

Psychosocial factors associated with relapse in men with alcohol or opioid dependence

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Background & objectives: Relapse is a common and distressing aspect of substance dependence mediated by several biological and psychosocial factors. This study examined the association between demographic variables, clinical parameters and certain psychosocial factors and relapse among patients with either alcohol or opioid dependence.

Methods: Structured assessments of clinical/demographic parameters, relapse precipitants, coping strategies, self-efficacy, stressful life events and perceived social support were carried out among patients with alcohol/opoid dependence (n=30) who had relapsed and compared with those (n=30) who had managed to remain abstinent. Similar comparisons were also carried out between relapsed and abstinent patients in the individual subgroups of alcohol and opioid dependence.

Results: Patients who had relapsed were significantly more likely (i) to have a positive family history of substance use and higher number of previous relapses; (ii) to be using maladaptive coping strategies; (iii) to have been exposed to a higher total number of 'high risk' situations; and (iv) have experienced a higher number of undesirable life events. Those who had remained abstinent tended to use significantly more number of coping strategies, principally adaptive ones and scored significantly higher on all measures of self-efficacy. Factors influencing relapse appeared to be largely similar among patients with alcohol and opioid dependence.

Interpretation & conclusions: This study provided further evidence in support of the importance of certain clinical/psychosocial factors in relapse in substance dependence. It extended these results to substances other than alcohol and provides the basis for investigating correlates of relapse in a wide range of behavioural and substance use problems.

Key words Psychosocial factors - relapse - substance dependence

Substance dependence is a major problem worldwide, India being no exception. Although short-term treatment of this condition is quite effective, preventing relapse often proves to be far more challenging. A majority of such patients relapse within a year of starting treatment, with the first three months being the most vulnerable period¹. Relapse can be a

frustrating experience and usually has several adverse consequences for patients, caregivers and therapists.

Relapse is a complex and dynamic phenomenon that appears to be determined by both neurobiological and psychosocial processes. In the recent past, there has been an increasing focus on gene-environment

interactions in the genesis of relapse². Studies on humans and animal models have also indicated the role of dysfunctional brain areas and circuits, changes in neurotransmitters such as dopamine or gamma aminobutyric acid, disturbances in hypothalamo-pituitary-adrenal axis, and the enduring biological effects of chronic drug exposure as key mediators of relapse. Altered neural responsiveness is proposed to impair the central nervous system's ability to mount an appropriate response to environmental stressors, heightening the probability of relapse. These theories thus place particular emphasis on biological changes and their interactions with psychosocial factors in perpetuating the vulnerability to relapse³⁻⁵.

In one of the most influential social-cognitive-behavioural models proposed by Marlatt^{6,7}, relapse has been viewed as an unfolding process in which resumption of substance use is the last event in a long sequence of maladaptive responses to internal or external stressors. Like most other models, this one also proposes that an individual experiences a sense of perceived control while maintaining abstinence. This perception of self-control continues till the person encounters a 'high risk' situation. Three categories of such situations *viz.*, negative emotional states, interpersonal conflicts, and social pressures have been proposed. If the individual is able to execute an effective coping response in such problem-situations, the probability of a relapse is considerably lessened. Effective coping depends on the person's self-efficacy, defined as his/her expectations concerning the capacity to cope with several 'high risk' situations. An increased perception of self-efficacy helps in maintenance of abstinence. On the other hand, ineffective coping leads to lowering of self-efficacy and a sense of helplessness. This can precipitate minor slips or lapses into substance use, which eventually snowball into a full relapse.

Despite the enormous influence of this and other similar models of relapse, very few studies have actually put these models to test. It has been reported that negative mood states and other high-risk situations, self-efficacy, coping resources, *etc.*, are singly or jointly predictive of relapse⁷⁻¹¹. This lends credence to the pre-eminence of such factors and validity of such models of relapse. However, several methodological problems including variable definitions of relapse and differences among the populations studied continue to afflict this area¹². Though it is proposed that similar mechanisms underlie relapse in persons with different kinds of substance dependence, research has mainly focused

on alcohol dependence. Other types of substance dependence have been examined far less frequently.

Therefore in this study we attempted to examine the association between demographic variables, clinical parameters, relapse precipitants (or 'high risk' situations), coping strategies, self-efficacy, stressful life events and perceived social support, and relapse among patients with either alcohol or opioid dependence. Based on predictions of the models of relapse and previous literature in this area it was expected that these variables would demonstrate significant associations with relapse among both groups of patients.

Material & Methods

Patients: The sample was drawn from the population of patients attending the Drug De-addiction and Treatment Centre (DDTC) of the Department of Psychiatry, Post-graduate Institute of Medical Education & Research (PGIMER), Chandigarh. As the DDTC population comprises almost exclusively of males, only men were taken up for the study. Based on previous comparisons it was decided to include a minimum of 30 patients in each group. Power calculations suggested that this sample size was adequate for most of the comparisons attempted. Purposive sampling, over a period of about 1 yr (July 2002 to June 2003) was carried out to induct the sample. The sample consisted of (i) the abstinent group consisting of 30 patients of alcohol/opioid dependence who following treatment for their condition had managed to remain abstinent for a minimum period of 6 months and (ii) the relapsed group consisting of 30 patients of alcohol/opioid dependence who following treatment for their condition had maintained in a remitted state for at least two weeks, but had then relapsed within the next 6 months.

An episode of relapse was defined as the person meeting ICD 10 classification of mental and behaviour disorders diagnostic criteria for research (ICD-10-DCR)¹³ for alcohol/opioid dependence for a minimum period of 1 month.

Inclusion criteria for patients to be inducted included 18-65 yr of age, have fulfilled ICD-10 DCR¹³ criteria for alcohol/opioid dependence and have received treatment for their condition. Diagnoses were established conjointly after detailed semi-structured interviews. Patients were excluded if they had comorbid psychiatric disorders, personality disorders, major physical illnesses, organic brain syndrome or mental retardation. Patients with multiple substance

abuse/dependence (e.g. those with alcohol dependence and co-morbid opioid dependence or vice versa) were excluded apart from those who were abusing or dependent on nicotine in addition to alcohol/opioids.

Assessments: Demographic and clinical data were obtained from patients, relatives or case notes and recorded using structured formats. Severity of dependence was rated using the Severity of Alcohol Dependence Questionnaire (SADQ)¹⁴ and the Severity of Opioid Dependence Questionnaire (SODQ)¹⁵. A Hindi version of the original Relapse Precipitant Inventory (RPI) was used to assess 'high risk' situations¹⁶. This version of the RPI has been standardized to cover relapse in all kinds of substances including alcohol. It is reliable and has a factor-structure similar to the original version. Coping was evaluated using the Coping Behaviour Inventory (CBI)¹⁷, which was slightly modified to suit patients with opioid dependence. A Hindi translation of the original Self-Efficacy Scale (SES) was used to rate self-efficacy¹⁸. Psychometric properties of the Hindi version have been found to be adequate and it consists of two factors similar to the original scale. Stressful life events in the past year were determined using the Presumptive Stressful Life Events Scale (PSLES)¹⁹, which is an Indian adaptation of the original Holmes and Rahe's Social Readjustment Rating Schedule²⁰; the scale has adequate psychometric properties and local norms. Perceived social support was measured using the Social Support Questionnaire (SSQ)²¹, an Indian adaptation of the scale of Pollack and Harris²². It is a reliable and valid instrument with higher scores denoting greater support.

Assessments were conducted when patients were not in an intoxicated state and were non-blind and cross-sectional.

Ethical considerations: The study was approved by the Research and Ethics Committees of the institute. It conformed to the ethical guidelines of the ICMR²³ for biomedical research on human subjects. Written informed consent was obtained from patients before induction. Other ethical safeguards such as confidentiality, right to withhold or withdraw consent, etc., were also maintained during the study. Treatment was not altered in any manner whether the patient agreed or refused to participate in the study. No invasive investigations were carried out as a part of the study.

Data analysis: Comparisons between relapsed and abstinent groups were carried out using t tests for continuous variables and Chi-square for discontinuous

variables. The Mann-Whitney test was used for data with non-normal distributions.

Results

Both groups consisted mostly of married, educated and employed men in their 30s from urban backgrounds. There were no significant differences between the two groups on any of the demographic parameters (Table I).

In the abstinent group the number of patients with alcohol dependence was more than those with opioid dependence and the opposite was true for the relapsed group, but these differences were not significant. Patients who had relapsed were significantly more likely to have a positive family history ($P < 0.05$) for substance use and higher number of previous relapses ($P < 0.001$) (Table II).

The patients relapsed after about 4 months of treatment and remained in a relapsed state for about 45-80 days. There were no significant differences between patients with alcohol or opioid dependence on any of the variables related to relapse (Table III).

On the RPI patients who had relapsed had significantly higher mean total scores as well as significantly higher mean scores on 3 high-risk situations viz., negative mood states ($P < 0.05$), external situations and euphoric states ($P < 0.05$) and lessened cognitive vigilance ($P < 0.01$), compared to patients who had remained abstinent. Comparison of the CBI scores revealed that the relapsed group had significantly higher

Table I. Demographic characteristics of the study sample

Variables	Abstinent group (N = 30)	Relapsed group (N = 30)
Age (yr)	35.5 ± 11.3 ^a	30.9 (9.36)
Marital status		
Married	18	17
Not married	12	13
Years of schooling	11.3 ± 3.5 ^a	12.8 (3.0)
Occupation		
Employed	23	20
Not employed	7	10
Income (Rupees/ month)		
< 3000/-	8	10
≥ 3000/-	22	20
Residence		
Urban	24	26
Rural	6	4

^a Values are mean ± SD

Table II. Clinical profile of the patients in the two groups

Variables	Abstinent group (N=30)	Relapsed group (N=30)
Alcohol dependence	17	12
Opioid dependence	13	18
Age of onset of substance use (yr)	20.7 ± 5.3	20.2 ± 5.0
Duration of substance use (yr)	14.1 ± 10.9	10.5 ± 8.4
Time to develop dependence (yr)	8.2 ± 8.4	4.8 ± 4.8
Age of onset of dependence (yr)	28.3 ± 9.3	23.4 ± 8.3
Duration of dependence (yr)	6.1 ± 5.8	6.3 ± 6.1
No. of previous relapses**	0.5 ± 1.0	1.4 ± 0.7
No. of hospitalisations	1.7 ± 0.9	1.6 ± 0.9
Duration of last hospitalisation (days)	18.3 ± 7.1	11.9 ± 9.5
Family history of substance use*		
Present	3	19
Absent	27	11
Family history of substance dependence		
Present	27	27
Absent	3	3

Values are mean ± SD
*P** < 0.05 ** < 0.001 between the two groups

Table III. Relapse profile of patients with alcohol and opioid dependence

Relapse variables	Alcohol dependence (N=12)	Opioid dependence (N=18)
Time from treatment to lapse (days)	73.5 ± 35.2	127.5 ± 163
Time from treatment to relapse (days)	120.8 ± 53.7	120 ± 50.8
Duration of relapse (days)	79.8 ± 78.1	44.5 ± 84.5
Time taken to seek help after relapse (days)	370.1 ± 640	158 ± 86.7
SADD scores	10.2 ± 3.3	-
SODQ scores	-	20.2 ± 6.8

Values are mean ± SD
 SADQ, Severity of alcohol dependence questionnaire
 SODQ, Severity of opioid dependence questionnaire

mean scores on maladaptive strategies such as negative thinking ($P < 0.01$) and significantly lower mean scores on adaptive strategies such as positive thinking ($P < 0.001$) than the abstinent group. Patients who had relapsed also had significantly lower ($P < 0.001$) mean total scores on the CBI than patients who had remained abstinent. Scores on the SES showed that patients who suffered a relapse had significantly lower mean total scores as well significantly lower scores on the general- efficacy and social-efficacy factors ($P < 0.001$) than patients who were abstinent. The PSLES results revealed that patients who had relapsed had experienced

a significantly higher number of undesirable life events ($P < 0.05$) in the past year. There were no significant differences between the 2 groups on the SSQ scores (Table IV).

Comparisons were also carried out on all the above parameters between patients with alcohol dependence who were abstinent (N=17) versus those who had relapsed (N=12), as well as patients of opioid dependence who were abstinent (N=13) versus those who had relapsed (N=18). Though the numbers were rather small and the number of significant differences fewer, the differences were consistent with the overall trend. Accordingly, among patients with alcohol dependence significant differences between patients who had relapsed and those who remained abstinent

Table IV. Scores on the Relapse Precipitant Inventory (RPI), Coping Behaviour Inventory (CBI), Self-Efficacy Scale (SES), Presumptive Stressful Life Events Scale (PSLES) and the Social Support Questionnaire (SSQ)

Scales	Abstinent group (N=30)	Relapsed group (N=30)
<i>Relapse precipitant inventory</i>		
Negative mood states	4.63 ± 4.29	6.77 ± 3.91*
External situations/euphoric states	2.13 ± 2.22	3.33 ± 2.21*
Lessened cognitive vigilance	1.03 ± 1.03	1.77 ± 1.04**
RPI total score	9.53 ± 8.50	14.33 ± 7.19*
<i>Coping behaviour inventory</i>		
Positive thinking	1.33 ± 0.59	0.79 ± 0.34***
Negative thinking	0.69 ± 0.42	0.98 ± 0.39**
Avoidance	1.37 ± 0.39	1.59 ± 0.49
Seeking social support	1.83 ± 0.78	1.54 ± 0.58
CBI total score	1.38 ± 0.42	1.03 ± 0.33***
<i>Self-Efficacy Scale</i>		
General self-efficacy	53.30 ± 7.75	34.90 ± 4.58***
Social self-efficacy	15.76 ± 2.93	12.23 ± 1.79***
SES total scores	80.43 ± 8.83	57.26 ± 5.97***
<i>Presumptive stressful life events scale (stressful life events for the past year)</i>		
Desirable events	0.87 ± 1.04	0.83 ± 0.91
Undesirable events	0.06 ± 0.25	0.77 ± 2.1*
Total events	3.67 ± 4.30	4.97 ± 3.58
Total stress score	189.13 ± 214.26	199.10 ± 166.80
Lifetime stress score	429.13 ± 189.48	376.33 ± 209.98
<i>Social Support Questionnaire</i>		
Total SSQ scores	50.30 ± 5.28	47.43 ± 7.28

*P** < 0.05; ** < 0.01; *** < 0.001 compared to abstinent group.
 Values are mean ± SD

emerged on age ($P < 0.001$), time to dependence ($P < 0.05$), number of previous relapses ($P < 0.05$), certain subscale scores on the RPI and the CBI, and on total/subscale scores on the SES. Similarly, among patients with opioid dependence the relapsed and abstinent groups significantly differed on the number of previous relapses ($P < 0.001$), subscale and total scores of the CBI ($P < 0.05$) and the SES ($P < 0.001$). There was however, no clear pattern to these differences. The factors influencing relapse appeared to be largely similar among patients with alcohol and opioid dependence (Table V).

Discussion

The results of the present study showed that certain clinical and psychosocial variables were reliably and consistently associated with relapse among patients with alcohol/opioid dependence. Thus, it adds to the previous research in this area which has demonstrated that similar clinical/social variables are important correlates of relapse. Consequently, clinical parameters such as the number of previous relapses and positive family history of substance use emerged as significant determinants of relapse among patients with alcohol as well as opioid dependence, while a shorter time to dependence was significantly associated with relapse among patients of alcohol dependence. These observations are in line with previous suggestions that severity/outcome of substance dependence could be important correlates of relapse^{24,25}. At the same time, psychosocial factors such as relapse precipitants (or high risk situations), coping, self-efficacy and stressful life events appeared to be of greater import in determining relapse. Patients who had relapsed were

significantly more likely than abstinent ones to have been exposed to a higher total number of high risk situations, including the ones described earlier. These results are not only consistent with proposals regarding the pivotal role of exposure to high risk situations in the onset of relapse²⁶, but also in accordance with the results of a number of earlier studies²⁷⁻³¹. Patients with alcohol/opioid dependence who remained abstinent tended to use significantly more number of coping strategies including adaptive strategies such as 'positive thinking', while those who had relapsed used maladaptive strategies such as 'negative thinking' more often. It has been reported previously that the number and effectiveness of coping strategies among patients are important in determining relapse^{28,31}. Further, abstinent patients scored significantly higher on all measures of self-efficacy, confirming previous research^{32,33} on the importance of self-efficacy as a determinant of relapse. Lastly, patients who had relapsed in this study had experienced a significantly higher number of undesirable life events than those who were abstinent, which is in line with some³⁰, but not all^{11,34}, of the earlier studies which have documented such an association.

In addition, the current study extends the results regarding correlates of relapse further by demonstrating the operation of largely similar mechanisms of relapse among patients with both alcohol and opioid dependence. This is noteworthy because much of the earlier research on relapse has been conducted among patients with alcohol problems, with other substances such as nicotine^{24,25} or opiates^{24,30} being addressed only occasionally.

Table V. Subgroup comparisons between alcohol and opioid dependence^a

Variables	Alcohol dependence (n =29)		Opioid dependence (N =31)	
	Abstinent group (N = 17)	Relapsed group (N = 12)	Abstinent group (N = 13)	Relapsed group (N = 18)
Age (yr)	43.7 ± 5.3	32.2 ± 8.9**	24.8 ± 7.2	28.1 ± 8.8
Time to develop dependence (yr)	13.4 ± 7.6	8.1 ± 4.9*	1.4 ± 2.4	2.5 ± 3.2
No. of previous relapses	0.6 ± 0.9	1.1 ± 0.9*	0.5 ± 1.1	1.3 ± 0.5***
RPI scores Lessened cognitive vigilance	1.05 ± 1.14	2.08 ± 0.79*	8.69 ± 6.21	14.22 ± 7.74*
CBI positive thinking	4.50 ± 6.61	0.79 ± 0.29*	1.4 ± 0.56	0.78 ± 0.42*
CBI Negative thinking	0.75 ± 0.37	0.90 ± 0.39*	0.60 ± 0.50	1.03 ± 0.40*
CBI total score	1.32 ± 0.50	1.02 ± 0.34*	1.41 ± 0.38	1.05 ± 0.37*
SES-general self-efficacy	55.53 ± 8.29	34.50 ± 4.58***	50.38 ± 6.10	35.16 ± 4.31***
SES-social self-efficacy	16.23 ± 3.30	13.50 ± 1.73***	15.15 ± 2.34	11.39 ± 1.28***
SES total scores	82.82 ± 9.32	59.16 ± 5.40***	77.30 ± 7.34	56.00 ± 6.12***

$P < 0.05$; ** < 0.01 ; *** < 0.001 compared to respective abstinent group. ^a – Only significant results are depicted here.

RPI, Relapse Precipitant Inventory; CBI, Coping Behaviour Inventory; SES, Self-Efficacy Scale; PSLES, Presumptive Stressful Life Events Scale; SSQ, Social Support Questionnaire

Finally, the models of relapse referred to earlier have been developed in the West and much of the research evidence also originated from the western countries. Thus, the present findings are useful in illustrating the universal nature of relapse in substance dependence and its proposed mechanisms.

If the variables identified in the current and earlier studies are indeed important correlates of relapse in substance dependence, these could be of considerable help not only in predicting relapse, but also in identifying key areas to be targeted in order to prevent this common and distressing occurrence. If similar mechanisms of relapse operate across several categories, the findings could also be applicable to a wide-range of substance abuse disorders³⁵, as well as problem behaviours such as impulse control disorders (*e.g.* pathological gambling, pyromania, kleptomania, *etc.*), eating disorders, obesity, *etc.*, currently conceptualised as behavioural addictions³⁶. Since relapses also constitute a significant aspect of such behaviours, extending the findings from the field of substance dependence could help in understanding and preventing relapses in these conditions as well.

This study has several methodological limitations and this evidence can only be regarded as preliminary. The sample size of the current study was small and the sample was restricted to men with substance dependence attending a specialized unit of a general hospital. The findings thus can not be generalized to other patient-populations with substance dependence. Biases could have arisen from the fact that the assessments were non-blind. One time cross-sectional evaluations employed may have failed to capture the dynamic nature of the process of relapse. The study was exclusively limited to exploration of psychosocial correlates of relapse, and biological factors were not considered. Moreover, the significant associations between psychosocial parameters and relapse demonstrated do not prove that these were causal connections.

References

1. Saunders B, Allsop B. Relapse: a psychological perspective. *Br J Addict* 1987; 82 : 417-29.
2. Ciccocioppo RR, Hyttia P. The genetic of alcoholism: learning from 50 years of research. *Addict Biol* 2006; 11 : 193-4.
3. Johnson BA. The biologic basis of alcohol dependence. *Adv Stud Nurs* 2004; 2 : 48-53.
4. Feltenstein MW, See RE. The neurocircuitry of addiction: an overview. *Br J Pharmacol* 2008; 154 : 261-74.
5. Stewart J. Psychological and neural mechanisms of relapse. *Philos Trans R Soc Lond B Biol Sci* 2008; 363 : 3147-58.
6. Marlatt GA, George WH. Relapse prevention: introduction and overview of the model. *Br J Addict* 1984; 79 : 261-73.
7. Larimer ME, Palmer RS, Marlatt GA. Relapse prevention. An overview of Marlatt's cognitive-behavioral model. *Alcohol Res Health* 1999; 23 : 151-60.
8. Lowman C, Allen J, Stout RL, The Relapse Research Group. Replication and extension of Marlatt's taxonomy of relapse precipitants: overview of procedures and results. *Addiction* 1996; 91 (Suppl 1): 51-72.
9. Maisto SA, Connors GJ, Zywiak WH. Construct validation analyses on the Marlatt typology of relapse precipitants. *Addiction* 1996; 91 (Suppl 1) : 89-98.
10. Stout RL, Longabaugh R, Rubin A. Predictive validity of Marlatt's relapse taxonomy versus a more general relapse code. *Addiction* 1996; 91 (Suppl 1): 99-110.
11. Miller RW, Westerberg SV, Harris JR, Tonigan SJ. What predicts relapse? Prospective testing of antecedent models. *Addiction* 1996; 91 (Suppl 1) : 155-71.
12. Donovan DM. Assessment issues and domains in the prediction of relapse. *Addiction* 1996; 91 (Suppl 1) : 29-36.
13. World Health Organization. *The ICD 10 classification of mental and behavioural disorders: diagnostic criteria for research*. Oxford: Oxford University Press; 1993.
14. Stockwell J, Murphy D, Hodgson R. The severity of alcohol dependence questionnaire: its use, reliability and validity. *Br J Addict* 1983; 78 : 145-56.
15. Sutherland G, Edward G, Taylor C, Phillips G, Gossop M, Brady R. The measurement of opiate dependence. *Br J Addict* 1986; 81: 485-94.
16. Mattoo SK, Malhotra R. Relapse Precipitant Inventory: Hindi adaptation and factor structure. *Indian J Clin Psychol* 2000; 27: 278-85.
17. Litman GK, Stapelton J, Oppenheim AN, Peleg M. An instrument for measuring coping behaviours in hospitalised alcoholics: implications for relapse prevention treatment. *Br J Addict* 1983; 78 : 269-79.
18. Mattoo SK, Malhotra R. Self-efficacy scale. Hindi translation and factor structure. *Indian J Clin Psychol* 1998; 25 : 154-8.
19. Singh G, Kaur D, Kaur H. Presumptive stressful life events scale for use in India. *Indian J Psychiatry* 1984; 26 : 107-14.
20. Holmes TH, Rahe RH. The Social Readjustment Rating Scale. *J Psychosom Res* 1967; 11: 213-8.
21. Nehra R, Kulhara P. Development of a scale for the assessment of social support. Initial try-out in an Indian setting. *Indian J Social Psychiatry* 1987; 4 : 353-9.
22. Pollack L, Harris R. Measurement of social support. *Psychol Rep* 1983; 53: 446-9.
23. Indian Council of Medical Research. *Ethical guidelines for biomedical research on human participants*. New Delhi: Indian Council of Medical Research; 2006.
24. Marlatt GA, Gordon JR. *Relapse prevention. Maintenance strategies in addictive behavioural change*. New York: Guilford Press; 1980.
25. Shiffman SM. Analysis of relapse following smoking cessation: a situational analysis. *J Consult Clin Psychol* 1980; 50 : 71-86.

26. Marlatt GA. Taxonomy of high-risk situations for alcohol relapse: evolution and development of a cognitive-behavioural model. *Addiction* 1996; *91* (Suppl1): 37-50.
27. Litman GK, Eiser JR, Rawson JCB, Oppenheim AN. Differences in relapse precipitants and coping behaviour between alcohol relapsers and survivors. *Behav Res Ther* 1979; *17* : 89-94.
28. Litman GK, Stapleton J, Oppenheim AN, Paleg M, Jackson P. Situations related to alcoholism relapse. *Br J Addict* 1983; *78* : 381-9.
29. Maisto SA, O'Farrell TJ, Connors GJ, Mckay JR, Pelcovits M. Alcoholics' attributions of factors affecting their relapse to drinking and reasons for terminating relapse episodes. *Addict Behav* 1988; *13* : 79-82.
30. Mattoo SK, Basu D, Malhotra A, Malhotra R. Relapse precipitants, life events and dysfunctions in alcohol and opioid dependent men. *Indian J Psychiatry* 2003; *45* : 39-44.
31. Singhal S, Nagalakshmi SV, Singhal S. Relapse in alcoholism: psychosocial study. *NIMHANS J* 1992; *10* : 47-9.
32. Burling TA, Reilly PM, Moltzen JO, Ziff DC. Self-efficacy and relapse among inpatients with drug and alcohol abuse. *J Stud Alcohol* 1989; *50* : 354-60.
33. Mckay JR, Maisto SA, O'Farrell TJ. End-of treatment self-efficacy, aftercare and drinking outcomes of alcoholic men. *Alcohol Clin Exp Res* 1993; *17* : 1076-83.
34. Finney JW, Moos RH, Mewborn CR. Post-treatment experiences and treatment outcome of alcoholic patients six months and two years after hospitalization. *J Consult Clin Psychol* 1980; *48* : 17-29.
35. Shaffer HJ, LaPlante DI, LaBrie, RA, Kidman, RC, Donato, AN, Stanto MV. Towards as syndrome of addiction: multiple expressions, common etiology. *Harv Rev Psychiatry* 2004; *12* : 367-74.
36. Hollander E. Behavior and substance addictions: a new proposed DSM-V category characterized by impulsive choice, reward sensitivity and fronto-striatal circuit impairment. *CNS Spectr* 2006; *11* : 814.

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