

# The Effect of Educational Intervention Based on the Theory of Planned Behavior on the Prevention and Risk Reduction Behavior of Substance Abuse

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## Abstract

**Background:** The prevalence of drug abuse has been one of the most serious challenges to the healthcare system resulting in several psychological, medical, and social complications. The present study examines the effect of educational intervention based on the theory of planned behavior on the prevention and risk reduction behavior of substance abuse in patients referred to drug addiction treatment centers in the southern region of Iran

**Methods:** This quasi-experimental study was conducted on 130 addicts referred to Fasa Drug Addiction Treatment Center in 2020. A random sampling method was adopted to divide the samples into the control and experimental groups (n=65). Educational Intervention based on the Theory of Planned Behavior was followed in six forty-minute sessions in the experimental group. Data were analyzed by the paired t-test, independent t-test, and Chi-squared test using SPSS-22 software.

**Results:** There was no significant difference between the experimental and control groups in terms of attitude, subjective norms, perceived behavioral control, intention toward substance abuse preventive behavior before the educational intervention ( $P>0.05$ ); however, there was a significant growth of attitude ( $53.06\pm 4.48$ ), subjective norms ( $35.34\pm 3.65$ ), perceived behavioral control ( $34.37\pm 4.6$ ), intention ( $7.38\pm 1.92$ ) toward substance abuse preventive behavior in the experimental group three months after the educational intervention ( $P<0.05$ ).

**Conclusions:** Educational intervention based on the theory of planned behavior has effectively reduced substance abuse in the addicts treated with methadone. Accordingly, health system policymakers and managers can use the results of this study for planning and educational interventions in the prevention and risk reduction behavior of substance abuse.

**Keywords:** Theory of Planned Behavior, Education, Substance abuse

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## INTRODUCTION

According to United Nations Office on Drugs and Crime (UNODC) Report in 2014, about 243 million people, or 5 percent of the world's population aged 15 to 64, consumed drugs in 2012. In addition, the studies showed that the rate of drug abuse and addiction almost doubles in the Islamic Republic of Iran every 12 years, and the number of addicts rises 8% each year [1-2]. Statistics show that the prevalence rates of substance use in Iranian people aged between 15 and 64 were estimated at 5% in 2020 [2], and there are about 2 million drug addicts in Iran. Due to the current population structure and the availability of the necessary conditions in the spread of addiction, it is estimated that about 44 million people be at risk of drug abuse [3]. Various studies show that substance abuse is directly involved in behavioral and health problems [4]. Since the age of onset of substance use has

decreased, it is necessary to start some educational programs to raise awareness about the effects and complications of substances [5]. Education has a vital role in empowering individuals. Changes in beliefs lead to changes in behaviors; therefore, it is essential to have comprehensive educational programs by providing the necessary knowledge and awareness to empower people [6]. Health education plays its role as the foundation of health-related programs and activities. It needs to recognize its behavior and other influential factors to effectively modify its existing behaviors or replace it with new behavior. This issue highlights the role of models and theories of behavior study in health education [7-8]. Thus, the first step in the educational planning process would be selecting the appropriate educational model or theory [9]. The theory of planned behavior is one of the educational theories preventing chronic diseases and health promotion and acts as a practical framework to design educational interventions and promote

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preventive behaviors [10].

The theory of planned behavior is one of the theories of health education that encompasses individual and social factors that effectively create behavior. It indicates that the intention is highly effective in predicting behavior. However, the intention is also influenced by attitudes toward behavior, subjective norms that encourage behavior, and a sense of control over the behavior. This theory is also widely used to examine and emphasize the factors for high-risk behaviors, including addiction and relevant interventions [11-12]. According to the assumptions of this theory, attitude, subjective norms, and perceived behavior control determine the characteristics of behavior; therefore, if they are modified, unhealthy behaviors can be corrected [13].

Given the prevalence of addiction and its detrimental effects on public health, as well as few studies conducted on the effect of educational interventions based on the theory of planned behavior on the prevention and reduction of substance use, the present study tries to examine the effect of educational intervention based on the theory of planned behavior on the prevention and risk reduction behavior of substance abuse in patients referred to drug addiction treatment centers in the southern region of Iran.

## METHODS

This quasi-experimental study was conducted on the addicts

referred to Fasa Drug Addiction Treatment Center in 2020 using pre- and post-tests in the experimental and control groups. Considering the results of similar studies [14], as well as the following criteria:  $d = 2.14$  and  $s_2 = 4.1$ ,  $s_1 = 4.4$ ,  $\alpha = 0.05$ ,  $\beta = 0.1$ , 130 participants were calculated to be needed for each group, which number was raised to 140 to increase power and allow for the possibility of loss to follow-up. Initially, 140 male participants taking methadone, who referred to Fasa Drug Addiction Treatment Center, were selected by convenience sampling and invited to participate in the study. Subsequently, 10 of the subjects, who were not willing to participate in the study or did not meet the inclusion criteria, were excluded. The remaining 130 participants were randomly allocated to two groups: experimental and control group. The method of allocation was as follows: 130 cards, 65 of which were marked A and 65 were marked B, were placed in an envelope and each participant was asked to draw out one card. The participants, who chose A were assigned to the experimental group and the ones, who selected B were assigned to the control group. Figure 1 shows flow diagram of the participants throughout the study. All men taking methadone (at least 5 cc per day for 4 months) referring to Fasa Drug Addiction Treatment Center were included in the study.

The criteria for inclusion in the present study were not having a physical and mental illness, taking methadone in the last 4 months (at least 5 cc per day for 4 months), having the

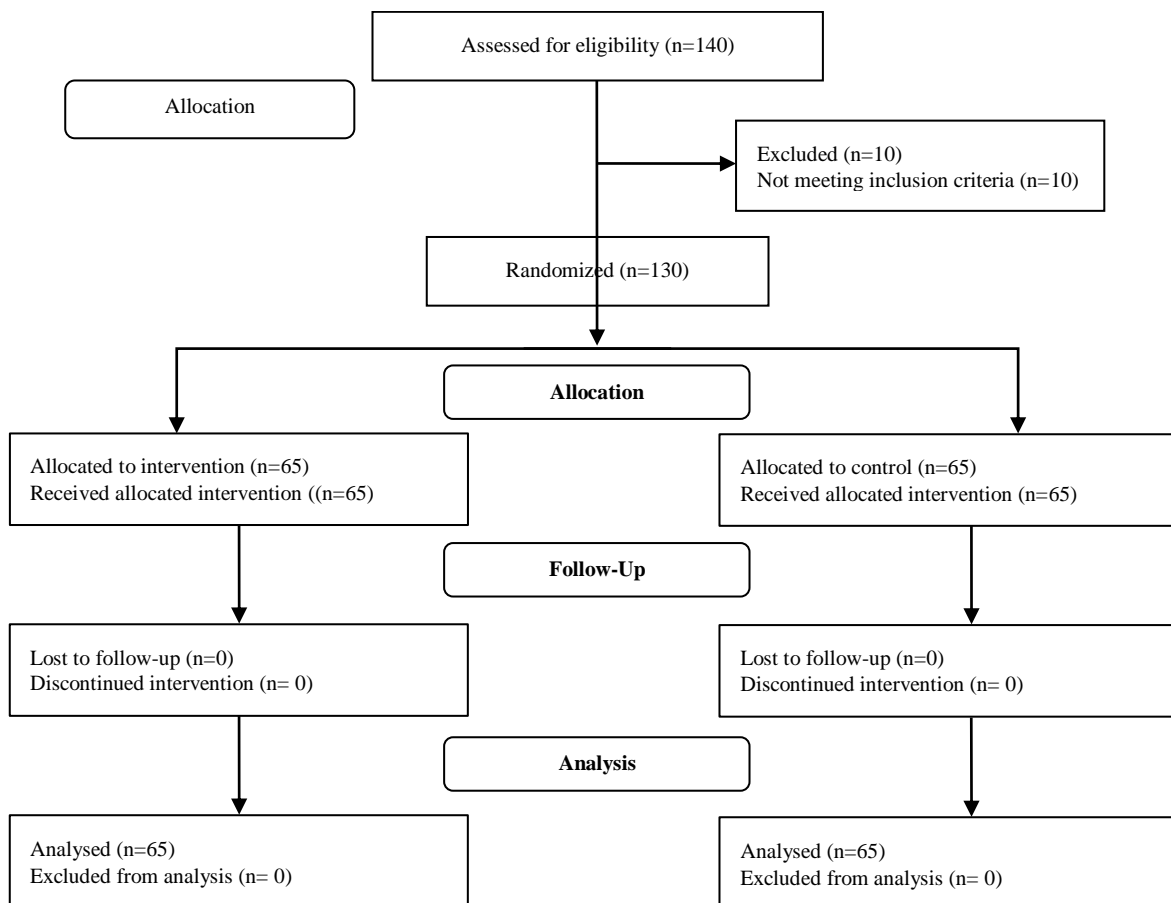


Figure 1. flow diagram of the participant

willingness to participate in the study, and having full consciousness and ability to communicate. The participants, who were not present regularly in the sessions and had more than one absent session, were excluded from the study. A researcher-made questionnaire was used to collect the data. In order to assess the validity of the questionnaire, face and content validity were used. Quantitative face validity of the questionnaire was explored using impact score. In this regard, impact scores > 1.5 represented the appropriateness of the items [15]. According to 20 nursing instructors, the impact scores of all questionnaire items were higher than 1.5. In order to investigate content validity, Content Validity Ratio (CVR), and Content Validity Index (CVI) were used. The necessity of the items was determined by the experts as ‘necessary’, ‘useful but not necessary’, and ‘not necessary’ considering CVR [16]. In doing so, 15 nursing instructors’ opinions were used and values greater than 0.49 were considered acceptable based on the Lawshe table [17]. Regarding CVI, the experts were requested to evaluate the items in terms of relevance, clarity, and simplicity. In this respect, scores above 0.79 were considered acceptable [18].

For this purpose, 15 nursing instructors’ opinions were applied. Accordingly, all items received scores above 0.79. Moreover, the total content validity of the questionnaire was computed using S-CVI/Ave where the minimum score of 0.79 was considered acceptable [19]. Based on the results, the S-CVI/Ave of the questionnaire was found to be 0.96. Finally, the reliability of the questionnaire was assessed using the test-retest method. In doing so, the questionnaire was given to 100 nursing instructors in two stages with a two-week interval. The reliability coefficient of the questionnaire was found to be 0.89 [20].

The questionnaire has two sections, including demographic information and the constructs of the theory of planned behavior (34 questions). The demographic information section includes age, level of education, occupation, occupation of the spouse, etc. The second section has 15 questions about measured attitude (15 questions), subjective norms (8 questions), perceived behavioral control (8

questions), and intentional behavior (3 questions), The total scores of the attitude were in the range of 1-75, the total scores of subjective norms were in the range of 1-40, the total scores of perceived behavioral control were in the range of 1-40, and the total scores of behavioral intention were in the range of 1-9.

The researcher performed six 40-minute educational intervention sessions. The education intervention was carried out in lectures, questions and answers, group discussions, and teach-back techniques. The introduction and objectives were presented in the first session, the risk factors for substance use were discussed in the second session, the attitude towards addiction was explained in the third session, peers and family influence on substance use was introduced in the fourth session, and planned behavior control to change behavior was addressed in the fifth session. Finally, the contents of all previous sessions were reviewed and ambiguities were explained in the sixth session. Questionnaires were completed and analyzed before, immediately after, and three months after the educational intervention. Using SPSS-22 software, the Kolmogorov-Smirnov test was applied to analyze data in terms of a normal distribution. Data were analyzed by the paired t-test, independent t-test, and Chi-squared test using SPSS-22 software. Significance level was set at P<0.05.

### Ethical Considerations

All participants gave written informed consent to participate in the study. The present study was conducted in accordance with the principles of the revised Declaration of Helsinki, a statement of ethical principles which directs physicians and other participants in medical research involving human subjects. Also, the study was approved by the local Ethics Committee of Fasa University of Medical Sciences, Fasa, Iran (IR.FUMS.REC.1398.159).

## RESULTS

The mean age of the participants was 38.09 ± 1.1 in the intervention group and 39.41±1.3 in the control group. The

**Table 1. A comparison of demographic characteristics of the experimental and control groups before the educational intervention**

Variable	Grouping	Groups		P- Value
		Experimental group	Control group	
Educational status	Illiterate	3 (4.61)	2(3.07)	0.379
	Elementary and guidance school	19(29.24)	17(26.15)	
	High school	32(49.23)	40 (61.55)	
	University	11(16.92)	6(9.23)	
Marital status	Single	23(35.38)	29(44.61)	0.467
	Married	37(56.92)	3 (4.61)	
	Divorced/widow	5(7.69)	6(9.23)	
Employment status	Full time	11(16.92)	9(13.84)	0.365
	Part-tim	33(50.76)	41(63.07)	
	Unemployed	21(32.30)	15(23.07)	

Chi square test

chi-squared test and independent t-test showed that all the characteristics of the experimental and control groups were the same, and there was no significant difference in these two groups ( $P < 0.05$ ) (Table 1).

Independent t-test showed no significant differences in the mean scores of attitudes, subjective norms, perceived behavioral control, and behavioral intention between experimental and control groups before the intervention ( $P > 0.05$ ) (Table 2). The paired t-test showed a significant difference between the scores and the effect of the educational intervention in promoting level of attitudes ( $53.06 \pm 4.48$ ) subjective norms ( $35.34 \pm 3.65$ ), perceived behavioral control ( $34.37 \pm 4.6$ ) and behavioral intention ( $7.38 \pm 1.92$ ), in experimental groups after the intervention ( $P < 0.05$ ). The results of the present study showed no statistically significant difference in terms of current methadone and opium juice (Shireh) intake between the experimental and control groups before the educational intervention ( $P > 0.05$ ); however, there is a significant difference in these groups after the intervention ( $P < 0.05$ ). There was also no significant difference among the participants in the control group in terms of the status of methadone and opium juice (Shireh) use after the educational intervention ( $P > 0.05$ ) (Table 3).

## DISCUSSION

Substance abuse is one of the formidable challenges in advanced and developing societies, and the results of available substance abuse treatment and prevention approaches are disappointing; therefore, it is needed to develop and apply new prevention approaches based on life skills to increase individual drug resistance skills. Inspired by these needs, the present study examined the effect of educational intervention based on the theory of planned behavior on the prevention and risk reduction behavior of substance abuse in addicts, who referred to drug treatment

centers. This study also showed that the educational intervention based on the theory of planned behavior promoted the mean score of the negative attitude in the addicts, and this promotion in the experimental group was significantly higher than that of the control group after the intervention indicating the effectiveness of educational intervention in creating the negative attitude towards substance use. The present study is consistent with Tavousi et al. [21], Barati et al. [22], and Fathi et al. [23], in terms of the effectiveness of an educational intervention based on the theory of planned behavior on the creation of negative attitudes towards substance abuse. Since the first step in addiction prevention behaviors is to change the attitude [24-25], it is necessary to provide the necessary education for the addicts and create a negative attitude towards addiction in them. This study showed that the mean score of abstract norms significantly increased in the experimental group after the educational intervention, while there was no significant change in the control group. This study is consistent with other studies regarding subjective norms that

**Table 3. A comparison of current dose of methadone and opium juice (Shireh) intake before and after educational intervention in experimental and control groups**

Variable	Experimental Group N (%)	Control groups	P-value
Opium juice			
Before intervention	19 (29.23)	23(35.4)	0.287
After intervention	8 (12.23)	23(35.4)	0.002
Methadone			
Before intervention	65 (100)	65(100)	0.354
After intervention	49(75.38)	65(100)	0.007
Paired t-test			

**Table 2. A comparison of mean scores of attitudes, subjective norms, perceived behavioral control and intention before and after the educational intervention in the experimental and control groups**

Variable	Experimental group Mean (SD)	Control group Mean (SD)	P-value
Attitude			
Before education	40.80 (8.18)	39.44 (11.12)	0.431
After education	53.06(4.48)	40.85 (9.28)	0.001
Subjective norms			
Before education	30.60 (4.36)	29.96 (4.30)	0.371
After education	35.34 (3.65)	30.36(3.88)	0.001
Perceived behavioral control			
Before education	23.89(6.61)	23.18(6.61)	0.543
After education	34.37(4.6)	24.33(6.37)	0.001
Behavioral intention			
Before education	3.24(1.71)	3.42(1.69)	0.261
After education	7.38 (1.92)	3.70 (1.73)	0.001

Paired t-test

encourage addictive behaviors [25-27].

People's beliefs about delinquent behaviors are mainly influenced by reference groups or other important and influential people, especially close friends and parents, and the bond between the individual and family members is the most crucial protective factor [27]. Therefore, it suggested that educational interventions on individuals be designed and implemented to reduce subjective norms encouraging the substance use and develop family relationships. Perceived behavioral control is another variable in this study and showed the educational intervention successfully increased resistance skills to substance abuse in the intervention group compared to the control group. The results were consistent with similar studies [28-30].

Social psychology studies showed that behavioral control levels in people with low self-esteem and self-confidence were low, and these people might be attracted to substance abuse under the influence of others. If these people are trained with some skills to say no to drugs decisively, they are less likely to be influenced by society and their perceived behavioral control will be increased [30]. In this regard, it is necessary to teach people how to say no to illogical requests of other people. The present study showed that the mean score of no intention of substance abuse in the experimental group was statistically significant compared to the control group after the educational intervention. This indicates the effectiveness of the theory of planned behavior in reducing the intention of addicts towards substance abuse. The study is consistent with similar studies [27-31]. Behavioral intention is the primary factor of specific behavior that predicts substance withdrawal behavior [29]. These findings, further, indicate the effectiveness of an educational intervention based on the theory of planned behavior in shaping the intention towards avoidance of substance abuse among the addicts.

This study also revealed a significant reduction in the dose of methadone and opium juice (Shireh) intake in the intervention group compared with the control group after the educational intervention indicating the effectiveness of the educational intervention based on the theory of planned behavior. The results of the current study are consistent with similar studies [30-32].

### LIMITATIONS

This study was conducted only in the southern region of Iran. Since opium use affected by various factors, including cultural, economic, and social conditions, the results cannot be generalized. Therefore, it is necessary to conduct the same study in other parts of Iran or even in other countries. It is suggested that future studies be conducted with other models of education and health promotion. The use of other design is also suggested.

### The Strengths of the Study

One of the strengths of this study is the use of the theory of planned behavior in educational intervention. Although studies have been conducted in the field of educational intervention in substance abuse patients, the theory of planned behavior has rarely been used in relation to addicts.

### CONCLUSION

Educational intervention based on the theory of planned behavior has effectively prevented substance abuse in the addicts referred to drug addiction treatment centers. Accordingly, the results can benefit policymakers and managers of drug use in planning educational interventions to prevent and reduce the risk of substance abuse behaviors. This study is also useful for senior healthcare administrators, who can take effective measures to raise public awareness about the potential harms of Opium abuse and develop executive plans to control and eliminate these risk factors. In light of the results, a promotion of self-care behaviors can also be highlighted, which plays a major part in improving public health and minimizing health risk factors.

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