*The Thai version of the Deliberate Self-Harm Inventory* was employed to assess DSH. This version, translated by [Singtakaew et al. \(2021\)](#), was adapted from the original inventory developed by [Lundh et al. \(2011\)](#) - the "10-Item Revised Version (DSHI-9r)". Participants were instructed to indicate the frequency of their deliberate engagement in ten different types of direct physical self-harm over the past six months. Responses ranged from 0 ("never"), 1 ("one time"), 2 ("two times"), 3 ("three times"), 4 ("four times"), 5 ("five times"), and 6 (> 5) ("more than five times"). Examples of self-harm behaviors include wrist, arm, or body cutting; use of cigarette or lighter for self-burning; self-stabbing; self-biting; and self-punching or head banging. A higher score on the scale indicates more severe DSH and a greater likelihood of suicidal ideation. To obtain results, the total score of the DSHI-9r was calculated based on the frequency of reported self-harming behaviors, ranging from 0 to 60. Previous studies have reported an internal consistency of 0.83 ([Singtakaew & Chaimongkol, 2021](#); [Singtakaew et al., 2021](#)). In the current study, Cronbach's alpha for the Thai version of DSHI-9r was 0.81. Permission was obtained from the copyright owners to translate the instrument into Thai and to use it for our research.

*The Drug Abstinence Intention Questionnaire*, developed by [Amnajkitikorn \(2009\)](#), was utilized to assess drug abstinence intention. This questionnaire was originally in Thai and consisted of 13 questions divided into two components: intention not to engage in activities that lead to drug use and determination not to use drugs. Respondents were required to self-assess and select the answer that best reflected their sentiments. Each question was scored on a scale ranging from 4 (the most truthful), 3 (quite true), 2 (not very true), and 1 (not at all true). Negative questions were recoded to reflect the opposite score. The scores obtained were indicators of the respondents' intentions to quit using drugs, calculated by summing all scores. The total score ranged from 13 to 52, with higher scores indicating a stronger intention to cease drug use. In a previous study, the internal consistency was reported as 0.94 ([Boran et al., 2019](#)). In the current study, the Cronbach's alpha was 0.82.

## Intervention

It was suggested that a successful mindfulness intervention in reducing DSH and stress and improving drug abstinence intention should span four weeks. To avoid bias, the principal investigator (PI), a registered nurse with a Thai Nursing

Council License and experience in psychiatric nursing care, served as the interventionist. The PI, trained and certified as an independent mindfulness therapist by the Department of Mental Health, Thailand, screened participants using the Montreal Cognitive Assessment and the Brief Psychiatric Rating Scale. However, a research assistant (RA), who was a social worker, assisted in data collection using questionnaires.

The contents and activities of the MP were validated by three experts, including a psychiatrist and two psychiatric nursing professors. The MP comprised eight bi-weekly sessions, with participants attending eight 90-minute mindfulness sessions (sessions 1-8, 2 sessions per week) at the Drug Addicts Rehabilitation Center Department of Probation, Thailand. A previous study by [De Dios et al. \(2012\)](#) supported this intervention period, demonstrating its effectiveness in enhancing the understanding of substance users and providing adequate time for all mindfulness content. This study described how a motivational and mindfulness intervention of twice-weekly, 45-minute sessions with follow-up could impact marijuana abstinence intention ([De Dios et al., 2012](#)).

The content of the MP comprised four phases, each containing two sessions. In Phase 1, the initiating phase, the PI instructed participants in session 1 on self-worth awareness and recognizing emotions and stress, which have physical and psychological effects. Participants were taught concentration techniques to reduce distractions caused by thoughts leading to drug cravings. In session 2, participants learned about mindfulness processes that facilitate living in peace and planning lives to avoid external triggers and reduce triggering emotions through awareness of mindfulness based on external and internal conditions.

In Phase 2, the working phase of Part 1, during session 3, the PI instructed participants on using body scans. The PI encouraged participants to be mindful and let go of sensations in their bodies. Additionally, the PI taught participants about labeling/focusing, emphasizing mindfulness, and releasing inner feelings, such as distinguishing between "I'm angry ≠ I see anger," which would aid in managing internal triggers. In session 4, the PI instructed participants on how the conscious mind assists in distinguishing between ideas and reality, in consciously separating thoughts arising from life's challenges and learning to let go. The concept of "I have an idea ≠ I am an idea" was introduced to help address internal triggers, allowing participants to label ideas or feelings and contemplate changes without interference.

In Phase 3, the working phase of Part 2, during session 5, the PI instructed participants on how relationships are directly influenced by our thoughts about the other person. Mindful reflections on relationships were emphasized to gain a more realistic understanding and improve relationships, which serve as the main source of intrinsic stimuli. In session 6, participants were taught to transition from "You message" to "I message" communication. The PI discussed the numerous issues caused by unconscious negative communication and highlighted how conscious communication aids in better life management and reduces internal triggers.

In Phase 4, which served as the terminating phase, during session 7, the PI instructed participants on how self-compassion contributes to feeling secure by learning to accept painful experiences. This approach aids in reducing cravings

for drugs and avoiding DSH. Participants were reminded not to resort to harmful behaviors as a temporary solution for alleviating feelings of unhappiness. They were taught that they could decrease resentment and cultivate a more open mindset through kindness.

In session 8, the PI addressed stress awareness and DSH, emphasizing that drug addiction is a symptom that may resurface. However, through mindfulness practices, participants could maintain balance in their lives and prevent the recurrence of illness. A summary of the program is presented in [Table 1](#).

**Table 1** Summary of the Mindfulness Program

The Mindfulness Program		
Week 1	The initiating phase focuses on practicing "Awareness," the ability to become deeply aware of oneself during the present experience. It consists of two sessions.	Session 1: Self-awareness to manage distraction. Session 2: Realize how to live a conscious life.
Week 2	The working phase, Part 1, focuses on practicing "Acceptance," the ability to accept the present happenings without judgment, resistance, or avoidance, which consists of two sessions.	Session 3: Knowing how to let go of ideas and feelings. Session 4: Knowing the idea label.
Week 3	The working phase, Part 2, focuses on training "Attention," the control of the mind to focus on the present moment and transformative process, understanding one's own inner strength, in change and self-healing; it consists of two sessions.	Session 5: Exploring relationships and connecting with a new heart. Session 6: Developing communication from our hearts to their hearts.
Week 4	The terminating phase focuses on training "Antecedents," considering the breath as the basis to live in the present moment, seeing everything constantly changing and the connection between body and mind, which can be applied and used in daily life on a regular basis. It consists of two sessions.	Session 7: Be kind to yourself and forgive others. Session 8: Life must move forward with determination.

Additionally, booklets were provided to the participants. These included the Mindfulness Program booklet on Stress, Deliberate Self-Harm, and Drug Abstinence Intention. They contained information about the Mindfulness-based Relapse Prevention Program, guidance on practicing the topics covered in sessions 1-8, practice exercises, and homework assignments for each program session.

### Data Collection

After receiving IRB approval and obtaining permission, the PI arranged an appointment with the primary staff of the Drug Addicts Rehabilitation Center Department of Probation in Pathum Thani Province, Thailand. Interested participants who met the inclusion criteria were invited to participate. A social worker, acting as a research assistant (RA), briefed eight potential participants on the study objectives and protocol during a morning conference. The PI then conducted screenings using the Montreal Cognitive Assessment and the Brief Psychiatric Rating Scale to determine eligibility for the study. Finally, only five participants expressed willingness to participate and signed the consent forms.

Upon agreeing to participate, and before commencing the implementation session, the participants completed all questionnaires (Time 1, Week 1), including a demographic questionnaire, the Thai version of the DSHI-9r, the Perceived Stress Scale, and the drug abstinence intention questionnaire. This process took approximately 30-45 minutes to complete.

The PI implemented the MP for four weeks, with sessions held bi-weekly for 90 minutes each on Monday and Thursday mornings. The program was conducted on-site. For details regarding the content of the MP, refer to Table 1. Additionally, participants were assigned homework each week, which they were required to complete and discuss with the researcher before the next session. This homework served to assess their understanding and address any issues they encountered. Homework guidelines were provided for their reference and discussion during subsequent sessions. After completing the

program, the RA administered the measures again (Time 2, Week 4). Two weeks later, participants completed the measures a second time (Time 3, Week 6).

### Data Analysis

The data analysis was conducted using SPSS version 26.0, with statistical significance set at  $p < 0.05$ . Descriptive statistics were employed to outline the participants' characteristics, while frequency analysis determined the feasibility of recruitment and retention rates. Stress, DSH, and drug abstinence intention were compared using the Friedman and Dunn-Bonferroni post hoc tests to assess changes across the three time points. Assumptions for the Friedman test and Dunn-Bonferroni post-hoc analysis were tested for missing data and outliers, with no extreme outliers detected. Given the study's design as a one-group within-subjects repeated-measure design, the Friedman test and Dunn-Bonferroni post-hoc analysis were chosen to explore relationships between continuous dependent variables and categorically explanatory variables. The Dunn-Bonferroni post-hoc analysis, being "within subjects," was selected for its non-parametric nature and its lack of reliance on assumptions of normality or homogeneity of variances, distinguishing it from repeated measures ANOVA.

### Ethical Considerations

The study obtained IRB approval from the Ethical Committee of Rattana Bundit University (IRB code: RBAC-EC-NUS-2-002/65). The PI also submitted the study protocol and IRB approval to the Department of Probation, Ministry of Justice, Bangkok, Thailand. Upon their willingness to participate, participants were asked to sign consent forms after being briefed on the research purposes, risks, and benefits. They were assured they could withdraw from the study at any time (until the data collection was concluded) without repercussions. They had the right to refuse participation or withdraw during the process without affecting their

rehabilitation or needing to provide reasons. All information would be kept confidential and accessible only to the PI.

## Results

### Demographic Characteristics of the Participants

This study included five participants aged between 20 and 39, with a mean age of 28.80 (SD = 6.91). The mean age at which they started using drugs was 15.00 (SD = 1.41) and ranged from 14 to 17 years old. Three participants began using substances at the invitation of friends, while the other two did so out of curiosity. As for the types of drugs used, two participants used amphetamine, one used amphetamine with ice, one used amphetamine with ice and cannabis, and one used amphetamine, ice, ketamine, ecstasy, and cannabis. Four participants reported using drugs seven days a week, while one reported using them 3-4 days a week. Three participants had undergone treatment multiple times, while the other two had received treatment only once.

Additionally, three participants were single, one was married, and one was divorced. Two participants were unemployed, one was employed, one owned a business, and

one was a farmer. Four participants completed education up to grade 9 or 12, while one had education below grade 9. Three participants had monthly incomes below 287.83 USD, while two were above that amount. Three participants reported having just enough income to cover daily expenses without savings, while the other two did not have sufficient income.

### Effectiveness of the Mindfulness Program

The retention rate was 100.0%, with all five male substance abusers completing both program sessions over four weeks and providing outcome measures for all three-time points. They expressed satisfaction with all implementation sessions and reported no adverse effects. Results from the Friedman one-way repeated measures test revealed significant differences in DSH and drug abstinence intention scores across the three time points, while the stress score remained unchanged. Subsequently, Dunn-Bonferroni post hoc pairwise comparisons were conducted. The scores for DSH at Time 2 and Time 3 were lower, and the scores for drug abstinence intention were higher than those at pre-intervention (Time 1). However, there were no differences in scores between Time 2 and Time 3 (see [Table 2](#), [Figure 1](#), and [Figure 2](#)).

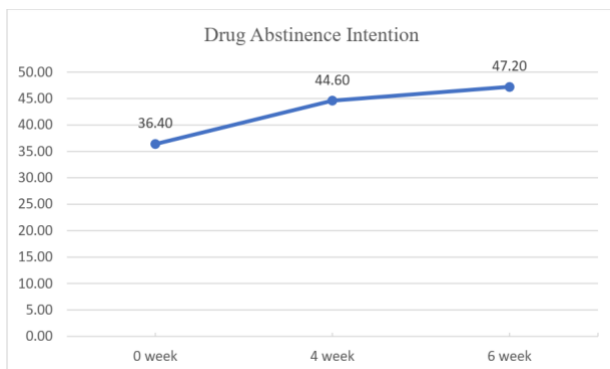
**Table 2** Comparison of mean scores among three time-measures ( $N = 5$ )

Variable	Time1		Time 2		Time 3		Friedman Test		
	Mean	±SD	Mean	±SD	Mean	±SD	$\chi^2$	df	p-value
Deliberate self-harm	10.80 <sup>a</sup>	±4.76	0.00 <sup>b</sup>	±0.00	0.00 <sup>b</sup>	±0.00	10.000	2	0.007
Drug intention abstinence	36.40 <sup>a</sup>	±2.70	44.60 <sup>b</sup>	±4.72	47.20 <sup>b</sup>	±5.07	9.579	2	0.008
Stress	17.80	±6.02	15.80	±3.83	14.40	±6.73	0.353	2	0.838

Note: Time 1 = Before Intervention; Time 2 = After Intervention (4<sup>th</sup> week); Time 3 = Follow-up after Intervention (6<sup>th</sup> week); a, b = The pairs with different characteristics were significantly different



**Figure 1** Comparisons of deliberate self-harm score across three times



**Figure 2** Comparisons of drug abstinence intention score across three times

## Discussion

### Summary of the Findings

The research findings indicate that the MP was adequate, with participating substance users expressing satisfaction with the program. All participants completed the four-week program with no dropouts and reported no adverse events. Consequently, the MP showed promise in effectively reducing DSH and improving drug abstinence intention. However, there is room for improvement in addressing stress within the program's content. Since most substance users do not attribute stress solely to their substance abuse but also to daily-life issues such as conflicts with parents and financial problems, it is essential to address these stressors. If these underlying problems remain unresolved, even after engaging in mindfulness therapy, the persistent stress from unresolved issues may persist. Based on the literature reviews, incorporating problem-solving skills or problem-solving therapy into the MP could be beneficial. Such interventions would assist substance users in understanding and addressing the root causes of their problems, fostering new perspectives, and developing rational problem-solving approaches. By integrating these skills into the program, substance users can access diverse solutions and choose more effective problem-solving strategies (Cuijpers et al., 2018; DZurilla & Nezu, 2010). Therefore, enhancing the MP with content focused on problem-solving skills or therapy could improve its effectiveness in reducing stress alongside mindfulness practices.

It was found that participants experienced fewer DSH episodes immediately after the experiment and during follow-up sessions after two weeks. Moreover, their drug abstinence intention, defined as the avoidance of repeated drug abuse, showed improvement at the 2-week follow-up. Additionally, participants expressed high satisfaction with the short duration and unique content of the sessions, as well as with the MP manual provided to enhance their learning and practice. This finding is consistent with [Noone and Hogan \(2018\)](#), who suggested that post-intervention follow-up at Weeks 2, 4, and 6 by the interventionist played a crucial role in increasing participant adherence to the intervention protocol. These feasibility findings share similarities with several studies demonstrating high participant engagement in mindfulness interventions ([Shomaker et al., 2019](#); [Ugalde et al., 2018](#)).

Furthermore, the preliminary findings of this study provide evidence that the MP effectively assists participants in reducing DSH and improving their drug abstinence intention. However, regarding stress, no significant differences were noted among intervention conditions. These findings align with similar studies involving comparable samples and are consistent with the study by [Bowen and Marlatt \(2009\)](#). In their research, the stage period and half-hour lab session provided instructions on coping with urges using mindfulness meditation, similar to the approach employed in this study. The results of [Bowen and Marlatt \(2009\)](#) may influence participants' cognitive behavior related to drug abstinence intention.

An essential advantage of the MP is the effective method it teaches for intervening in the daily activities of the participants. Substance users learn and practice the four-week program to manage stress, mitigate DSH, and further their intention to abstain from drug use. The MP also includes four mindfulness sessions and a two-week follow-up period after completing the research program to address any additional concerns of substance users, engage other substance users, and reinforce program contents. Most participants reported that they were motivated to try participating in relapse prevention during the training program.

### Strengths and Limitations

This study lasted for six weeks and was conducted in a double-blind fashion for a single-arm group, examining the effects of the MP on stress, DSH, and drug abstinence intention among male substance abusers. The quality of the MP was developed based on the mental health program of the Department of Mental Health, Ministry of Public Health, Thailand. The Ministry has a system for training and certifying therapists, including those used in the health system in more than 50 provinces nationwide. Moreover, the MP was evaluated by three qualified individuals, initially including two psychiatric nursing professors and one psychiatrist, to assess its depth and reliability. As a result, the MP has a structured format with eight sessions of intensive content offered twice a week.

The PI is certified as a psychotherapist in mindfulness therapy. She is a psychiatric nurse and lecturer in the Psychiatric and Mental Health Division. The quality of the research instrument indicates how the psychometric properties were assessed, with all properties found to be acceptable. However, the generalizability of the findings may be limited because this is a cross-sectional study conducted in

one setting in Thailand only. Therefore, future studies may need to explore various settings, including the inclusion of adult female samples.

On the other hand, there is a limitation due to the small sample size in this study methodology. Further analyses with a larger sample size are necessary to confirm the findings. Additionally, the applicability of the findings of this study to drug users in Western countries may be limited due to the specific development of this program in the context of Thai male adults with substance abuse. Therefore, the context, culture, and specific needs should be considered when developing interventions for a target population.

### Nursing Implications

The study's findings offer new insights and clarification on certain protocols or interventions for preventing significant relapse among substance users. Nurse professionals and healthcare teams are responsible for enhancing orientation and support services for substance users, particularly within their communities. In clinical assessment settings, nurse professionals play a crucial role in identifying and diagnosing behavioral signs of substance users, particularly those having abnormal behaviors related to stress, DSH, and relapse symptoms. Additionally, they should advocate for implementing effective protocols or interventions in symptom assessment and treatment while providing prompt and appropriate assistance for relapse prevention. The significance of the MP in reducing drug abstinence and DSH among Thai male substance users highlights the need for nursing interventions that directly address stress and DSH reduction and promote drug abstinence.

In terms of healthcare policy, the findings of this study can serve as evidence-based practice for formulating public health policies aimed at improving hospital policies, especially those addressing repetitive DSH behaviors and substance abuse relapse. The findings highlight the correlation between changes in stress levels and failures in daily stress management with the relapse of drug abuse and the high prevalence of DSH among Thai male substance users ([Lakthong & Chaimongkol, 2018](#); [Singtakaew et al., 2022](#)). Therefore, policymakers should prioritize multidisciplinary teams, particularly nurse professionals whose work involves substance users, as this issue necessitates communication, prevention, and monitoring strategies within communities and hospitals.

Regarding nursing education, the findings of this study, focusing on stress levels, DSH behaviors, and relapse prevention among substance users, will be invaluable for nursing researchers and healthcare teams in implementation. Furthermore, they will serve as primary data for nursing researchers seeking to effectively conduct future investigations related to program planning, randomized control trials, or other interventions. Additionally, this study will strengthen research-based nursing care and foster collaboration among nurse practitioners, nurses, and relevant academics.

### Conclusion

The findings indicated that the MP showed potential in reducing DSH and enhancing drug users' intention to abstain



from drug use, although it did not demonstrate effectiveness in decreasing stress. However, future iterations of the MP could consider incorporating problem-solving skills or problem-solving therapy to address unresolved issues contributing to persistent stress. In addition to equipping substance users with mindfulness skills to aid in relapse prevention for stress, DSH, and drug abstinence, nurses and healthcare providers may play a role in facilitating early enrollment in this relapse prevention program. Nonetheless, concerns persist regarding the context, conditions, strategies, or media employed during a prolonged follow-up period, as well as addressing the evolving needs of drug users. Finally, further research utilizing a randomized controlled trial (RCT) design with a larger sample size is recommended to enhance rigor.

## Declaration of Conflicting Interest

The authors declare no conflict of interest.

## Funding

This study was funded and supported by the National Research Council of Thailand (NRCT) (Grant Number: N32A660112).

## Acknowledgment

The authors wish to thank all the participants who greatly contributed to this study and Prof. Dr. Manyat Ruchiwit, the consultant for this study.

## Authors' Contributions

All authors equally involved in interpreting the results and writing this manuscript to meet the authorship criteria agreed with the final version of this manuscript.

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## Data Availability

Data are available upon reasonable request.

## Declaration of Use of AI in Scientific Writing

The authors have declared that no generative AI was used in writing.

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**Cite this article as:** Singtakaew, A., Chaimongkol, N., Puangladda, S., & Wongpiromsarn, Y. (2024). Effects of the mindfulness program for male substance abusers in Thailand on stress, deliberate self-harm, and drug abstinence intention: A repeated-measure design. *Belitung Nursing Journal*, 10(2), 231-239. <https://doi.org/10.33546/bnj.3178>