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Original Article

The Effectiveness of the Project of White Schools Free from Drugs and Vices for Prevention of Substance Abuse Among University Students, Mahasarakham Province, Thailand

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Abstract

Background: Adolescent substance use in Thailand is a serious problem that has adverse effects on their physical and mental health and social life. Therefore, there is an urgent need for effective interventions to improve substance abuse outcomes among adolescents.

Methods: A mixed-methods research was conducted on 1392 university students in Mahasarakham Province, Thailand, from May to September 2023 to assess the predictors of drug abuse prevention behaviours. Additionally, action research was used to develop and evaluate the project for the prevention of substance use. The data were collected through a self-administered questionnaire. Data were analyzed by SPSS version 25.0. Multiple linear regression analysis and an independent samples t-test were applied to analyze the data.

Results: Most students (46.84%) had a moderate level of drug prevention behaviour. Additionally, social support from the university, peer groups, family relationships, and self-control were significant predictors of substance abuse prevention behaviours. In terms of the effectiveness of white school free from drugs and vice, most subjects reported high levels of substance abuse prevention behaviours. The most effective factors in preventing drug abuse and solving drug-related problems included support from the university, friends, family, self-esteem, and stakeholders.

Conclusion: Self-control, family relationships, peer group support, and social support from the university were correlated with substance abuse prevention behaviour among university students. The project of White School Free from Drugs and Vices was found to be an effective intervention in preventing substance abuse, encouraging students to promote drug abuse prevention behaviours.

Keywords: Substance abuse, Prevention, Youth

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Introduction

Adolescent substance abuse is one of the most serious problems in Maha Sarakham province, Thailand. This problem not only causes health problems but also leads to several family and social problems (1). Approximately 28% of youth aged 15–21 years used these substances, of which methamphetamine pills (Yaba) and crystal methamphetamine (Ice) were the most common drugs used. Substance abuse is highly prevalent among university students (2).

The project of white schools free from drugs and vices is one of the most promising projects that has been launched as a campaign to prevent drug abuse and solve drug-related problems in Thailand by the Ministry of Education. It consists of 5 measures: 1) prevention measures, 2) search measures, 3) treatment measures, 4) surveillance measures, and 5) management measures. This is in order to prevent and systematically solve the drug-related problem. Therefore, educational institutions can control the spread of drugs and the related risk factors in educational institutions (3). The project was implemented in the university in 2017. Based on the concept and framework of the project of white schools free from drugs and vices, the activities of the school could be used to promote activities for the target group (individuals aged 15–24 years old) by persuading them to perform activities according to their interests (4,5). Moreover, it can develop and strengthen the physical health, emotions, and mind of students, create happiness, solve problems, and develop emotional intelligence (6). However, in Mahasarakham

Province, the project of white schools free from drugs and vices has not yet been designed to develop a graduate identity in any specific area (7). Additionally, university activities were not appropriate in the case of late-teenage to early-adult students in higher education. Therefore, the design and development of appropriate activities may be useful for university students who are vulnerable to substance abuse to protect their immunity against drugs. They may be designed to be used as a guideline for drug prevention in the future among the students (8,9). Hence, the present study aimed to assess the effectiveness of white schools free from drugs and vices for the prevention of substance abuse among university students.

Materials and Methods

Study Design, Population Sampling, and Tools

This mixed methods study with two phases was conducted from May to September 2023 at universities in Mahasarakham province, Thailand.

Phase 1: Quantitative Phase

In phase 1, we explored the predictive factors for students' drug prevention behaviours. The eligible participants were undergraduate students who were enrolled in universities in Mahasarakham Province, aged 18–22 years old, with no communication problems and who were willing to participate, while those who provided incomplete responses were excluded. The calculation of the sample size was conducted using Daniel's formula (10). The percentage of substance abuse among college students (4.8%) was estimated according to the study by Cho et al (5), with a confidence interval of 95% and an expected precision of 3%. A sample size of 1252 participants was required for the study. However, the final sample size was determined to be 1392 participants considering a dropout rate of 10%. A total of 1678 students enrolled, and 286 were excluded because of incomplete questionnaires. Therefore, a multi-stage sampling method was used to select 1392 students who were eligible. In the first stage, faculties were selected from 9 universities in Maha Sarakham province. In the second stage, students were selected from each faculty using the lottery method. In the third stage, the students were selected by systematic random sampling at each year level. Every student on the list was selected as a participant and excluded in case the student was absent or unwilling to participate. Then, the next student on the list was included in the study.

Phase 2: Qualitative Phase

In the second phase, we utilized action research to develop and evaluate the project for the prevention of substance use by applying the concept presented by Kemmis and McTaggart (1988), which consisted of four stages: planning (P), action (A), observe (O), and reflection (R) (11). The researcher and co-researchers participated in this phase through co-thinking, co-practicing, co-observing, and co-reflection. This qualitative research was conducted from June to September 2023 in Mahasarakham Province with the participation of 50 people. Two brainstorming sessions were conducted in cooperation with the committee of the anti-drug campaign, student representatives, lecturers, and university personnel, who were selected by purposive sampling in order to obtain an in-depth understanding of the concept. Brainstorming is a situation where a group of people meet to generate new ideas and solutions around a specific domain of interest by removing inhibitions. People are able to think more freely, and they suggest as many spontaneous new ideas as possible. All the ideas are noted without criticism, and after the brainstorming session, the ideas are evaluated (12). There have been many studies that have utilized brainstorming as a tool for the creation of interventions (13,14). In this study, semi-structured questionnaires were used in two brainstorming sessions. Three issues were identified for situation analysis in the first brainstorming session: (a) the situation of drug abuse in universities, (b) problems of drug prevention, and (c) measures for drug prevention. The second brainstorming session was used for program design, which focused on four issues: (a) previous solutions for drug abuse (b) recommended solutions for these problems, (c) your roles in preventing and solving drug-related problems, and (d) the dream image of drug abuse prevention interventions. Additionally, the IOC of the brainstorming questionnaire ranged from 0.6 to 1.00, which was obtained based on the feedback received from three experts.

Data Collection Tool

The self-administered questionnaires were composed of five parts as follows:

Part 1: Sociodemographic factors which included sex, grade point average (GPA), and monthly expenses. All variables were categorized as dichotomous variables, except for the monthly income variable, which was categorized into tertiles.

Part 2: Personal factors which included self-control and drug awareness. This was a 10-item questionnaire with a 5-point Likert scale, ranging from 1 (least) to 5 (the most). The total score ranged from 10 to 50, with higher scores indicating greater drug prevention. It had a good internal consistency, with a Cronbach's alpha of 0.85.

Part 3: Family factors which included family relationships and family upbringing. This was a 10-item questionnaire with a 5-point Likert scale, ranging from 1 (least) to 5 (the most). The total score ranged from 10 to 50, with higher scores indicating greater drug prevention. It had a good internal consistency, with a Cronbach's alpha of 0.87.

Part 4: Social factors which included peer groups and social support from university. This was a 10-item questionnaire with a 5-point Likert scale, ranging from 1 (least) to 5 (the most). The total score ranged from 10 to 50, with higher scores indicating greater drug prevention. It had a good internal consistency, with a Cronbach's alpha of 0.89.

Part 5: Drug prevention behaviours which measured the

students' behaviour to prevent or avoid drugs. This was a 10-item questionnaire with a 5-point Likert scale, ranging from 1 (never practiced) to 5 (regular practice). The total score ranged from 10 to 50, with higher scores indicating greater prevention behaviour. It had a good internal consistency, with a Cronbach's alpha of 0.88.

Statistical Analysis

Quantitative Analysis

Results were represented as the mean ± standard deviation (SD), percentage, and frequency. Furthermore, the Pearson correlation test was performed to investigate the relationships between behavior and other variables. The multiple linear regression model was used to assess the predictive power of "drug prevention behaviours". Then, a binary logistic regression analysis was performed to test the relationship between drug prevention behaviours and self-control, drug awareness, family upbringing, family relationships, peer group support, and social support from the university. The statistically significance level was set at $P < 0.05$.

Qualitative Analysis

Descriptive content analysis was applied to examine the qualitative data. The data were recorded, classified into categories according to similarity, and analyzed by two co-researchers. The brainstorming data were recorded and summarized by the researcher and research assistants.

Data Analysis

Descriptive statistics were used to analyze participants' characteristics and outcomes. Independent sample *t*-test was used for normally distributed continuous variables. We compared the outcomes before the intervention, after the intervention, and at follow-up visits. Additionally, a multivariate linear regression model was performed to determine the effects of intervention, adjusted for baseline characteristics and baseline values of the outcome measures. All statistical analyses were carried out using SPSS version 25.0. *P* value < 0.05 was considered statistically significant.

Results

In phase 1, the results showed that most students were female (55.0%) and their GAP ranged from 3.01 to 3.50 (55.60%). The majority of them (66.52%) had monthly expenses between 5001 and 10000 Thai baht (Table 1). In terms of the levels of drug prevention behaviours, most of them had a moderate level (46.84%), followed by a low level (33.16%), and a high level (19.40%) (Table 2).

Pearson correlation analysis indicated that self-control, drug awareness, family upbringing, family relationships, peer group support, and social support from the university were significantly associated with drug prevention behaviours ($P < 0.001$) (Table 3). The results of the stepwise multiple linear regression analysis revealed that drug prevention behaviour was predicted by self-control ($P = 0.13$), family relationships ($P = 0.10$), peer group support ($P = 0.001$), and social support from the university ($P = 0.001$) and was statistically significant, which was used to predict the drug abuse prevention behaviors of 25.9% (Table 4).

Table 1. Demographic Characteristics of the Participants

Variable	Number	Percent
Gender	1392	
Males	627	45.00
Females	765	55.00
GPA, mean (±SD)	3.29 (0.34)	
GPA	1392	
2.00-2.50	48	3.46
2.51-3.00	186	13.36
3.01-3.50	774	55.60
3.51-4.00	384	27.58
Monthly expenses, mean (±SD)	6,406.46 (2.21)	
Monthly expenses	1392	
1000-5000 Bath	438	31.47
5001-10000 Bath	926	66.52
10000-15000 Bath	28	2.01

Table 2. The Level of Drug Prevention Behaviour of Students

Drug Prevention Behaviour Level	Number	Percent
Drug prevention behaviour.	1392	
High level of behaviour	270	19.40
Moderate level of behaviour	652	46.84
Low level of behaviour	470	33.16

In phase 2 (planning phase), all stakeholders were involved in planning to develop the project for the prevention of substance abuse using the AIC technique (15). We presented the results from phase 1, such as the predictor variables of drug prevention behaviours (e.g., self-control, family relationships, peer group support, and social support from the university) and the preliminary data of the project of white schools free from drugs and vices. The evaluation of this project in the past year showed a low overall efficiency, and the process was not covered by all five requirements (e.g., preventive operations, substance abuse screening, practice, drug surveillance, and administration). In this stage, we designed and developed the plan for drug prevention, including five activities that would be implemented in operational steps.

In the operational steps (action phase), we have followed the action plan developed in the planning phase and implemented five activities as follows:

(1) Improvement of life skills: The objective of this activity was to improve the students' life skills in drug prevention and create a trend in preventing and solving drug problems in universities. This helps the students to change their values and behaviours to avoid substance abuse, increasing their awareness of its effects.

(2) Substance abuse screening: This was a screening

Table 3. Correlation Matrix of Variables

Variables	Y	X1	X2	X3	X4	X5	X6
Drug prevention behaviour (Y)	1						
Self-control (X1)	0.29**	1					
Drug awareness (X2)	0.21**	0.34**	1				
Family upbringing (X3)	0.17**	0.33**	0.47**	1			
Family relationships (X4)	0.16**	0.31**	0.23**	0.27**	1		
Peer group support (X5)	0.35**	0.49**	0.27**	0.35**	0.33**	1	
Social support from the university (X6)	0.44**	0.38**	0.36**	0.19**	0.02	0.29**	1

Note. ** Correlation is significant at $P=0.01$ (2-tailed).

Table 4. Results of Logistic Regression Analysis of Predictor Variables

Variables	B	Exp.	t	95% Confidence interval		*P* value
				Lower	Upper	
Social support from university	0.353	0.356	13.827	0.303	0.403	0.001
Peer groups	0.213	0.203	7.791	0.160	0.267	0.001
Family relationships	0.063	0.066	2.588	0.015	0.111	0.10
Self-control	0.069	0.067	2.474	0.014	0.124	0.13

$R^2=0.209$, $R^2_{Adj}=0.259$, $F=121.20$

activity performed twice a year among the students who were at risk of drug abuse using the Alcohol, Smoking, and Substance Involvement Screening Test (ASSIST) (Thai version) (16). We found that 33 students with risky behaviours were involved in substance abuse and attended school-based behaviour modification programs.

(3). A counselling health center (called the "Semarak Clinic" in Thai): It was established to provide counselling based on the principle of peer assistance, which focuses on alleviating suffering, creating happiness, solving problems, and developing emotional intelligence. This center had a volunteer counselor who had been trained and gave some advice every day. It was found that the most common problem that students were consulted about was peer group problems (33.21%), followed by depression (21.35%).

(4) Online communication channels: We establish communication channels via social media, such as university websites and Facebook pages, to publish information about substance-related problems.

(5) The substance abuse prevention and solution network: We cooperated with the organizations involved in substance abuse prevention, including institutional education and local administration organizations, to share the strategies and resources for solving drug-related problems.

In the observation stage (follow-up phase), the implementation of operational models to prevent and solve drug problems in university was evaluated. Drug prevention behaviours of students before and after the intervention were compared. The students had a significantly lower mean score of drug prevention behaviours before the intervention ($P<0.001$) (Table 5).

In the reflection stage (reflection phase), the researcher and co-researchers presented the achievement of all activities and had a discussion with all stakeholders about the summary of the concept of the project of white schools free from drugs and vices for the prevention of substance abuse that were appropriate for university students in Mahasarakham Province. The operational model for preventing and solving drug-related problems had 7 steps: 1) establishment of an operating committee, 2) the substance abuse prevention and solution network, 3) improvement of life skills, 4) online communication channel, 5) substance abuse screening, 6) a counselling health center, and 7) follow-up and care. Additionally, we discussed the limitations and success of the project. Finally, it was concluded that the key terms of the project's success were university support, friends, family, self-esteem, and stakeholders. Additionally, the project was found to be an effective intervention in preventing substance use. These findings suggest that prevention strategies should include interventions effective in improving family and school climate for youths in addition to improving self-control, school bonding, and peer relations, encouraging students to promote drug prevention behaviours.

Discussion

The results of this study showed that university students with high self-control would have a relatively low propensity to become involved with drugs, which is consistent with those of Allahverdipour et al (17). They reported that adolescents with lower self-control have a higher risk of becoming involved in drug abuse. This may be explained by the fact that most human behaviours are under self-control in terms of thoughts, emotions, feelings, and actions in the desired direction, regardless of the problems or obstacles that cause inner conflict (18). Individuals can use one or a combination of methods to change their behaviours from undesirable behaviours to

Table 5. Comparison of Drug Prevention Behaviours of College Students before and after Intervention

Drug Prevention Behaviours	n	Mean	SD	Mean Difference	95% CI	df	t	*P* value
Before intervention	1392	2.64	0.89					
After intervention	1392	3.92	1.15	0.33	0.23-0.41	19	-7.14	<0.001*

*Correlation is significant at $P=0.001$

desirable behaviours. Therefore, individuals with high self-control would have a relatively low propensity to become involved with drugs. Meanwhile, people with low self-control are more likely to become involved with drugs, which is consistent with previous studies (19,20).

In addition, the results revealed that family relationships have a positive relationship with drug prevention behaviours, which is consistent with those of the study by Kumpfer et al (9,21). They reported that family relationships can prevent adolescents from becoming involved with addictive substances. Adolescents who live with their parents and have good family relationships have high levels of drug prevention behaviours as well. This may be because the family is the first social institution that a person encounters and it is very important in transmitting behaviour patterns. Family relationships will be very important in preventing drugs among students. The family members who have good relationships with each other tend to spend their free time doing activities together. Additionally, they take care of each other, show generosity, and continue to encourage each other. These behaviours can help university students be mentally strong, develop life skills, be flexible, and have the ability to adapt when faced with bad situations that can help them to use drugs (22).

We also found that peer group support was associated with drug prevention behaviours in university students. The results of this study are consistent with those of Allahverdipour et al, Allen et al, and Sloboda et al (23-25). They reported that friends are an important source of primary support for students. In other words, friends, especially close friends, have the greatest influence on reinforcement. College students are at an age that they begin to distance themselves from their parents and enter the society they like. Therefore, friends are of great importance as a source of information and advice, considering that they rely upon them, are encouraged by them, and model their various behaviours. In addition, students also need to be accepted and praised by their friends, which imitates the behaviours of a group of friends (13). Having friends has both advantages and disadvantages. Teenagers choose good friends who influence them in a good direction. It was found that having friends who use drugs can increase the risk of using illegal drugs. Peer influence plays an important role in drug use behaviours.

Furthermore, the results of this study showed that social support from the university was strongly associated with drug prevention behaviours in university students, which is consistent with those of Chupan & Ruangmontri, Bachman et al, Stephens et al, and Cujpers (4,26-28). They reported that university and teachers are a secondary source of support for students who have functional relationships. In addition, society determines that the teacher plays an important role in transmitting knowledge, thoughts, interests, and skills necessary for life. Living with people in society provides emotional support, information, materials, advice, and opportunities to express opinions. It can encourage people to use their minds when encountering obstacles in daily life and promote good activities. Therefore, students get to know and understand themselves. This encourages students to be good people, smart individuals, and happy persons both physically and mentally, which can also affect their lives. They are of high quality and value to themselves and the surrounding society as well. Educational institutions that give importance to drug prevention and have a policy on drug prevention make contributions to the development of life skills in students. This will result in high levels of drug prevention behaviour among students.

Based on the results, the operational model developed for preventing and solving drug problems had 7 steps as follows: 1) Establishment of an operating committee, 2) the substance abuse prevention and solution network (management measures), 3) improvement of life skills (prevention measures), 4) online communication channels (surveillance measures), 5) substance abuse screening (search measures), 6) a counselling health center (treatment measures), and 7) follow-up and care. All these interventions focused on promoting drug prevention behaviors among students and were developed to prevent drugs and make students be more interested in preventing drugs, a finding which is consistent with that of the study by Kumpfer et al (21). A number of promising comprehensive strategies have been developed to promote drug prevention behaviours among students such as life skills courses, drug prevention activities, consulting activities, identifying at-risk students, and learning about substance abuse, which were designed to involve students more in activities that teach new skills. This may be because drug prevention measures in universities should be improved for both low- and high-risk students in ways that increase self-control by enhancing the self-concept of students. The instructors should create university bonding and decrease the chance to associate with negative peers. Such improvements in drug prevention measures require large-scale, comprehensive, and enduring efforts by university members and community personnel. In addition, strategies for enhancing the mental immunity of youth and developing networks for the prevention of drug abuse and solutions to drug-related problems would help encourage students to have more drug prevention behaviours, preventing them from becoming involved

with drugs (7,29). It suggests that the university must formulate measures and policies to prevent and solve the current drug-related problems. They stress that the university should be addressed in any comprehensive prevention program. The project of white school free from drugs and vices can help students to promote drug prevention behaviours (30).

Limitations of the Study

This study has some limitations. First, because of the cross-sectional design, it is not possible to infer temporal and causal relationships. Second, since the questionnaire places a greater emphasis on the subjectivity of the place of response, there are differences in the individual's understanding of the questions. Third, these substance abuse prevention behaviours are applied to university students in Thailand; therefore, the findings may differ from those of other people in different contexts. Despite these limitations, our study has strengths including a large sample size and control for a wide range of covariates. We also revealed the importance of the effectiveness of the white school free from drugs and vices model considering subjective measures in all 5 areas when investigating relationships with substance abuse prevention behaviours.

Conclusion

This study indicated that factors including self-control, family relationships, peer group support, and social support from the university were correlated with substance abuse prevention behaviour in university students. The operational model for preventing and solving drug problems has 7 steps of 5 measures. These findings suggest that prevention approaches should include interventions effective in improving measures in all 5 areas of the project, helping students to promote drug prevention behaviours.

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Authors' Contribution

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Competing Interests

No conflict of interest was reported by the authors.

Ethical Approval

This study was approved by the Ethics Committee of Human Research of Mahasarakham University Mahasarakham, Thailand 147-105/2566).

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