Relapse Preventative Intervention among Iranian Addicts Based on Theory of Planned Behavior Results

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Abstract: Drug abuse is one of the most important health problems in societies. In addition, relapse is the most important challenges in addiction treatment. This study was conducted to evaluate relapse preventative intervention efficiency among male addicts referred to treatment addiction centers in Hamadan, the West of Iran. Overall, 70 male addicts participated in this study as intervention and control group. This was a longitudinal randomized pretest-posttest series control group design panel study to relapse prevention. Cross-tabulation, t-test, correlation and regression by using SPSS statistical package, version 16 was used for the statistical analysis. It was found significant improvements in average response for resiliency, perceived behavioral control to not drug use, intention to not drug use and significant decreased in craving beliefs among addicts in intervention group (p<0.001). But it was not found significant difference for relapse rate three month after intervention between intervention and control groups (p>0.05). Additionally after intervention, the rate of relapse was lower among intervention group. Results in this showed the usefulness of instructional programs for addicts after the detoxification stage to relapse prevention.

Key words: Addicts, resiliency, relapse, intervention, efficiency

INTRODUCTION

The one of most likely outcome of any given quit attempt is relapse and it's most common in the days after quitting (Hughes *et al.*, 2004) and also it can happen for years after wards (Herd and Borland, 2009). About treatment of all behavior disorders, relapse is a terrible challenge and persons engaging in behavior disorders are confronted with urges, cues and automatic thoughts regarding the maladaptive behaviors they are attempting to change (Witkiewitz and Marlatt, 2004). Shiffman and colleagues described relapse is an instance of a previously behavior and it's highly probable when individuals attempt to change a problematic behavior. And relapse is a return to the previous problematic behavior pattern that possible, following the initial setback. And another possible outcome is prolapse that individual getting "back on track" in the direction of positive change (Shiffman *et al.*, 2006). Most individuals

who make an attempt to change their behavior in a certain direction will experience lapses that often lead to relapse (Polivy and Herman, 2002).

Several studies have described relapse as complex, dynamic and unpredictable (Marlatt, 1996; Donovan, 1996; Buhringer, 2000) but new conceptualizations have proposed static models of relapse risk factors (Stout *et al.*, 1996). In this regard, Witkiewitz and Marlatt (2004) "it seems relapse as both an outcome and as a transgression in the process of behavior change that multi determined such as interpersonal factors include, self-efficacy, outcome expectancies, craving, motivation, coping, emotional states and social support are effective to predict outcome".

Effectiveness of relapse prevention approaches have evaluated by several studies for substance use disorders (Carroll, 1996; Ahmadpanah *et al.*, 2013). In addition, Carroll (1996) in a narrative review of 24 randomized for smoking, alcohol, marijuana and cocaine addiction

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showed that relapse prevention was more effective than no treatment and was equally effective as other active treatments in improving substance use out comes.

Drug abuse is one of the most important health problems in societies can be followed several complications (Farnia *et al.*, 2014; Ahmadi *et al.*, 2014; Karami *et al.*, 2014; Jalilian *et al.*, 2014). In addition, relapse is the important challenges in addiction treatment (Jafari *et al.*, 2010). Approximately, 3% of Iranian adults addicted (Sharg *et al.*, 2011), at least 75-80% have unsuccessfully tried to quit 1 year after treatment (Yarmohammadi, 2011).

Witkiewitz and Marlatt (2004) described the relapse prevention is a cognitive-behavioral approach with the goal of identifying and preventing high-risk situations for relapse.

This study was conducted to evaluate relapse preventative intervention efficiency among addicts referred to addiction centers in Hamadan, the West of Iran.

MATERIALS AND METHODS

Participants: The study was part of a project conducted among sample of male addicts referred to treatment addiction centers in Hamadan, the West of Iran during 2011-2012 with the goal of relapse prevention. Seventy male addicts referred to treatment addiction centers after the detoxification stage participated in this study. The 35 participants as intervention and 35 as control groups were randomly enrolled at the baseline survey of who all were followed up after 3 months intervention. This study was conducted with approval from Hamadan University of Medical Sciences' institutional review board (Code: 89121059). Informed assent and consent were obtained from participants.

Measures: Prior to conducting the main project, a pilot study was carried out. Initially, the relevant questionnaires were administered to 30 male addicts who were similar to participants in the main study to obtain feedback about the clarity, length comprehensiveness, time of completion and internal reliability of the measures. Moreover, participants were instructed about how to fill questioners before gathering information.

Demographics: Background data include age (years), marital status (single or married), level of education (elementary, secondary, high school and university), job (unemployed, college student, soldier, freelancers, stuff employee, emeritus), history of smoking (yes/no), alcohol use (yes/no), marijuana use (yes/no), opium use (yes/no), heroin use (yes/no) and crack use (yes/no), drug use initiation age (years), first drug use (opium, heroin, crack, marijuana, methamphetamine, others) and last drug use (opium, heroin, crack, marijuana, methamphetamine, others).

Drug cessation intention: Behavioral intention to drug cessation was measured by three items based on a standard questionnaire (Allahverdipour *et al.*, 2012), for example: "I intend to drug cessation forever" Cronbach's alpha for the behavioral intention scale was (0.75).

Perceived behavioral control to drug cessation: Perceived behavioral control to drug cessation was measured by four items based on a standard questionnaire (Allahverdipour *et al.*, 2012), for example: "I believe that I can manage myself against pressure to drug use" Cronbach's alpha for the behavioral intention scale was 0.74.

Resilience scale: For measured resilience in this study we used a Conner-Davidson resilience scale (Connor and Davidson, 2003). The CD-RISC contains 25 items, all of which carry a 5-point range of responses as follows: not true at all (0), rarely true (1), sometimes true (2), often true (3) and true nearly all of the time (4). The scale is rated based on how the subject has felt over the past month. The total score ranges from 0-100 with higher scores reflecting greater resilience. Examples of the items are: Able to adapt to change and coping with stress strengthens. Cronbach's alpha for the resilience scale in our study based on a pilot study was 0.85, indicating excellent internal consistency.

Craving beliefs questionnaire: Craving beliefs questionnaire was designed based on a standard questionnaire (Chang *et al.*, 2011) and included 20 items. Examples of the items are: I cannot do anything when I am really craving drug use and Drug use craving defeats my will power. Cronbach's alpha for craving beliefs questionnaire in our study based on a pilot study was 0.88, indicating excellent internal consistency.

Morphine test: Being devoid of drugs is the sign of non-relapse. It was used for studying relapse in participant of research, from morphine test which measure the existing morphine in urine.

Procedure: This was a quasi-experimental study to implement a relapse prevention health education program among a sample of male addicts referred to treatment addiction centers. After obtaining informed

consent participants were enrolled in the study, a 65-item, structured questionnaire with the aforementioned measures was distributed to the participants to complete. The intervention aimed to provide participants with increasing coping skills, resiliency enhancement and promotion behavioral control and behavioral intention to not drug also the main purpose of this study was relapse prevention.

The intervention activates included ten weekly teaching (individual education for each of participants) units (45-60 min each) by a psychologist.

The first and second teaching unit acquainted participants with the pattern addiction and drug abuse side effect. The main topics discussed during the third teaching unit were training about craving beliefs control. The main topics discussed during the four teaching unit were knowledge about relapse symptoms. The main topics discussed during five to ten were teaching about coping skills such as (stress management, problem solving skills, assertiveness skills training and refusal skills against drug use).

Statistical analysis: Data were analyzed by SPSS Version 16 using appropriate statistical tests including: linear regression analysis was performed to explain the variation in intention to not drug use. Also cross-tabulation and t-test were employed to determine comparability of the intervention in compare with control group.

RESULTS

The participants' ages ranged from 23-58 years with the mean age of all participants being 34.85 (SD: 9.02) years. Of the 28.6% (20/70) of participants were 20-29 years, 37/1% (26/70) were 30-39 years, 31.4% (22/70) were 40-49 years and 2.9% (2/70) of them were 50-58 years old. Regarding the educational status: 21.4% (15/70) had elementary, 34.3% (24/70) middle, 35.7% (25/70) were diploma and 8.6% (6/70) were academic educated. The 81.4% (57/70) participants were married, 14.3% (10/70) were single and 4.3% (3/70) were reported divorce.

Nearly 92.9, 31.4, 98.6, 18.6, 25.7, 12.9 and 11.4% of the participants were cigarette smokers, social drinkers, opium, heroin, marijuana, crack and methamphetamine, respectively.

Most of the participants (80% of them) were reported the first drug use was opium. Moreover, the initiation age for drug use was 11 years (mean = 21.20) reported.

Pretest equivalency results for intervention and control groups are shown in Table 1 and 2 indicates that there are significant improvements in average response for behavioral intention, perceived behavioral control, craving belief and resilience among participants who were

Table 1: Pre-test equivalency results for intervention and control groups (n = 70)

Variables	n (%), mean (SD)		
	Intervention group	Control group	p-values
Age	34.85 (9.02)	35.94 (7.64)	0.440
Drug use initiation age	20.54 (5.16)	21.85 (6.24)	0.341
Education			
Elementary	8 (53.3%)	7 (46.7%)	0.494
Middle	10 (41.7%)	14 (58.3%)	
Diploma	15 (60%)	10 (40%)	
Academic	2 (33.3%)	4 (66.7%)	
Marital status			
Married	27 (47.4%)	30 (52.6%)	0.640
Single	6 (60%)	4 (40%)	
Widow	2 (66.7%)	1 (33.3%)	
First drug use			
Opium	27 (48.2%)	29 (51.8%)	0.563
Marijuana	7 (53.8%)	6 (46.2%)	
Crack	1 (100%)	0 (0%)	

Table 2: Average responses for perceived behavioral control to drug cessation, craving belief, resiliency and drug cessation intention before and after educational program (n = 62)

Independent variables	mean (±SD)		
	Before intervention	After intervention	p-values
Perceived behavioral control to drug cessation			
Intervention group (n =32)	12.93 (3.20)	14.62 (2.13)	0.000
Control group (n = 30)	12.30 (2.69)	12.76 (2.54)	0.109
Craving belief			
Intervention group (n = 32)	49.21 (15.19)	41.96 (12.38)	0.002
Control group (n = 30)	51.00 (15.78)	48.83 (15.21)	0.105
Resiliency			
Intervention group (n = 32)	55.90 (20.27)	63.59 (17.07)	0.000
Control group (n = 30)	53.93 (16.42)	54.73 (15.65)	0.193
Drug cessation intention			
Intervention group (n = 32)	9.62 (2.72)	10.96 (1.84)	0.000
Control group (n = 30)	9.16 (2.16)	9.33 (2.13)	0.096

Table 3: The rate of relapse among intervention and control groups 3 month after educational program (n = 62)

Variables	Total	Intervention group (n (%))	Control group (n (%))	p-values
Relapse				
Yes	20 (32.3%)	7 (35%)	13 (65%)	0.071
No	42 (67.7%)	25 (59.5%)	17 (40.5%)	

under intervention. To assess efficiency of relapse prevention program cross-tabulation analysis was performed (Tables 3).

Despite the results did not show significant relation between efficiency relapse prevention program, it was found reduce relapse rate among intervention group versus control group. In addition our result showed the rate of relapse in this study was 32.3% in two groups. Also, result showed the rate of relapse among intervention group was 21.9% and among control group was 43.3%.

DISCUSSION

Relapse is the most important challenges in addiction treatment (Jafari *et al.*, 2010). The purpose of this study was to assess the effectiveness of relapse prevention

program among sample of male addicts after the detoxification stage. Psychological factors such as perceived behavioral control to drug cessation, craving belief, resiliency and drug cessation intention was conducted as theoretical framework to assess educational need assessment among participants. Even though the duration of the educational intervention in this study was short it was found significant improvements after manipulation. Analysis of the baseline and 3 months follow-up clearly demonstrated significant intervention effects on the participants' perceived behavioral control, craving belief, resiliency and behavioral intention among intervention group.

Our findings indicated that improving perceived behavioral control to drug cessation among intervention group. This outcome is consistent with similar studies (Caron *et al.*, 2004; Mirzaei *et al.*, 2015). In this regard, Caron *et al.* (2004) reported that perceived behavioral control enhancement can have a positive role in reduce high risk behavior (Laure and Lecerf, 1999; Mirzaei *et al.*, 2015). If feeling of weak self-control, there is a higher possibility for tending towards drugs (Jalilian *et al.*, 2015). In addition, Mirzaei *et al.* (2015) reported improving resistance skills can protect against drug abuse. So, it seem improving behavioral control to drug cessation might be effective factor to implementing relapse prevention would be important to promote healthy behaviors.

Relapse prevention research showed, cognitive and behavioral coping skills are strong factor to enhancement resiliency and relapse prevention among the people of substance dependency (Jafari *et al.*, 2010). According to our results, resiliency average response was improved among intervention group from 55.90-63.59 after implementing educational program. This outcome is consistent with similar studies (Wong *et al.*, 2006; Vane and Hull, 2008; Budney *et al.*, 2006).

Marlatt (1999) reported craving, between persons conflicts, positive and negative emotional states are main risk factors in relapse.

Our findings showed that the applied relapse prevention program had significant effect to modify participants' craving beliefs. In this regards, Mirzaei *et al.* (2015) in their studies reported, reinforcement negative attitude toward drug can be effectiveness in reduce substance abuse.

Coping skills training through life style changes that increased ability to cope with immediate enthusiasm and avoid of likely positions drug use can be relapse prevention (Jafari *et al.*, 2010). It seems craving belief reduction education program can be useful for relapse prevention.

Additionally, our result showed average response to behavioral intention to not drug use was 9.62 that it

was increased to 10.96 after intervention. Relation between behavioral intention and high-risk behaviors is reviewed and confirmed in several studies. For example, Gerrard *et al.* (2006) concluded that educational program can reduce alcohol use intention. Nichols expressed health based education interventions can be significantly reduced smoking intention in young people. In addition, Allahverdipour *et al.* (2012) and Mirzaei *et al.* (2015) expressed that education programs when done have a positive effect on behavioral intention to substance abuse prevention in intervention group.

Table 3 was showed efficiency of relapse prevention program. Although, relapse rate in intervention group (21.9%) was lower than control group rate (43.3%) but it wasn't statistically significant, this result isn't consistent with similar studies (Yarmohammadi, 2011; Dabbaghi *et al.*, 2008; Jandaghi and Alii, 2002). Dabbaghi *et al.* (2008) showed that when program was done, relapse rate was 37.7% in cognitive behavioral therapy group while 67.7% of participant whom receive drugs exclusively under medical supervision had relapse. Also, Mollazadeh and Aashoori reported group-cognitive therapy may reduce relapse in trying to quit addicts.

Study only on men addicts, short time the follow up period and lack family cooperation participants are the several limitations of this study.

CONCLUSION

Based on our result coping skills training were effectiveness role in increased perceived behavioral control to drug cessation, resiliency and drug cessation intention and reduce craving belief among addicts; therefore continuing and appropriate coping skills education by psychologist supervision in addiction treatment centers is recommended.

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REFERENCES

Ahmadi, J.T., N. Fattahi and M. Shamsipur, 2014. Rapid extraction and determination of amphetamines in human urine samples using dispersive liquid, liquid microextraction and solidification of floating organic drop followed by high performance liquid chromatography. J. Pharmaceutical Biomedical Analysis, 94: 145-151.

Ahmadpanah, M., A.M. Mirzaei, H. Allahverdipour, F. Jalilian and M. Haghighi *et al.*, 2013. Effectiveness of coping skills education program to reduce craving beliefs among addicts referred to addiction centers in Hamadan: A randomized controlled trial. Iran. J. Public Health, 42: 1139-1144.

Allahverdipour, H., F. Jalilian and A. Shaghaghi, 2012. Vulnerability and the intention to anabolic steroids use among Iranian gym users: An application of the theory of planned behavior. Substance Use Misuse, 47: 309-317.

Budney, A.J., B.A. Moore, H.L. Rocha and S.T. Higgins, 2006. Clinical trial of abstinence based vouchers and cognitive behavioral therapy for cannabis dependence. J. Consult Clin. Psychol., 74: 307-316.

Buhringer, G., 2000. Testing CBT mechanisms of action: Humans behave in a more complex way than our treatment studies would predict. Addic., 95: 1715-1716.

Caron, F., G. Godin, J. Otis and L.D. Lambert, 2004. Evaluation of a theoretically based AIDS/STD peer education program on postponing sexual intercourse and on condom use among adolescents attending high school. Health Educ. Res., 19: 185-197.

Carroll, K.M., 1996. Relapse prevention as a psychosocial treatment: A review of controlled clinical trials. Exp. Clin. Psychopharmacol., 4: 46-54.

Chang, C.W., C.W. Huang, W.H. Wu, B. Wang and Y. Liu *et al.*, 2011. Psychometric properties of the Chinese craving beliefs questionnaire for heroin abusers in methadone treatment. BMC Psychiatry, Vol. 11.

Dabbaghi, P., F.A. Asgharnejad, V.M. Atef and J. Bolharic, 2008. Effectiveness of group cognitive therapy based on mindfulness and spiritual schema activation in the prevention of opioid abuse relapse. IJPCP., 13: 366-375.

Donovan, D.M., 1996. Assessment issues and domains in the prediction of relapse. Addic., 91: 29-36.

Farnia, V., J. Shakeri, F. Tatari, T.A. Juibari and K. Yazdchi *et al.*, 2014. Randomized controlled trial of aripiprazole versus risperidone for the treatment of amphetamine induced psychosis. Am. J. Drug Alcohol Abuse, 40: 10-15.

Gerrard, M., F.X. Gibbons, G.H. Brody, V.M. Murry and M.J. Cleveland, 2006. A theory based dual focus alcohol intervention for preadolescents: The strong african american families program. Psychol. Addict. Behav., 20: 185-195.

Herd, N. and R. Borland, 2009. The natural history of quitting smoking: findings from the International Tobacco Control (ITC) Four Country Survey Addiction, 104: 2075-2087.

Hughes, J., J. Keely and S. Naud, 2004. Shape of the relapse curve and long-term abstinence among untreated smokers. Addic., 99: 29-38.

Jafari, E., H. Eskandari, F. Sohrabi, A. Delavar and R. Hesh, 2010. Effectiveness of coping skills training in relapse prevention and resiliency enhancement in people with substance dependency. Procedia Soc. Behav. Sci., 5: 1376-1380.

Jalilian, F., B.K. Matin, M. Ahmadpanah, M. Ataee and T.A. Jouybari *et al.*, 2015. Socio-demographic characteristics associated with cigarettes smoking, drug abuse and alcohol drinking among male medical university students in Iran. J. Res. Health Sci., 15: 42-46.

Jalilian, F., M.B. Karami, M. Ahmadpanah, F. Motlagh and M. Mahboubi *et al.*, 2014. Substance abuse among college students: Investigation the role of hopelessness. Life Sci. J., 11: 396-399.

Jandaghi, G.R. and V. Alii, 2002. Effect factors on quit addiction among the self intriduced addicts in the south of Tehran. Hakim, 4: 291-293.

Karami, M.B., F. Jalilian, A.M. Mirzaei, H. Ashtarian and M. Mahboubi *et al.*, 2014. Using the precede model in understanding determinants of quality of life among Iranian male addicts. Global J. Health Sci., Vol. 6.

Laure, P. and T. Lecerf, 1999. Prevention of doping in sport in adolescents: Evaluation of a health education based intervention. Arch Pediatr, 6: 849-854.

Marlatt, G.A., 1996. Lest taxonomy become taxidermy: A comment on the relapse replication and extension project. Addic., 91: 147-154.

Marlatt, G.A., 1999. Cue exposure and relapse prevention in the treatment of addictive behavior. Addict Behav., 15: 395-399.

Mirzaei, A.M., F. Jalilian, M.F. Zinat, M.S. Mazloomy and R. Zolghadr *et al.*, 2015. Effectiveness of drug abuse preventative intervention among Iranian medical college students based on the theory of planned behavior. Health Educ. Health Promot., 2: 41-52.

Polivy, J. and C.P. Herman, 2002. If at first you don't succeed: False hopes of self change. Am. Psychol., 57: 677-689.

Sharg, A., A. Shakibi, R. Neisari and L. Aliloo, 2011. Survey of factors related to the relapse of addiction from view of addict patients attending to drug abuse treatment clinics in west Azerbaijan. J. Urmia Univ. Med. Sci., 22: 129-136.

Shiffman, S., D.M. Scharf, W.G. Shadel, C.J. Gwaltney and Q. Dang *et al.*, 2006. Analyzing milestones in smoking cessation: illustration in a nicotine patch trial in adult smokers. J. Consult. Clin. Psychol., 74: 276-285.

Vane, E.A.P. and M.S. Hull, 2008. Perioperative staff resiliency during times of war and natural disasters. Perioperative Nursing Clinics, 3: 73-84.

Witkiewitz, K. and G.A. Marlatt, 2004. Relapse prevention for alcohol and drug problems. Am. Psychol., 59: 224-235.

Wong, M.M., J.T. Nigg, R.A. Zucker, L.I. Puttler and H.E. Fitzgerald *et al.*, 2006. Behavioral control and resiliency in the onset of alcohol and illicit drug use: A prospective study from preschool to adolescence. Children Dev., 77: 1016-1033.

Yarmohammadi, V.M., 2011. The efficacy of therapeutic community on life skills improvement and reduction of relapse in male addicts. J. Kerman Univ. Med. Sci., 18: 358-368.