

Indian Journal of Psychiatry Official Publication of the Indian Psychiatric Society

Indian J Psychiatry. 2018 Feb; 60(Suppl 4): S473–S478.PMCID: PMC5844157doi: 10.4103/psychiatry.IndianJPsychiatry\_36\_18: 10.4103/psychiatry\_IndianJPsychiatry\_36\_18PMID: 29540916

# Relapse prevention

### Jayakrishnan Menon and Arun Kandasamy

Centre for Addiction Medicine, National Institute of Mental Health and Neuro Sciences (NIMHANS), Bengaluru, Karnataka, India

**Address for correspondence:** Arun Kandasamy, Associate Professor of Psychiatry, National Institute of Mental Health and Neurosciences (NIMHANS), Bengaluru, Karnataka, India. E-mail: <u>arunnimhans05@gmail.com</u>

### Copyright : © 2018 Indian Journal of Psychiatry

This is an open access article distributed under the terms of the Creative Commons Attribution-NonCommercial-ShareAlike 3.0 License, which allows others to remix, tweak, and build upon the work non-commercially, as long as the author is credited and the new creations are licensed under the identical terms.

## Abstract

Addiction and related disorders are chronic lapsing and relapsing disorders where the combination of long term pharmacological and psychosocial managements are the mainstay approaches of management. Among the psychosocial interventions, the Relapse Prevention (RP), cognitive-behavioural approach, is a strategy for reducing the likelihood and severity of relapse following the cessation or reduction of problematic behaviours. Here the assessment and management of both the intrapersonal and interpersonal determinants of relapse are undertaken. This article discusses the concepts of relapse prevention, relapse determinants and the specific interventional strategies.

**Keywords:** Relapse Prevention, Relapse determinants, High-risk situations, psychosocial interventions, Alcohol dependence syndrome

## INTRODUCTION

Addiction is conceptualised as a chronic relapsing brain disorder. Miller and Hester reviewed more than 500 alcoholism outcome studies and reported that more than 75% of subjects relapsed within 1 year of treatment<sup>1</sup>. A study published by Hunt and colleagues demonstrated that nicotine, heroin, and alcohol produced highly similar rates of relapse over a one-year period, in the range of  $80-95\%^2$ . A significant proportion (40–80%) of patients receiving treatment for alcohol use disorders have at least one drink, a "lapse," within the first year of after treatment, whereas around 20% of patients return to pre-treatment levels of alcohol use<sup>3</sup>. **Relapse prevention (RP)** is a strategy for reducing the likelihood and severity of relapse following the cessation or reduction of problematic behaviours<sup>4</sup>.

#### 6/26/22, 3:02 PM

#### Relapse prevention - PMC

The initial transgression of problem behaviour after a quit attempt is defined as a "**lapse**," which could eventually lead to continued transgressions to a level that is similar to before quitting and is defined as a "**relapse**". Another possible outcome of a lapse is that the client may manage to abstain and thus continue to go forward in the path of positive change, "**prolapse**"<sup>4</sup>. Many researchers define relapse as a process rather than as a discrete event and thus attempt to characterize the factors contributing to relapse<sup>3</sup>.

Relapse prevention (RP) is a cognitive– behavioural approach with the goal of identifying and addressing high-risk situations for relapse and assisting individuals in maintaining desired behavioural changes. RP has two specific aims:

- (a) Preventing an initial lapse and maintaining abstinence or harm reduction treatment goals
- (b) Providing lapse management if a lapse occurs such that further relapses can be prevented<sup> $\frac{4}{2}$ </sup>.

Relapse prevention initially evolved as a calculated response to the longer-term treatment failures of other therapies. The assumption of RP is that it is problematic to expect that the effects of a treatment that is designed to moderate or eliminate an undesirable behaviour will endure beyond the termination of that treatment. Further, there are reasons to presume a problem will re-emerge on returning to the old environment that elicited and maintained the problem behaviour; for instance, forgetting the skills, techniques, and information taught during therapy; and decreased motivation<sup>5</sup>.

## Cognitive Behavioural model of relapse

A **high-risk situation** is defined as a circumstance in which an individual's attempt to refrain from a particular behaviour is threatened. They often arise without warning. While analysing high-risk situations the client is asked to generate a list of situations that are low-risk, and to determine what aspects of those situations differentiate them from the high-risk situations. High-risk situations are determined by an analysis of previous lapses and by reports of situations in which the client feels or felt "tempted." Appropriate responses are those behaviours that lead to avoidance of high-risk situations, or behaviours that foster adaptive responses. **Seemingly irrelevant decisions (SIDs)** are those behaviours that are early in the path of decisions that place the client in a high-risk situation. For example, if the client understands that using alcohol in the day time triggers a binge, agreeing for a meeting in the afternoon in a restaurant that serves alcohol would be a SID<sup>5</sup>.

A number of less obvious factors also influence the relapse process. These **covert antecedents** include lifestyle factors, such as overall stress level, one's temperament and personality, as well as cognitive factors. These may serve to set up a relapse, for example, using rationalization, denial, or a desire for immediate gratification. Lifestyle factors have been proposed as the covert antecedents most strongly related to the risk of relapse. It involves the degree of balance in the person's life between perceived external demands and internally fulfilling or enjoyable activities. Urges and cravings precipitated by psychological or environmental stimuli are also important<sup>6</sup>.

An important part of RP is the notion of Abstinence violation effect (AVE), which refers to an individual's response to a relapse where often the client blames himself/herself, with a subsequent loss of perceived control<sup>4</sup>. It occurs when the client perceives no intermediary step between a lapse and relapse i.e. since they have violated the rule of abstinence, "they may get most out" of the lapse<sup>5</sup>. During RP, these

factors need to be worked on. People who attribute the lapse to their own personal failure are likely to experience guilt and negative emotions that can, in turn, lead to increased drinking as a further attempt to avoid or escape the feelings of guilt or failure<sup>7</sup>.

Another factor that may occur is the **Problem of Immediate Gratification** where the client settles for shorter positive outcomes and does not consider larger long term adverse consequences when they lapse. This can be worked on by creating a decisional matrix where the pros and cons of continuing the behaviour versus abstaining are written down within both shorter and longer time frames and the therapist helps the client to identify unrealistic outcome expectancies<sup>5</sup>.

Marlatt, based on clinical data, describes categories of relapse determinants which help in developing a detailed taxonomy of high-risk situations. These components include both interpersonal influences by other individuals or social networks, and intrapersonal factors in which the person's response is physical or psychological.

## **RELAPSE DETERMINANTS**

## These can be classified as intrapersonal or interpersonal. Intrapersonal Determinants

Self-Efficacy Self-efficacy is defined as the degree to which an individual feels confident and capable of performing certain behaviour in a specific situational context<sup>5</sup>. The RP model proposes that at the cessation of a habit, a client feels self-efficacious with regard to the unwanted behaviour and that this perception of self-efficacy stems from learned and practiced skills<sup>3</sup>. In a prospective study among both men and women being treated for alcohol dependence using the Situational Confidence Questionnaire, higher self-efficacy scores were correlated to a longer interval for relapse to alcohol use<sup>8</sup>. The relationship between self-efficacy and relapse is possibly bidirectional, meaning that individuals who are more successful report greater self-efficacy and individuals who have lapsed report lower self-efficacy<sup>4</sup>. Chronic stressors may also overlap between self-efficacy and other areas of intrapersonal determinants, like emotional states, by presenting more adaptational strain on the treatment-seeking client<sup>4</sup>.

Outcome Expectancies Outcome expectancies can be defined as an individual's anticipation or belief of the effects of a behaviour on future experience<sup>3</sup>. The expected drug effects do not necessarily correspond with the actual effects experienced after consumption. Based on operant conditioning, the motivation to use in a particular situation is based on the expected positive or negative reinforcement value of a specific outcome in that situation<sup>5</sup>. Both negative and positive expectancies are related to relapse, with negative expectancies being protective against relapse and positive expectancies being a risk factor for relapse<sup>4</sup>. Those who drink the most tend to have higher expectations regarding the positive effects of  $alcohol^9$ . In high-risk situations, the person expects alcohol to help him or her cope with negative emotions or conflict (i.e. when drinking serves as "self-medication"). Expectancies are the result of both direct and indirect (e.g. perception of the drug from peers and media) experiences<sup>3</sup>.

Emotional states According to this affective model of drug motivation, excessive substance use is motivated by affective regulation, both positive and negative<sup>4</sup>. Later researchers such as Baker proposed the negative reinforcement model of drug addiction and posit that the escape and avoidance of negative affect is the major motive for addictive drug use<sup>10</sup>. Studies with alcohol-dependent patients have shown that on-going

depression increases the risk of relapse during and after treatment, and sudden increases in negative affect have been shown to immediately precede nicotine relapse<sup>11</sup>. In one study, alcoholic beverage presentation and negative affect imagery led to increased subjective reporting of desire to drink and predicted time to relapse after inpatient discharge<sup>12</sup>. Negative mood states associated with relapse include anger, loneliness, boredom, fatigue<sup>7</sup>.

Coping One of the most critical predictors of relapse is the individual's ability to utilize effective coping strategies in dealing with high-risk situations. Coping is defined as the thoughts and behaviours used to manage the internal and external demands of situations that are appraised as stressful. A person who can execute effective coping strategies (e.g. a behavioural strategy, such as leaving the situation, or a cognitive strategy, such as positive self-talk) is less likely to relapse compared with a person lacking those skills. Moreover, people who have coped successfully with high-risk situations are assumed to experience a heightened sense of self-efficacy<sup>4</sup>.

There are various classifications of coping described. Shiffman and colleagues describe stress coping where substance use is viewed as a coping response to life stress that can function to reduce negative affect or increase positive affect. They assume a distinction between stress coping skills, which are responses intended to deal with general life stress, and temptation coping skills, which are coping responses specific to situations in which there are temptations for substance which could contribute to relapse<sup>13</sup>.

Approach coping may involve attempts to accept, confront, or reframe as a means of coping, whereas avoidance coping may include distraction from cues or engaging in other activities. Approach oriented participants may see themselves as more responsible for their actions, including lapse, while avoidance-based coping may focus more on their environment than on their own actions<sup>14</sup>.

Coping may also be experienced as inaction. Inaction has typically been interpreted as the acceptance of substance cues which can be described as "letting go" and not acting on an urge. "Staying in the moment" and being mindful of urges are helpful coping strategies<sup>4</sup>.

Craving Craving has been described as a cognitive experience focused on the desire to use a substance and is often related to the expectancies for the desired effect of the drug, whereas urge has been defined as the behavioural intention to use a substance<sup>7</sup>. Craving can be aroused either by interoceptive or exteroceptive cues, environmental situations associated with prior heavy drinking, or with the psychological and physical effects of prior withdrawal experiences<sup>15</sup>. While craving may initiate drinking, relapse is facilitated through the complementary phenomenon of loss of control, a behavioural state characterized by the relative inability to respond to either internal or external cues which regulate alcohol consumption<sup>16</sup>.

Critical for craving and relapse is the process of associative learning, whereby environmental stimuli repeatedly paired with drug consumption acquire incentive-motivational value, evoking expectation of drug availability and memories of past drug euphoria<sup>15</sup>.

Substance users seem to use drugs or relapse more readily in environments associated with prior drug use. The cue-reactivity paradigm, which monitors their reactions to various drug-related stimuli, has been used to explore this relationship. Drug-related stimuli elicit craving, but cue reactivity is not a consistent predictor of relapse<sup>17</sup>.

#### 6/26/22, 3:02 PM

#### Relapse prevention - PMC

Motivation Oxford English Dictionary defines motivation as "the conscious or unconscious stimulus for action towards a desired goal provided by psychological or social factors; that which gives purpose or direction to behaviour. Motivation may relate to the relapse process in two distinct ways, the motivation for positive behaviour change and the motivation to engage in the problematic behaviour. This illustrates the issue of ambivalence experienced by many patients attempting to change an addictive behaviour. Motivation Interviewing provides a means of facilitating the change process<sup>2</sup>.

Interpersonal determinants Positive social support is highly predictive of long-term abstinence rates across several addictive behaviours. Among social variables, the degree of social support available from the most supportive person in the network may be the best predictor of reducing drinking, and the number of supportive relationships also strongly predicts abstinence. Further, the more non-drinking friends a person with an AUD has, the better outcomes tend to be. Negative social support in the form of interpersonal conflict and social pressure to use substances has been related to an increased risk for relapse. Social pressure may be experienced directly, such as peers trying to convince a person to use, or indirectly through modelling (e.g. a friend ordering a drink at dinner) and/or cue exposure.

While many families can find addiction difficult to deal with, negative family behaviours such as withdrawing from a family member with a substance use disorder or avoiding dealing with the substance use is actually associated with more drinking. In addition to familial, marital, friend, and co-worker relations, research also suggests that community-based support services, such as recovery communities, enhance outcomes for those struggling with cessation once treatment has been completed<sup> $\frac{4}{2}$ </sup>.

Interpersonal relationships and support systems are highly influenced by intrapersonal processes such as emotion, coping, and expectancies<sup>18</sup>.

Dynamic model Earlier models posited that various factors related to relapse progressed in a linear step wise manner. A revised model proposes that determinants described above are multidimensional and dynamic. Seemingly insignificant changes in one risk factor may kindle a downward spiral resulting in relapse. Multiple factors act at the same time act in varying degrees to ultimately lead onto relapse

Relapse factors can be viewed as distal risk factors (vulnerability in the form of temperament, personality, family loading, environment including social and economic background) and proximal factors being the various determinants of relapse acting and these factors interacting among themselves in a complex manner to lead onto relapse. Hence, the dynamic model posits a non-linear progression to relapse<sup>19</sup>.

## Specific Intervention strategies in Relapse Prevention

Identifying and coping with high-risk situations Along with the client, the therapist needs to explore past circumstances and triggers of relapse. The cues may be both internal and external. Also, the client is asked to keep a current record where s/he can self-monitor thoughts, emotions or behaviours prior to a binge. Once this is done, two strategies may be employed. One is to help clients identify warning signs such as on-going stress, seemingly irrelevant decisions and significant positive outcome expectancies with the substance so that they can avoid the high-risk situation. The second is assessing coping skills of the client and imparting general skills such as relaxation, meditation or positive self-talk or dealing with the situation using drink refusal skills in social contexts when under peer pressure through assertive communication<sup>6</sup>.

Enhancing Self-efficacy In RP client and therapist are equal partners and the client is encouraged to actively contribute solutions for the problem. Client is taught that overcoming the problem behaviour is not about will power rather it has to do with skills acquisition. Another technique is that the road to abstinence is broken down to smaller achievable targets so that client can easily master the task enhancing self-efficacy. Also, therapists can provide positive feedback of achievements that the client has been able to make in other facets of life<sup>6</sup>.

Eliminating myths and placebo The myths related to substance use can be elicited by exploring the outcome expectancies as well as the cultural background of the client. Following this a decisional matrix can be drawn where pros and cons of continuing or abstaining from substance are elicited and clients' beliefs may be questioned<sup>6</sup>.

Lapse management Lapse management includes drawing a contract with the client to limit use, to contact the therapist as soon as possible, and to evaluate the situation for factors that triggered the lapse<sup>6</sup>.

Cognitive restructuring Cognitive restructuring can be used to tackle cognitive errors such as the abstinence violation effect. Clients are taught to reframe their perception of lapses, to view them not as failures but as key learning opportunities resulting from an interaction between various relapse determinants, both of which can be modified in the future.

Some of the other common cognitive errors noted are statements like relapse can't happen to me"; "I'll never use alcohol or drugs again"; "I can control my use of alcohol or other drugs"; "a few drinks, pills, won't hurt"; "recovery isn't happening fast enough"; "I need alcohol or other drugs to have fun"; and "my problem is cured." These cognitions are listed, their validity questioned, and clients have to frame alternate thoughts to replace them as in CBT<sup>2</sup>.

## Balanced lifestyle and Positive addiction

Global self-management strategy involves encouraging clients to pursue again those previously satisfying, nondrinking recreational activities. In addition, relaxation training, time management, and having a daily schedule can be used to help clients achieve greater lifestyle balance.

Helping clients develop positive addictions or substitute indulgences (e.g. jogging, meditation, relaxation, exercise, hobbies, or creative tasks) also help to balance their lifestyle<sup>6</sup>.

## Stimulus control techniques

These techniques encourage the client to remove all items directly associated with substance use from his or her home, office. To remove all paraphernalia associated with drug use such as needles, mirror, pipes, glasses, bottles. More subtle items may include the favourite chair or the music the client listened to while using alcohol. In these cases, a temporary change in seating or listening habits may be helpful. Similarly, certain social events may have become associated with excessive drinking; client may need to decline these invitations<sup>6</sup>.

### Urge management techniques

Urge surfing was developed by Marlatt. Using a wave metaphor, urge surfing is an imagery technique to help clients gain control over impulses to use drugs or alcohol. In this technique, the client is first taught to label internal sensations and cognitive preoccupations as an urge, and to foster an attitude of detachment from that urge. The focus is on identifying and accepting the urge, not acting on the urge or attempting to fight it<sup>4</sup>.

One of the most notable developments in the last decade has been the emergence and increasing application of **Mindfulness-Based Relapse Prevention** (MBRP) for addictive behaviours. MBRP stresses non-judgmental attention to thoughts or  $urges^{20}$ .

### Relapse road maps

Cognitive-behavioural analyses of high-risk situations that emphasize the different choices available to clients for avoiding or coping with these situations as well as their consequences. Such a "mapping out" of the likely outcomes associated with different choices along the way can be helpful in identifying  $SIDs^{5}$ .

### Outcome Studies for Relapse Prevention

In a meta-analysis by Carroll, more than 24 RCT's have been evaluated for the effectiveness of RP on substance use outcomes. Review of this body of literature suggests that, across substances of abuse but most strongly for smoking cessation, there is evidence for the effectiveness of relapse prevention compared with no treatment controls. However, evidence regarding its superiority relative to other active treatments has been less consistent. Outcomes in which relapse prevention may hold particular promise include reducing severity of relapses, enhanced durability of effects, and particularly for patients at higher levels of impairment along dimensions such as psychopathology or dependence severity<sup>21</sup>.

In a subsequent meta-analysis by Irwin, twenty-six published and unpublished studies representing a sample of 9,504 participants were included. Results indicated that RP was generally effective, particularly for alcohol problems. Additionally, outcome was moderated by several variables. Specifically, RP was most effective when applied to alcohol or polysubstance use disorders, combined with the adjunctive use of medication, and when evaluated immediately following treatment. Moderation analyses suggested that RP was consistently efficacious across treatment modalities (individual vs. group) and settings (inpatient vs. outpatient)<sup>22</sup>.

In a study by McCrady evaluating the effectiveness of psychological interventions for alcohol use disorder such as Brief Interventions and Relapse Prevention was classified as efficacious<sup>23</sup>.

In a 2013 Cochrane review which also discussed regarding relapse prevention in smokers the authors concluded that there is insufficient evidence to support the use of any specific behavioural intervention to help smokers who have successfully quit for a short time to avoid relapse. The verdict is strongest for interventions focused on identifying and resolving tempting situations, as most studies were concerned with these $\frac{24}{2}$ .

### Critique

Following the initial introduction of the RP model in the 1980s, its widespread application largely outpaced efforts to systematically validate the model and test its underlying assumptions. The Relapse Replication and Extension Project (RREP) was a multisite study to replicate and extend Marlatt's taxonomy of relapse precipitants. In addition to replicating Marlatt's original taxonomic system, three independent research teams utilized prospective designs to identify additional predictors of relapse and developed and evaluated two alternative systems for assessing high-risk relapse situations. These conclusions are: (1) reliability of Marlatt's taxonomic system was variable both within and across the three research sites; (2) Marlatt's taxonomic system showed little predictive validity in analyses that used pre-treatment relapse data to predict post-treatment relapse, (3) an alternative taxonomy provided little more predictive validity than the original taxonomy even though it measured more dimensions of relapse<sup>25</sup>.

The dynamic model of relapse takes many of the RREP criticisms into account. Ecological momentary assessment, either via electronic device or interactive voice response methodology, could provide the data necessary to fully test the dynamic model of relapse<sup>19</sup>.

### Relapse Prevention in other areas

Principles of relapse prevention have been used in the treatment of sex offenders. In a 2003 meta-analysis relapse prevention treatment revealed moderate mean reductions in recidivism and certain elements of the relapse prevention model (i.e. training significant others in the programme model and identifying the offense chain) yielded stronger effects than others (i.e. provision of booster/aftercare sessions and developing coping skills)<sup>26</sup>.

RP has also been used in eating disorders in combination with other interventions such as CBT and problem-solving skills<sup>4</sup>.

### **Future Directions**

Future research with a data set that includes multiple measures of risk factors over multiple days can help in validating the dynamic model of relapse. Elucidating the "active ingredients" of CBT treatments remains an important and challenging goal, Also, integration of neurocognitive parameters in relapse models as well as neural (such as functional circuitry involved in relapse) and genetic markers of relapse will be major challenges moving ahead<sup>19</sup>.

### Financial support and sponsorship

Nil.

## Conflicts of interest

There are no conflicts of interest.

### **REFERENCES**

1. Miller W, Hester R. Treating the problem drinker: modern approaches. In: Miller WR, editor. *The Addictive Behaviors: Treatment of Alcoholism, Drug Abuse, Smoking and Obesity.* New York, NY: Pergamon Press; 1980.

2. Kirshenbaum A, Olsen DM, Bickel WK. Quantitative review of the ubiquitous relapse curve. *J Subst Abuse Treat.* 2009 Jan;36(1):8–17. [PMCID: PMC3151675] [PubMed: 18571890]

3. Steckler G, Witkiewitz K, Marlatt GA. In: *Relapse Prevention Principles of Addiction*. 1st Edition. Miller PM, editor. Vol. 1. Elsevier; 2013.

4. Marlatt GA, Witkiewitz K. Relapse prevention in Alcohol and drug problems Relapse Prevention: Maintenance Strategies in Treatment of Addictive Behaviours. In: Marlatt GA, Donovan DM, editors. 2nd Edition. Guilford Press; 2005.

5. Brunswig KA, Penix TM, O'Donohue W. In: *Relapse Prevention Encyclopaedia of Psychotherapy*. 1st Edition. Hersen M, Sledge W, editors. Elsevier; 2002.

6. Larimer ME, Palmer RS, Marlatt GA. Spring; 1999. Relapse Prevention: An Overview of Marlatt's Cognitive-Behavioural Model Alcohol Research and Health. [PMCID: PMC6760427] [PubMed: 10890810]

7. Daley DC, Marlatt GA, and Douaihy A. In: 5th Edition. Ruiz P, Strain EC, editors. Lippincott, Williams and Wilkins; 2011. Relapse Prevention Lowinson and Ruiz's Substance Abuse: A Comprehensive Textbook.

8. Greenfield SF, Hufford MR, Vagge LM, Muenz LR, Costello ME, Weiss RD. The relationship of self-efficacy expectancies to relapse among alcohol dependent men and women: a prospective study. *J Stud Alcohol.* 2000 Mar;61(2):345–51. [PubMed: 10757147]

9. Carey KB. Alcohol-related expectancies predict quantity and frequency of heavy drinking among college students. *Psychology of Addictive Behaviors*. 1995;9(4):236–241.

10. Baker TB, Piper ME, McCarthy DE, Majeskie MR, Fiore MC. Addiction Motivation Reformulated: An Affective Processing Model of Negative Reinforcement. *Psychol Rev.* 2004 Jan;111(1):33–51. [PubMed: 14756584]

11. McKay JR. Negative Mood, Craving, and Alcohol Relapse: Can Treatment Interrupt the Process? *Curr Psychiatry Rep.* 2011 Dec;13(6):431–433. [PMCID: PMC3222714] [PubMed: 21822936]

12. Cooney NL, Litt MD, Morse PA, Bauer LO, Gaupp L. Alcohol cue reactivity, negative-mood reactivity, and relapse in treated alcoholic men. *J Abnorm Psychol.* 1997 May;106(2):243–50. [PubMed: 9131844]

13. Wagner EF, Myers MG, McIninch JL. Stress-coping and Temptation-coping as Predictors of Adolescent Substance Abuse Addict Behav. 1999 Nov-Dec;24(6):769–79. [PubMed: 10628511]

14. Moos RH, Brennan PL, Fondacaro MR, Moos BS. Approach and avoidance coping responses among older problem and non-problem drinkers. *Psychol Aging*. 1990 Mar;5(1):31–40. [PubMed: 2180432]

15. Weiss F. *Neurobiology of craving, conditioned reward and relapse Current Opinion in Pharmacology.* 2005;5(Issue):9–19. [PubMed: 15661620]

16. Ludwig AM, Wikler A. "Craving" and relapse to drink. *Quarterly Journal of Studies on Alcohol.* 1974;35(1-A):108–130.[PubMed: 4827273]

#### 6/26/22, 3:02 PM

#### Relapse prevention - PMC

17. Carter BL, Tiffany ST. *Meta-analysis of cue-reactivity in addiction research Addiction*. 1999;94(3):327–340. [PubMed: 10605857]

18. Hunter-Reel D, McCrady BS, and Hildebrandt T. Emphasizing interpersonal factors: An extension of the Witkiewitz and Marlatt relapse model Addiction. 2009 Aug;104(8):1281–1290. [PMCID: PMC2714871] [PubMed: 19549057]

19. Hendershot CS, Witkiewitz K, George WH, Marlatt GA. *Relapse prevention for addictive behaviors* Substance Abuse Treatment, Prevention, and Policy. 2011 [PMCID: PMC3163190] [PubMed: 21771314]

20. Witkiewitz K, Marlatt GA, Walker D. Mindfulness based relapse prevention for alcohol and substance use disorders. *Journal of Cognitive Psychotherapy*. 2005;19(3)

21. Carroll KM. *Experimental and Clinical Psychopharmacology*. 1996 Feb;4(1):46–54. Relapse prevention as a psychosocial treatment: A review of controlled clinical trials.

22. Irvin JE, Bowers CA, Dunn ME, Wang MC. Efficacy of relapse prevention: a meta-analytic review. *J Consult Clin Psychol*. 1999 Aug;67(4):563–70. [PubMed: 10450627]

23. McCrady BS. Alcohol use disorders and the Division 12 Task Force of the American Psychological Association. *Psychology of Addictive Behaviors*. 2000;14(3):267–276. [PubMed: 10998952]

24. Hajek P, Stead LF, West R, Jarvis M, Hartmann-Boyce J, Lancaster T. Relapse prevention interventions for smoking cessation. *Cochrane Database of Systematic Reviews.* 2013;(8) [PubMed: 23963584]

25. Lowman C1, Allen J, Stout RL. Replication and extension of Marlatt's taxonomy of relapse precipitants: overview of procedures and results. The Relapse Research Group. *Addiction*. 1996 Dec;(91 Suppl):S51–71. [PubMed: 8997781]

26. Dowden C, Antonowicz D, Andrews DA. The Effectiveness of Relapse Prevention with Offenders: A Meta-Analysis. *Int J Offender Ther Comp Criminol.* 2003 Oct;47(5):516–28. [PubMed: 14526593]