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Predicting Treatment Outcome in Chemically Dependent Women:
A Test of Marlatt and Gordon's Relapse Model

Renee A. Cormier

B. A. (Honours), University of Manitoba, 1993
M. A., University of Windsor, 1995

A Dissertation
Submitted to the Faculty of Graduate Studies and Research
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ABSTRACT

The purpose of the present study was to test and expand Marlatt and Gordon's (1985) Relapse Model using a sample of substance-abusing women. Marlatt and Gordon hypothesized that coping skills, positive expectancies, and self-efficacy would predict post-treatment substance use. They also hypothesized that individuals who experience the abstinence violation effect following an initial lapse would be at increased risk of further substance use. Variables representing issues relevant to women were added to the original model. Specifically, poly-drug addiction and experiences with physical and sexual abuse were hypothesized to be important in any relapse model applied to women. Questionnaires were administered to 98 chemically dependent women in treatment centres across Ontario one week within their discharge date, and one, two, and three months after leaving treatment. This study found some support for Marlatt and Gordon's Relapse Model. Self-efficacy was the strongest predictor of an initial post-treatment lapse. Participants with lower self-efficacy were at greater risk for a lapse. In addition self-efficacy mediated the relationship between coping and relapse. Participants with poorer coping skills also had lower self-efficacy which placed them at increased risk of relapse. All but one woman who relapsed reported experiencing multiple lapses, therefore the second part of Marlatt and Gordon's model could not be tested. When a liberal level of significance was used, participants who had been physically abused as children were found to be more likely to relapse, but this relationship was also mediated by self-efficacy. Finally, there was a significant interaction between expectancies and poly-drug use. Poly-drug users with higher expectancies were more likely to relapse whereas single drug users with lower expectancies were more likely to relapse. The
present study found that women's confidence in their ability to remain abstinent after
treatment (i.e., self-efficacy) is a key predictor of post-treatment substance use.
Confidence was affected by factors such as childhood victimization and ability to cope
with cravings. Consequently, treatment programs should focus on increasing self-
efficacy by teaching clients coping skills and addressing issues relevant to women, such
as victimization. In addition, more research is needed to explore how other issues (e.g.,
family of origin, motivation, etc.) affect the recovery process in chemically dependent
women.
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CHAPTER I
INTRODUCTION

Overview

Until recently, research on understanding and predicting addiction relapse has focused almost exclusively on male substance users, despite the fact that there is evidence suggesting that rates of post-treatment relapse in alcoholic women equal those of alcoholic men. For example, Annis, Sklar and Moser (1998) reported that 57.8% of males and 54.3% of females in a sample of alcoholics relapsed within twelve weeks following treatment. Ellis and McClure (1992) found that at six months post-treatment, more females (55%) than males (34%) had relapsed. Such high relapse rates among both male and female addicts have prompted researchers (e.g., Litman, 1980) to conclude that relapse is the most likely outcome of treatment. Consequently, in the early 1980s, models explaining and predicting relapse were developed.

One of the most influential relapse models developed was and continues to be the cognitive-behavioural model of the relapse process (henceforth referred to as the Relapse Model) proposed by G. Alan Marlatt and Judith R. Gordon at the University of Washington (Marlatt & Gordon, 1980; Marlatt & Gordon, 1985). Marlatt and Gordon's Relapse Model was developed in response to the medical model of addictions and presented a breakthrough in the study of addictive behaviours. The Relapse Model is often described as the most well-conceptualized model developed to date and is the foundation of all subsequent relapse prevention models (Rawson, Obert, McCann, & Marinelli-Casey, 1993). Although some of the individual components of the Relapse
Model have been validated (e.g., Brown, 1985; Curry, Marlatt & Gordon, 1987; Litman, Stapleton, Oppenheim, & Peleg, 1983; Solomon & Annis, 1990), this review uncovered a single, published report which tested the predictive value of the entire model (Miller, Verner, Westerberg, Harris, & Tonigan, 1996). Miller and colleagues found only partial support for Marlatt and Gordon’s Relapse Model using a sample of male and female alcoholics.

An additional concern is that Marlatt and Gordon developed the Relapse Model in an era when research was conducted almost solely on males with the results then being generalized to females. Research findings have demonstrated that the epidemiology of alcoholism in women differs significantly from men (e.g., Abbott, 1994; Blume, 1994; Lex, 1990; Young, 1990); therefore, it follows that relapse will likely be a different phenomenon for women than men. Although Marlatt and Gordon (1985) have used the Relapse Model to explain and predict relapse in both men and women, there exists little evidence to support this generalization.

The remainder of this chapter will review the current research to determine the extent to which Marlatt and Gordon's male-based Relapse Model can be generalized to explain and predict the relapse experiences of chemically dependent women. The plan for the chapter is as follows: first, the Relapse Model will be described in its entirety; second, the research attempting to validate the model and its individual components in will be reviewed and evaluated; third, other relapse models will be outlined; fourth, additional issues relevant to chemically dependent women will be discussed as potential predictors of relapse; and finally, the purpose and hypotheses of the proposed study will
be outlined.

**Marlatt & Gordon's Relapse Model**

Prior to describing the Relapse Model in its entirety, Marlatt and Gordon (1985) distinguished between a lapse and a relapse. In the case of a lapse, an individual may experience a single, isolated slip following a period of abstinence. Relapse is viewed as a more complex process. For example, Marlatt defined relapse as "...a transitional process, a series of events that may or may not be followed by a return to pretreatment baseline levels of the target behaviour." (Marlatt & George, 1998, p. 36). The distinction between a lapse and a relapse suggests that a single lapse does not necessarily lead to a full-blown relapse, but rather that, under certain circumstances, a return to abstinence is possible.

In addition, Marlatt and Gordon stated that the Relapse Model applies to any individual experiencing any behaviour classified as an impulse control problem such as drinking, gambling, raping, exhibitionism, and so forth, with the only constraint being that the individual must have voluntarily chosen to change his or her behaviour (Marlatt and Gordon, 1985).

According to Marlatt and Gordon (1985), the process of relapse begins when an individual is faced with a high risk situation while attempting to moderate or abstain from engaging in the target behaviour (see Figure 1). A high risk situation is defined broadly as "...any situation (including emotional reactions to the situation) that poses a threat to the individual's sense of control and increases the risk of potential relapse." (Marlatt & George, 1998, p. 38). Faced with a high risk situation, the substance user may be able to execute an effective coping response (e.g., assertively declining a drink), thus reducing
Figure 1. Marlatt and Gordon's (1985) cognitive-behavioural Relapse Model.
the likelihood of relapse. Coping successfully with a high risk situation will increase the individual's sense of mastery, control, and self-efficacy (as conceptualized by Bandura, 1977). As the abstinence period increases, self-efficacy increases and the probability of relapse decreases.

On the other hand, an individual may not have the appropriate skills needed to cope with a high risk situation (or these skills are somehow inhibited). As one's expectations for coping successfully with a high risk situation decreases, self-efficacy decreases, and consequently, the probability of relapse increases. Additionally, to the extent that the problem behaviour was used as a coping response in the past, and that one holds positive outcome expectancies about the effects of engaging in the behaviour, the likelihood of relapse increases. Positive outcome expectancies such as the belief that "One drink would help me get through this," are considered to be primary determinants of substance abuse (Marlatt & George, 1998).

A lapse occurs when an individual fails to cope successfully with a high risk situation. Whether this initial lapse leads to a return to abstinence or to a full-blown relapse depends on the individual's cognitive-affective response to the lapse. Following the initial lapse, an individual may experience a decrease in self-efficacy, a sense of helplessness, and a tendency to "give in" to the situation. Marlatt and Gordon (1985) proposed the abstinence violation effect (AVE) to account for this cognitive-affective reaction. The AVE varies as a function of many factors such as the degree of commitment to abstinence, the length of the abstinence period, efforts expended to maintain abstinence, the subjective value of the prohibited behaviour, the presence of
significant others, and other factors (Marlatt & George, 1998; Marlatt & Gordon, 1985). The intensity of the AVE is mediated by two cognitive-affective factors: cognitive dissonance and the personal attribution effect.

According to cognitive dissonance theory (Festinger, 1964), cognitive conflict develops from a discrepancy between an individual's beliefs about his- or herself and his or her behaviour. This conflict is manifested by feelings such as guilt and/or shame. When an abstinent individual takes one drink, this creates a conflict between his or her self-image (as an abstainer) and his or her behaviour (taking a drink). In order to reduce the dissonance associated with the first lapse, individuals may try to alter their self-image from abstainer to alcoholic to account for engaging in the prohibited behaviour. Also, if the behaviour has been used as a coping mechanism in the past, it is likely that the individual will continue engaging in the prohibited behaviour. Experiencing high levels of cognitive dissonance increases the probability of full-blown relapse.

The second mediating factor of the AVE is the self-attribution effect. Marlatt and Gordon (1985) borrowed from the work of Weiner and Abramson (e.g., Abramson, Garber, & Seligman, 1980; Weiner, 1974) to explain how individuals engaging in a prohibited behaviour will attribute the cause of relapse to personal failure. Specifically, they hypothesized that the intensity of the AVE, and consequently, the likelihood of relapse, increases if an individual attributes the first lapse to internal, stable, and global factors perceived to be uncontrollable (e.g., willpower). Conversely, the intensity of the AVE decreases when an individual attributes the first lapse to external, unstable, specific, and controllable causes (e.g., failure to use effective coping skills in a specific situation).
Such attributions lead to a decreased probability of a full-blown relapse.

**Review of the Literature**

Research attempting to validate Marlatt and Gordon's (1985) Relapse Model and its individual components will be reviewed in this section. Among the variables hypothesized by Marlatt and Gordon to predict relapse are the use of coping behaviours, self-efficacy, positive outcome expectancies, and the abstinence violation effect. Each of these variables will be considered individually in the following sections.

**Validation of Relapse Model**

Only one published study was identified through this review which evaluated the unique contribution of each individual variable in Marlatt and Gordon's Relapse Model. As part of a large project whose purpose was to replicate and extend Marlatt and Gordon's Relapse Model, Miller and associates (1996) administered a series of questionnaires to 34 female and 84 male alcoholics enrolled in a treatment program. Using a prospective design, participants were administered the following questionnaires every two months for one year following entry into treatment: Coping Behaviours Inventory (Litman, Stapleton, Oppenheim, & Peleg, 1983, described below) to determine the level of individual coping; the Situational Confidence Questionnaire, (Annis, 1987) to assess self-efficacy; the Alcohol Beliefs Questionnaire, (Collins, Lapp, Emmons, & Isaac, 1990) to assess positive and negative outcome expectancies; and the Understanding of Alcoholism Scale (a measure of disease model beliefs; Moyers & Miller, 1993) to assess the abstinence violation effect (AVE). The authors reported that level of coping and the AVE as measured at 4 months post-intake were the only two variables which predicted
relapse at six months, regardless of whether a continuous or dichotomous outcome variable was used. Participants who had a lower level of coping and who had stronger disease model beliefs were more likely to relapse. Self-efficacy and outcome expectancies were not significant predictors of relapse in their sample.

Limitations. This study has the distinction of being the only study reviewed which attempted to test the predictive validity of Marlatt and Gordon’s Relapse Model. Since this study employed a sample of alcoholics, it is possible that the findings cannot be generalized to individuals addicted to other drugs or to multiple drugs. While it is unclear if the participants from the Miller et al. (1996) study were other drug or multiple drug users, the outcomes measured were related specifically to drinking behaviour. Also, although a sample of male and female participants were used in this study, gender was not explored as a moderator of coping, self-efficacy, outcome expectancies, and the AVE. It is possible that males and females may be influenced by different factors in the relapse process, but this was not explored in this study.

While this study used a prospective design, the time lapsed between the assessment periods may have been too long to be sensitive to fluctuations in some of the cognitive variables measured (i.e., self-efficacy, expectancies). Measures administered at four months post-intake were used to predict relapse status at six months. It is possible that participants’ self-efficacy and expectancies changed dramatically between the two assessment periods. This may explain why these cognitive variables were not related to relapse.

There were also problems associated with the way the AVE was conceptualized
and measured. A scale measuring clients’ disease model beliefs was used to represent the AVE. Marlatt and Gordon believed that individuals who experience a post-treatment lapse would be at greater risk for a full-blown relapse if they endorsed disease model principles because they would experience greater guilt than individuals who do not endorse such principles. The resulting guilt is only part of the AVE equation which also includes the attributions individuals make following an initial lapse. To measure the AVE as intended by Marlatt and Gordon, both guilt and attributions for relapse must be considered.

In addition, Miller and colleagues used a prospective design which compared relapsers and abstainers on the four above-mentioned variables, but Marlatt and Gordon hypothesized that the AVE distinguishes between individuals who return to abstinence and those who experience further lapses after an initial lapse. Miller and colleagues attempted to determine if disease model beliefs (which they indicated were stable from pre-treatment to six months post-treatment) were related to relapse at six months. There is no evidence to support the notion that the AVE measured prospectively should predict a future lapse. Also, Marlatt and Gordon did not indicate that the AVE should distinguish between abstainers and relapsers. The abstinence violation effect should be measured as a combination of guilt and attributions made following an initial lapse.

The present study will be an improvement over Miller et al.’s study in three ways: 1) a sample of women who use a variety of substances will be recruited for the study; 2) shorter assessment periods (i.e., 30 days) will be used; and, 3) the AVE will be conceptualized as a combination of attributions and guilt and will be measured following
an initial lapse.

**Coping Responses**

Marlatt and Gordon (1985) hypothesized that following exposure to a high risk situation, an individual will either cope effectively with the situation, thus reducing the likelihood of relapse, or he or she will not engage in appropriate coping responses, thus increasing the likelihood of relapse. Findings from studies investigating the relationship between coping and relapse to addictions provide support for this hypothesis.

Gloria Litman and her colleagues (Litman, Eiser, Rawson, & Oppenheim, 1977; Litman Eiser, Rawson, & Oppenheim, 1979; Litman, et al., 1983) conducted a series of studies to explore the relationship between coping and relapse to alcohol. Litman and colleagues (1983) administered the Coping Behaviours Inventory (developed in previous studies, Litman et al., 1977; Litman, et al., 1979) to a sample to 85 male and 35 female alcoholics in treatment. The results indicated that abstainers had used a greater number of coping behaviours as well as more effective types of coping behaviours than relapers had six months following discharge from treatment. These findings have been replicated using samples of alcoholics (e.g., Annis, Sklar, & Moser, 1998; Connors, Maisto, & Zywiak, 1996; Cronkite & Moos, 1980; Moser & Annis, 1996), smokers (Bliss, Garvey, Heinold, & Hitchcock, 1989; Shiffman, 1982; Shiffman, 1984), and opiate users (Gossop, Green, Phillips, & Bradley, 1990). In further support of the importance of coping in the prevention of relapse, studies have found that using any coping strategy is superior to using no coping strategy (e.g., Annis, Sklar, & Moser, 1998; Bliss, Garvey, Heinold, & Hitchcock, 1989; Moser & Annis, 1996; Shiffman, 1982; Shiffman, 1984).
The relationship between coping and relapse appears to be consistent regardless of the substance under study. Comparatively, there has been little research investigating gender differences in this area. In most cases, all-male samples were used, (e.g., Ito & Donovan, 1990; Ito, Donovan, & Hall, 1988), or gender differences were not reported (e.g., Bliss, Garvey, Heinold, & Hitchcock, 1989; Cronkite & Moos, 1980; Litman et al., 1979, 1983; Moser & Annis, 1996; Shiffman, 1982; Shiffman & Jarvik, 1987). The lack of research investigating gender differences in coping behaviour and relapse has recently been addressed by Annis et al. (1998) who stated: "There have been no published reports on the role of gender in relation to coping and relapse crisis outcome." (p. 128).

In response to this void in addiction research, Annis and colleagues (1998) systemically explored gender differences in coping as a predictor of treatment outcome in a sample of 90 male and 35 female alcoholics. Participants were followed up by telephone on a monthly basis for three months following treatment and were asked about how they coped in response to either their first post-treatment drinking occasion, or their strongest temptation to drink if they had been abstinent. Responses were coded by two independent raters according to number of responses used (no response, one response, and two or more responses); and by type of coping strategy used (behavioural coping, cognitive coping, or a combination of behavioural and cognitive coping). The results showed that there were no significant gender differences in the number nor the type of coping strategies used and drinking outcome. In an earlier study and using a similar methodology, Shiffman (1984) also had found no gender differences in number and type of coping strategies used in response to a crisis situation in a sample of 185 female and 79
male smokers. There were no other reports of gender differences in the relationship between coping and relapse identified through this review.

Limitations. One of the limitations in the coping research conducted to date is that the majority of studies used samples of smokers or alcoholics. Little research has been conducted using samples of addicts who use other drugs such as opiates, cocaine, marijuana, tranquilizers, and narcotics. Research thus far has demonstrated that coping appears to play an important role in the relapse process regardless of the substance of choice; however to further test this hypothesis, the present study will use a sample who use a variety of substances.

In addition, little research has been conducted using samples of female substance users. There are reasons to expect gender differences in the relationship between coping and relapse. McCubbin and colleagues (McCubbin, Cable, & Patterson, 1982; McCubbin, Thompson, & McCubbin, 1996) have reported that there are gender differences in coping patterns. For example, men are more likely to engage in problem-solving skills, whereas women are more likely to engage in avoidance behaviours or other behaviours likely to result in increased stress. If there are gender differences in generalized coping behaviour, it is possible that there are gender differences in more specific coping behaviour used to avoid relapse.

Although some evidence exists that there are no gender differences in type and number of coping behaviours used in response to a crisis situation, this lack of a significant finding may be due to the methodological problems with these studies. For example, in the study conducted by Annis and her colleagues (1998), the sample of
women used (n = 35) was small. Also, the number of coping responses were classified into one of three categories (no response, one response, two or more responses) instead of being retained as a continuous variable. No justification was provided for the decision to conceptualize the number of coping responses as a categorical variable.

Also, while Marlatt and Gordon (1985) emphasized the role of coping in relation to encountering a high risk situation, participants in both Annis et al.'s (1998) study and Shiffman's (1982) study were asked how they coped in response to either the first crisis situation in which they drank, or to the situation presenting the strongest temptation. These two situations may not be equivalent and may serve to inflate the differences between abstainers and relapsers or may mask differences between males and females. If all participants were asked about either their first crisis situation (regardless of whether they drank or not) or the situation causing the strongest temptation (regardless of whether they drank or not), different results may be obtained. The present study will correct these methodological inconsistencies.

**Self-Efficacy**

Marlatt and Gordon (1985) attributed much importance to Bandura's (1977) concept of self-efficacy in the relapse process. Self-efficacy is believed to fluctuate as a function of coping in response to a relapse crisis situation. Specifically, self-efficacy increases as a result of successful coping and decreases in response to unsuccessful coping, thus setting the stage for a lapse. Self-efficacy further decreases if a lapse occurs, thus leading to an increased risk of a full-blown relapse.

Research investigating the role of self-efficacy in the relapse process reveals some
findings consistent across studies: 1) self-efficacy increases from the beginning of
treatment to discharge from treatment in samples of alcoholics (e.g., Rychtarik, Prue,
Rapp, & King, 1992), smokers (e.g., Coelho, 1984; Conditote & Lichtenstein, 1981), and
drug addicts (e.g., Burling, Reilly, Moltzen, & Ziff, 1989); 2) in general, higher self-
efficacy is related to lower consumption following treatment regardless of the type of
drug under study (e.g., Baer, Holt, & Lichtenstein, 1986; Coelho, 1984; Conditote, &
Lichtenstein, 1981; Godding & Glasgow, 1985; McIntyre, Lichtenstein, & Mermelstein.
1983; Ross, Miller, Emmerson, & Todt, 1989; Rychtarik, Prue, Rapp, & King, 1992); and
3) self-efficacy ratings predict treatment outcome if short follow-up periods are used
(e.g., Burling et al., 1989; Solomon & Annis, 1990).

Conflicting findings about the role of self-efficacy in predicting treatment
outcome exist and usually stem from differences in when self-efficacy was measured.
The best predictor of treatment outcome is the level of self-efficacy measured at the end
of treatment or during the follow-up period. Higher end-of-treatment self-efficacy ratings
have been linked to lower consumption levels in alcoholics (Solomon & Annis, 1990),
marijuana users (Stephens, Wertz, & Roffman, 1993), drug users (Burling, Reilly,
Moltzen, & Ziff, 1989), and smokers (Baer, Holt, & Lichtenstein, 1986; Coelho, 1984;
Conditote & Lichtenstein, 1981; Godding & Glasgow, 1985; McIntyre, Lichtenstein, &
Mermelstein, 1983).

In contrast, self-efficacy measured prior to entering treatment (i.e., at intake to
treatment) is generally not predictive of post-treatment consumption levels in smokers
(Baer, Holt, & Lichtenstein, 1986; Coelho, 1984; McIntyre, Lichtenstein, & Mermelstein,
1983). However, using a sample of 100 male alcoholics, Solomon and Annis (1990) reported that a higher level of self-efficacy at intake predicted average daily consumption three months after treatment. Rychtarik and colleagues (1992) found similar results in a sample of 78 alcoholics. Higher intake levels of self-efficacy were associated with abstinence six and twelve months following treatment. In addition, Rychtarik et al. reported that, in contrast to most previous findings, discharge levels of self-efficacy did not predict outcome at 6 or 12 months post-treatment. One major shortcoming which may explain these results is that participants were included in the "relapsed" group if the experimenters were unable to contact them for follow-up information. This may have distorted the results reported in this study.

Powell, et al. (1993) similarly reported contradictory findings using a mixed sample of 42 male and female opiate users. Neither self-efficacy measured at pre-treatment nor at discharge predicted frequency of use two months following treatment. More surprising is that, contrary to their predictions, the authors reported that higher self-efficacy measured at discharge predicted heavier use of opiates six months later. The authors suggested that higher self-efficacy, in this case, may reflect denial or feelings of grandiosity. These findings may also be explained by some methodological problems with this study. For example, outcomes at six months were categorized "as either 'no/infrequent use' (less than 10 days in the month) or 'regular/daily use' (between 11 and 30 days)." (p. 479). Clearly there is a significant difference between being abstinent and using opiates nine days during the month. In addition, due to a small sample size, the 13 variables of interest and the outcome variable in this study were subjected to multiple
point-biserial correlations. Combining all variables in a regression analysis to test their relative contribution to the prediction of treatment outcome would have been preferable.

There has been no systematic study of gender differences in self-efficacy in relation to the relapse process. However, when attempting to validate the Drug-Taking Confidence Questionnaire, Annis, Sklar, and Turner (1997) found gender differences in levels of self-efficacy in specific situations. Using a sample of 268 male and 76 female alcoholics, they reported that females were more confident than males in their ability to refrain from alcohol use when faced with a high risk situation involving positive emotions. The same gender differences were found in a sample of 187 male and 66 female cocaine users. Although pre-existing gender differences in self-efficacy were found, the relationship between self-efficacy and relapse was not explored in this report.

**Limitations.** One of the major shortcomings of the research investigating the role of self-efficacy in relapse is that there are many different instruments which have been used to assess self-efficacy. Among the scales used were the Situational Confidence Questionnaire (SCQ; Annis, 1987); the expanded version of the SCQ -- Drug-Taking Confidence Questionnaire (DTCQ; Annis, Sklar, & Turner 1997); Drinking Self-Efficacy Questionnaire (DSEQ; Young, Oei. & Crook, 1991); the Confidence Questionnaire (CQ: Conditte, & Lichtenstein, 1981), the Self-Efficacy Scale (Goding & Glasgow, 1985); and other modified versions of these scales (e.g., Coelho, 1984; Powell et al., 1993; Rychtarik et al., 1992). In order to achieve consistent, valid results, it is necessary to use a short, standardized measure of self-efficacy which can be applied across a variety of substances.
Another limitation of the research conducted in this area, is that the majority of studies have used samples of smokers. Only in the last ten years have research efforts been extended to include samples of alcoholics (Annis & Davis, 1988; Ross, Miller, Emmerson, & Todt, 1989; Rychtarik et al., 1992; Solomon & Annis, 1990; Young, Oei, & Crook, 1991) and other drug users (Burling, et al., 1989; Powell et al., 1993; Stephens, et al., 1993). In addition, there has been no research investigating if gender differences in self-efficacy predict relapse. The present study will investigate the role of self-efficacy as a predictor of relapse in a sample of chemically dependent women.

Finally, Marlatt and Gordon (1985) suggested that coping behaviour has a direct impact on self-efficacy which, in turn, can increase or decrease the likelihood of relapse. There are no studies conducted to date which test this hypothesis. There is no evidence suggesting that self-efficacy does or does not mediate between coping and using alcohol and/or drugs; therefore the present study will investigate this issue.

**Positive Outcome Expectancies**

According to the Relapse Model proposed by Marlatt and Gordon (1985), a lack of an appropriate coping response when faced with a high risk situation, coupled with positive outcome expectancies about the effects of alcohol leads to an increased risk of relapse. Early studies by Marlatt and his colleagues investigated the importance of positive outcome expectancies as a determinant of alcohol consumption (see Marlatt & Rohsenow, 1980, for an overview of these studies). In their earliest published study, Marlatt, Demming, and Reid (1973) described how 32 male alcoholics and 32 male social drinkers (serving as a control group) participated in a taste-rating task while being
presented with a large supply of either alcohol or tonic. Participants were told that they would be rating three brands of vodka or tonic (depending on the condition) according to a list of adjectives such as "sweet", "bitter", and so forth. In this way, participants were free to consume as much of each drink as necessary to make their ratings — thus providing an unobtrusive measure of alcohol consumption. To investigate the role of expectancies in alcohol consumption, participants were assigned to one of four conditions: 1) expected alcohol, received alcohol; 2) expected alcohol, received tonic; 3) expected tonic, received tonic; and 4) expected tonic, received alcohol. This design was referred to as the balanced placebo design (Marlatt & Rohsenow, 1980).

Marlatt et al. (1973) reported that expectancy of alcohol consumption was the only significant determinant of amount of beverage consumed. Participants who were told that they were consuming alcohol drank more than those who were told that they were receiving tonic, regardless of the actual content of their drinks. Other researchers have reported similar findings using male participants (Williams, Goldman, & Williams, 1978, as cited in Marlatt & Rohsenow, 1980; Wilson & Abrams, 1977; Wilson & Lawson, 1976).

Studies have been conducted which have systematically explored gender differences in expectancies about the effects of alcohol consumption. The research conducted by Wilson and colleagues using Marlatt's balanced placebo design and the body of research conducted by Brown and colleagues and other researchers using the Alcohol Expectancy Scale (Brown, Goldman, Inn, & Anderson, 1980) will be discussed.

Although women also have expectancies regarding the effects of alcohol, these
appear to be different than men’s expectancies. Abrams and Wilson (Abrams & Wilson, 1979; Wilson & Abrams, 1977) investigated the role of expectancies on the emotional experiences of men and women. Following the consumption of alcohol, male and female participants were asked to make a favourable impression on an opposite sex observer. Males who believed they had consumed alcohol (regardless of the actual content of their drink) had a significantly lower heart rate and skin conductance than those who believed they had consumed tonic (Wilson & Abrams, 1977). Females showed a reversed effect: women who believed they had consumed alcohol had a higher heart rate and skin conductance than women who believed they had consumed tonic (Abrams & Wilson, 1979).

Similar gender differences were observed in studies investigating the role of alcohol expectancies on sexual arousal. Wilson and Lawson (1976) reported that male social drinkers who believed they had consumed alcohol demonstrated greater physiological sexual arousal (measured by penile tumescence) than did those who believed they had consumed tonic. A similar study was conducted using female participants (Wilson & Lawson, 1978). The results of this study indicated that women who believed they had consumed alcohol showed significantly lower levels of sexual arousal (measured by vaginal pressure) than did women who thought they had consumed a tonic drink. The findings of these studies suggest that women have different expectancies about the effects of alcohol consumption than men.

Sandra Brown and her colleagues conducted a series of studies to investigate the reasons individuals drink alcohol (Brown, Christiansen, & Goldman, 1987; Brown,
Goldman, & Christiansen, 1985; Brown, Goldman, Inn, & Anderson, 1980). In the first study (Brown, et al, 1980), 125 male and female high school and university students, military veterans, patients in hospitals, and other adults were interviewed to "elicit an exhaustive range of statements regarding subjects' expectations of positive reinforcement from consuming moderate amounts of alcohol," (p. 421). From this list and through further research conducted with university students (Brown, et al., 1980), 90 items were retained in the Alcohol Expectancy Questionnaire (AEQ). Participants responded to each statement on a dichotomous scale (i.e., 'agree' or 'disagree').

A principal-components analysis yielded a six-factor solution accounting for 51.3% of the variance. Brown, et al. (1980) reported that females differed from males on three of these factors. Females expected more global positive effects as well as positive social and physical experiences, while males expected greater arousal and aggression as a result of their drinking. There were no gender differences in expectations regarding sexual enhancement, social assertiveness, and relaxation/tension reduction. Scales measuring expectancies of marijuana consumption (Marijuana Effects Expectancy Questionnaire; Schafer & Brown, 1991) and of cocaine consumption (Cocaine Effects Expectancy Questionnaire; Schafer & Brown, 1991) have also been developed using the same methodology.

Two criticisms of the AEQ (e.g., Gustafson, 1993; Leigh, 1989; Rohsenow, 1983) are that the scale contains some items worded in the first person and some items about people in general; and that there is an assumption that each item represents a desirable effect. When these shortcomings are corrected, findings contradicting those of Brown, et
al. (1980) have been reported.

For example, Rohsenow (1983) administered the AEQ twice to 85 male and 65 female university undergraduate students: once with all of the statements worded in the first person (e.g., Drinking makes me feel good), and the second time with the statements worded about people in general (e.g., Drinking makes people feel more at ease in social situations). The author reported that participants expected others to be more strongly affected by alcohol than themselves on every subscale of the AEQ. This expectancy was greater for women than for men on all the scales except sexual enhancement. Also, when asked about the expected effects of alcohol on themselves, women indicated that they expected less positive social experiences, global positive effects, and relaxation than men - - a result in direct contrast to Brown et al.'s (1980) findings. These results indicate that although women expect alcohol to have a positive effect for people in general, they do not anticipate experiencing these positive effects themselves.

In another study, Gustafson (1993) administered a modified version of the AEQ to 200 male and 200 female Swedish college students. Participants were asked to agree or disagree with each of 68 items from the AEQ, and to rate the desirability of each item on a 5-point scale ranging from -2 (not at all desirable; negative effect) to +2 (very desirable: positive effect) with 0 representing indifference. The results showed that men expected more global positive effects, physical and social pleasure and more social assertiveness than did women - - findings opposite to those reported by Brown et al. (1980). For all six factors, excluding social assertiveness, men rated the expected effects of alcohol as more desirable than did women. However, correlation analyses revealed that for both men and
women, expected effects were rated as more desirable if participants expected to experience the particular effect. These results suggest that males anticipate more positive effects from alcohol consumption than females. Positive effects appear to be subjective and vary from individual to individual.

Although studies utilizing the AEQ have produced contradictory results, there appears to be consensus that, in general, expectancies are related to alcohol consumption and that gender acts as a moderator in this relationship (Edgar & Knight, 1994). While the majority of research conducted on expectancies has explored the relationship between expectancies and consumption of alcohol; few studies have explored the relationship between expectancies and relapse.

Brown (1985) followed up 42 male alcoholics one year after treatment to determine if alcohol-related expectancies would predict treatment outcome. Regression analyses indicated that lower end-of-treatment expectancy scores on the AEQ were associated with abstinence and aftercare attendance one year after treatment. Although Brown's study included only a small sample of male alcoholics, thus limiting its generalizability to women and to other substances, the results suggest that positive outcome expectancies may be an important predictor of relapse to alcohol.

Limitations. One of the major shortcomings of the research conducted on expectancies is that the majority of studies used samples of university or college students (e.g., Abrams & Wilson, 1979; Brown et al., 1980; Crawford, 1984; Edgar & Knight, 1994; Gustafson, 1993; Marlatt, et al., 1973; Rohsenow, 1983; Schafer & Brown, 1991; Schafer & Fals-Stewart, 1993; Stacy, Widaman, & Marlatt, 1990; Wilson & Abrams,
1977; Wilson & Lawson, 1976). In addition, much of this same research has explored participants' expectations about the effects of alcohol and/or drugs on people in general, not necessarily themselves. Fewer studies have investigated the impact of expectancies on consumption of alcohol and/or drugs in samples of alcohol and/or drug users. In order for treatment intervention to be effective, service providers must be aware of the effects anticipated by alcohol and drug users regarding ingestion of their chemical of choice.

An additional problem is that very little research has been conducted on the effects of expectancies for substances other than alcohol. A few studies have focussed on the expected effects of cocaine use (e.g., Schafer & Brown, 1991; Jaffe & Kilbey, 1994) and marijuana use (Schafer & Brown, 1991); however these studies used samples of college or university students (with little exposure to these drugs) to develop statements about the expected effects of these drugs. The present study will determine the effects female substance users expect of their chemicals of choice, including substances such as heroin, tranquilizers, narcotics, stimulants, and so forth.

A final criticism is that very little research has attempted to test Marlatt and Gordon's (1985) assumption that higher positive outcome expectancies predict relapse. All but one of the studies reviewed here have focussed on the relationship between expectancies and alcohol (or drug) consumption. Brown's (1985) study suggests that positive expectancies about the effects of alcohol may be related to higher risk of relapse, therefore the present study will attempt to validate and generalize these findings using a sample of substance-addicted women.
**Abstinence Violation Effect (AVE)**

The abstinence violation effect (AVE) is hypothesized to occur following an initial lapse. Marlatt and Gordon (1985) described the AVE as the cumulative effect of guilt and internal, stable, and global attributions made when an individual committed to abstinence experiences a lapse to their chemical of choice. The higher the experience of the AVE, the greater the likelihood of further substance use.

There has been little research testing Marlatt and Gordon's concept of the AVE in populations of alcohol and drug abusers. Most studies investigating the AVE have emerged from the field of smoking cessation. For example, Curry, Marlatt and Gordon (1987) tested for the occurrence of the AVE in a sample of 121 male and female smokers recruited from a smoking cessation program. Prior to beginning treatment, participants were presented with 12 hypothetical high risk situations where they either abstained or relapsed. Participants were asked to indicate the reason why they abstained (or relapsed) and to attribute this cause along the dimensions of internality, stability, and globality. Participants who experienced a lapse in the one-year post-treatment period also had to answer the same questions in response to their relapse. Additional questions were asked concerning how much control and guilt they were experiencing after they relapsed.

In the hypothetical situations, the pattern of findings were opposite to predictions. Participants who envisioned themselves relapsing were more likely to attribute this outcome to external, unstable, and specific factors; while nonsmoking outcomes were related to more internal, stable, and global attributions. When considering actual relapse episodes, the findings reported by Curry et al. (1987) support the existence of the AVE.
Full relapsers (i.e., those who returned to baseline levels of smoking following an initial slip) had a higher AVE score (i.e., average on the three attribution scales) and experienced more guilt and a greater drop in perceived control than did slippers (i.e., those who experienced an initial slip and returned to abstinence). There were no significant correlations between attributional styles in the hypothetical situations and the actual relapse episodes, suggesting that attributional style does not predispose an individual to a stronger AVE.

The major problem with Curry et al.'s (1987) study is the manner in which the AVE was operationalized. While the AVE is hypothesized to be the cumulative effect of attributions and guilt, the AVE in this study was comprised of scores solely on the attribution scales. Additionally, while for some of the analyses, the three attribution scales were considered separately, other analyses used the average score on the three scales. Using the sum of the scores on the three attribution scales and the guilt measure may have provided the best representation of the AVE.

A small number of studies have examined the relationship between the AVE and relapse to alcohol without finding much support for such a relationship. Ruderman and McKirman (1984) tested for the AVE in a series of studies conducted with male undergraduate participants. In the first study, the Restrained Drinking Scale (RDS) was developed and tested on a sample of 389 male undergraduates. The RDS was hypothesized to identify individuals attempting to abstain from alcohol. The RDS was used in Study 2 to test the hypothesis that a slip in control would cause binge drinking in a group of restrained drinkers. In this study, 50 male undergraduates were classified as
restrained (i.e., attempting to control their drinking behaviour) or unrestrained drinkers (i.e., not attempting to control their drinking behaviour) based on score on the RDS.

Participants in the pre-load condition were instructed to drink two glasses of wine and then all participants took part in a taste rating task similar to the one used by Marlatt and colleagues (1973). The results indicated that although restrained drinkers consumed more than unrestrained drinkers, there was no interaction between pre-load and restraint. In other words, a "violation" did not cause a loss of control in individuals attempting to abstain from consuming alcohol.

In a third study conducted by Ruderman and McKirnan (1984) the methodology was similar to the previous study except participants were given the choice of testing either wine or soda after they drank the two glasses of wine. The authors hypothesized that when given a choice between an alcoholic and a non-alcoholic beverage, restrained drinkers given a pre-load would be more likely to choose alcohol in the taste rating task. The opposite was expected for unrestrained drinkers. Once again, the results of this study did not provide support for the AVE. Restrained drinkers in the pre-load condition were more likely to choose the non-alcoholic beverage - - in other words, their self-control increased. The findings reported by Ruderman and McKirnan do not support the existence of the AVE; however, it may be possible that being directed to drink two glasses of wine as a pre-load was not perceived as a violation of abstinence by the participants because this act was not voluntary.

Collins and Lapp (1991) further criticized Ruderman and McKirnan's (1984) study by arguing that the Restrained Drinking Scale was not an appropriate measure of
restraint (i.e., attempts to abstain from drinking). Cluster analyses of the items of the Restrained Drinking Scale uncovered four clusters of items: Govern (perceived difficulty in controlling drinking), Restrict (attempts to control drinking), Emotion (drinking in relation to negative affect), and Consume (frequency and occurrence of drinking). Collins and Lapp hypothesized that the Govern and Restrict subscales of the RDS were better measures of restraint and were therefore used to test for the AVE. One hundred and ninety-seven male and 126 female community residents were administered the Restrained Drinking Scale and the Drinking Attributional Style Questionnaire (DASQ) - - a scale adapted from Curry et al. (1987). Participants were presented with six positive and six negative hypothetical drinking situations and were asked to rate on 7-point Likert-type scales, the cause of each situation along the dimensions of internality, stability, and globality. Scores on these three dimensions were summed for positive and negative situations. Higher scores represented more internal, stable, and global attributions.

The findings reported by Collins and Lapp (1991) partially confirmed Marlatt and Gordon's hypothesis regarding the AVE - - some subscale scores predicted actual alcohol consumption. Regression analyses indicated that lower scores on the Restrict and Govern subscales predicted lower minimum number of drinks per day. Higher scores on the Govern subscale of the RDS and Positive Situations subscale of the DASQ predicted a higher number of maximum drinks per day. Finally, higher scores on the Govern subscale and the Negative Situations subscale predicted higher alcohol consumption. Although Collins and Lapp (1991) cited these findings as support for the AVE; it is questionable to conclude that these findings support Marlatt and Gordon's original
Participants in this study were not tested for the AVE in reaction to an initial lapse, but to alcohol consumption in general; therefore, the results obtained in this study may not generalize to the relapse process. Also, the concept of guilt was not incorporated into the conceptualization of the AVE.

Bradley, Gossop, Brewin, Phillips, and Green (1992) investigated whether attributions for drug use made at treatment intake would differentiate between 'lapers' and 'relapers' six months following discharge from treatment in a sample of opiate users. Sixty male and 20 female opiate users were asked a variety of open-ended questions assessing attributions for past relapses and future relapses. Responses were rated along the dimensions of internality, stability, globality, and controllability by a psychologist blind to the participants' relapse status. Consistent with Marlatt and Gordon's hypothesis, lapsers made more controllable attributions for future relapses than did relapers; however, there were no differences between lapsers and relapers on any of the other attributional dimensions. This may have been due to the fact that attributions were measured six months before treatment outcome was assessed instead of immediately following an initial lapse. It should also be noted that this study did not include guilt as part of the construct of AVE, but rather focused entirely on attributions.

Walton, Castro, and Barrington (1994) investigated the differences between abstainers, lapsers, and relapers in attributions for drug use or non-use following exposure to a high risk situation. The authors hypothesized that lapsers would make external, unstable, and specific attributions for their lapse, while relapers and abstainers would both make internal, stable, and global attributions for their outcome. One hundred
and nineteen male and female polysubstance abusers were interviewed seven months after they began treatment and were asked about their drug use over the past six months. Additionally, participants were asked to attribute the cause of their outcome along the dimensions of internality, stability, and globality in response to their "first use" or "close call but abstinent" situations. Participants made attributions for these situations on scales similar to those used by Curry et al. (1987).

The findings show partial support for Marlatt and Gordon's concept of the abstinence violation effect. Abstainers and relapsers both had higher internal scores than lapsers and there was no difference between abstainers and relapsers; however, the average score on internality for lapsers was more internal than external. In other words, all participants (i.e., abstainers, lapsers, and relapsers) made internal attributions for their outcome. The results obtained for the dimension of stability showed complete support for Marlatt and Gordon's predictions. While both abstainers and relapsers made stronger stable attributions for their outcome than did lapsers; abstainers and relapsers did not differ in their scores. As opposed to findings obtained in the dimension of internality, the average score for lapsers was more unstable than stable. Along the dimension of specificity, abstainers and relapsers both made more global attributions than lapsers, but abstainers also expressed significantly more globality than did relapsers. One of the problems with this study is that, similar to Bradley and colleagues (Bradley et al., 1992), the AVE was not assessed as an immediate reaction following an initial lapse nor was guilt included in its conceptualization.

**Limitations.** Although Marlatt and Gordon (1985) conceptualized the AVE as
the cumulative effect of guilt and attributions, not a single study reviewed here measured
the concept of the AVE in this way. All of the studies reviewed in this section measured
the AVE by assessing the causal attributions made for using alcohol and/or drugs. In
order to measure the AVE as hypothesized by Marlatt and Gordon (1985), guilt reactions
and causal attributions will be considered jointly in the present study.

While Marlatt and Gordon (1985) proposed that the AVE predicts further relapse
after an initial lapse, few studies have assessed the AVE immediately following initial
lapses to alcohol and/or drugs. This may be due to methodological difficulties in
assessing the AVE prospectively. Still, participants in most of the studies reviewed here
were asked to provide causal attributions for their outcome retrospectively, rather than
immediately following the initial lapse. As a result, it is difficult to determine if there are
actual differences between slippers and relapsers in attributions made immediately
following an initial lapse, or if these differences are due to differences in recall, or
attempts to save face. There is little evidence demonstrating that a higher AVE as a
reaction to an initial lapse increases the likelihood of a full-blown relapse.

Although not reviewed here, the majority of studies investigating the AVE have
been conducted with smokers, sex offenders, and individuals with eating disorders (e.g.,
Hudson, Ward, & France, 1992; Ogden & Wardle, 1990; Read, 1989; Shiffman, Hickcox,
Paty, Gnys, Kassel, & Richards, 1997; Ward, Hudson, & Bulik, 1993; Ward, Hudson, &
Marshall, 1994) - - issues outside the scope of the present study. In addition, there has
been no systematic study of the occurrence of the abstinence violation effect in
chemically dependent women; therefore the present study will attempt to remedy these
oversights.

**Other Relapse Models**

There are some alternatives to Marlatt and Gordon's (1985) explanation of the relapse process. Three models of relapse will be briefly discussed below: Gorski's CENAPS Model (Gorski, 1989; 1990), Annis and colleagues' Relapse Prevention Model (Annis, 1986; 1990; Annis & Davis, 1988; 1989), and Prochaska and DiClemente's Transtheoretical Stages of Change (1982; 1986). Other relapse prevention models will be excluded from this discussion because their focus is on describing treatment interventions and not on predicting relapse. In addition, some of the other relapse models not described here are substance-specific, therefore may not apply to any woman undergoing treatment for substance abuse more generally. The following relapse prevention models will not be described here: Wallace's Relapse Prevention Model for crack cocaine users (1990), Rawson, Obert, McCann, Smith, and Ling's (1990) Matrix Neurobehavioral Model, Washon and Stone-Washton's (1990) Intensive Outpatient Model, and McAuliffe's (1990) Recovery Training and Self-Help Model.

**Gorski's CENAPS Model**

Gorski (1989; 1990) developed the CENAPS model based on a biopsychosocial model of addictive disease. Gorski argued that "addiction [is] a chronic disease that has a tendency toward relapse," (1989, p. 157). The CENAPS model separates itself from other relapse prevention models by focussing on the role of brain dysfunction. Excessive substance use leads to brain dysfunction, which in turn leads to problems with thought processes, and problems with family, work, and the law. A full recovery requires total
abstinence and lifestyle changes.

The CENAPS model is similar to Marlatt and Gordon’s (1985) Relapse Model in a number of ways. According to the CENAPS model, there are three categories of relapse which correspond closely to Marlatt and Gordon’s perspective: recovery prone (individuals who demonstrate continuous abstinence); transitionally relapse prone (those who experience brief relapse episodes); and chronically relapse prone (those who chronically relapse). The CENAPS model was developed in response to the poor treatment outcome of relapse prone clients. Also, both Marlatt and Gordon and Gorski recognize and stress the importance of coping skills in recovery.

The major difference between Marlatt and Gordon’s work and Gorski’s work is that the Relapse Model attempts to explain, predict, and prevent relapse, and the CENAPS model focusses almost solely on explaining and preventing relapse, while ignoring the prediction of relapse. Consequently, the Relapse Model is presented in such a way that it can be empirically tested, while the CENAPS model is not as easy to evaluate. For example, Gorski (1990) lists a number of precipitating factors or trigger events which may or may not lead to a relapse: irrational thoughts, painful memories, high-stress personality, poor health maintenance, stress management, problems with work, social conflict, and so on. Each individual may have a unique combination of factors which precipitates a relapse. Also, while Marlatt and Gordon’s Relapse Model has a solid theoretical foundation, the CENAPS model is based on clinical insights (Rawson et al., 1993).
Annis' Relapse Prevention Model

Annis and associates (Annis, 1986; 1990; Annis & Davis, 1988; 1989) draw heavily from the work of Marlatt and Gordon (1985) and Albert Bandura (1977). In fact, Annis’s Relapse Prevention Model is very similar to Marlatt and Gordon’s Relapse Model. Like Marlatt and Gordon, Annis views relapse as a failure to maintain behaviour change (i.e., abstinence or moderation in drinking). The process of relapse begins when a client is faced with a high risk drinking situation. However, unlike Marlatt and Gordon’s view, a simple cognitive appraisal of past performance in this situation leads to a judgment of whether the individual will successfully cope with this situation. This judgment is labelled an efficacy expectation. The strength of the efficacy expectation determines whether or not drinking will occur.

Overall, Annis’ Relapse Prevention Model appears to be a more succinct version of Marlatt and Gordon’s Relapse Model. Unlike Marlatt and Gordon, Annis argues that outcome expectancies (i.e., expectancies regarding the consequences of drinking behaviour) are a poor predictor of drinking behaviour. Also, while Annis and her colleagues (Annis, Sklar, & Moser, 1998; Moser & Annis, 1996) have demonstrated that coping is an important predictor of relapse, Annis places little emphasis on coping skills in the Relapse Prevention Model. In fact, in the Relapse Prevention Model, the emphasis is almost entirely on efficacy expectations or using terminology similar to Marlatt and Gordon, self-efficacy.

Prochaska and DiClemente’s Transtheoretical Stages of Change

DiClemente and Prochaska (1998) describe a five-stage model of change whereby
an individual progresses from an “addicted life” to an “addiction-free life”. While
DiClemente and Prochaska conceptualized this model based on individuals addicted to
cigarettes, it still may explain relapse to other substances. The first stage is the
precontemplation stage where an individual is either unaware of any problem or is
unwilling to change their behaviour. The second stage, contemplation, involves thinking
about change and evaluating the pros and cons associated with implementing changes in
their life. The third stage, preparation, involves making a commitment to implement a
change plan. The fourth stage, action, corresponds to the treatment phase where
behaviour is actually changed. The fifth and final stage is the maintenance stage. This
stage is the most difficult stage because the individual must maintain the commitment to
change over time and incorporate the changes into their lifestyle. It is in this stage that an
individual faces the most temptations to return to old behavioural patterns.

Individuals do not progress through the stages in a linear fashion, but rather move
back and forth through the stages in a cyclical pattern. For example, individuals
commonly go through three cycles of the stages before they are relatively free from their
addictive behaviour (Prochaska & DiClemente, 1982).

Prochaska and DiClemente (1986) propose that three variables predict changes in
addictive behaviour: 1) self-efficacy or the level of confidence in dealing with tempting
situations; 2) the level of temptation encountered in situations where the individual
smoked in the past; and 3) decisional balancing or an assessment of the pros and cons of
smoking. As an individual cycles through the stages, self-efficacy, temptation levels, and
a person’s assessment of the pros and cons of smoking change. Individuals are
considered to be addiction-free when self-efficacy levels are at 100%, temptation levels are at 0%, and both pros and cons are low or non-existent.

The purpose of Prochaska and DiClemente’s model is not to predict relapse, but to assess which stage an individual is in so that treatment efforts can be focussed on helping that individual achieve the next stage in the cycle, with the final goal being the maintenance of behaviour change.

**Additional Predictors of Relapse**

There are many variables which may be related to post-treatment substance use in chemically dependent women. For example, poor parenting skills, unemployment, financial and/or legal problems, custody battles, divorce, partner violence, childhood trauma, multiple drug use, and other variables may all be predictors of relapse in women. Only two variables (multiple drug use and victimization) were explored as potential predictors of relapse in the current study. These variables were chosen due to their simplicity of measurement - - they are easily identified in a few questions. An effort was made to keep the questionnaires short since lengthy questionnaires might discourage women in recovery from participating. Additionally, few studies have explored the role of multiple drug use and victimization in the relapse process. The following sections will review the literature investigating the links between victimization and relapse and between multiple drug use and relapse.

**History of Physical and Sexual Abuse**

Marlatt and Gordon (1985) asserted that their Relapse Model was developed to treat any addictive behaviour, including excessive drinking, smoking, overeating, other
drug dependencies, "...and other 'impulse control' problems, including some sexual
disorders (e.g., exhibitionism, paedophilia, fetishism, etc.) and impulsive aggressive acts
(e.g., child abuse and rape)," (Marlatt & Gordon, 1985, p. 4). While Marlatt and Gordon
(1985) focused on treating perpetrators of sexual abuse and other impulsive aggressive
acts, they ignored the relationship between victimization of these acts and drinking
behaviour - - an issue particularly relevant to chemically dependent women. High
proportions of women undergoing treatment for chemical dependency report being
victims of domestic violence, incest, rape, sexual assault, child abuse, and so forth,
(ranging from 15% to 85% for alcoholic women, Beckman, 1994).

While many studies have investigated the relationship between victimization and
alcohol and drug use (e.g., Bennett & Kemper, 1994; Kovach, 1986; Miller, Downs,
Gondoli, & Keil, 1987; Miller, Downs, & Gondoli, 1989; Rohsenow, Corbett, & Devine,
1988; Swett, Cohen, Surrey, Compaine, & Chavez, 1991; Swett & Halpert, 1994), fewer
studies have attempted to link victimization with relapse. Young (1990) and Wadsworth,
Spampneto, and Halbrook, (1995) have suggested that there is a relationship between
relapse and childhood sexual abuse issues. Chemically dependent women who have
experienced childhood sexual abuse are at risk for relapse because once abstinence is
achieved, memories and emotions associated with the abuse will begin to surface. To the
extent that substances were used to cope with past trauma, these women are likely to
return to alcohol (or their drug of choice) as a means of coping with these memories.
Three studies have been identified which have explored the link between victimization
and relapse (Brown, Stout, & Mueller, 1996; Gil-Rivas, Fiorentine, Anglin, & Taylor,
Harvey and colleagues (1994) were interested in identifying the differences between sexually assaulted and non-assaulted patients in psychiatric symptoms and treatment outcome. Sixty men and women were classified as having been sexually assaulted or non-assaulted based on information from their medical records. If a client indicated they had been forced "to engage in genital touching, oral sex, anal sex, intercourse, or described the incident as "rape," (p. 362), they were classified as "assaulted." Using this definition of assault, seven women and three men were classified as assaulted, while 12 women and 38 men were classified as non-assaulted. The authors found no significant differences between the assaulted and non-assaulted groups in treatment outcome. The two groups were equally likely to be abstinent six months after treatment.

This lack of a significant result may be due to a number of reasons. For example, the number of women (n = 7) and men (n = 3) classified as assaulted was too small to detect differences in treatment outcome. Also, victims of sexual assault underwent treatment sensitive to issues of victimization, thus reducing the likelihood of relapse. Another potential confound in this study is gender. The assaulted group was comprised mostly of women, while the non-assaulted group was comprised mostly of men; therefore it may be the case that the findings are a result of gender comparisons rather than comparisons of victims of sexual assault to non-assaulted clients. Also, sexual assault was assessed based on reviews of participants' medical records. It is possible that some victims of sexual assault were not identified through this method.
Gil-Rivas and her colleagues (1997) conducted pre-treatment and post-treatment interviews with 148 male and 182 female substance abusers. When sexual abuse was defined as "having been forced or pressured to perform, or being involved in any sexual act against the individual's will," (p. 353) 61% of the women and 13% of the men reported being victims of sexual abuse. Sixty-two percent of the women and 45% of the men reported physical abuse, defined as "being hit or beaten so hard that the individual suffered from cuts or bruises," (p. 353). Regression analyses revealed that victimization was not associated with treatment completion level, counselling participation, nor drug use six months following treatment for either men or women.

The results of this study may not generalize to all female substance users who have been victimized. First, the definitions of sexual and physical abuse used may have failed to identify less severe instances of victimization in women who still may have suffered as a result of their abuse. Second, the sample used in this study included only individuals whose primary drug of use was either crack, marijuana, cocaine, methamphetamine, heroin, or PCP. Excluded from this sample were women addicted primarily to alcohol, tranquilizers, and/or prescription medication - - substances more commonly abused in populations of female substance users. Additionally, these substances are more likely to be used by female victims to suppress memories associated with their victimization (Gomberg, 1986; Prather & Minkow, 1991).

Brown, Stout, & Mueller (1996) used an all-female sample to explore the relationship between victimization and relapse. Of the 31 chemically dependent women recruited from a treatment facility, 55% had experienced both physical and sexual abuse
(not defined in this study); 23% reported being victims of sexual abuse alone; and 10% reported being victims of physical abuse without sexual abuse. Additionally, 42% of the entire sample met the DSM-III-R criteria for Post-Traumatic Stress Disorder. The women diagnosed with PTSD were more likely than non-PTSD women to have experienced sexual assault, but not physical assault. While 70% of the entire sample reported using one of their chemicals of choice during the three-month follow-up period, there was no significant difference in relapse rate between the PTSD and non-PTSD women. However, the PTSD women relapsed more quickly than the non-PTSD women. This study is limited by its small sample size and lack of data analyses on differences between victims and non-victims, rather than PTSD and non-PTSD groups.

Limitations. Few studies have attempted to investigate the link between a history of physical and/or sexual abuse and relapse. Findings from these few studies suggest that there may be no relationship between victimization and relapse; but the shortcomings of these studies may limit the validity of the findings. For example, two of the above-described studies (Brown et al., 1996; Wadsworth et al., 1994) used small sample sizes, while Gil-Rivas et al.'s (1997) study used a non-representative sample of illicit drug users. In addition, potentially limiting definitions of sexual and physical abuse were used. The present study will use a definition of sexual abuse and physical abuse general enough to identify participants who perceive themselves as victims of these acts.

Results are further confounded by the very nature of the studies. Research investigating how sexual and physical abuse relates to treatment issues and outcome is more likely to be initiated by organizations sensitive to these issues. Since participants
are recruited from treatment programs which address the issue of a history of sexual and physical abuse, intervention may directly impact treatment outcome. Future studies might assess differences in treatment outcome using samples from both treatment programs who do and those that do not specialize in trauma-related issues. In order to provide the best representation of chemically dependent women for the present study, participants will be recruited from a variety of treatment centres across Ontario, and will not be excluded based on their chemical of choice.

**Poly-Drug Addiction**

Another issue not addressed by Marlatt and his colleagues (as well as other researchers) is the problem of multiple drug addiction. There is a high incidence of multiple substance abuse among women (as well as men). Reports of multiple drug addiction range from 24% (Mulford, 1977) to 40% (Substance Abuse and Mental Health Services Administration, 1993, as cited in Beckman, 1994) to 60% (Tuchfeld, McLeary, & Waterhouse, 1975, as cited in Celentano & McQueen, 1984). Cormier (1997) reported that of 147 women who completed treatment at an all-women's treatment centre, roughly half (51.7%) were in treatment for multiple substance use. Sixty-eight percent of women in treatment were addicted to alcohol, 36% to prescription or over-the-counter medication, 30.6% to marijuana, and 36.1% to opiates. These figures represent high levels of addiction to substances other than alcohol.

One class of drugs which is often overlooked in substance-addicted women is prescription medication. Marlatt (1978) described the case of Liane, who consumed "...almost a full quart of vodka each day (drinking mostly at night), along with a variety
of tranquilizers and barbiturates", (p. 272-273). The treatment goal in this case was for Liane to abstain from alcohol for at least one year. Liane relapsed to alcohol two months after making her commitment. Interestingly, Liane described how prior to her first intoxication to alcohol, she was frantically searching for a tranquilizer to ease her anxiety:

At first, I thought I would feel better if I could take a tranquilizer, so I searched all over the house for the pills my mother had hidden. I couldn't find them, which made me all the more upset. (Marlatt, 1978, p. 276)

No comments were made by Marlatt concerning the role that tranquilizers played in this young woman's life. The cross-addiction to tranquilizers was not simply down-played, but rather completely ignored.

Addiction to prescription medicine presents specific problems. Reed (1987) remarked that many alcoholic women approach a medical practitioner with physical or emotional complaints arising from their addiction. The treatment of these complaints or "symptoms" usually consists of taking doctor-prescribed (and therefore more acceptable) medication. This serves to create another dependency, resulting in a dual addiction to alcohol and prescription drugs. There is evidence to suggest that dual addiction to alcohol and prescription drugs is a common occurrence among chemically dependent women (Beckman, 1994; Celentano & McQueen, 1984; Corrigall, Israel, Naranjo, & Orrego, 1994; Ferrence, Ross, Janecek, Chaikelson, Tabisz, 1990; Mulford, 1977). When a woman seeks treatment, it is often for her alcoholism and not for her addiction to prescribed medicine (Celentano & McQueen, 1984). As a consequence, and as seen in
Liane's case, the addiction to prescribed medicine is often overlooked by treatment service providers.

**Limitations.** Although studies have used samples reflecting a wide variety of addictions, no study identified through this review investigated how multiple drug addiction differs from addiction to a single drug in terms of risk of relapse. The present study will investigate how multiple drug addiction affects the relapse process.

**Measurement of Treatment Outcome**

A recurrent problem in the study of treatment outcome in the field of addictions is the lack of consensus as to what constitutes successful treatment outcome (Connors, Longabaugh, & Miller, 1996; Larimer & Marlatt, 1990). Traditionally, successful treatment outcome has been conceptualized as an all-or-none phenomenon - - any use during the follow-up period was considered a relapse and therefore a treatment failure. However, there is evidence suggesting that moderation or controlled drinking may be an appropriate treatment goal for some individuals (Larimer & Marlatt, 1990). For example, Sobell and Sobell (1978) found that alcoholics trained to control their consumption showed significant improvement in daily functioning over those trained in a traditional abstinence-based treatment program.

In recognition of abstinence and moderation being equally legitimate treatment goals, researchers have used a variety of outcome variables such as number of days abstinent (e.g., Connors, Maisto, & Zywiak, 1996; Ito, Donovan, & Hall, 1988; Solomon & Annis, 1990), maximum number of drinks per drinking day (e.g., Collins & Lapp, 1991; Connors, Maisto, & Zywiak, 1996), and number of days until first lapse (e.g., Ito,
Donovan, & Hall, 1988). In addition, other variables assessing post-treatment functioning have been used as indicators of treatment success. Examples of such variables include depression (e.g., Cronkite & Moos, 1980), aftercare attendance (e.g., Brown, 1985; Ito, Donovan, & Hall, 1988), occupational functioning (e.g., Cronkite & Moos, 1980; Wilkinson & LeBreton, 1986), criminal involvement (e.g., Guttières & Reich, 1988; Wilkinson & LeBreton, 1986), and negative alcohol or drug-related consequences (e.g., Kline, 1990; Stephens et al. 1993).

While there are many possible indicators of treatment success, it was necessary to keep the questionnaires relatively short in order to ensure participants would complete and return the measures in the follow-up period. Moreover, Marlatt and Gordon’s model focusses on these types of outcomes. As such, the present study will explore three outcome measures: a dichotomous variable (i.e., relapse versus abstinence) and two continuous variables (i.e., number of days abstinent and number of days until first lapse).

**The Present Study**

The present study tested the cognitive-behavioural relapse model developed by Marlatt and Gordon (1985). In addition, the model was expanded to include five variables proposed to add to the predictive value of the model: multiple drug addiction, a history of childhood physical violence, a history of childhood sexual abuse, a history of adult physical abuse, and a history of adult sexual abuse. Finally, three outcome variables were explored in the present study: abstinence versus relapse, number of days abstinent, and number of days until first lapse.
Testing Marlatt and Gordon's Model

Marlatt and Gordon (1985) stated that coping behaviour, self-efficacy, and positive outcome expectancies all have an impact on the likelihood of an initial lapse. The occurrence of a subsequent lapse or full relapse depends on the level of self-efficacy and the abstinence violation effect after the initial lapse. The abstinence violation effect is surmised to be the cumulative effect of guilt and attributions of causality. Specifically, higher levels of the abstinence violation effect are related to higher levels of guilt and more internal, stable, and global attributions for relapse.

**Hypothesis 1:** It was hypothesized that less use of coping behaviours, lower self-efficacy, and higher positive outcome expectancies would predict an initial lapse in chemically dependent women following treatment. In addition, the role of self-efficacy as a mediator of coping behaviour was explored. No prediction was made because there is no evidence to support nor reject the proposed mediating role of self-efficacy.

**Hypothesis 2:** It was hypothesized that the lower the level of self-efficacy and the greater the experience of the abstinence violation effect following an initial lapse, the more likely that a subsequent lapse will occur.

Expanding Marlatt and Gordon's Model

It has been suggested (e.g., Abbott, 1994; Beckman, 1994; Lex, 1991) that there are issues specific to chemically dependent women which may impact treatment outcome. Among the issues hypothesized to be related to poorer treatment outcome are multiple drug addiction, a history of physical violence, and a history of sexual abuse. Also, since many substance-abusing individuals choose moderation over abstinence as their treatment
goal, continuous outcome variables may be more sensitive than a dichotomous variable (i.e., abstinence vs. relapse) in measuring treatment success.

**Hypothesis 3:** It was hypothesized that multiple drug addiction, a history of physical violence, and a history of sexual abuse are related to a greater likelihood of relapse in chemically dependent women. In addition, it was expected that the contribution of these variables would remain significant when the effects of coping behaviour, self-efficacy, and positive outcome expectancies were removed from the model predicting an initial lapse.

**Hypothesis 4:** It was hypothesized that the two continuous outcome variables (number of days abstinent in the three-month follow-up period and the number of days until the first lapse) would be more sensitive in the prediction of relapse than the categorical outcome variable (abstinence versus relapse). Multiple drug addiction, history of physical violence, history of sexual abuse, coping behaviour, self-efficacy, and positive outcome expectancies will be used to predict each outcome variable.
CHAPTER II

METHOD

Participants

Eleven treatment centres in Ontario offering a women-only, short-term (i.e., less than 30 days) inpatient treatment program were approached to participate in the present study. The researcher obtained permission to recruit female clients from nine of these treatment centres. In terms of treatment philosophy, eight of the nine centres treat clients using an abstinence-based program, while one centre approaches treatment from a controlled drinking perspective. In addition, one of the participating centres treats clients who are dually diagnosed with an addiction problem and a concurrent psychiatric, psychological, or medical disorder. The researcher explained the purpose of the study to 112 clients and then invited them to participate. Consent to take part in the study was obtained from 98 of the 112 women (or 88.4%).

Participants ranged in age from 15 to 59 years. The average age of participants was 34.43 years (SD = 9.67). The majority of participants identified themselves as white and heterosexual. In describing their living situation, most participants indicated that they were either single or married. Roughly half of the participants had a high school education or less. The other half had either partially or fully completed a post-secondary degree. Almost half of the participants indicated that they were on social assistance or were not working nor collecting benefits of any kind. One third of participants indicated they were employed full-time, part-time, or occasionally. The majority of participants receive an annual household income of less than $20,000. A significant portion (20.7%)
indicated that they have an income of greater than $50,000. Roughly two-thirds of the participants indicated that they have children. For participants who have children under the age of 18, 39.1% indicated that they are not the primary caregiver of these children. (See Table 1 for more details on participants' background.)

**Measures**

**Demographic Information**

Background information about each participant was collected. Participants were asked their age, marital status, ethnicity, sexual orientation, education, income, and if they have children (see Appendix A).

**Aftercare Information**

In the three-month follow-up phase of the study, participants were asked questions concerning after care attendance. Specifically, they were asked the following two questions: "Are you currently attending after care treatment?", and "Have you attended all the after care sessions?"

**Measures of Alcohol and Drug Consumption**

**Pre-treatment Alcohol and Drug Use History.** The Pre-treatment Alcohol and Drug Use History form, adapted from the work of Ogborne (1991) and Martin, Pearlman, and Ekdahl (1991; both cited in Addiction Research Foundation, 1994), was used to identify poly-drug users and to determine pre-treatment levels of alcohol and drug consumption (see Appendix B). Information collected from the Pre-treatment Alcohol and Drug Use History form included frequency of pre-treatment use of alcohol and other drugs, identification of primary chemicals of choice, and problematic use.
Table 1

**Demographic Characteristics of the Sample**

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<tr>
<th>Ethnicity (n = 98)</th>
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<tbody>
<tr>
<td>White</td>
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<td>82.7</td>
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<tr>
<td>First Nations</td>
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<tr>
<td>Black</td>
<td>1</td>
<td>1.0</td>
</tr>
<tr>
<td>Asian</td>
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<td>Biracial</td>
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<th>Education (n = 98)</th>
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<tr>
<td>Completed grade school</td>
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<td>Some post-secondary</td>
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<td>32.7</td>
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<tr>
<td>Completed post-secondary</td>
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<td>18.4</td>
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<th>Employment (n = 98)</th>
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<tr>
<td>Working full-time</td>
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<td>17.3</td>
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<tr>
<td>Working part-time</td>
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<tr>
<td>Working sometimes</td>
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<tr>
<td>Not working/not collecting benefits</td>
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<td>20.4</td>
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<tr>
<td>Collecting social assistance</td>
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<td>26.5</td>
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<tr>
<td>Collecting employment insurance</td>
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<td>7.1</td>
</tr>
<tr>
<td>Collecting disability</td>
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<td>7.1</td>
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<td>Other</td>
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Table Continued
Table 1 Continued

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<th>Income (n = 92)</th>
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<td>Less than $10,000</td>
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<td>$10,000 - $19,999</td>
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<td>20.7</td>
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<td>Heterosexual/Straight</td>
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<td>86.7</td>
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<tr>
<td>Bisexual</td>
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<td>8.2</td>
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<tr>
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<td>1.0</td>
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<th>Living Situation (n = 98)</th>
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<td>Single</td>
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<td>46.9</td>
</tr>
<tr>
<td>Married/Cohabiting</td>
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<td>39.8</td>
</tr>
<tr>
<td>Separated/Divorced</td>
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<td>12.2</td>
</tr>
<tr>
<td>Widowed</td>
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Age

\[ M = 34.43 \]
\[ SD = 9.67 \]
Range = 15 to 59
Table 1 Continued

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<thead>
<tr>
<th>Children (n = 98)</th>
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</tr>
</thead>
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<td>No</td>
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<tr>
<td>Yes</td>
<td>62</td>
<td>63.3</td>
</tr>
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Number of Children (n = 62)

- **Median** = 2
- **SD** = 1.45
- **Range** = 1 to 8

<table>
<thead>
<tr>
<th>Children Under Age of 18 (n = 62)</th>
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<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>16</td>
<td>25.8</td>
</tr>
<tr>
<td>Yes</td>
<td>46</td>
<td>74.2</td>
</tr>
</tbody>
</table>

Primary Caregiver of Underage Children (n = 46)

<table>
<thead>
<tr>
<th></th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>18</td>
<td>39.1</td>
</tr>
<tr>
<td>Yes</td>
<td>28</td>
<td>60.9</td>
</tr>
</tbody>
</table>
If a participant identified a substance as their primary chemical of choice, or that they used the substance more than five times per week, or that they indicated the use of the substance has been problematic, this substance was considered the participant's chemical of choice. If more than one substance met this criteria, the participant was considered a multiple drug user.

**Timeline Followback (TLFB).** The TLFB method (Sobell, Maisto, Sobell, & Cooper, 1979; Sobell & Sobell, 1992) was used to determine post-treatment alcohol and drug consumption (see Appendix C). At one month, two months, and three months post-treatment, participants were instructed to estimate the amount of alcohol and/or drugs they had consumed each day over the preceding 30-day period. Participants recorded their substance use on a calendar.

The TLFB has been used extensively with alcohol and drug abuser populations and has demonstrated high test-retest reliability. For example, Sobell and colleagues (1979) reported correlations over a six-week test-retest interval ranging from $r = .79$ to $r = .98$ in a group of outpatient male alcoholics. Fals-Stewart, O’Farrell, Freitas, McFarlin, & Rutigliano (2000) reported test-retest correlation coefficients ranging from .70 to .94 in a sample of male and female drug users. Citing evidence for the validity of the TLFB method, Sobell and Sobell (1992) reported that the TLFB is highly correlated with other measures of alcohol consumption such as the Alcohol Dependence Scale (Skinner & Allen, 1982) and the Short Michigan Alcoholism Screening Test (Selzer, Vinokur, & van Rooijen, 1975), as well as collateral reports of participants' drinking. Fals-Stewart and colleagues (2000) similarly found that data collected through the TFLB correlated highly
with both data collected through urine samples and collateral reports of day-to-day
substance use in their sample of drug users.

Measures of Variables in Marlatt and Gordon's Model

Coping Behaviours Inventory (CBI). The CBI (Litman, Stapleton, Oppenheim, & Peleg, 1983) is comprised of 22 behavioural and 14 cognitive responses used by
substance-addicted individuals to resist the temptation to relapse (see Appendix D).
Respondents were asked to indicate on a 4-point scale (3 = "I have usually tried this" to 0
= "I have never tried this") how often they have used each option to avoid relapse. An
overall coping score was calculated for each participant by summing the responses.
Higher numbers indicate more frequent use of coping behaviours.

Reliability coefficients have been reported for the CBI's four individual factors
(Positive Thinking, Negative Thinking, Avoidance/Distraction, and Seeking Social
Support; Litman et al., 1983). Inter-factor reliability coefficients ranged from .75 to .91.
Reliability has not been assessed for the CBI in its entirety, therefore the reliability for
participants' total score on the CBI's was calculated and is reported in the results section.

Evidence for the validity of the CBI includes reports of similar patterns of change
in related variables. For example, in a sample of male alcoholics, Ito, Donovan, and Hall
(1988) found that increases in coping behaviour were related to increases in self-efficacy
and lowered temptation to drink. In addition, Litman et al. (1979) and Ito and Donovan
(1990) reported that scores on the CBI discriminated between abstainers and relapers in
a sample of male and female alcoholics, and a sample of male alcoholics, respectively.

Drug Avoidance Self-Efficacy Scale (DASES). The DASES (Martin, 1992;
cited in Addiction Research Foundation, 1994) is a 16-item scale designed to assess an individual's self-efficacy in avoiding alcohol and/or drug use in a variety of different situations (see Appendix E). Respondents were asked to rate their confidence on a 7-point Likert-type scale ranging from "certainly no" to "certainly yes" in resisting the use of alcohol/drugs in each of the 16 tempting situations. Scores on each item were summed to determine participants' level of self-efficacy. Higher scores on the DASES indicated greater self-efficacy.

Martin reported high internal consistency (Cronbach's alpha = .91) and split-half reliability (r = .90) for the DASES using a sample of male and female multiple drug abusers. In addition, as anticipated, the DASES highly correlated with measures of drug use severity and peer support, and was a significant predictor of treatment outcome.

**Alcohol and Drug Expectancy Questionnaire (ADEQ).** The 36-item ADEQ was adapted for this study from the work of Brown and her colleagues (Brown, Goldman, Inn, & Anderson, 1980; Schafer & Brown, 1991) and was used to measure participants' positive expectancies of alcohol and other drug use (see Appendix F). Participants rated on a 5-point Likert-type scale (1 = disagree strongly to 5 = agree strongly) the extent to which they expected each effect from their own chemical use. Scores on each item were summed to represent strength of expectancy. Higher scores indicated stronger positive expectancies.

The items of the ADEQ were drawn from three expectancy scales: the Alcohol Expectancy Questionnaire (AEQ; Brown et al., 1980), the Cocaine Effects Expectancy Questionnaire (CEEQ; Schafer & Brown, 1991), and the Marijuana Effects Expectancy
Questionnaire (MEEQ; Schafer & Brown, 1991). The following categories of items were eliminated from the three scales in the following order: 1) global negative effects; 2) anxiety; 3) sexual enhancement or facilitation; 4) aggression; 5) perceptual and/or cognitive impairment; 6) physical craving; 7) ambiguous items (i.e., items that did not clearly represent positive effects; and 8) redundant items. In addition, it was ensured that there were an equal number of items representing positive effects for stimulant drugs (e.g., I become awake and alert) and depressant drugs (i.e., I feel dreamy and mellow). This process resulted in the retention of 36 items for the ADEQ.

**Substance Use Attributional Style Questionnaire (SUASQ).** The SUASQ was adapted for this study from the work of Curry, Marlatt and Gordon (1987) and was used to determine the strength of the abstinence violation effect (AVE) experienced by participants who relapsed. Participants who relapsed after they were discharged from treatment were asked to write down the major cause of their relapse. They then rated on appropriate 7-point Likert-type scales (see Appendix G) the extent to which the cause they specified was due to internal or external causes, stable or unstable causes, and to specific or global causes. Higher numbers indicated greater internality, stability, and globality. Participants also rated on a 7-point scale (1 = not at all guilty to 7 = very guilty) the amount of guilt they felt as a result of their relapse. To assess the strength of the AVE experienced by participants as a result of their relapse, scores on the three attribution scales and the measure of guilt were summed. Higher scores indicated a stronger experience of the AVE.
Measures of Variables in Expanded Relapse Model

History of Physical and Sexual Abuse. Four series of questions were adapted by the author from the work of Kral (1993 cited in Senn, Desmarais, Verberg, & Wood, 2000, p. 101) and Swett and colleagues (Swett, Cohen, Surrey, Compaine, & Chavez, 1991; Swett & Halpert, 1994) to uncover participants' experiences of physical and sexual abuse (see Appendix H). Participants were asked four questions: "Using your own definition of abuse, do you believe that you were ever physically abused as a child?"; "As an adult, have you ever been physically hurt or attacked by someone -- such as husband, parent, another family member, or friend (for example, have you ever been kicked, bitten, pushed, or otherwise physically hurt by someone)?"; "Using your own definition of abuse, were you ever sexually abused as a child?"; and "As an adult, have you ever been pressured into doing something more sexually than you wanted to do or were too young to understand? (By sexually, I mean being pressured against your will into forced contact with the sexual part of your body or his/her body.)" For participants who revealed experiences of physical and/or sexual abuse, additional questions were asked regarding age of first episode of abuse, age at most recent episode of abuse, number of occasions of abuse (i.e., daily, weekly, monthly, or number of times”) and their relationship to the abuser(s).

Procedure

Participants were required to provide information at the end of treatment, at one, two, and three months after discharge from treatment, and in response to a relapse, if it occurred in the follow-up period. Each of these assessment periods is described below.
End-of-Treatment Information

Within one week of their treatment discharge date, clients were recruited by the researcher to participate in the present study. The purpose and general methodology of the study was disclosed to all clients at this time. Clients interested in participating in the study were given a package which included a consent form (see Appendix I), the end-of-treatment measures, and the follow-up measures. The consent form and measures were all pre-coded. In order to reduce the effects of low literacy\(^1\), the researcher went over the instructions and consent form with the participants. Participants were then asked to provide consent as well as their name, address, and phone number prior to completing the measures.

After written consent was obtained, participants completed the following measures in privacy: the Demographic Information questionnaire, the Pre-treatment Alcohol and Drug Use History, the Coping Behaviours Inventory (CBI), the Drug Avoidance Self-Efficacy Scale (DASES), the Alcohol and Drug Expectancy Questionnaire (ADEQ), and the History of Physical and Sexual Abuse measure. Participants returned their signed consent form and completed end-of-treatment questionnaires in separate, sealed envelopes to the researcher. Participants were not compensated for completing the end-of-treatment measures.

Follow-Up Information

The follow-up package given to the participants included the following materials: instructions for how and when to complete the measures (see Appendix J); copies of all the measures to be completed at each time period (one months, two months, three
months, and in the case of a relapse); self-addressed, stamped envelopes; and two change
of address cards. Participants were instructed by the researcher on how to complete the
follow-up measures.

For the follow-up phase of the study, participants were asked to complete the
following measures and mail them to the researcher in the return envelopes provided: the
Timeline Followback (TLFB), the after care information questions, the CBI, and the
DASES. Participants who returned their completed measures were mailed $5 for
completing the one-month measures, $7 for completing the two-month measures, and $10
for completing the three-month measures.

To improve return rates, the researcher telephoned participants who did not return
their completed questionnaires within seven days of the due date to remind them to
complete the appropriate measures. Participants who took part in the end-of-treatment
phase but did not complete any of the follow-up questionnaires were sent a questionnaire
package at the end of the three-month follow-up period which contained the following
materials: a letter from the researcher (see Appendix K), a modified TLFB, the after care
questions, the CBI, and the DASES. The TLFB questionnaire was modified so that
participants disclosed their alcohol and drug usage over a three-month period, instead of
30 days. This procedure was also followed for participants who completed the end-of-
treatment and one-month follow-up questionnaires only. Out of the 50 participants who
were prompted in this way, nine participants sent in their follow-up questionnaire.

Relapse Information

If a participant used their chemical(s) of choice within the three-month follow-up
period, they were instructed to complete and return the following measures: the CBI, the DASES, and the Substance Use Attributional Style Questionnaire (SUASQ). Participants were not compensated for returning these measures.

**Definition of Relapse**

There is a controversy in the field of addictions surrounding the definition of what constitutes a lapse and a relapse. In the present study, an initial lapse was defined as any substance use following discharge from treatment and subsequent or continued substance use was defined as any use of substances following an initial lapse. Since the purpose of the present study was to predict an initial lapse and to predict either a return to abstinence or further substance use based on an individual’s reaction to the first lapse, these definitions were appropriate in serving this purpose. Lapse and relapse will be used interchangeably throughout the remainder of this document.
CHAPTER III
RESULTS

Preliminary Analyses

Return Rates of Follow-up Questionnaires

While ninety-eight women completed the end-of-treatment questionnaire, only half of the participants completed the one-month follow-up questionnaire (see Table 2). The return rates were even poorer in the following two months, with less than half of the participants returning the two-month follow-up questionnaire and three-month follow-up questionnaire. After participants were prompted through the mail to return their questionnaires, an additional nine women returned completed follow-up questionnaires. With the addition of these nine women, information about post-treatment alcohol and drug use was obtained from 56 women for the one-month follow-up period, 53 women for the two-month follow-up period, and 45 women for the three-month follow-up period. Half of the women who completed the end-of-treatment questionnaire either completed all three questionnaires from the follow-up period \((n = 45)\), or indicated that they lapsed prior to dropping out of the study \((n = 4)\). Data collected from these 49 women (completion rate of 50\%) were used in all of the primary analyses, unless otherwise indicated.

Differences Between Follow-up Group and Non-Follow-up Group on the End-of-Treatment Questionnaires

There were some significant differences between the 49 women who returned the follow-up questionnaire(s) and the 49 women who did not. The women who provided
Table 2

Response Rates of End-of-Treatment Questionnaire and Follow-up Questionnaires

<table>
<thead>
<tr>
<th></th>
<th>n</th>
<th>n After Prompt&lt;sup&gt;a&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>End-of-Treatment</td>
<td>98</td>
<td></td>
</tr>
<tr>
<td>One-Month Follow-Up</td>
<td>49</td>
<td>56</td>
</tr>
<tr>
<td>Two-Month Follow-Up</td>
<td>42</td>
<td>53</td>
</tr>
<tr>
<td>Three-Month Follow-Up</td>
<td>36</td>
<td>45</td>
</tr>
<tr>
<td>Follow-Up All Three Months</td>
<td>45</td>
<td></td>
</tr>
<tr>
<td>Have Relapse Information&lt;sup&gt;b&lt;/sup&gt;</td>
<td>49</td>
<td></td>
</tr>
</tbody>
</table>

<sup>a</sup>Nine participants completed and sent back a questionnaire asking about their substance use over the entire follow-up period when prompted through the mail.

<sup>b</sup>This number includes participants who responded to all three follow-up questionnaires or who indicated that they relapsed in the follow-up period, regardless of whether they completed all three follow-up questionnaires.
follow-up information were significantly older than those who did not mail back any 
follow-up information ($M = 36.67$, $SD = 9.01$ and $M = 32.18$, $SD = 9.87$, respectively), $t$  
(96) = -2.352, $p < .05$. A greater portion of alcohol users (32 out of 43 or 75.3%) 
returned their follow-up questionnaire(s) compared to women who did not use alcohol (6 
out of 23 or 26.1%). $\chi^2(1, n = 98) = 7.10$, $p < .01$. Women who used heroin were less 
likely to complete the follow-up questionnaires (1 out of 8 or 12.5%) than women who 
did not use heroin (48 out of 90 or 53.3%), $\chi^2(1, n = 98) = 3.94$, $p < .05$. There were no 
other significant differences between women who completed the follow-up 
questionnaires and those who did not.

Differences Between Prompted Group and Unprompted Group

There were some significant differences between the women who returned the 
follow-up questionnaire unprompted and the women who returned the follow-up 
questionnaire only after being prompted by the researcher. Women who had been 
prompted were more likely than unprompted women to have relapsed at the one-month 
follow-up period, (5 out of 9 or 55.6% versus 8 out of 47 or 17.0%, respectively), $\chi^2(1, n 
= 56) = 6.29$, $p < .01$. However, the prompted women and unprompted women were 
equally likely to have relapsed sometime in the whole three-month follow-up period, 
$\chi^2(1, n = 49) = 2.55$, $p = n.s$. Finally, prompted women had a lower self-efficacy score on 
the three-month DASES questionnaire (i.e., the only follow-up questionnaire they filled 
out; $M = 69.67$, $SD = 27.69$) than the unprompted women ($M = 88.23$, $SD = 18.24$), $t(43) 
= 2.498$, $p < .05$. There were no other significant differences between the two groups.
**Preliminary Analyses - - Predictor Variables**

**Pre-Treatment Alcohol and Drug Use**

Table 3 provides information regarding participants' substance(s) of choice prior to entering treatment. The substance most preferred by participants was alcohol, followed by marijuana and cocaine. A significant portion of participants also indicated that they used narcotics/pain medication and/or tranquilizers. Fewer participants indicated that they used heroin, and other drugs such as amphetamines, anti-depressants (e.g., Paxil), graval, inhalants, and muscle relaxants.

Participants were also asked how long they have been using each of their drugs of choice. On average, women have been using alcohol the longest ($M = 13.38$ years, $SD = 7.97$ years), followed closely by marijuana ($M = 12.03$ years, $SD = 8.68$). Participants reported that they had not used any other substances for nearly as long. The average length of use for cocaine users was $7.15$ years ($SD = 5.41$), while women who used other drugs such as amphetamines, or graval reported problematic use for the shortest time ($M = 2.86$ years, $SD = 1.73$).

Only one-third of the sample indicated that alcohol was their sole substance of choice. More than half of the women in this study were multiple substance users. Forty-one percent of the sample used either two substances or three substances, and 18% of the women reported they used between four and six substances.
Table 3

Pre-Treatment Alcohol And Drug Use (n = 98)

<table>
<thead>
<tr>
<th>Drug</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alcohol</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>75</td>
<td>76.5</td>
</tr>
<tr>
<td>How long a problem (in years)?</td>
<td>M = 13.38</td>
<td></td>
</tr>
<tr>
<td></td>
<td>SD = 7.97</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Range = .5 to 34</td>
<td></td>
</tr>
<tr>
<td>Marijuana</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>33</td>
<td>33.7</td>
</tr>
<tr>
<td>How long a problem (in years)?</td>
<td>M = 12.03</td>
<td></td>
</tr>
<tr>
<td></td>
<td>SD = 8.68</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Range = 1 to 30</td>
<td></td>
</tr>
<tr>
<td>Cocaine</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>31</td>
<td>31.6</td>
</tr>
<tr>
<td>How long a problem (in years)?</td>
<td>M = 7.15</td>
<td></td>
</tr>
<tr>
<td></td>
<td>SD = 5.41</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Range = .33 to 20</td>
<td></td>
</tr>
<tr>
<td>Narcotics/Pain Medication</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>30</td>
<td>30.6</td>
</tr>
<tr>
<td>How long a problem (in years)?</td>
<td>M = 6.41</td>
<td></td>
</tr>
<tr>
<td></td>
<td>SD = 6.49</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Range = .33 to 25</td>
<td></td>
</tr>
<tr>
<td>Tranquilizers</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>27</td>
<td>27.6</td>
</tr>
<tr>
<td>How long a problem (in years)?</td>
<td>M = 4.11</td>
<td></td>
</tr>
<tr>
<td></td>
<td>SD = 4.81</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Range = .08 to 20</td>
<td></td>
</tr>
</tbody>
</table>
Table 3 Continued

<table>
<thead>
<tr>
<th>Substance</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Heroin</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>8</td>
<td>8.2</td>
</tr>
<tr>
<td>How long a problem (in years)?</td>
<td>M = 5.27</td>
<td></td>
</tr>
<tr>
<td></td>
<td>SD  = 7.29</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Range = .25 to 20</td>
<td></td>
</tr>
<tr>
<td><strong>Other Substances</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Amphetamines</td>
<td>4</td>
<td>4.1</td>
</tr>
<tr>
<td>Anti-depressants</td>
<td>4</td>
<td>4.1</td>
</tr>
<tr>
<td>Gravol</td>
<td>3</td>
<td>3.1</td>
</tr>
<tr>
<td>Muscle relaxants</td>
<td>1</td>
<td>1.0</td>
</tr>
<tr>
<td>Inhalants</td>
<td>1</td>
<td>1.0</td>
</tr>
<tr>
<td>How long a problem (in years)?</td>
<td>M = 2.86</td>
<td></td>
</tr>
<tr>
<td></td>
<td>SD  = 1.73</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Range = .5 to 7</td>
<td></td>
</tr>
</tbody>
</table>
History of Physical and Sexual Abuse

Table 4 describes the number of women who have experienced each type of abuse. The vast majority of participants (85.7%) indicated that they had been a victim of physical abuse and/or sexual abuse. The women in the sample were most likely to report being a victim of adult physical abuse (72.4%), followed by childhood sexual abuse (56.3%), childhood physical abuse (56.1%), and adult sexual abuse (45.4%).

Participants were asked how many times they had been victims of each type of abuse (i.e., child physical, adult physical, child sexual, adult sexual). For each type of victimization, participants were mostly likely to be abused on more than one occasion. The majority of victims indicated that the abuse occurred on either a monthly, weekly, or daily basis.

Pearson correlation coefficients were calculated to determine if there were any significant correlations among the different types of abuse (child physical, child sexual, adult physical, adult sexual). The correlation matrix is presented in Table 5. All the types of abuse were significantly correlated with one another with one exception: childhood sexual abuse was not significantly correlated with adult physical abuse. The highest correlations were between childhood sexual and childhood physical abuse, and between childhood physical abuse and adult sexual abuse. All significant correlations were positive indicating that being a victim of one type of abuse was related to being a victim of another type of abuse.
Table 4

Frequency of Childhood and Adulthood Victimization

<table>
<thead>
<tr>
<th>Type of Abuse</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Child Physical Abuse</strong> (n = 96)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>never</td>
<td>40</td>
<td>41.7</td>
</tr>
<tr>
<td>1 - 5 times</td>
<td>4</td>
<td>4.2</td>
</tr>
<tr>
<td>6 - 10 times</td>
<td>3</td>
<td>3.1</td>
</tr>
<tr>
<td>monthly</td>
<td>14</td>
<td>14.6</td>
</tr>
<tr>
<td>weekly</td>
<td>14</td>
<td>14.6</td>
</tr>
<tr>
<td>daily</td>
<td>12</td>
<td>12.5</td>
</tr>
<tr>
<td>unsure</td>
<td>9</td>
<td>9.4</td>
</tr>
<tr>
<td><strong>Child Sexual Abuse</strong> (n = 96)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>never</td>
<td>42</td>
<td>43.8</td>
</tr>
<tr>
<td>1 - 5 times</td>
<td>6</td>
<td>6.3</td>
</tr>
<tr>
<td>6 - 10 times</td>
<td>16</td>
<td>16.7</td>
</tr>
<tr>
<td>monthly</td>
<td>13</td>
<td>13.5</td>
</tr>
<tr>
<td>weekly</td>
<td>5</td>
<td>5.2</td>
</tr>
<tr>
<td>daily</td>
<td>7</td>
<td>7.3</td>
</tr>
<tr>
<td>unsure</td>
<td>7</td>
<td>7.3</td>
</tr>
<tr>
<td><strong>Adult Physical Abuse</strong> (n = 98)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>never</td>
<td>27</td>
<td>27.6</td>
</tr>
<tr>
<td>1 - 5 times</td>
<td>5</td>
<td>5.1</td>
</tr>
<tr>
<td>6 - 10 times</td>
<td>11</td>
<td>11.2</td>
</tr>
<tr>
<td>monthly</td>
<td>28</td>
<td>28.6</td>
</tr>
<tr>
<td>weekly</td>
<td>16</td>
<td>16.3</td>
</tr>
<tr>
<td>daily</td>
<td>7</td>
<td>7.1</td>
</tr>
<tr>
<td>unsure</td>
<td>4</td>
<td>4.1</td>
</tr>
<tr>
<td><strong>Adult Sexual Abuse</strong> (n = 97)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>never</td>
<td>53</td>
<td>54.6</td>
</tr>
<tr>
<td>1 - 5 times</td>
<td>9</td>
<td>9.3</td>
</tr>
<tr>
<td>6 - 10 times</td>
<td>11</td>
<td>11.3</td>
</tr>
<tr>
<td>monthly</td>
<td>10</td>
<td>10.3</td>
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<tr>
<td>weekly</td>
<td>7</td>
<td>7.2</td>
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<tr>
<td>daily</td>
<td>3</td>
<td>3.1</td>
</tr>
<tr>
<td>unsure</td>
<td>4</td>
<td>4.1</td>
</tr>
</tbody>
</table>
Table 5

Correlations Among Childhood and Adulthood Physical and Sexual Abuse

<table>
<thead>
<tr>
<th>Type of Abuse</th>
<th>Child Physical</th>
<th>Child Sexual</th>
<th>Adult Physical</th>
<th>Adult Sexual</th>
</tr>
</thead>
<tbody>
<tr>
<td>Child Physical</td>
<td>- -</td>
<td>.47**</td>
<td>.29**</td>
<td>.45**</td>
</tr>
<tr>
<td>Child Sexual</td>
<td>- -</td>
<td>- -</td>
<td>.15</td>
<td>.30**</td>
</tr>
<tr>
<td>Adult Physical</td>
<td>- -</td>
<td>- -</td>
<td>- -</td>
<td>.29**</td>
</tr>
<tr>
<td>Adult Sexual</td>
<td>- -</td>
<td>- -</td>
<td>- -</td>
<td>- -</td>
</tr>
</tbody>
</table>

** Correlation is significant at $p < .01$.

Note. Spearman correlation coefficients were calculated because victimization was a dichotomous variable.
Participants were asked what their relationship was to the perpetrator(s) of the abuse they suffered. For the victims of childhood physical abuse, the perpetrator was most likely to be an individual from their nuclear family (i.e., mother, father, or a sibling), (see Table 6). Almost half of the victims of childhood sexual abuse indicated that a member of their extended family (e.g., grandfather, uncle) was the perpetrator; however, in the majority of cases the perpetrator was someone outside of victim’s family (e.g., family friend, babysitter, friend’s brother, etc.). For both victims of adult physical abuse and adult sexual abuse, the perpetrator was most likely to be identified as the victim’s partner (i.e., husband, common-law husband, or boyfriend), (n = 58, 81.7% for victims of physical abuse and n = 27, 61.4% for the victims of sexual abuse).
Table 6

Perpetrators of Childhood and Adulthood Physical and Sexual Abuse

<table>
<thead>
<tr>
<th>Type of Abuse</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Child Physical Abuse</strong> (n = 55)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nuclear Family (i.e., mother, father, brother, sister)</td>
<td>43</td>
<td>78.2</td>
</tr>
<tr>
<td>Extended Family (i.e., grandmother, grandfather, uncle, aunt, cousin, in-laws, stepfather)</td>
<td>14</td>
<td>25.5</td>
</tr>
<tr>
<td>Other (i.e., mother’s boyfriend, foster parent, family friend, babysitter, neighbour, teacher, friend’s brother)</td>
<td>11</td>
<td>20.0</td>
</tr>
<tr>
<td><strong>Child Sexual Abuse</strong> (n = 54)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nuclear Family (i.e., father, mother, brother, sister)</td>
<td>15</td>
<td>27.7</td>
</tr>
<tr>
<td>Extended Family (i.e., uncle, cousin, grandfather, brother-in-law)</td>
<td>23</td>
<td>42.6</td>
</tr>
<tr>
<td>Stranger</td>
<td>8</td>
<td>14.8</td>
</tr>
<tr>
<td>Others (i.e., foster parent, foster brother, mother’s boyfriend, babysitter, friend, neighbour, family friend, classmates, friend’s brother, brother’s friend)</td>
<td>33</td>
<td>61.1</td>
</tr>
<tr>
<td><strong>Adult Physical Abuse</strong> (n = 71)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Partner (i.e., husband, common-law husband, boyfriend)</td>
<td>58</td>
<td>81.7</td>
</tr>
<tr>
<td>Relative (i.e., father, mother, brother, sister, in-laws)</td>
<td>9</td>
<td>12.7</td>
</tr>
<tr>
<td>Others (i.e., friend, stranger, co-users, kids babysat)</td>
<td>11</td>
<td>15.5</td>
</tr>
<tr>
<td><strong>Adult Sexual Abuse</strong> (n = 44)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Partner (i.e., husband, common-law husband, boyfriend)</td>
<td>27</td>
<td>61.4</td>
</tr>
<tr>
<td>Acquaintances or Friends</td>
<td>10</td>
<td>22.7</td>
</tr>
<tr>
<td>Strangers</td>
<td>7</td>
<td>15.9</td>
</tr>
<tr>
<td>Others (i.e., neighbour, ex-husband’s friend, grandfather, sister-in-law, brother, cousin)</td>
<td>9</td>
<td>20.5</td>
</tr>
</tbody>
</table>

Note. Percentages do not add up to one hundred because some participants experienced multiple incidents of physical and/or sexual abuse with different perpetrators.
Scale Descriptives

Reliabilities. Reliability coefficients (Cronbach's alpha) were calculated for the Alcohol and Drug Expectancy Questionnaire (ADEQ), the Coping Behaviours Inventory (CBI), and the Drug Avoidance Self-Efficacy Scale (DASES) and are presented in Table 7. Each scale, at each time period, demonstrated very high internal consistency. For example, the reliability coefficients for the end-of-treatment measures were as follows: ADEQ, $\alpha = .96$; CBI, $\alpha = .95$; DASES, $\alpha = .92$.

Correlation analyses were conducted to determine if the four items from the Substance Use Attributional Style Questionnaire (SUASQ) were correlated with each other. There were no significant correlations among the four items, suggesting that the SUASQ may not be a reliable measure of the abstinence violation effect.

Frequency Distribution of Scales. The mean score and standard deviation of each scale at each time period is provided in Table 8. The average score on the ADEQ was relatively high ($M = 125.66$, $SD = 33.56$) and the distribution had a slight negative skew (-.83). This finding is not considered unusual because the sample was comprised of individuals who indicated that their substance use is problematic. It can be expected that individuals who abuse substances would have higher positive expectancies of the drugs they consume compared to individuals who use substances only occasionally.

Overall, participants scored high on the SUASQ ($M = 20.53$, $SD = 4.03$) with no individual scoring below the midpoint on the scale (midpoint = 14). Participants scored particularly high on two of the four subscales of the ADEQ: the guilt scale ($M = 6.07$, $SD = 1.79$) and the internality scale ($M = 6.00$, $SD = 1.36$). These findings suggest that the
Table 7

Reliability of Scales

<table>
<thead>
<tr>
<th>Scale</th>
<th>Cronbach’s Alpha</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Alcohol and Drug Expectancy Questionnaire</strong></td>
<td></td>
</tr>
<tr>
<td>End-of-treatment (n = 98)</td>
<td>0.96</td>
</tr>
<tr>
<td><strong>Coping Behaviours Inventory</strong>[^1]</td>
<td></td>
</tr>
<tr>
<td>End-of-Treatment (n = 98)</td>
<td>0.95</td>
</tr>
<tr>
<td>One-Month Follow-up (n = 49)</td>
<td>0.93</td>
</tr>
<tr>
<td>Two-Month Follow-up (n = 42)</td>
<td>0.94</td>
</tr>
<tr>
<td>Three-Month Follow-up (n = 36)</td>
<td>0.95</td>
</tr>
<tr>
<td><strong>Drug Avoidance Self-Efficacy Scale</strong></td>
<td></td>
</tr>
<tr>
<td>End-of-Treatment (n = 98)</td>
<td>0.92</td>
</tr>
<tr>
<td>One-Month Follow-up (n = 49)</td>
<td>0.92</td>
</tr>
<tr>
<td>Two-Month Follow-up (n = 42)</td>
<td>0.94</td>
</tr>
<tr>
<td>Three-Month Follow-up (n = 36)</td>
<td>0.95</td>
</tr>
</tbody>
</table>

[^1]: Item 8 was eliminated from the Coping Behaviours Inventory due to a low item-total correlation.
Table 8

Mean Scores and Standard Deviation Scores on the Alcohol and Drug Expectancy Questionnaire, the Coping Behaviours Inventory, the Drug Avoidance Self-efficacy Scale, and the Substance Use Attributional Style Questionnaire

<table>
<thead>
<tr>
<th>Scale</th>
<th>n</th>
<th>M</th>
<th>SD</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alcohol and Drug Expectancy Questionnaire</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>End-of-treatment</td>
<td>98</td>
<td>125.7</td>
<td>33.6</td>
<td>36</td>
<td>174</td>
</tr>
<tr>
<td>Coping Behaviours Inventory</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>End-of-treatment⁹</td>
<td>98</td>
<td>50.2</td>
<td>21.0</td>
<td>5</td>
<td>94</td>
</tr>
<tr>
<td>One-month follow-up</td>
<td>49</td>
<td>66.2</td>
<td>18.2</td>
<td>8</td>
<td>93</td>
</tr>
<tr>
<td>Two-month follow-up</td>
<td>42</td>
<td>63.9</td>
<td>20.0</td>
<td>7</td>
<td>97</td>
</tr>
<tr>
<td>Three-month follow-up</td>
<td>45</td>
<td>66.0</td>
<td>22.1</td>
<td>4</td>
<td>102</td>
</tr>
<tr>
<td>Prior to first use</td>
<td>49</td>
<td>58.3</td>
<td>19.7</td>
<td>12.3</td>
<td>90.8</td>
</tr>
<tr>
<td>Drug-Avoidance Self-Efficacy Scale</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>End-of-treatment⁹</td>
<td>98</td>
<td>75.2</td>
<td>17.8</td>
<td>26</td>
<td>112</td>
</tr>
<tr>
<td>One-month follow-up</td>
<td>49</td>
<td>86.1</td>
<td>16.4</td>
<td>43</td>
<td>112</td>
</tr>
<tr>
<td>Two-month follow-up</td>
<td>42</td>
<td>86.7</td>
<td>18.0</td>
<td>38</td>
<td>112</td>
</tr>
<tr>
<td>Three-month follow-up</td>
<td>45</td>
<td>84.7</td>
<td>21.3</td>
<td>29</td>
<td>112</td>
</tr>
<tr>
<td>Prior to first use</td>
<td>49</td>
<td>80.5</td>
<td>16.8</td>
<td>45</td>
<td>110</td>
</tr>
<tr>
<td>Substance Use Attributional Style Questionnaire</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Internality Scale</td>
<td>15</td>
<td>20.5</td>
<td>4.0</td>
<td>14</td>
<td>28</td>
</tr>
<tr>
<td>Stability Scale</td>
<td>15</td>
<td>4.5</td>
<td>2.4</td>
<td>1</td>
<td>7</td>
</tr>
<tr>
<td>Globality Scale</td>
<td>15</td>
<td>4.0</td>
<td>1.9</td>
<td>1</td>
<td>7</td>
</tr>
<tr>
<td>Guilt Scale</td>
<td>15</td>
<td>6.1</td>
<td>1.8</td>
<td>1</td>
<td>7</td>
</tr>
</tbody>
</table>

Note: Thirty-six items on the ADEQ were rated on a scale of 1 to 5, with higher numbers
Note to Table 8 Continued

indicating higher expectancies. Thirty-six items on the CBI were rated on a scale of 0 to 3, with higher numbers indicating greater use of coping behaviours. Sixteen items on the DASES were rated on a scale of 1 to 7, with a higher number indicating higher self-efficacy. The SUASQ was comprised of four items (one each to measure internality, stability, globality, and guilt) rated on a 7-point Likert-type scale with higher numbers indicating higher levels of the abstinence violation effect.

\(^a\)CBI score at end-of-treatment is significantly lower than CBI score measured at one month, two months, and three months.

\(^b\)DASES score at end-of-treatment is significantly lower than DASES score measured at one month, two months, and three months.
majority of relapsers assigned themselves much blame and felt very guilty about not maintaining abstinence. In other words, it appears that the majority of relapsers experienced high levels of the abstinence violation effect after they initially lapsed. This suggests that a ceiling effect may interfere with the scale’s ability to detect differences between relapsers and abstainers.

The average score on the CBI varied across the time periods from a low of 50.18 ($SD = 20.98$) at the end-of-treatment to a high of 66.15 ($SD = 18.17$) at one month. Participants’ CBI score at the end-of-treatment was significantly lower than their CBI score at each of the follow-up periods, one month: $t(48) = 5.48, p < .000$; two months: $t(41) = 4.52, p < .000$; three months: $t(44) = 3.55, p < .001$. The same pattern was evident for the DASES. Participants’ DASES score at the end-of-treatment was significantly lower than participants’ scores at one month, $t(48) = 4.41, p < .000$; two months, $t(41) = 5.58, p < .00$; and three months, $t(44) = 3.77, p < .00$.

**Prospective DASES and CBI Score.** Since the present study used a prospective design, new variables for the DASES total score and the CBI total score were created which reflected a participant’s score just prior to their relapse. Participants’ end-of-treatment scores were used as their total scale score if they relapsed at the one-month follow-up period. The average scores on the end-of-treatment and one-month follow-up questionnaires were used for participants whose first relapse occurred at the two-month follow-up period. For participants who first relapsed at the three-month follow-up period, their scores at the end of treatment, one-month follow-up period and two-month follow-up period were averaged to represent their score prior to their first relapse. Finally, for
participants who did not relapse in the three-month follow-up period, the average score across all four data collection periods represented their DASES total score and their CBI total score.

This method of calculating the prospective DASES and CBI scores was chosen for a specific reason. Participants' end-of-treatment scores were significantly lower than their follow-up scores. The end-of-treatment scores needed to be averaged into each of the participants' prospective score, otherwise participants who did not relapse and participants who relapsed at the one-month follow-up period would be the only ones whose lower end-of-treatment scores would be taken into account in their prospective scores. In order to ensure consistency between the participants who relapsed and those who did not, the end-of-treatment scores of participants who relapsed at two months and three months also had to be averaged into their scale scores. These prospective scores were used for all of the following analyses unless otherwise stated.

**Correlations Among Scales.** There were some significant correlations among the end-of-treatment scales (see Table 9). Scores on the end-of-treatment DASES were significantly correlated with scores on the ADEQ, and with scores on the end-of-treatment CBI. Participants with higher self-efficacy, engaged in more coping behaviours, and had lower expectancies regarding the consumption of their drugs of choice. Scores on the end-of-treatment CBI and the ADEQ were not significantly correlated with one another, $r = -0.07$, $p = n.s$. The correlations between the prospective scores on the DASES and the CBI and between the DASES and the ADEQ were higher than when the end-of-treatment scores were used. The correlation between scores on the DASES and the CBI was
Table 9

Correlations Among Scales

<table>
<thead>
<tr>
<th>Scale</th>
<th>ADEQ</th>
<th>CBI&lt;sub&gt;E&lt;/sub&gt;</th>
<th>DASES&lt;sub&gt;E&lt;/sub&gt;</th>
<th>CBI&lt;sub&gt;p&lt;/sub&gt;</th>
<th>DASES&lt;sub&gt;p&lt;/sub&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADEQ</td>
<td>-</td>
<td>-.07</td>
<td>-.30**</td>
<td>.01</td>
<td>.48**</td>
</tr>
<tr>
<td>CBI&lt;sub&gt;E&lt;/sub&gt;</td>
<td>-</td>
<td>.32**</td>
<td>.78**</td>
<td>.36*</td>
<td>-</td>
</tr>
<tr>
<td>DASES&lt;sub&gt;E&lt;/sub&gt;</td>
<td>-</td>
<td>.30*</td>
<td>-</td>
<td>.83**</td>
<td>-</td>
</tr>
<tr>
<td>CBI&lt;sub&gt;p&lt;/sub&gt;</td>
<td>-</td>
<td>-</td>
<td>-.38**</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

* Correlation is significant at p < .05

** Correlation is significant at p < .01.

**Note.** ADEQ = Alcohol and Drug Expectancy Questionnaire; CBI<sub>E</sub> = End-of-Treatment Coping Behaviours Inventory; End-of-Treatment Drug Avoidance Self-Efficacy Scale; Coping Behaviours Inventory, prior to first lapse; Drug Avoidance Self-Efficacy Scale, prior to first lapse.
significant at two months, \( r = .33, p < .05 \) and three months, \( r = .42, p < .01 \). The correlation between scores on the DASES and the CBI approached significance at one month, \( r = .24, p = .07 \).

**Correlations Among the Predictor Variables**

**Correlations Between Scale Scores and Multiple Drug Use**

Spearman correlation analyses were conducted to determine if multiple drug use was related to participants’ scale scores. There was a significant correlation between multiple drug use and participants’ self-efficacy, \( r = -.36, p < .05 \). Participants who used multiple drugs had significantly lower self-efficacy than single drug users. Similarly, the greater the number of drugs a participant used, the lower their self-efficacy, \( r = -.40, p < .01 \).

**Correlations Between Scale Scores and Victimization**

There were significant correlations between participants’ scale scores and victimization (see Table 10). Participants who reported any abuse in their lifetime had higher positive outcome expectancies and lower self-efficacy than participants who had never been victimized. Victims of adult sexual abuse and victims of child sexual abuse engaged in fewer coping behaviours compared to non-victims. In addition, the more frequent the abuse, the lower participants scored on the Coping Behaviours Inventory. In the case of adult sexual abuse, participants who had been abused more frequently also had lower self-efficacy. There were no other significant correlations between victimization and scale scores.
Table 10

**Correlations Between Scales and Victimization**

<table>
<thead>
<tr>
<th>Type of Victimization</th>
<th>Scale</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>ADEQ</td>
</tr>
<tr>
<td>Any Abuse</td>
<td>.35**</td>
</tr>
<tr>
<td>Child Physical Abuse</td>
<td>-.09</td>
</tr>
<tr>
<td>Child Sexual Abuse</td>
<td>-.06</td>
</tr>
<tr>
<td>Adult Physical Abuse</td>
<td>.24</td>
</tr>
<tr>
<td>Adult Sexual Abuse</td>
<td>-.11</td>
</tr>
<tr>
<td>Frequency of Child Physical Abuse</td>
<td>-.20</td>
</tr>
<tr>
<td>Frequency of Child Sexual Abuse</td>
<td>-.16</td>
</tr>
<tr>
<td>Frequency of Adult Physical Abuse</td>
<td>.12</td>
</tr>
<tr>
<td>Frequency of Adult Sexual Abuse</td>
<td>-.12</td>
</tr>
</tbody>
</table>

* indicates significant correlation at p < .05

** indicates a significant correlation at p < .01

**Note:**  
ADEQ = Alcohol and Drug Expectancy Questionnaire

CBI = Coping Behaviours Inventory

DASES = Drug Avoidance Self-Efficacy Scale

Spearman correlation coefficients were calculated because the abuse variables were categorical.
Correlations Between Victimization and Multiple Drug Use

Spearman correlation analyses were conducted to determine the relationship between victimization and multiple drug addiction. While there were many statistically significant correlations between multiple drug use and victimization, these were only evident when the entire sample was used in the analyses. When only participants who completed the follow-up questionnaires were included in the correlation analyses, there were few significant results. For this reason, correlation analyses using the whole sample (n = 98) and analyses using the participants who returned the follow-up questionnaires (n = 49) were conducted separately. See Table 11 for the correlation coefficients.

End-of-Treatment: Correlations Between Victimization and Multiple Drug Use. There were numerous significant correlations between victimization and multiple drug addiction at the end of treatment. Participants who indicated that they used more than one drug were more likely to have been a victim of child physical abuse, child sexual abuse, and adult sexual abuse, but not adult physical abuse. Also, there was a trend for multiple drug users to have been more frequently physically abused as a child, $r = .28$, $p = .06$.

Follow-up Only: Correlations Between Victimization and Multiple Drug Use. When only participants who completed the follow-up questionnaires (n = 49) were included in the correlation analyses, there were only two significant findings. Using multiple drugs was related to child physical abuse. As opposed to the end of treatment, there was a trend indicating that more frequent physical abuse as an adult, not as a child, was related to multiple drug use. There were no other significant correlations between
Table 11

Correlations Between Victimization and Multiple Drug Use

<table>
<thead>
<tr>
<th></th>
<th>Multiple Drug Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>End-of-Treatment (n = 98)</td>
<td></td>
</tr>
<tr>
<td>Child Physical Abuse</td>
<td>.35**</td>
</tr>
<tr>
<td>Child Sexual Abuse</td>
<td>.21*</td>
</tr>
<tr>
<td>Adult Physical Abuse</td>
<td>.19</td>
</tr>
<tr>
<td>Adult Sexual Abuse</td>
<td>.24*</td>
</tr>
<tr>
<td>Frequency of Child Physical Abuse</td>
<td>.28†</td>
</tr>
<tr>
<td>Frequency of Child Sexual Abuse</td>
<td>.19</td>
</tr>
<tr>
<td>Frequency of Adult Physical Abuse</td>
<td>.14</td>
</tr>
<tr>
<td>Frequency of Adult Sexual Abuse</td>
<td>-.12</td>
</tr>
<tr>
<td>Follow-up Only (n = 49)</td>
<td></td>
</tr>
<tr>
<td>Child Physical Abuse</td>
<td>.30*</td>
</tr>
<tr>
<td>Child Sexual Abuse</td>
<td>.01</td>
</tr>
<tr>
<td>Adult Physical Abuse</td>
<td>.15</td>
</tr>
<tr>
<td>Adult Sexual Abuse</td>
<td>.04</td>
</tr>
<tr>
<td>Frequency of Child Physical Abuse</td>
<td>.02</td>
</tr>
<tr>
<td>Frequency of Child Sexual Abuse</td>
<td>.31</td>
</tr>
<tr>
<td>Frequency of Adult Physical Abuse</td>
<td>.32†</td>
</tr>
<tr>
<td>Frequency of Adult Sexual Abuse</td>
<td>-.17</td>
</tr>
</tbody>
</table>

† indicates a significance level of p < .10

* indicates significant correlation at p < .05

** indicates a significant correlation at p < .01

Spearman correlation coefficients were calculated because the variables were categorical.
victimization and multiple drug use.

**Preliminary Analyses - Outcome Variables**

Of the 49 women who provided information about their post-treatment alcohol and drug use, nearly half indicated that they experienced at least one lapse (i.e., any substance use; see Table 12). The average number of days until the first lapse was less than one month, \( M = 21.5 \text{ days}, \ SD = 22.22 \). The average number of days abstinent over the follow-up period was just over two months. Of the women who did relapse, the average number of days they used was 18.65 (\( SD = 23.41 \)), with one individual using alcohol every day from the day she left treatment to the last day of the follow-up period.

Almost half of the participants who relapsed indicated that they did so in all three of the follow-up months. One-third of the participants who relapsed used in two of the follow-up months. Four participants either dropped out of the study after their first lapse \( n = 3 \) or lapsed only in the final follow-up month \( n = 1 \), therefore it could not be determined if they had subsequent lapses. Only one participant indicated that she experienced a single, isolated lapse; therefore, it was not possible to test the second part of Marlatt and Gordon’s (1985) model in which the attribution violation effect and a change in self-efficacy predict further substance use after an initial lapse.

Table 13 describes which substance(s) participants used in the three-month follow-up period. When the women in the sample relapsed, the majority used alcohol. Significant portions of women also used narcotics, marijuana, and tranquilizers. Fewer women relapsed using cocaine and heroin. Nearly half of the women who relapsed indicated that they used more than one drug.
Table 12

Relapse Rates of Women Who Completed Follow-up Questionnaires (n = 49)

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Used in Follow-Up Period</td>
<td>21</td>
<td>42.9</td>
</tr>
<tr>
<td>Relapsed in All Three Months</td>
<td>9</td>
<td>18.4</td>
</tr>
<tr>
<td>Relapsed in Two Months</td>
<td>7</td>
<td>14.3</td>
</tr>
<tr>
<td>Relapsed In One Month(^{a})</td>
<td>5</td>
<td>10.2</td>
</tr>
<tr>
<td>Days Until First Use</td>
<td>M = 21.5</td>
<td>SD = 22.22</td>
</tr>
<tr>
<td></td>
<td>Range = 0 to 75 days</td>
<td></td>
</tr>
<tr>
<td>Days Used (including relapsers and abstainers)</td>
<td>M = 7.20</td>
<td>SD = 16.98</td>
</tr>
<tr>
<td></td>
<td>Range = 0 to 90 days</td>
<td></td>
</tr>
<tr>
<td>Days Used (excluding abstainers)</td>
<td>M = 18.65</td>
<td>SD = 23.41</td>
</tr>
<tr>
<td></td>
<td>Range = 4 to 90 days</td>
<td></td>
</tr>
</tbody>
</table>

\(^{a}\)Three women dropped out of the study after they relapsed; one woman had a single lapse; one woman relapsed in the third month.
Table 13

Rates of Relapse to Each Substance for Participants Who Used in the Follow-up Period

(n = 21)

<table>
<thead>
<tr>
<th>Substance</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alcohol Drinks</td>
<td>16</td>
<td>76.2</td>
</tr>
<tr>
<td>Narcotics/Pain Medication</td>
<td>7</td>
<td>33.3</td>
</tr>
<tr>
<td>Marijuana</td>
<td>6</td>
<td>28.6</td>
</tr>
<tr>
<td>Joints</td>
<td>5</td>
<td>23.8</td>
</tr>
<tr>
<td>Tranquilizers Pills</td>
<td>5</td>
<td>23.8</td>
</tr>
<tr>
<td>Cocaine</td>
<td>2</td>
<td>9.5</td>
</tr>
<tr>
<td>Hits</td>
<td>1</td>
<td>4.8</td>
</tr>
<tr>
<td>Multiple Drugs</td>
<td>9</td>
<td>42.9</td>
</tr>
</tbody>
</table>

Note. Percentages do not add up to one hundred because some participants used more than one substance when they relapsed.
Predicting Relapse From the Dichotomous Outcome Variable

(Reprise versus Abstinence)

Testing Marlatt and Gordon’s Relapse Model: Predicting an Initial Lapse

Correlations Between Relapse and Potential Covariates. Correlation analyses were conducted to determine if there were significant relationships between the outcome variable (i.e., having relapsed or not) and participants’ demographic characteristics, after care attendance, drug of choice, and multiple drug use. There were no significant correlations between relapse and participants’ demographic characteristics, after care attendance, drug of choice, nor multiple drug addiction; therefore, no covariates were included in the regression model testing Marlatt and Gordon’s Relapse Model.

Correlations Between Relapse and the Predictor Variables (Scale Scores). Spearman correlation analyses were conducted to determine if there were significant relationships between relapse and scores on the ADEQ, and the prospective CBI and DASES. While the correlation between relapse status and scores on the ADEQ was not significant, $r_s = .05$, $p = n.s.$, the correlation between relapse and the other two scales were both significant; CBI: $r_s = -.30$, $p < .05$; DASES: $r_s = -.58$, $p < .01$. Participants who relapsed had lower self-efficacy and engaged in less coping behaviour than participants who abstained in the follow-up period.

Predicting Relapse From Expectancies, Coping, and Self-Efficacy. In order to test Marlatt and Gordon’s Relapse Model, a logistic regression analysis was performed to determine the contribution of coping, self-efficacy, and positive outcome expectancies in the prediction of relapse. Predictor variables were entered simultaneously in the
regression model. The logistic regression model was significant, $\chi^2(3) = 21.75$, $p < .001$ (see Table 14); however, only self-efficacy (DASES score) had a significant effect on relapse. Specifically, women who had lower self-efficacy were significantly more likely to relapse than women who had higher self-efficacy, ($\beta = -.13$). The odds ratio suggests that for every one-point increase in a participant's DASES score, there was a 15% decreased likelihood of relapse.

**Testing Self-Efficacy as a Mediator of Coping.** Since there was initially a significant correlation between coping and relapse, yet coping did not emerge as a significant predictor of relapse in the regression model, it is possible that coping was mediated by self-efficacy, (as hypothesized by Marlatt and Gordon). Baron and Kenny's (1986) test of mediation was used to test this hypothesis. A series of regression analyses were conducted as follows. When relapse was regressed on coping, coping emerged as a significant predictor of relapse, $\chi^2(1) = 4.76$, $p < .05$. Coping also significantly predicted self-efficacy, $R^2 = .23$, $F(1,47) = 13.71$, $p < .001$. Self-efficacy, by itself significantly predicted relapse, $\chi^2(1) = 19.295$, $p < .000$. Finally, when coping and self-efficacy were simultaneously entered in the regression model predicting relapse, coping lost its predictive power, $p = .94$.

This series of regression analyses demonstrates that self-efficacy mediated the relationship between coping and relapse. Engaging in less coping behaviour led to decreased self-efficacy which subsequently led to an increased risk of relapse. See Figure 2 for a graphical depiction of the regression model predicting relapse from expectancies, coping, and self-efficacy.
Table 14

Testing Marlatt and Gordon's Relapse Model: Summary of Logistic Regression Analysis for Expectancies, Coping, and Self-Efficacy Predicting Relapse (n = 49)

<table>
<thead>
<tr>
<th>Predictor</th>
<th>Coefficient (β)</th>
<th>Standard Error</th>
<th>Wald Statistic</th>
<th>R</th>
<th>Odds Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Expectancies</td>
<td>-0.02</td>
<td>0.01</td>
<td>2.34</td>
<td>-0.07</td>
<td>0.98</td>
</tr>
<tr>
<td>Coping</td>
<td>0.00</td>
<td>0.02</td>
<td>0.03</td>
<td>0.00</td>
<td>1.00</td>
</tr>
<tr>
<td>Self-Efficacy</td>
<td>-0.13</td>
<td>0.04</td>
<td>9.26**</td>
<td>-0.33</td>
<td>0.87</td>
</tr>
</tbody>
</table>

Note. $\chi^2 (3) = 21.75$, $p < .001$

** indicates significance at $p < .01$
Note. A dashed line indicates that the variable did not contribute significantly to the prediction of relapse.

Figure 2. Testing Marlatt and Gordon's Relapse Model: Model predicting relapse from expectancies, coping, and self-efficacy.
Using End-of-Treatment Scores as Predictors of Relapse. One of the strengths of the present study is its prospective design. In the majority of previous studies, end-of-treatment scale scores were often used to predict relapse. To test the effectiveness of end-of-treatment scores in the prediction of relapse, regression analyses were conducted using the end-of-treatment scores on the CBI, DASES, and the ADEQ as predictors of relapse. When the end-of-treatment scores were used in the regression analyses, the model was not significant, $\chi^2(3) = 3.99, p = .26$.

Testing Marlatt and Gordon's Relapse Model: Predicting a Second Lapse

According to Marlatt and Gordon, following an initial lapse, there is an increased probability of further substance use if an individual experiences decreased self-efficacy and the abstinence violation effect. Of the 21 women who relapsed in the follow-up period, the vast majority ($n = 16$) reported more than a single lapse. Only one woman reported a single lapse and the consumption pattern of the remaining four is unknown. It appears from these figures that women who experience a lapse will inevitably experience subsequent lapses, regardless of a change in self-efficacy.

To test whether relapse results in a decrease in self-efficacy and whether abstinence results in increased self-efficacy, a 2 (Relapse Status) x 4 (Time) repeated measures analysis of variance (ANOVA) was conducted which used self-efficacy as the repeated measures factor and relapse status as the between-subjects factor. There was a significant between-subjects effect for relapse condition, Hotelling's $T$, approximate $F(1, 31) = 1043.26$, $p < .000$. Overall, participants who relapsed had a lower average score on the self-efficacy scale ($M = 71.52$, $SE = 4.14$) than participants who abstained in the
follow-up period \((M = 89.96, SE = 2.80)\). There was also a significant main effect for time across the four times participants filled out the self-efficacy questionnaire (i.e., the DASES), Hotelling’s T, approximate \(F(3, 99) = 12.09, p < .000\). Tests of within-subjects contrasts indicated that the only significant difference between the time periods occurred between the end of treatment and one month, \(F(1, 33) = 16.19, p < .000\). Participants had lower self-efficacy at the end of treatment \((M = 75.17, SD = 17.83)\) than at one month \((M = 86.05, SD = 16.35)\). After the one month follow-up period, self-efficacy stabilized for both abstainers and relapsers. The interaction between time and relapse was not significant, Hotelling’s T, approximate \(F(3, 31) = .99, p = n.s.\) These findings suggest that there were differences in self-efficacy between relapsers and abstainers at the end of treatment and throughout the follow-up period. Self-efficacy initially increased in both groups, then stabilized in the follow-up period (see Figure 3). As opposed to predictions made by Marlatt and Gordon’s Relapse Model, self-efficacy does not appear to change as a function of post-treatment relapse or abstinence, but rather differences in self-efficacy may already exist prior to discharge from treatment.

**Expanding Marlatt and Gordon’s Relapse Model**

It was hypothesized that victimization and multiple drug use would be significant predictors of relapse over the contribution of variables from Marlatt and Gordon’s original Relapse Model. Correlation analyses were conducted between these variables and relapse status to determine which variables were significantly related to relapse. Only variables which were significantly related to the outcome variable were entered into the regression models.
Figure 3. Mean self-efficacy score for abstainers (n = 24) and relapsers (n = 11) across four data collection periods.
Correlations Between Relapse and Victimization. Spearman correlations were calculated to determine if there was a significant relationship between relapse and victimization. There were no significant correlations between relapse and any of the abuse variables; however, the correlation between relapse and having been physically abused as a child approached significance, r_s = .28, p = .06. Having been a victim of childhood physical violence was related to relapse in the follow-up period. No other correlations approached significance.

Correlations Between Relapse and Multiple Drug Use. Spearman correlations were calculated to determine if there was a significant relationship between relapse and multiple drug addiction. There were no significant correlations between these two variables. Since multiple drug addiction was not correlated with relapse, it was not added to the expanded regression model.

Predicting Relapse From Expectancies, Coping, Self-Efficacy, and Childhood Physical Abuse. A hierarchical logistic regression was conducted to determine if childhood physical abuse would predict relapse above the contribution of expectancies, coping, and self-efficacy. For a summary of the regression analysis see Table 15. Only childhood physical abuse was included in the regression model because it was the only variable which was correlated marginally with the outcome variable. Little is known about the impact of childhood abuse on post-treatment recovery; therefore this variable was explored in more detail even though the relationship was weaker than p < .05. A higher alpha (.10) was used in the following regression analyses to increase the power of the analyses (K. Cramer, personal communication, January 20, 2000). As such, the
Table 15

Summary of Hierarchical Logistic Regression Analysis for Expectancies, Coping, Self-Efficacy, and Childhood Physical Violence Predicting Relapse (n = 46)

<table>
<thead>
<tr>
<th>Predictor</th>
<th>Coefficient (β)</th>
<th>Standard Error</th>
<th>Wald Statistic</th>
<th>R</th>
<th>Odds Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Block 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Expectancies</td>
<td>-.02</td>
<td>.01</td>
<td>1.91</td>
<td>.00</td>
<td>.98</td>
</tr>
<tr>
<td>Coping</td>
<td>.01</td>
<td>.02</td>
<td>.08</td>
<td>.00</td>
<td>1.01</td>
</tr>
<tr>
<td>Self-Efficacy</td>
<td>-.14</td>
<td>.05</td>
<td>8.85**</td>
<td>-.33</td>
<td>.87</td>
</tr>
<tr>
<td>Block 2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Expectancies</td>
<td>-.02</td>
<td>.01</td>
<td>1.73</td>
<td>.00</td>
<td>.98</td>
</tr>
<tr>
<td>Coping</td>
<td>.01</td>
<td>.02</td>
<td>.10</td>
<td>.00</td>
<td>1.01</td>
</tr>
<tr>
<td>Self-Efficacy</td>
<td>-.14</td>
<td>.05</td>
<td>8.30**</td>
<td>-.39</td>
<td>.87</td>
</tr>
<tr>
<td>Childhood Physical Abuse</td>
<td>-.26</td>
<td>.39</td>
<td>.44</td>
<td>.00</td>
<td>.77</td>
</tr>
</tbody>
</table>

Note. Block 1: χ² (3) = 22.23 p < .001; Block 2: Model Chi-Square improvement, χ² (1) = .44, p = .51

** indicates significance at p < .01
findings described below are exploratory and would need to be replicated with a larger sample.

As in the previous logistic regression model, the variables entered in the first block (Marlatt and Gordon's original predictors) significantly predicted relapse, $\chi^2(3) = 22.23, p < .001$. As before, only self-efficacy predicted relapse, with participants having lower self-efficacy being more likely to relapse. Childhood physical abuse was entered in block two of the regression analysis. The addition of childhood physical abuse to the regression model did not significantly improve the original model, $\chi^2(1) = .44, p = \text{n.s.}$.

The correlation between relapse and childhood physical abuse approached significance ($p = .06$), yet in the final model, it did not contribute to the prediction of relapse ($R = 0$). Since there was a drastic change in the amount of variance explained by victimization, it was hypothesized that self-efficacy may be mediating the relationship between these two variables.

The contribution of childhood physical abuse to the prediction of relapse approached significance, $R = -.15, \chi^2(1) = 3.56, p < .06$, when it was the sole predictor in the model. Childhood physical abuse was also a significant predictor of self-efficacy, $R^2 = .089, F(1, 44) = 4.02, p < .05$. As seen previously, self-efficacy significantly predicted relapse, $\chi^2(1) = 19.30, p < .000$. In the final model which included self-efficacy and victimization, childhood physical abuse was no longer a significant predictor of relapse ($R = 0, p = \text{n.s.}$). The results of this series of regression analyses suggest that, with greater power (i.e., a larger sample size), physical abuse as a child may be related to lower self-efficacy, which subsequently leads to a greater probability of relapse. Figure 4 describes
Figure 4. Expanding Marlatt and Gordon's Relapse Model: Model predicting relapse from expectancies, coping, self-efficacy, and childhood physical abuse.

Note. A dashed line indicates that the variable did not contribute significantly to the prediction of relapse.
the relationship between expectancies, coping, self-efficacy, and childhood physical violence.

**Testing Multiple Drug Use as a Moderator of Expectancies**

A single interaction was added to the regression model testing Marlatt and Gordon's original Relapse Model: multiple drug use x expectancies. This interaction was tested because neither multiple drug use nor expectancies were correlated with relapse. This finding was unusual because expectancies play a major role in Marlatt and Gordon's Relapse Model. Since various components of Marlatt and Gordon's model have been tested primarily using single drug users, it was hypothesized that multiple drug addiction may be moderating the relationship between expectancies and relapse. Based on previous literature and Marlatt and Gordon's Relapse Model, it was hypothesized that single drug users who have higher expectancies will be more likely to relapse than single drug users who have lower expectancies. No predictions were made regarding multiple drug users.

A logistic regression model was conducted which regressed relapse on expectancies, coping, self-efficacy, multiple drug use, and the interaction between expectancies and multiple drug use. The resulting model was statistically significant and the summary of the model is depicted in Table 16. As in previous models, self-efficacy was a significant predictor of relapse. The interaction term (expectancies x multiple drug addiction) was also a significant predictor of relapse. The interaction between expectancies and multiple drug addiction is graphically depicted in Figure 5.

As opposed to predictions made by Marlatt and Gordon's Relapse Model, single drug users who had higher expectancies regarding the consumption of their drug of choice
Table 16

Summary of Logistic Regression Analysis Testing for Multiple Drug Addiction

Moderating the Relationship Between Expectancies and Relapse (n = 49)

<table>
<thead>
<tr>
<th>Predictor</th>
<th>Coefficient (β)</th>
<th>Standard Error</th>
<th>Wald Statistic</th>
<th>R</th>
<th>Odds Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Expectancies</td>
<td>-.02</td>
<td>.02</td>
<td>2.04</td>
<td>.00</td>
<td>.98</td>
</tr>
<tr>
<td>Coping</td>
<td>.01</td>
<td>.02</td>
<td>.08</td>
<td>.00</td>
<td>1.01</td>
</tr>
<tr>
<td>Self-Efficacy</td>
<td>-.14</td>
<td>.05</td>
<td>8.94**</td>
<td>-.32</td>
<td>.87</td>
</tr>
<tr>
<td>Multi-Drug Addiction</td>
<td>3.75</td>
<td>1.78</td>
<td>4.43*</td>
<td>.19</td>
<td>42.32</td>
</tr>
<tr>
<td>Multi-Drug Addiction x</td>
<td>-.03</td>
<td>.01</td>
<td>4.45*</td>
<td>-.19</td>
<td>.97</td>
</tr>
<tr>
<td>Expectancies</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note. $\chi^2 (5) = 27.74$ p < .000

* indicates significance at p < .05

** indicates significance at p < .01
Figure 5. Differences between participants who relapsed and those who were abstinent as a function of the interaction between expectancies and multiple drug use.
were less, not more, likely to have relapsed in the follow-up period. On the other hand, multiple drug users followed the pattern predicted by Marlatt and Gordon’s Relapse Model. Multiple drug users who had higher expectancies were more likely to have relapsed in the follow-up period.

To further determine if the interaction was interpreted correctly, a series of post-hoc tests were conducted. First, regression models predicting relapse from expectancies, coping, and self-efficacy were calculated separately for single drug users and multiple drug users. Second, using the method suggested by Howell (1997), the regression coefficients of expectancies were tested to determine if they were different in the sample of multiple drug users and single drug users. The unstandardized regression coefficient (i.e., b) for expectancies were significantly different from one another, t(47) = -5.16, p < .01.

The summary for the two regression models are presented in Tables 17 and 18. Since the sample size for both regression models were low, high critical levels of significance were used to increase the power of the analyses. An alpha level = .10 was used for the following regression analyses; consequently, the following findings need to be replicated (K. Cramer, personal communication, January 21, 2000).

In the logistic regression analysis for the sample of single drug users, the model was significant, $\chi^2 (3) = 13.40, p < .01$; however, no single variable emerged as a significant predictor of relapse. These non-significant findings may be due to the small sample of single drug users used in this analysis ($n = 19$). With a larger sample size, coping, expectancies and self-efficacy may have achieved significance as predictors of
Table 17

Summary of Logistic Regression Analysis Testing for Expectancies, Coping, and Self-Efficacy Predicting Relapse in Single Drug Users Only (n = 19)

<table>
<thead>
<tr>
<th>Predictor</th>
<th>Coefficient (β)</th>
<th>Standard Error</th>
<th>Wald Statistic</th>
<th>R</th>
<th>Odds Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Expectancies</td>
<td>-.09</td>
<td>.06</td>
<td>2.41</td>
<td>-.13</td>
<td>.91</td>
</tr>
<tr>
<td>Coping</td>
<td>.02</td>
<td>.04</td>
<td>.16</td>
<td>.00</td>
<td>1.02</td>
</tr>
<tr>
<td>Self-Efficacy</td>
<td>-.28</td>
<td>.18</td>
<td>2.46</td>
<td>-.14</td>
<td>.76</td>
</tr>
</tbody>
</table>

Note. $\chi^2 (3) = 13.40, p < .01$
Table 18

Summary of Logistic Regression Analysis Testing for Expectancies, Coping, and Self-Efficacy Predicting Relapse in Multiple Drug Users Only (n = 30)

<table>
<thead>
<tr>
<th>Predictor</th>
<th>Coefficient (β)</th>
<th>Standard Error</th>
<th>Wald Statistic</th>
<th>R</th>
<th>Odds Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Expectancies</td>
<td>.01</td>
<td>.02</td>
<td>.26</td>
<td>.00</td>
<td>1.01</td>
</tr>
<tr>
<td>Coping</td>
<td>.00</td>
<td>.03</td>
<td>.02</td>
<td>.00</td>
<td>1.00</td>
</tr>
<tr>
<td>Self-Efficacy</td>
<td>-.11</td>
<td>.05</td>
<td>4.51*</td>
<td>-.25</td>
<td>.90</td>
</tr>
</tbody>
</table>

Note. $\chi^2 (3) = 14.16, p < .01$

* indicates a significance level of $p < .05$
relapse.

The logistic regression model predicting relapse from expectancies, coping, and self-efficacy in the sample of multiple drug users was also significant. However, only self-efficacy was a significant predictor of relapse. Multiple drug users who had lower self-efficacy were at greater risk for relapse compared to those with higher self-efficacy (Odds Ratio = .90). For every point decrease in multiple drug users' DASES score, there was an 11% increased risk of relapse.

Regression models were calculated to determine if self-efficacy mediated the relationship between coping and relapse and between expectancies and relapse. First, when entered into the regression model by itself, coping emerged as a significant predictor of both relapse, $\chi^2(1) = 3.71, p < .05$, and of self-efficacy, $F(1,28) = 11.58, p < .01$. Self-efficacy also emerged as a predictor of relapse, $\chi^2(1) = 13.89, p < .001$. Finally, when self-efficacy and coping (with expectancies) were entered simultaneously into the regression model predicting relapse, coping lost its significance, ($b = -.00, p = n.s.$). When considered by itself, the regression coefficient (-.04) for coping suggests that multiple drug users who scored lower on the coping scale were more likely to relapse.

To test for mediation between expectancies and relapse, the same regression models were recalculated substituting coping for expectancies. Expectancies emerged as a significant predictor of relapse, $\chi^2(1) = 3.57, p = .06$ and of self-efficacy, $F(1,28) = 4.28, p < .05$. As above, self-efficacy by itself was a predictor of relapse, $\chi^2(1) = 13.89, p < .001$. In the final regression model, expectancies lost their predictive power, ($b = .01, p = .61$). The regression coefficient for expectancies ($b = .03$) suggests that multiple drug users
scoring higher on the expectancies scale were at increased risk for relapse. The final model predicting relapse in multiple drug users is presented in Figure 6. For multiple drug users, higher expectancies and engaging in fewer coping behaviours led to decreased self-efficacy, which then increased the likelihood of relapse.

It was hypothesized that the difference in expectancy score between single and multiple drug users may be inflated because the ADEQ had items which represented both the positive effects of stimulants (e.g., "I become awake and alert") and of depressants ("I feel dreamy and mellow"). Single drug users would use either a stimulant or, in most cases, a depressant; therefore, their score would necessarily be lower than multiple drug users who use a combination of stimulants and depressants. Participants’ ADEQ total score was recalculated to exclude any items which were drug-specific and then the regression analyses were re-conducted.

The regression model which included the interaction term (expectancies x multiple drug addiction) was identical to the previously calculated model, $\chi^2 (5) = 27.75, p < .000$. The regression models for single drug users and multiple drug users were both statistically significant, $\chi^2 (3) = 13.40, p < .01$ and $\chi^2 (3) = 14.16, p < .01$, respectively. The regression for the multiple drugs users remained unchanged; however, expectancies and self-efficacy both emerged as significant predictors of relapse in the regression model predicting relapse in single drug users when an alpha = .10 was used (see Table 19). As opposed to Marlatt and Gordon’s predictions, for every one-point decrease in single drug users’ expectancy score, there was an 11% increased risk of relapse. Also, for every one-point decrease in their self-efficacy score, there was a greatly increased risk of relapse.
Figure 6. Model predicting relapse from expectancies, coping, and self-efficacy in multiple drug users.
Table 19

Summary of Logistic Regression Analysis Testing for Expectancies (After Removing Items Specific to Depressants or Stimulants), Coping, and Self-Efficacy Predicting Relapse in Single Drug Users Only (n = 19)

<table>
<thead>
<tr>
<th>Predictor</th>
<th>Coefficient (β)</th>
<th>Standard Error</th>
<th>Wald Statistic</th>
<th>R</th>
<th>Odds Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Expectancies</td>
<td>-.10</td>
<td>.06</td>
<td>2.78 †</td>
<td>-.18</td>
<td>.90</td>
</tr>
<tr>
<td>Coping</td>
<td>.01</td>
<td>.04</td>
<td>.06</td>
<td>.00</td>
<td>1.01</td>
</tr>
<tr>
<td>Self-Efficacy</td>
<td>-.25</td>
<td>.15</td>
<td>2.73 †</td>
<td>-.18</td>
<td>.78</td>
</tr>
</tbody>
</table>

Note. $\chi^2 (3) = 13.21, p < .01$

† indicates a significance level of $p < .10$
(29%) in the follow-up period. Since coping by itself was not a predictor of relapse, \( \chi^2 (1) = .56, p = \text{n.s.} \), it was concluded that self-efficacy did not act as a mediator between coping and relapse, as it did in the model which included all participants. The relapse model for single drug users is depicted in Figure 7.

**Predicting Relapse Using Continuous Outcome Variables**

**Testing Marlatt and Gordon’s Relapse Model**

It was hypothesized that continuous outcome variables (number of days abstinent in the three-month follow-up period and the number of days until the first lapse) would provide a more sensitive measure of outcome than the dichotomous outcome variable (abstinence versus relapse). Correlation analyses were conducted to determine if any covariates should be entered into the regression models using the continuous outcome variables. As with the dichotomous outcome variable, number of days abstinent was not significantly correlated with participants’ demographic characteristics, after care attendance, drug of choice, nor multiple drug use. There also were no significant correlations between the number of days until first use and any of these variables; therefore, no covariates were added to the regression models.

**Correlations Between Relapse and the Predictor Variables (Scale Scores).**

Correlation coefficients were calculated to determine if there was a significant relationship between the predictors and each outcome variable. The only significant correlation was between the number of days abstinent and self-efficacy, \( r = .36, p < .05 \). Higher self-efficacy was related to more days abstinent. There were no significant correlations between number of days until first use and any of the predictor variables; therefore, the
Note. Dashed line indicates that the variable did not contribute significantly to the prediction of relapse.

Figure 7. Model predicting relapse from expectancies, coping, and self-efficacy in single drug users.
regression analysis using number of days until first use as the outcome was not conducted.

Predicting Number of Days Abstinent from Expectancies, Coping, and Self-Efficacy. A standard multiple regression was conducted to determine the unique contribution of expectancies, coping, and self-efficacy in the prediction of the number of days abstinent in the follow-up period (see Table 20). The regression model was significant, $F(3, 40) = 2.84, p < .05$. Only self-efficacy emerged as a significant predictor of number of days abstinent. As expected, higher self-efficacy was related to a greater number of days of abstinence. Coping, by itself did not emerge as a significant predictor of number of days abstinent, $F(1, 42) = .81, p = \text{n.s.}$, therefore self-efficacy did not act as a mediator in the regression model.

Expanding Marlatt and Gordon's Model

Correlations Between Relapse and Victimization. Spearman correlation analyses were conducted to determine if there were any significant relationships between number of days abstinent and victimization. There was only one significant correlation. Participants who had been physically abused as children reported less days of abstinence compared to participants who had not been victimized, $r_s = -.34, p < .05$. There were no other significant correlations between the predictor variables and the number of days abstinent.

Correlations Between Relapse and Multiple Drug Use. Spearman correlation analyses were conducted to determine if there was a significant relationship between number of days abstinent and multiple drug use. There was not a significant relationship (nor any apparent trend) between number of days abstinent and multiple drug use.
Table 20

Summary of Standard Multiple Regression Analysis for Expectancies, Coping, and Self-Efficacy Predicting Number of Days Abstinent (n = 43)

<table>
<thead>
<tr>
<th>Predictor</th>
<th>R</th>
<th>SE</th>
<th>β</th>
<th>t</th>
</tr>
</thead>
<tbody>
<tr>
<td>Expectancies</td>
<td>.12</td>
<td>.08</td>
<td>.23</td>
<td>1.46</td>
</tr>
<tr>
<td>Coping</td>
<td>.01</td>
<td>.15</td>
<td>-.10</td>
<td>-.61</td>
</tr>
<tr>
<td>Self-Efficacy</td>
<td>.49</td>
<td>.18</td>
<td>.49</td>
<td>2.74**</td>
</tr>
</tbody>
</table>

Note. R = .42; R² = .18; Δ R² = .11; F(3, 40) = 2.84, p < .05

** indicates significance at p < .01
Predicting Number of Days Abstinent From Expectancies, Coping, Self-Efficacy, and Childhood Physical Abuse. A hierarchical regression analysis was conducted to determine if childhood physical abuse would predict the number of days abstinent above the contribution made by expectancies, coping, and self-efficacy. Table 21 describes the results of the regression analysis. Block one, which included expectancies, coping, self-efficacy as predictor variables in the regression model, was significant, $F(3, 38) = 2.83, p < .05$. Block two which included Marlatt and Gordon's three predictor variables and childhood physical abuse approached significance, $F(4, 37) = 2.51, p = .06$. In block one and in the final model, only self-efficacy emerged as a significant predictor of number of days of number of days abstinent. As before, higher self-efficacy was related to more days abstinent.

As in the regression model predicting relapse as a dichotomous variable, it was hypothesized that self-efficacy may be mediating the relationship between childhood physical abuse and number of days abstinent. Due to the small sample size ($n = 41$), a higher critical level of significance was used for the following analyses (alpha = .10). The regression model predicting number of days abstinent from childhood physical abuse was significant, $R^2 = .08, F(1, 40) = 3.58, p < .10$. Self-efficacy significantly predicted number of days abstinent, $R^2 = .13, F(1, 42) = 6.30, p < .05$. When self-efficacy and childhood physical abuse were entered simultaneously in the regression model, childhood physical abuse no longer predicted number of days abstinent, $t(42) = -1.35, p = \text{n.s.}$ These results suggest that childhood physical abuse may be related to decreased self-efficacy which subsequently led to less days abstinent for participants in this study. See Figure 8 for a
Table 21

Summary of Hierarchical Regression Analysis Testing Expectancies, Coping, Self-Efficacy, and Child Physical Abuse Predicting Number of Days Abstinent (n = 41)

<table>
<thead>
<tr>
<th>Predictor</th>
<th>B</th>
<th>SE</th>
<th>β</th>
<th>t</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Block 1</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Expectancies</td>
<td>.11</td>
<td>.08</td>
<td>.21</td>
<td>1.33</td>
</tr>
<tr>
<td>Coping</td>
<td>-.01</td>
<td>.15</td>
<td>-.11</td>
<td>-.63</td>
</tr>
<tr>
<td>Self-Efficacy</td>
<td>.50</td>
<td>.18</td>
<td>.50</td>
<td>2.75**</td>
</tr>
<tr>
<td><strong>Block 2</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Expectancies</td>
<td>.01</td>
<td>.08</td>
<td>.19</td>
<td>1.15</td>
</tr>
<tr>
<td>Coping</td>
<td>-.10</td>
<td>.15</td>
<td>-.12</td>
<td>-.70</td>
</tr>
<tr>
<td>Self-Efficacy</td>
<td>.45</td>
<td>.19</td>
<td>.45</td>
<td>2.42*</td>
</tr>
<tr>
<td>Child Physical Abuse</td>
<td>-6.33</td>
<td>5.30</td>
<td>-.18</td>
<td>.24</td>
</tr>
</tbody>
</table>

Note. Block 1: $R = .43; R^2 = .18; \Delta R^2 = .12; F(3, 38) = 2.83, p < .05$; Block 2: $R = .46; R^2 = .21; \Delta R^2 = .13; F(4, 37) = 2.51, p = .06$

* indicates significance at $p < .05$

** indicates significance at $p < .01$
Note. Dashed line indicates that the variable did not contribute significantly to the prediction of number of days abstinent.

**Figure 8.** Model predicting number of days abstinent from expectancies, coping, self-efficacy, and childhood abuse.
graphical depiction of this model.

**Testing Multiple Drug Use as a Moderator of Expectancies**

Separate regression analyses were conducted for multiple and single drug users to determine if there was an interaction between expectancies and multiple drug addiction in the prediction of number of days abstinent. The alpha levels used in the regression models predicting relapse as a dichotomous variable (alpha = .10) were retained for these analyses. Neither the regression model calculated for single drug users, nor the regression model calculated for the multiple drug users reached statistical significance, $F(3, 13) = 2.28, p > n.s.$ and $F(3, 23) = 1.00, p > n.s.$, respectively. When using number of days abstinent as the outcome variable in the regression model, there does not appear to be an interaction between expectancies and multiple drug use.
CHAPTER IV

DISCUSSION

Testing Marlatt and Gordon’s Relapse Model

The purpose of the present study was to test and expand Marlatt and Gordon’s (1985) cognitive-behavioural Relapse Model using a sample of chemically dependent women in order to better understand and predict relapse in women. Marlatt and Gordon hypothesized that ineffective coping, low self-efficacy, and high positive outcome expectancies would predict an initial lapse. Marlatt and Gordon also believe that self-efficacy mediated the relationship between coping and relapse. Following an initial post-treatment lapse, a further decrease in self-efficacy and the abstinence violation effect (AVE) would predict a subsequent lapse.

Predicting An Initial Lapse

The present study found some support for the applicability of Marlatt and Gordon’s Relapse Model to chemically dependent women. When the Relapse Model was tested in its entirety, coping and self-efficacy predicted initial post-treatment substance use. Self-efficacy emerged as the strongest predictor of an initial lapse and acted as a mediator between coping and relapse. Specifically, participants who engaged in fewer coping behaviours had less confidence in their ability to abstain from using their chemicals of choice. Lower confidence then increased the likelihood of post-treatment substance use. Expectancies were not related to initial post-treatment substance use.

Nearly identical results were obtained using a continuous outcome variable. Many researchers in the field of addictions (e.g., Connors, et al., 1996; Larimer & Marlatt, 1990;
Marlatt & Gordon, 1985; Solomon & Annis, 1990) advocate for moderation as a legitimate treatment goal; therefore, this study attempted to look at both dichotomous and continuous outcome measures. No significant results were found using number of days until first use, and only self-efficacy predicted the number of days abstinent. Neither coping nor expectancies emerged as significant predictors of number of days abstinent. Contrary to predictions, these findings suggest that dichotomous outcome variables may be as useful as continuous outcome variables when attempting to identify predictors of relapse. This may only be specific to samples where complete relapse is the norm, such as in the current study. Also, these differences may be due to the fact that the model predicting number of days abstinent had a smaller sample size than the model using the dichotomous outcome variable. With a larger sample size, the results may be more similar.

Only one study has previously tested the Relapse Model in its entirety. Miller and his colleagues (1996) found that only coping emerged as a significant predictor of relapse in a sample of male and female alcoholics. Self-efficacy and expectancies were not related to relapse. Miller and his associates argued that behavioural variables such as coping are better predictors of relapse than cognitive variables such as self-efficacy and expectancies. Miller et al.’s findings are in direct contrast to the findings of the present study which suggest that self-efficacy is a central concept in the relapse process. In addition, self-efficacy is also considered critical in Annis and her colleagues’ Relapse Prevention Model (Annis, 1986; 1990; Annis & Davis, 1988, 1989) and Prochaska and DiClemente’s Transtheoretical Stages of Change (1982; 1986).
Miller et al.'s findings are particularly perplexing because the authors used a measure of self-efficacy developed by Annis --- the Situational Confidence Questionnaire (SCQ; Annis, 1982). Self-efficacy scores as measured by the SCQ have been found to be reliable predictors of relapse in samples of male alcoholics (e.g., Solomon & Annis, 1990), male and female alcoholics (e.g., Long, Hollin, & Williams, 1998); and drug users (e.g., Burling et al., 1989). Since the relationship between self-efficacy and relapse was significant in the current study and in previous studies it is possible that Miller and colleagues’ findings may simply be anomalous. Similar to findings from previous studies, the findings of the present study clearly indicate that self-efficacy is a critical element in the relapse process for chemically dependent women.

**Predicting a Second Lapse**

The second part of Marlatt and Gordon’s Relapse Model in which further substance use following an initial post-treatment lapse is predicted from self-efficacy and the abstinence violation effect (AVE) could not be tested in this study. Nearly half (42.9%) of the participants who returned the follow-up questionnaires experienced at least one lapse. An unexpected finding was that only one of the participants who mailed back the follow-up questionnaires reported experiencing a single, isolated lapse. The majority of women who used substances in the three months after they left treatment did so on multiple occasions.

These findings suggest that chemically dependent women experience a pattern of relapse which is very different than that predicted by Marlatt and Gordon’s model. The Relapse Model predicts that individuals may return to abstinence or may experience a full
blown relapse depending on their self-efficacy and the AVE following an initial lapse; however, the results of this study suggest that when women use their substance(s) of choice after they leave treatment, they are most likely to continue using substances with no return to abstinence in the short term, (of course, they may eventually go into treatment or achieve abstinence again after three months).

It may simply be the case that three months of follow-up data may not provide enough information to establish patterns of relapse in chemically dependent women. Studies using longer follow-up periods (i.e., six months, one year) may provide more information about post-treatment substance use by women, but problems with maintaining participation across a longer time frame would need to be addressed.

Alternatively, it is possible that there are gender differences in patterns of relapse, whereby following a post-treatment lapse, men may return to abstinence or continue using substances and women simply continue using substances. It may be the case that, compared to men, chemically dependent women experience higher levels of the AVE following an initial lapse, and consequently are less likely to return to abstinence. The findings from the present study may support this possibility. Overall, the women in the sample scored very high on the Substance Use Attributional Style Questionnaire (SUASQ) which measured participants’ experiences of the abstinence violation effect following a lapse. They scored particularly high on the guilt and internality scales. As predicted by Marlatt and Gordon (1985), it appears that the women in the sample who experienced an initial lapse felt guilty and blamed themselves for failing to maintain their abstinence. These findings may explain why all but one participant experienced more than one lapse.
In comparison, Curry, Marlatt, and Gordon (1987) reported that, similar to participants in the present study, individuals who experienced a "full-blown relapse" scored high on internality (M = 5.86 on a 7-point Likert-type scale); however both relapsers and slippers (i.e., those who experienced a lapse with no further use) scored slightly lower on the guilt scale (M = 5.25 and M = 4.04, respectively) than participants in the present study. Slippers scored 5.00 on the internality scale indicating that, like relapsers, they still made internal attributions for their situation. Walton et al. (1994) also reported that relapsers, slippers, and abstinent individuals all made more internal than external attributions for their situation. The findings of these two studies and the present study suggest that all individuals experience high levels of guilt and make internal attributions for their situation regardless of whether they abstain, have one lapse or have multiple lapses; however, the women in the present study appear to have experienced higher levels of the abstinence violation effect than reported in previous studies. More research is needed to fully understand women's reactions to relapse.

Since a high proportion (59%) of the sample were multiple drug users, it may also be the case that it is multiple drug users are likely to experience multiple lapses. In a recent study by Spear, Ciesia, and Skala (1999), 113 adolescents (35% female) who completed substance abuse treatment were followed up one year after they completed treatment. Alcohol-dependent adolescents were more likely to have remained abstinent or to have had only isolated use incidents compared to adolescents who were addicted to both alcohol and marijuana. Spear et al.'s findings suggest that multiple drug use may place individuals at greater risk for relapse. In the present study, multiple drug use predicted
relapse but only in participants who had high positive outcome expectancies. More research is needed to determine how multiple drug use increases the risk of relapse in chemically dependent women.

**Expanding Marlatt and Gordon’s Relapse Model**

Marlatt and Gordon’s original model was expanded to include variables of particular relevance to chemically dependent women. It was hypothesized that multiple drug use and victimization would predict relapse above the contribution of the original variables in the Relapse Model. When a liberal level of significance was used, only childhood physical violence emerged as a predictor of relapse; however, as with coping, this relationship was mediated by self-efficacy. Having been a victim of physical violence as a child may be related to lower self-efficacy, which then increased the risk of relapse.

Although only childhood physical abuse may be related to relapse, it is important to note that the vast majority of women identified themselves as victims of abuse (86%). It is possible that the comparison group of non-victims was too small to detect any differences between victims of other types of abuse and non-victims in relation to relapse. When broken down by type of victimization, the women in this study were most likely to have been physically abused as an adult (72% of the sample). In addition, roughly 50% of the sample had experienced either childhood physical abuse and/or childhood sexual abuse. A significant portion of the sample had been sexually abused as adults (43%).

Previous studies have similarly reported high rates of victimization in samples of chemically dependent women. For example, Brown and colleagues (1996) reported that 55% of their sample of substance-abusing women in treatment had been victims of both
physical and sexual abuse, while Gil-Rivas and her colleagues (1997) reported that 61% of her sample of chemically dependent women had been sexually abused in their lifetime. As suggested by the results of this study and by the work of other feminist scholars (e.g., Reed, 1987; Young, 1990), treatment of substance abuse in women must address issues of abuse in childhood and adulthood.

While there are numerous studies reporting a link between victimization and substance use (e.g., Kang, Magura, Laudet, & Whitney, 1999; Langeland & Hartgers, 1998; Medrano, Zule, Hatch, & Desmond, 1999; Spak, Spak, & Allebeck, 1999), no other study has reported a relationship between victimization and relapse. In fact, previous studies have found that victimization was not related to post-treatment substance use (e.g., Brown et al., 1996; Gil-Rivas, et al., 1997; Harvey et al., 1994). This may be due to the fact that, in the current study, participants were allowed to determine whether they had been victimized. Previous studies have used stringent definitions of abuse. For example, Gil-Rivas and colleagues (1997) classified participants as being victims of physical abuse if they had been “hit or beaten so hard that the individual suffered from cuts or bruises,” (p. 353). This definition may have resulted in many individuals not being identified as victims of physical abuse who in fact may have been victimized; consequently, this may explain why previous studies have not found a relationship between victimization and relapse.

**Individual Components of Relapse Model**

In the following sections, findings of this study in relation to the individual components of the Relapse Model -- expectancies, self-efficacy, and coping will be
discussed in more depth. Specifically, the relationship between expectancies and multiple drug use, the importance of self-efficacy in the relapse process, and gender differences in coping behaviour will be discussed.

**Multiple Drug Use as a Moderator of Expectancies**

Expectancies did not emerge as a significant predictor of relapse in the original Relapse Model. Since most of the studies investigating the role of expectancies in the relapse process were conducted with single drug users (e.g., Brown, 1985, Brown et al., 1980; Schafer & Brown, 1991), it was hypothesized that high positive outcome expectancies would predict relapse only in single drug users. The interaction between multiple drug use and expectancies was significant, but the findings were unexpected. As opposed to predictions, single drug users with low positive outcome expectancies were more likely to relapse; whereas multiple drug users with high positive outcome expectancies were more likely to relapse.

In fact, very different models of relapse resulted for single drug users and multiple drug users. The relapse model for multiple drug users conformed closely to Marlatt and Gordon's Relapse Model. For multiple drug users, self-efficacy predicted relapse and mediated the relationship between coping and relapse and expectancies and relapse. As predicted by Marlatt and Gordon, multiple drug users with higher expectancies about the effects of alcohol and/or drug use and with poorer coping skills also had lower self-efficacy which then increased the likelihood of relapse.

The regression model predicting relapse in single drug users yielded very different results from the model predicting relapse in multiple drug users. Single drug users with
lower positive outcome expectancies and with lower self-efficacy were more likely to relapse. It was unexpected that single drug users with lower positive outcome expectancies would be at greater risk of relapse compared to single drug users with higher positive outcome expectancies.

In the present study, the majority of single drug users abused alcohol and participants who abused alcohol have been using their substance of choice longer than women who used any other substance. It may be the case that the longer an individual abuses alcohol, the more aware they become of the negative effects of alcohol; therefore, expectancies, as measured by the Alcohol and Drug Expectancy Questionnaire (ADEQ) may represent the severity of addiction. Women who have been abusing alcohol longer may have lower positive outcome expectancies. If the ADEQ is actually a measure of severity of addiction, it follows that lower expectancies should be related to relapse in single drug users. It was not possible to test this hypothesis because the present study did not include a measure of the severity of addiction. Future studies should determine which constructs are actually being measured with the ADEQ.

For the multiple drug users in the present study, higher positive outcome expectancies were related to relapse as predicted by the Relapse Model. No previous studies have reported gender differences in expectancies for the effects of substances other than alcohol, marijuana, or cocaine; however, the results of this study suggest that there may be different expectancies depending on the type or number of substances being used. Multiple drug users may be at increased risk for relapse simply because they must abstain from more than one substance, but also because the odds are greater that they are
experiencing positive effects from at least one of the substances that they abuse.

Regardless, it appears that expectancies and coping have different roles in the relapse process for single drug users compared with multiple drug users. More research is needed to clarify the relationship between expectancies and multiple drug use.

While many studies support a relationship between positive outcome expectancies and alcohol or drug use in general (Brown et al., 1980; Edgar & Knight, 1994; Schafer & Brown, 1991), prior to the present study, there was only one study which attempted to link expectancies to relapse. Brown (1985) investigated the link between relapse and expectancies in male alcoholics and reported that higher positive outcome expectancies measured at the end of treatment were predictive of relapse a year later. Since Brown’s sample was comprised of male alcoholics, it may be the case that women have very different expectations regarding the effects of the substances they use. In fact, Rohsenow (1983) and Gustafson (1993) both reported that women expected less positive consequences of alcohol consumption compared to men. This would suggest that the relationship between expectancies and relapse may not the same for chemically dependent women and men. Studies designed to examine gender similarities and differences should explore further the relationship between expectancies and relapse.

Self-Efficacy

Self-efficacy emerged as the single, most important predictor of relapse in the present study. As hypothesized, low self-efficacy was related to post-treatment substance use. Self-efficacy is also a central concept in Marlatt and Gordon’s Relapse Model, Annis and her colleagues’ Relapse Prevention Model (Annis, 1986; 1990; Annis & Davis, 1988;

Since self-efficacy is a key factor in the relapse process, it may be possible to identify women who are most likely to relapse after they complete treatment. Prior to leaving treatment, clients can complete a measure of self-efficacy and women who score low on self-efficacy can be targeted for more intense after-care treatment. As such, the goal of treatment should be simply to improve clients' confidence so that they remain abstinent.

The present study found two factors which have an impact on confidence: childhood physical abuse and coping skills; consequently, service providers can intervene at these points. For example, as suggested by Marlatt and Gordon (1985) and Annis and Davis (1986), clients can be trained to use a variety of skills to cope directly with urges to use substances. Second, treatment programs can incorporate counselling in order to address issues of childhood abuse. Finally, future research may identify other factors which have a direct impact on self-efficacy, such as parenting, employment difficulties, legal problems, family issues, and so on. Treatment programs should attempt to increase chemically dependent women's self-efficacy by educating and training them in these and other areas.

In terms of the role of self-efficacy in the relapse process, Marlatt and Gordon (1985) predicted that if an individual copes successfully with a high risk situation their self-efficacy will increase, whereas if they do not cope effectively with the situation, their self-efficacy will decrease. Relapsers in the present study had lower self-efficacy than women who abstained at each of the data collection periods (i.e., end of treatment, one
month, two months, and three months). In addition, self-efficacy was relatively stable across the four data collection periods. This would suggest that differences in self-efficacy already existed between relapers and abstainers at the end of treatment, and did not fluctuate as a result of post-treatment substance use. In fact, there was no significant difference between relapers’ pre- and post-lapse self-efficacy scores, suggesting that this was probably the case.

These findings suggest that self-efficacy is a relatively stable trait; therefore, it is possible that pre-treatment factors such as victimization and multiple drug use have an impact on women’s overall, general self-efficacy. For example, many studies report that victimization is related to the development of mental health problems such as Post-Traumatic Stress Disorder, depression, low self-esteem, and anxiety disorders (see Young, 1990 for a review) - - all of which are related to substance abuse in adulthood. Miller’s (1990) work on the long-term impact of child abuse suggests that the guilt and self-blame which results from childhood abuse may lead to learned helplessness as an adult. In other words, it is possible that the abuse the women in the current study suffered as children had a long-term impact so that they have little confidence in their ability to control their substance use. In addition, Brown and Gilligan (1992), in their groundbreaking work on women’s psychological development, have suggested that self-esteem, in general, decreases substantially from childhood to adolescence in girls. For girls that are abused early in life, it is possible that this trend is not overcome. This generalized low self-esteem may place chemically dependent women at increased risk of relapse compared to chemically dependent men. More research is needed to understand the relationship among
self-efficacy, self-esteem, victimization, and relapse in chemically dependent women.

Further, there was a significant relationship between multiple drug use and self-efficacy. Participants who used multiple drugs had lower self-efficacy. There was also a relationship between victimization and multiple drug use. Victims of violence were more likely to be multiple drug users than non-victims. These findings suggest that there is a complex relationship between victimization, multiple drug use, and self-efficacy. A larger sample and more specific abuse-related questions would be necessary to fully explore the relationship among these variables.

An unexpected finding was that, for both relapsers and abstainers, self-efficacy increased from the end of treatment to the first follow-up period. It may be the case that relapsers and abstainers experienced early successes using some of the coping skills they learned in treatment. These early successes may have increased participants’ confidence initially, but since relapers had lower confidence at the end of treatment, they were more likely to relapse in the follow-up period. This trend is unique and has not been addressed in previous research. Future studies might clarify the relationship between fluctuations in self-efficacy and post-treatment substance use.

Coping

Many of the relapse prevention techniques derived from Marlatt and Gordon’s Relapse Model focus on improving an individual’s coping skills. In the present study, coping skills were related to relapse and, as hypothesized by Marlatt and Gordon, the relationship between coping behaviour and relapse was mediated by self-efficacy. The use of fewer coping behaviours was related to lower self-efficacy, which then predicted an
initial post-treatment lapse. Other researchers and practitioners in the field of addictions also recognize the importance of coping skills in preventing relapse. Although Annis and her colleagues did not include coping as part of their model predicting relapse, teaching clients coping skills is an important part of their treatment program (Annis, Herie, & Watkin-Merek, 1996). Gorski (1989; 1990) similarly stressed the importance of teaching coping skills to individuals in recovery. The results of this study suggest that coping behaviour is an important predictor of relapse and, as such, needs to be included in any model predicting relapse.

The relationship between coping and relapse (mediated by self-efficacy or otherwise) appears to be tenable for both men and women. Two previous studies (Annis et al., 1998; Shiffman, 1984) have reported that there were no gender differences in coping as a predictor of treatment outcome. In both studies, there were no gender differences in the number nor the type of coping strategies used in response to a high risk situation. Both Annis and her colleagues and Shiffman found that for males and females, engaging in more coping behaviours resulted in a decreased likelihood of relapse. The results of previous studies and of this study suggest that coping behaviour is an important predictor of relapse in both chemically dependent women and men.

Marlatt and Gordon (1980) believed that both general coping skills and alcohol or drug-refusal skills are important in the prevention of relapse. In the present study, as well in the majority of previous studies (e.g., Annis et al., 1998; Connors et al., 1996; Litman et al., 1983; Shiffman, 1984), coping was measured as a behaviour executed in response to an urge to use substances. In other words, the items on the Coping Behaviours Inventory
asked which behaviours they engaged in to stop themselves from using alcohol and/or drugs when they experienced a craving. When measured in this specific way the present study and previous studies found that for both men and women, engaging in more coping behaviours decreases the risk of relapse.

If coping were to be measured as a general response to life stressors, there is evidence to suggest that gender differences might be expected. McCubbin and colleagues (McCubbin, Cauble, & Patterson, 1982; McCubbin, Thompson, & McCubbin, 1996) reported that men and women exhibit very different styles of coping. Men engage in more positive coping behaviours whereas women use coping behaviours which result in negative consequences. For example, women are more likely to selectively ignore problem situations which results in increased stress whereas men are more likely to use coping strategies that involve direct action or problem-solving. If there are gender differences in generalized coping in response to stress, then it can be expected that the coping responses used by women would result in more, not less stress -- which consequently may increase the risk of relapse. Future studies should assess the relationship between generalized coping skills and relapse, as well as the relationship between alcohol/drug-refusal skills and relapse.

Previous studies have failed to account for the fact that using alcohol and/or drugs may constitute a coping response to life stressors in and of itself. In a literature review investigating gender differences in the use of substances for coping, Biener (1987) concluded that women, in general, are more likely than men to use prescription medication to cope with life stressors, while men are more likely to use alcohol to cope. A significant
portion of the participants in the present study reported using tranquilizers (27.6%) and narcotics (30.6%). In other words, using tranquilizers and narcotics (as well as alcohol and other drugs) may have constituted a coping mechanism for some of the women in the sample. There was a relationship between multiple drug use and sexual abuse in the present study suggesting that using a variety of drugs may be a means of coping with the memories and trauma associated with victimization - - a kind of self-medication. As previously discussed, coping emerged as a predictor only in the model predicting relapse in multiple drug users - - not single drug users. While information about how a woman is coping with urges to use substances may be useful, it may also be useful to have information concerned with which events cause stress after a woman leaves treatment and what skills she has to cope with these stressful events. In addition, more research is needed to clarify the relationship among coping, victimization, and multiple drug use.

**Description of Relapse**

Follow-up information was obtained from half of the original sample (49 women). Of these women, slightly less than half (42.9%) failed to fully abstain from their chemical(s) of choice for the three months following their discharge from treatment. The extent to which a woman relapsed varied greatly among the women ranging from a 4-day binge with no further use to using everyday from the day of discharge to the end of the follow-up period. Similar to previous studies investigating relapse (e.g., Marlatt & Gordon, 1980), the majority of participants who used substances in the follow-up period did so within the first month. On average, participants used substances on 19 of the 90 days in the follow-up period. For the majority of relapsers, relapse did not consist of
isolated slips. At minimum, roughly three-quarters of the women who relapsed used substances in either two or three of the follow-up periods. Only one woman experienced a single drinking episode, while the outcome was unknown for the remaining four participants (i.e., three participants dropped out of the study after they experienced an initial lapse, and one participant lapsed in the third month of the follow-up).

Different measures were used to determine pre-treatment and post-treatment alcohol and drug consumption; therefore, it was not possible to determine if participants decreased the amount and/or frequency of their substance use. Despite this fact, the majority of participants completed an abstinence-based treatment program; therefore, it is likely that for these participants, any post-treatment substance use would be viewed as a failure to achieve their treatment goal of abstinence. This assumption is further supported by the fact that the majority of relapsers in the present study scored very high on the internality and guilt scales of the Substance Use Attributional Style questionnaire. High scores on these two scales indicate that the women experienced a great deal of self-blame and guilt for their failure to remain abstinent.

A different perspective came from a 32 year-old multiple drug user who graduated from a moderation-based treatment program. She dropped out of the study after she consumed alcohol in the follow-up period:

This past month I have had some wine to drink, however, I don’t feel as though I’ve lapsed or feel that this is due to any particular reason. I think I went to [treatment] to help me more with thoughts about my lifestyle than thoughts about substances. I did enjoy my time in complete abstinence but seeing as it is not
complete now I don't feel I can accurately fill out these questionnaires anymore.

This participant is indicating that two months after she has been discharged from treatment, she is now capable of controlled drinking. While this may appear to be evidence for the possibility of controlled drinking as a treatment goal, one must be cautious in interpreting this information. This woman was the only participant to indicate to the researcher that she was using substances in moderation. In addition, the long-term outcome for this participant is unknown. It is possible that she is still using substances in a controlled manner; or it may be the case that she has fully relapsed or even returned to treatment. The findings of this study do not permit conclusions to be reached regarding the abstinence versus controlled drinking debate.

For relapsers, alcohol was the most commonly used substance (76%); however, significant portions of women used "other drugs" such as narcotics (33%), marijuana (29%), and tranquilizers (24%). While much attention has been devoted in the literature to understanding relapse to illicit drugs such as cocaine and heroin (e.g., Burling et al., 1989; Gossop et al., 1990; Powell, et al., 1993), relatively little attention has been paid to the abuse of prescription and over-the-counter medication. This may represent a bias toward understanding and preventing addiction in males. Men are more likely than women to be addicted to illicit drugs (Ferrence et al., 1990; Goettler & Pearce, 1991) while women are more likely than men to abuse prescription and over-the-counter medications (Ferrence et al., 1990; Janecek, 1990; Tabisz, 1990). If treatment models are based on the experiences of substance-addicted men, it is likely that the needs of women addicted to tranquilizers and pain medication are not being met through treatment services. As seen from the
results of the present study, this would represent a significant portion of women who undergo substance abuse treatment.

Almost half of the women who completed the follow-up portion of the present study relapsed, and did so on multiple occasions. Many of the women who did not complete the follow-up questionnaires also may have relapsed. This would translate into a treatment success rate of less than 50%. Previous studies have reported relapse rates ranging from 50% to 90% (Brownell, Marlatt, Lichtenstein, & Wilson (1986). The findings of the present study, as well as previous studies, suggest that a full relapse is the most likely outcome of treatment for women. If relapse is the most likely outcome of treatment, substance abuse recovery may best be conceptualized as having a cyclical pattern. Prochaska and DiClemente (1982) suggested that substance-addicted individuals move back and forth between abstinence and substance use and consequently, they conceptualized recovery as a process which involves successive attempts to maintain abstinence. Using a similar philosophy, Marlatt and Gordon (1985) argued that since the likelihood of a post-treatment lapse is high, clients should be educated regarding the relapse process and taught skills to effectively cope with an initial lapse in order to prevent an escalation to a full-blown relapse. These skills may be particularly important for chemically dependent women because, as found in the present study, they are not likely to return to abstinence following an initial lapse. Previous studies have not addressed patterns of relapse for chemically dependent women; therefore future studies should investigate gender differences and similarities in patterns of relapse.
Strengths and Limitations of the Present Study

The present study is an improvement over previous studies attempting to validate Marlatt and Gordon's Relapse Model. Only one published study (Miller et al., 1996) prior to the present study has attempted to determine the unique contributions of coping, self-efficacy, and expectancies to the prediction of relapse. In the majority of studies conducted to date, individual components of the Relapse Model have been tested to determine their relationship to relapse, but only Miller et al.'s study and the present study have tested the model in its entirety.

Perhaps the most significant finding was that the second part of Marlatt and Gordon's model is not relevant for women. Specifically, if a woman experiences a lapse after she completes treatment, she is unlikely to return to abstinence (at least within the first three months). This finding has important implications for treating chemical dependency in women. As previously discussed, if relapse is the most likely outcome for chemically dependent women, then treatment should involve preparing them for this possibility.

Another strength of the present study is that an all-female sample was used. Previous studies used all-male samples or used mixed samples without testing for gender differences. As a result, the post-treatment experiences of chemically dependent women have not been explored sufficiently. Treatment and relapse prevention programs that are based primarily on Marlatt and Gordon's Relapse Model are therefore based on the experiences of male substance users. This study has helped identify issues which may be important in the treatment of substance use in women.
Another strength of the present study is its prospective design. Participants’ scores on the measures completed just prior to their first lapse were used to predict relapse. Since the women in the present study relapsed at different times in the follow-up period, it was possible to determine their self-efficacy and coping behaviour within 30 days of their lapse. Also, participants were asked to fill out a questionnaire immediately following their first lapse, so it was possible to determine if self-efficacy fluctuated as a function of post-treatment substance use. Multiple follow-up periods were used in order to determine how coping and self-efficacy fluctuated after the women left treatment. In previous studies, participants’ self-efficacy and coping were often measured retrospectively (e.g., Annis et al., 1998; Bliss et al., 1989; Cronkite & Moos, 1980; ) or were measured several months before the actual relapse (e.g., Burling et al., 1989; Ito & Donovan, 1990; Gossop et al., 1990). The present study’s methodology allowed for the exploration of the complex pattern of changes in self-efficacy following treatment.

The recruitment technique used in this study was also a strength. The researcher went to each treatment centre to recruit participants for the present study. The personal contact helped establish trust and rapport between the researcher and the participants. Very few clients refused to participate in the study (12.5%). The sample was comprised of women from very different backgrounds. For example, there was a wide range in the age (15 to 59 years) and ethnicity (17% non-whites) of participants. Women were recruited from both rural and urban treatment centres. The women in the sample also indicated that they were addicted to a wide variety of drugs. In fact, only one-third of the sample indicated that they were addicted only to alcohol. In order for the Relapse Model to be
useful, it must be applicable to any individual who approaches a centre for substance abuse treatment. Research using diverse samples leads to better theory-testing, application, and modification.

While this study attempted to improve upon previous studies, there were some limitations which must be acknowledged. First and foremost, although the original sample was comprised of 98 women, follow-up information was obtained from only half of the participants. In order to increase the power of some of the statistical analyses, a higher critical level of significance was used when necessary. Increasing the alpha level may have also increased the likelihood of a Type I error. In other words, some of the results which were significant at alpha = .10 may have occurred simply by chance. These results should be interpreted with caution.

Previous studies have reported follow-up return rates ranging from 97% (Walton, Ramanathan, & Reischl, 1998) to less than 50% (Capaldi & Patterson, 1987). The rates vary according to the tracking methods implemented and the compensation offered for returning follow-up measures. LaPorte, McLellan, Erdlen, and Parent (1981) have suggested that studies with a follow-up rate higher than 60% are valid. Since the follow-up rate for the present study fell below this criteria, the findings may need to be replicated using a larger sample.

There were some significant differences between the women who provided follow-up information and those who did not. The women who did not complete any of the follow-up questionnaires were younger and were more likely to be addicted to heroin and to substances other than alcohol than the women who did provide follow-up information.
It is possible that the women who were lost in the follow-up had distinct characteristics: young, street drug addicts. It may be the case that these women were doing more poorly (i.e., have relapsed) and therefore chose not to complete any further questionnaires. The evidence for this possibility is mixed.

Some women returned completed questionnaires unprompted, while others required a reminder through the mail. There were significant differences between the prompted women and the unprompted women. The group of women who required the prompt were more likely to have used their chemical(s) of choice in the first month than the women who did not require a prompt. Based on this finding and based on the characteristics of the sample who did not complete the follow-up portion of the study, one could assume that the women who dropped out of the study probably relapsed. Researchers in previous studies have made this assumption and have coded non-responders as relapsed (e.g., Rychtarick et al., 1992); however, this may not be a safe assumption because three out of the nine women who sent in their questionnaires after being prompted had not relapsed. These findings suggest that there may be many reasons why some participants did not respond to the follow-up questionnaires. More research is needed to determine the reasons why some participants drop out of follow-up studies such as this one.

Previous studies have used different methods to monitor the alcohol and/or drug consumption of their participants. For example, similar to the present study, Moser and Annis (1996) asked their participants about the quantity and frequency of their drinking behaviour in the previous four weeks using the Timeline Follow-Back method. Other
studies instructed their participants to monitor their substance use on a daily basis (e.g., Condiotte & Lichtenstein, 1981; Marlatt and Gordon, 1980). There are strengths and problems associated with each method, but there are two concerns in particular which must be addressed. The first concern is that self-monitoring may act as an intervention in the study. The following passage was written on a survey by one of the participants:

My monthly participation also served as a very important deterrent [sic] (…) The study (filling out the questionnaire) posed as a constant reminder that I have a disease and I must never allow myself to become complacent about it (…) This participant clearly believed that taking part in the study and completing the follow-up questionnaires helped her maintain her sobriety.

The second concern with the data collection method is that post-treatment substance use is based on participants’ self-reports. Previous studies have used urine samples (e.g., Burling et al., 1989; Powell et al., 1993) and collateral informants (Stephens, Wertz, & Roffman, 1993) to verify the validity of participants’ self-reported alcohol and drug consumption. It may be the case that participants’ self-reports are unreliable, but there exists evidence which suggests that this is unlikely. Sobell and colleagues (Sobell, Maisto, Sobell, & Cooper, 1979) found that alcohol abusers’ self-reports of drinking behaviour over a six-week test-retest interval were highly reliable. In addition, Marlatt, Stephens, Kivlahan, Brief, & Banaji (1986, cited in Wells, Catalano, Plotnick, Hawkins, & Brattesani, 1989) reported that participants’ self-reports of alcohol consumption correlated significantly with those of a collateral. Fals-Stewart and
colleagues (2000) similarly provided evidence of the Timeline Followback's reliability and validity using a sample of drug users. It is likely that, in the present study, participants' self-reports of substance use are sufficiently reliable.

A large percentage of participants identified themselves as victims of violence (86%). Few differences were detected between victims and non-victims. It is possible that differences were not detectable simply because the comparison group of non-victims was too small. It may also be the case that the majority of the women in the sample identified themselves as victims due to the subjective nature of the definition of abuse. Using a measure of the severity of the victimization may have resulted in more specificity in the findings in relation to relapse. A balance is required between allowing participants to identify any traumatic events they experienced without using an experimenter-imposed definition which may fail to identify victims of violence and classifying victimization according to the impact it had on participants' lives.

While this study used multiple data collection periods, participants were followed-up for only three months. Most research shows that relapse occurs within the first 90 days after treatment (Marlatt and Gordon, 1980), but no information was collected regarding participants status after these 90 days. Multiple outcomes are possible. For example, it is possible that some women who were abstainers have now relapsed, some women who had relapsed may have returned to abstinence, or it is possible that some women have re-entered the treatment system. Ninety days may have been too short a follow-up period to determine final relapse status. Also, since self-efficacy was stable across the last three data collection periods, it would be interesting to measure self-efficacy six months or one
year after discharge from treatment to determine how self-efficacy fluctuates over longer periods of time.

An effort was made in the present study to use different treatment outcome measures; however, the outcome variables used were all related to alcohol and/or drug consumption. Many studies have used other indicators of treatment success such as depression (Cronkite & Moos, 1980), occupational functioning (Wilkinson & LeBreton, 1986) and criminal involvement (Gutierre & Reich, 1988). The present study investigated which variables predict alcohol and/or drug use, but these variables do not necessarily provide any information regarding how participants are functioning more generally in their lives.

**Directions for Future Research**

When testing Marlatt and Gordon's original Relapse Model, only self-efficacy and coping were significant predictors of relapse. This study found that victimization and multiple drug use in combination with expectancies also were predictors of relapse. Marlatt and Gordon's Relapse Model includes one behavioural variable (coping) and two cognitive variables (self-efficacy and expectancies) in the prediction of initial substance use. While the inclusion of these variables and the exclusion of other variables such as craving, temptations, and motivation appears arbitrary, it is important to recognize that relapse is a complex process. Marlatt and Gordon (1985) included these three variables because relapse prevention techniques could be targeted toward teaching clients coping skills, increasing their self-efficacy, and educating clients about the effects of alcohol and drug consumption. The findings of this study suggest that some other variables could
potentially have an impact on coping, self-efficacy, and expectancies. For example, there were significant correlations among these variables and victimization and multiple drug use. While it may seem that victimization is a variable not amenable to change, the effects of abuse have been effectively reduced through substance abuse treatment sensitive to issues of victimization (e.g., Harvey, Rawson, & Obert, 1994); therefore, an integrated substance abuse treatment approach may be most effective for these women. The impact of such a treatment program can be assessed by measuring changes in self-efficacy. An effective program would result in increased self-efficacy.

While targeting coping, self-efficacy, and expectancies in treatment is undoubtedly effective, attention must also be given to other factors which may have an impact on post-treatment functioning. Future studies could determine which factors would be relevant to address within a treatment program. For example, Cronkite and Moos (1980) conducted a comprehensive study which assessed the impact of pre-treatment, treatment, and post-treatment variables on post-treatment functioning. Among the pre-treatment variables they studied were pre-treatment substance use and demographic variables such as marital status, ethnicity, education, and age. Amount of treatment was determined by participation in AA sessions, group therapy, family therapy, lectures, Antabuse, aftercare treatment, and so on. Post-treatment variables included life stressors, coping responses, and family environment. In addition, treatment outcome was measured based on substance use, depression, and occupational functioning. Cronkite and Moos reported many direct and indirect effects of the predictors on treatment outcome, but post-treatment factors such as life stressors and coping behaviours had the strongest impact on outcome.
Future studies should investigate the relative contribution of pre-treatment, treatment, and post-treatment variables in the prediction of relapse in chemically dependent women.

The present study was purely quantitative in that participants' scores on measures of coping, self-efficacy, and expectancies were tested to see if they predicted post-treatment substance use. A quantitative study is limited in its ability to fully appreciate the post-treatment experiences of chemically dependent women. In order to understand the challenges faced by chemically dependent women after they are discharged from treatment, qualitative methodology should also be used in future studies so that women can be free to share all of their relevant experiences.

**Summary and Implications**

The results of the present study yielded mixed evidence for the applicability of Marlatt and Gordon's Relapse Model to chemically dependent women. When tested in its entirety on a sample of chemically dependent women, only self-efficacy and coping (variables from the original Relapse Model) predicted initial post-treatment substance use in chemically dependent women. For multiple drug users, high positive outcome expectancies, engaging in fewer coping behaviours, and low self-efficacy predicted relapse. For single drug users, low positive outcome expectancies and low self-efficacy predicted relapse. The model predicting relapse in multiple drug users was similar to Marlatt and Gordon's Relapse Model. The relapse model for single drug users did not conform to Marlatt and Gordon's predictions.

The majority of the women in the sample who relapsed did so on multiple occasions within the three-month follow-up period. Only one woman indicated that she
returned to abstinence following an initial lapse. Marlatt and Gordon hypothesized that the abstinence violation effect (AVE) would predict whether an individual returns to abstinence or continues to use substances following an initial post-treatment lapse. Since most of the relapsers did not return to abstinence, this would suggest that either chemically dependent women experience greater levels of the AVE than men when they lapse or that the AVE is a concept that simply does not apply to chemically dependent women. The relapse process in chemically dependent women may simply be different than the relapse process experienced by men. In either case, treatment service providers need to be aware that when their female clients use their chemical of choice after they leave treatment, they are unlikely to return to abstinence without further intervention and/or support.

A high proportion of the sample indicated that they had been victims of violence either as adults or children. Only childhood physical violence was predictive of relapse in the follow-up period; however, victimization was related to relapse only through its impact on self-efficacy. In addition, having been a victim of sexual abuse was related to poorer coping. Programs offering treatment to chemically dependent women must address issues of victimization in their clients, because victimization may have a direct and indirect impact on the recovery process.

While not directly related to relapse, nearly two-thirds of the sample had been physically assaulted as an adult - - in most cases, by their partner. This suggests that many of the women who complete treatment may be returning to a dangerous environment where they are physically abused by their partner, further complicating their recovery. Service providers must understand that substance abuse in women is only one element in a
complex recovery process which involves dealing with childhood victimization (e.g., Wadsworth, et al., 1995), partner abuse (e.g., Miller, Downs, & Gondoli, 1989), depression (Blume, 1992), financial and legal problems (Lex, Teoh, Mello, & Mendelson, 1990), health issues (Lex, 1990), and so on.

Finally the results of this study indicate that there are complex relationships among coping, self-efficacy, expectancies, victimization, and multiple drug use. Relapse prevention techniques focus on teaching clients coping skills, increasing self-efficacy, and educating clients about the effects of alcohol and drug consumption. This study demonstrated that these are not isolated issues but that victimization and multiple drug use are related to coping, self-efficacy, and expectancies. In order to treat chemical dependency in women, a comprehensive recovery program which seeks to increase self-efficacy through training in coping skills and which addresses victimization, multiple drug use, and other issues relevant to women is necessary.
Endnotes

1. There were no problems with literacy with one exception. Many participants indicated that they did not understand the meaning of one item from the Alcohol and Drug Expectancy Questionnaire: “I feel better if I am feeling restricted in any way.” The researcher explained the meaning of this item to each group of participants.
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APPENDIX A

DEMOGRAPHIC INFORMATION
1. What is your age? ____________________________

2. What is your ethnicity? Circle one option below.

Are you...?  
a) White  
b) Native Canadian/First Nations  
c) Black  
d) Hispanic  
e) Asian  
f) Biracial  
g) Other ____________________________

3. What is the highest level of education you completed? Circle one option below.

Did you complete...?  
a) Less than grade school  
b) Grade school  
c) Some high school  
d) High school  
e) Some post-secondary (e.g., college, trade school, university, etc.)  
f) Post-secondary schooling

4. What is your employment status? Circle one option below.

Are you...?  
a) Working Full-time  
b) Working Part-time  
c) Working Sometimes  
d) Not Working/Not Collecting Benefits  
e) Collecting Social Assistance  
f) Collecting Employment Insurance  
g) Collecting Disability  
h) Retired  
i) Other (please specify) ____________________________

5. What is your average annual household income? Circle one option below.

a) Less than $10,000  
b) $10,000 - $19,999  
c) $20,000 - $29,999  
d) $30,000 - $39,999  
e) $40,000 - $49,999  
f) Greater than $50,000

Continued on next page...
6. What is your sexual orientation? Circle one option below.

Are you...?  
  a) Heterosexual/Straight  
  b) Lesbian  
  c) Bisexual  
  d) Not Sure

7. What is your living situation? Circle one option below.

Are you...?  
  a) Single  
  b) Married/Cohabiting  
  c) Separated/Divorced  
  d) Widowed  
  e) Other ____________________________

8. How many children do you have? ____________________________

9. How many of your children are under the age of 18? ______________

10. Are you the primary caregiver of your children? Circle one option below.

    a) No  
    b) Yes
APPENDIX B

PRE-TREATMENT ALCOHOL AND DRUG USE HISTORY
Instructions: Please answer the following questions regarding your use of alcohol and other drugs.

- Part A: ALCOHOL USE

1. Have you used alcohol in the last 6 months? Circle one option.
   
   1) NO  2) YES

If NO, skip to Part B below.

2. On average, prior to beginning treatment, how often did you use alcohol? Circle one option.

   1) once a month  
   2) twice a month  
   3) 3 to 4 times a month  
   4) 2 to 4 times a week  
   5) more than 5 times a week

3. Is alcohol one of your primary chemicals of choice?

   1) NO  2) YES

4. Would you say that before coming to treatment, your alcohol use was a problem?

   1) YES, a major problem  2) YES, a minor problem  3) NO

5. How long has alcohol been a problem in your life?  years: ______  months: ______

- Part B: MARIJUANA USE (e.g., hashish, THC):

1. Have you used marijuana in the last 6 months? Circle one option.

   1) NO  2) YES

If NO, skip to Part C on next page.

2. On average, prior to beginning treatment, how often did you use marijuana? Circle one option.

   1) once a month  
   2) twice a month  
   3) 3 to 4 times a month  
   4) 2 to 4 times a week  
   5) more than 5 times a week

3. Is marijuana one of your primary chemicals of choice?

   1) NO  2) YES

4. Would you say that before coming to treatment, your marijuana use was a problem?

   1) YES, a major problem  2) YES, a minor problem  3) NO

5. How long has marijuana been a problem in your life?  years: ______  months: ______

   Continued on next page...
Part C: COCAINE/CRACK USE:

1. Have you used cocaine/crack in the last 6 months? Circle one option.
   
   1) NO  2) YES

If NO, skip to Part D below.

2. On average, prior to beginning treatment, how often did you use cocaine/crack? Circle one option.

   1) once a month  
   2) twice a month  
   3) 3 to 4 times a month  
   4) 2 to 4 times a week  
   5) more than 5 times a week

3. Is cocaine/crack one of your primary chemicals of choice?

   1) NO  2) YES

4. Would you say that before coming to treatment, your cocaine/crack use was a problem?

   1) YES, a major problem  2) YES, a minor problem  3) NO

5. How long has cocaine/crack been a problem in your life?  
   years: _____  months: _____

Part D: HEROIN USE:

1. Have you used heroin in the last 6 months? Circle one option.

   1) NO  2) YES

If NO, skip to Part E on next page.

2. On average, prior to beginning treatment, how often did you use heroin? Circle one option.

   1) once a month  
   2) twice a month  
   3) 3 to 4 times a month  
   4) 2 to 4 times a week  
   5) more than 5 times a week

3. Is heroin one of your primary chemicals of choice?

   1) NO  2) YES

4. Would you say that before coming to treatment, your heroin use was a problem?

   1) YES, a major problem  2) YES, a minor problem  3) NO

5. How long has heroin been a problem in your life?  
   years: ______  months: _____

Continued on next page....
Part E: TRANQUILIZER USE (e.g., Librium, Valium, Thorazine, Lithium):

1. Have you used tranquilizers in the last 6 months? Circle one option.

   1) NO          2) YES

If NO, skip to Part F below.

2. On average, prior to beginning treatment, how often did you use tranquilizers? Circle one option.

   1) once a month
   2) twice a month
   3) 3 to 4 times a month
   4) 2 to 4 times a week
   5) more than 5 times a week

3. Are tranquilizers one of your primary chemicals of choice?

   1) NO          2) YES

4. Would you say that before coming to treatment, your tranquilizer use was a problem?

   1) YES, a major problem
   2) YES, a minor problem
   3) NO

5. How long have tranquilizers been a problem in your life?   years:   months:   

Part F: NARCOTIC/OPIATE/PAIN MEDICATION USE:

1. Have you used narcotics, opiates or pain medications in the last 6 months? Circle one option.

   1) NO          2) YES

If NO, skip to Part G on next page.

2. On average, prior to beginning treatment, how often did you use these types of drugs? Circle one option.

   1) once a month
   2) twice a month
   3) 3 to 4 times a month
   4) 2 to 4 times a week
   5) more than 5 times a week

3. Are narcotics, opiates and/or pain medications one of your primary chemicals of choice?

   1) NO          2) YES

4. Would you say that before coming to treatment, your narcotic, opiate or pain medication use was a problem?

   1) YES, a major problem
   2) YES, a minor problem
   3) NO

5. How long have these drugs been a problem in your life?   years:   months:   

Continued on next page....
• Part G: **INHALANT USE (e.g., glue, gasoline, paint thinner):**

1. Have you used inhalants in the last 6 months? Circle one option.

   1) NO    2) YES

If NO, skip to Part H below.

2. On average, prior to beginning treatment, how often did you use inhalants? Circle one option.

   1) once a month
   2) twice a month
   3) 3 to 4 times a month
   4) 2 to 4 times a week
   5) more than 5 times a week

3. Are inhalants one of your primary chemicals of choice?

   1) NO    2) YES

4. Would you say that before coming to treatment, your inhalant use was a problem?

   1) YES, a major problem    2) YES, a minor problem    3) NO

5. How long have inhalants been a problem in your life?   years: _____  months: _____

• Part H: **OTHER DRUG/CHEMICAL USE (Please specify: ______________________):**

1. Have you used this drug in the last 6 months? Circle one option.

   1) NO    2) YES

If NO, go on to next page.

2. On average, prior to beginning treatment, how often did you use this drug? Circle one option.

   1) once a month
   2) twice a month
   3) 3 to 4 times a month
   4) 2 to 4 times a week
   5) more than 5 times a week

3. Is this drug one of your primary chemicals of choice?

   1) NO    2) YES

4. Would you say that before coming to treatment, your use of this drug was a problem?

   1) YES, a major problem    2) YES, a minor problem    3) NO

5. How long has this drug been a problem in your life?   years: _____  months: _____
APPENDIX C

TIMELINE FOLLOWBACK
INSTRUCTIONS:

1. It is important that for each day in the time period specified on the calendar on the next two pages, you write a number indicating the number of drinks/joints/hits/pills for each of the substances you consumed. In reporting your total daily consumption of alcohol, we would like you to report it in number of drinks. For other drugs, list the number of joints, hits, pills, or other appropriate quantity.

2. On the days where you did not use any alcohol or drugs, mark those days with a "0".

3. On the days that you did use any of your chemical(s) of choice, write which substance you used and how much of each you used (i.e., number of drinks/joints/hits/pills). For example, if you drank a glass of wine with dinner, a drink containing 1.5 ounces of hard liquor after dinner and smoked a joint, you would write that you had 2 standard drinks, and 1 joint of marijuana. The important thing is to make sure that something is filled in for each day.

4. In filling out the calendar, we would like you to be as accurate as possible. However, if you cannot recall whether you consumed an alcoholic beverage on Monday or Thursday of a certain week, or whether it was the week of November 9th or the week of November 16th, give it your best shot!

The purpose of the calendar is to get as accurate a picture of what your chemical use pattern has been like for the past month in terms of number of drinking/using days and number of uses per day.

HELPFUL HINTS:

- If you have an appointment book or a daily diary available, you can use it to help you recall your drinking.

- As you will notice, standard holiday days are marked on the calendar to help your recall; you can also write in special holidays such as birthdays, vacations, celebrations.

- Some people have regular drinking patterns and this can help them in filling out the calendar. For example, you may have a weekend/weekday change in your pattern of chemical use, or your use may be different depending on the season, or whether you are on holidays or business trips.

Please answer the following two questions:

1. Are you currently attending after care treatment?   _____ Yes   _____ No

2. Have you attended all of the after care sessions?   _____ Yes   _____ No

Thank you. Now please complete the calendar.
TIMELINE FOLLOW-BACK CALENDAR

**TO BE FILLED OUT: AUGUST 8, 1999**

Follow-back (30 days): JULY 8 to AUGUST 7, 1999

<table>
<thead>
<tr>
<th></th>
<th>SUNDA</th>
<th>MONDAY</th>
<th>TUESDAY</th>
<th>WEDNESDAY</th>
<th>THURSDAY</th>
<th>FRIDAY</th>
<th>SATURDAY</th>
</tr>
</thead>
<tbody>
<tr>
<td>JUL</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
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<td>20</td>
<td>21</td>
</tr>
<tr>
<td>JUL</td>
<td>22</td>
<td>23</td>
<td>24</td>
<td>25</td>
<td>26</td>
<td>27</td>
<td>28</td>
</tr>
<tr>
<td>JUL</td>
<td>29</td>
<td>30</td>
<td>31</td>
<td>32</td>
<td>33</td>
<td>34</td>
<td>35</td>
</tr>
</tbody>
</table>
**TO BE FILLED OUT: AUGUST 8, 1999**

<table>
<thead>
<tr>
<th></th>
<th>SUNDAY</th>
<th>MONDAY</th>
<th>TUESDAY</th>
<th>WEDNESDAY</th>
<th>THURSDAY</th>
<th>FRIDAY</th>
<th>SATURDAY</th>
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<tbody>
<tr>
<td><strong>AUG</strong></td>
<td><strong>1</strong></td>
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<td><strong>3</strong></td>
<td><strong>4</strong></td>
<td><strong>5</strong></td>
<td><strong>6</strong></td>
<td><strong>7</strong></td>
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<tr>
<td><strong>UST</strong></td>
<td><strong>8</strong></td>
<td><strong>9</strong></td>
<td><strong>10</strong></td>
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<td><strong>12</strong></td>
<td><strong>13</strong></td>
<td><strong>14</strong></td>
</tr>
<tr>
<td><strong>1999</strong></td>
<td><strong>15</strong></td>
<td><strong>16</strong></td>
<td><strong>17</strong></td>
<td><strong>18</strong></td>
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<td><strong>21</strong></td>
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<tr>
<td><strong>9</strong></td>
<td><strong>22</strong></td>
<td><strong>23</strong></td>
<td><strong>24</strong></td>
<td><strong>25</strong></td>
<td><strong>26</strong></td>
<td><strong>27</strong></td>
<td><strong>28</strong></td>
</tr>
<tr>
<td><strong>9</strong></td>
<td><strong>29</strong></td>
<td><strong>30</strong></td>
<td><strong>31</strong></td>
<td>**</td>
<td>**</td>
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</tr>
</tbody>
</table>

Follow-back (30 days): July 8 to August 7, 1999
**INSTRUCTIONS:** If there are times when you want to start using your chemical of choice again, how do you try to stop yourself? Here are a list of ways some people have tried to stop themselves. Which of these ways have you tried? There are four choices: Usually, Often, Sometimes, and Never. Please circle the number which comes closest to how often you have used these ways to stop yourself from starting to use again. There are no right or wrong answers or trick questions. We want to know what you have tried.

**PLEASE INDICATE HOW OFTEN YOU HAVE TRIED EACH OF THE FOLLOWING TO STOP YOURSELF FROM USING:**

<table>
<thead>
<tr>
<th></th>
<th>Usually</th>
<th>Often</th>
<th>Sometimes</th>
<th>Never</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Thinking about how much better off I am without my chemical(s) of choice</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>2. Telephoning a friend</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>3. Keeping in the company of non-users</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>4. Thinking positively</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>5. Thinking of the mess I've got myself into through using alcohol/drugs</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>6. Stopping to examine my motives and eliminating the false ones</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>7. Thinking of the promises I've made others</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>8. Staying indoors -- hiding</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>9. Pausing and really thinking the whole chemical use cycle through</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>10. Leaving my money at home</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>11. Recognizing that life is no bed or roses but using alcohol/drugs is not the answer</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>12. Going to an AA or NA meeting</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>13. Knowing that by not using I can show my face again without fear of what others will think</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>14. Cheering myself up by buying myself something special instead</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>15. Facing up to my bad feelings instead of trying to drown them</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>16. Working harder</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>17. Realizing it's just not worth it</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
</tbody>
</table>

*Continued on next page...*
PLEASE INDICATE HOW OFTEN YOU HAVE TRIED EACH OF THE FOLLOWING TO STOP YOURSELF FROM USING:

<table>
<thead>
<tr>
<th></th>
<th>Question</th>
<th>Usually</th>
<th>Often</th>
<th>Sometimes</th>
<th>Never</th>
</tr>
</thead>
<tbody>
<tr>
<td>18</td>
<td>Waiting it out until everything is shut</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>19</td>
<td>Remembering how I've let my friends and family down in the past</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>20</td>
<td>Keeping away from people who use alcohol/drugs</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>21</td>
<td>Going for a walk</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>22</td>
<td>Looking on the bright side and trying to stop making excuses for myself</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>23</td>
<td>Realizing it's affecting my health</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>24</td>
<td>Start doing something in the house</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>25</td>
<td>Considering the effect it will have on my family</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>26</td>
<td>Reminding myself of the good life I can have without alcohol/drugs</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>27</td>
<td>Getting in touch with old drinking/using friends who are better now</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>28</td>
<td>Making up my mind that I'm going to stop playing games with myself</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>29</td>
<td>Eating a good meal</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>30</td>
<td>Avoiding places where I drank/used drugs</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>31</td>
<td>Thinking about all the people who have helped me</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>32</td>
<td>Saying I am well and wish to stay</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>33</td>
<td>Going to sleep</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>34</td>
<td>Remembering how it affected my family</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>35</td>
<td>Forcing myself to go to work</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>36</td>
<td>Trying to face life instead of avoiding it</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
</tbody>
</table>
APPENDIX E

DRUG AVOIDANCE SELF-EFFICACY SCALE (DASES)
**INSTRUCTIONS:** Please circle a number from 1 to 7 for each question, indicating what you would be likely to do in each situation.

1. Imagine that you are going to a party where you will meet new people. You feel that drug/alcohol use will relax you and make you more confident. Could you avoid drug/alcohol use?

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<th>6</th>
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<tbody>
<tr>
<td>certainly</td>
<td>no</td>
<td>very</td>
<td>likely</td>
<td>probably</td>
<td>really</td>
<td>probably</td>
<td>very</td>
</tr>
<tr>
<td>no</td>
<td>no</td>
<td>can't</td>
<td>say</td>
<td>yes</td>
<td>likely</td>
<td>yes</td>
<td>certainly</td>
</tr>
</tbody>
</table>

2. Imagine that you have just blown a good job, you are home alone and depressed. Would you give in to the urge to take drugs/alcohol which are in the house?

<table>
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<th></th>
<th>1</th>
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<tr>
<td>certainly</td>
<td>no</td>
<td>very</td>
<td>likely</td>
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<td>really</td>
<td>probably</td>
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<tr>
<td>no</td>
<td>no</td>
<td>can't</td>
<td>say</td>
<td>yes</td>
<td>likely</td>
<td>yes</td>
<td>certainly</td>
</tr>
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</table>

3. Imagine that you are home with a loved one, and feeling angry after a fight. You want to make up, but at the same time you want to use your chemical of choice. Could you resist the urge to take drugs/alcohol?

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<tr>
<td>certainly</td>
<td>no</td>
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<td>very</td>
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<tr>
<td>no</td>
<td>no</td>
<td>can't</td>
<td>say</td>
<td>yes</td>
<td>likely</td>
<td>yes</td>
<td>certainly</td>
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</tbody>
</table>

4. Imagine that you are feeling good and have no responsibilities for a couple of days. The only thing you see against using a bit of your chemical of choice is that you have promised yourself you would go straight for 2 months, and you still have 3 weeks to go. Would you take drugs/alcohol?

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<tr>
<td>certainly</td>
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<td>likely</td>
<td>probably</td>
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<td>probably</td>
<td>very</td>
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<tr>
<td>no</td>
<td>no</td>
<td>can't</td>
<td>say</td>
<td>yes</td>
<td>likely</td>
<td>yes</td>
<td>certainly</td>
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Continued on next page...
5. Imagine it is late, you cannot sleep and drugs/alcohol are available in the house. You have decided not to use drugs. Could you resist the urge to use drugs to help you get to sleep?

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<th>1</th>
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<th>7</th>
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</thead>
<tbody>
<tr>
<td>certainly no</td>
<td>very likely no</td>
<td>probably no</td>
<td>really can't say</td>
<td>probably yes</td>
<td>very likely yes</td>
<td>certainly yes</td>
</tr>
</tbody>
</table>

6. Imagine that a new job is starting tomorrow, you are going out with friends and expecting a good time. Could you resist the urge to celebrate with drugs/alcohol?

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<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>certainly no</td>
<td>very likely no</td>
<td>probably no</td>
<td>really can't say</td>
<td>probably yes</td>
<td>very likely yes</td>
<td>certainly yes</td>
</tr>
</tbody>
</table>

7. Imagine that you are home with your loved one, and very angry after a fight. You are tempted to get back at your loved one by using your chemical of choice. Would you give in to the temptation?

<table>
<thead>
<tr>
<th>1</th>
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<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>certainly no</td>
<td>very likely no</td>
<td>probably no</td>
<td>really can't say</td>
<td>probably yes</td>
<td>very likely yes</td>
<td>certainly yes</td>
</tr>
</tbody>
</table>

8. Imagine that a very important relationship has just ended, and you are very depressed. Would you give in to the urge to take drugs/alcohol?

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</thead>
<tbody>
<tr>
<td>certainly no</td>
<td>very likely no</td>
<td>probably no</td>
<td>really can't say</td>
<td>probably yes</td>
<td>very likely yes</td>
<td>certainly yes</td>
</tr>
</tbody>
</table>

9. Imagine that you have run into two friends who are celebrating a $100 lottery win with drugs/alcohol. Could you resist their urging to join them in drug/alcohol use?

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<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>certainly no</td>
<td>very likely no</td>
<td>probably no</td>
<td>really can't say</td>
<td>probably yes</td>
<td>very likely yes</td>
<td>certainly yes</td>
</tr>
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</table>

Continued on next page...
10. Imagine that you are at a party and feeling uptight. Most people seem to be having a good time. You are tempted to use drugs/alcohol to loosen up. Would you?

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<tr>
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<th>1</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>certainly no</td>
<td>very likely no</td>
<td>probably no</td>
<td>likely no</td>
<td>can't say yes</td>
<td>probably no</td>
<td>very likely yes</td>
</tr>
</tbody>
</table>

11. Imagine that you promised yourself to stay straight for two months but you have just blown your 5-week record with one use or drink. Would this situation lead you to use or drink a second time?

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<tr>
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<th>1</th>
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<tbody>
<tr>
<td></td>
<td>certainly no</td>
<td>very likely no</td>
<td>probably no</td>
<td>likely no</td>
<td>can't say yes</td>
<td>probably no</td>
<td>very likely yes</td>
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</table>

12. Imagine that you had managed to stay straight for a near record time, but last night you blew it. Because of last night you are feeling weak. Would you take drugs/alcohol tonight?

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<tbody>
<tr>
<td></td>
<td>certainly no</td>
<td>very likely no</td>
<td>probably no</td>
<td>likely no</td>
<td>can't say yes</td>
<td>probably no</td>
<td>very likely yes</td>
</tr>
</tbody>
</table>

13. Imagine that you are home alone and depressed. Could you resist the urge to go out and find some drugs/alcohol?

<table>
<thead>
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</thead>
<tbody>
<tr>
<td></td>
<td>certainly no</td>
<td>very likely no</td>
<td>probably no</td>
<td>likely no</td>
<td>can't say yes</td>
<td>probably no</td>
<td>very likely yes</td>
</tr>
</tbody>
</table>

14. Imagine that a good friend has accused you of being insensitive. Now you are feeling hurt and tempted to use drugs/alcohol. Could you resist?

<table>
<thead>
<tr>
<th></th>
<th>1</th>
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<tbody>
<tr>
<td></td>
<td>certainly no</td>
<td>very likely no</td>
<td>probably no</td>
<td>likely no</td>
<td>can't say yes</td>
<td>probably no</td>
<td>very likely yes</td>
</tr>
</tbody>
</table>

Continued on next page...
15. Imagine that a good friend is feeling miserable. He or she wants you to join him or her in heavy discussion and drug/alcohol use to pick his or her spirits up. Could you resist the urge to take drugs/alcohol?

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<td>very likely yes</td>
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16. Imagine that you are home alone; it is a dull weekend with nothing in particular to look forward to. You are bored. Would you give in to the urge to use your chemical(s) of choice?

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APPENDIX F

ALCOHOL AND DRUG EXPECTANCY QUESTIONNAIRE (ADEQ)
**INSTRUCTIONS:** The following pages contain statements about the various effects of alcohol and/or drugs. Read each statement carefully and respond according to your own personal thoughts, feelings, and beliefs about the effects YOU expect from using your own chemical(s) of choice.

**RESPOND TO THESE ITEMS ACCORDING TO WHAT YOU PERSONALLY BELIEVE TO BE TRUE ABOUT YOUR OWN USE OF SUBSTANCES.**

Circle the number on the left hand side of each item which shows how much you agree or disagree with each statement.

---

**WHEN I USE MY CHEMICAL(S) OF CHOICE...:**

<table>
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<tr>
<th>Statement</th>
<th>Disagree Strongly</th>
<th>Disagree Somewhat</th>
<th>Uncertain</th>
<th>Agree Somewhat</th>
<th>Agree Strongly</th>
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<tbody>
<tr>
<td>1. I feel more creative</td>
<td>1</td>
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<td>2. I feel a &quot;rush&quot;, or a sudden sense of being &quot;swept away&quot;</td>
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<td>3. I feel better if I am feeling restricted in any way</td>
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<td>4. It is easier to open up and express my feelings</td>
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<td>5. I sleep better</td>
<td>1</td>
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<td>6. I feel more self-reliant than usual.</td>
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<td>7. The future seems brighter</td>
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<td>8. I feel more confidence in myself</td>
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<td>9. I become awake and alert</td>
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<td>10. I feel more satisfied with myself</td>
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<td>11. My feelings of isolation and alienation decrease</td>
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<td>12. I feel like more of a happy-go-lucky person.</td>
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<td>13. I worry less</td>
<td>1</td>
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<td>14. I feel freer to be myself and to do whatever I want</td>
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<td>15. I feel less tense and anxious</td>
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<th>WHEN I USE MY CHEMICAL(S) OF CHOICE...:</th>
<th>Disagree Strongly</th>
<th>Disagree Somewhat</th>
<th>Uncertain</th>
<th>Agree Somewhat</th>
<th>Agree Strongly</th>
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<td>16.</td>
<td>I feel more assertive</td>
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<td>17.</td>
<td>It is easier to get out of a depressed mood</td>
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<td>18.</td>
<td>I feel better physically</td>
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<td>19.</td>
<td>I feel as though everything is right in the world</td>
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<td>20.</td>
<td>I have a strong sense of well-being.</td>
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<td>21.</td>
<td>I don't worry as much what other people think of me.</td>
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<td>22.</td>
<td>I feel better than when I am not using substances.</td>
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<td>23.</td>
<td>My pain is deadened</td>
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<td>24.</td>
<td>I am more capable of getting things done</td>
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<td>25.</td>
<td>Get-togethers seem like more fun</td>
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<td>26.</td>
<td>I feel dreamy and mellow</td>
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<td>27.</td>
<td>It is easier to talk to people</td>
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<td>28.</td>
<td>I am more sociable</td>
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<td>29.</td>
<td>I feel a sense of relaxation</td>
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<td>30.</td>
<td>My activity level increases</td>
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<td>31.</td>
<td>I have a greater sense of being in control</td>
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<td>32.</td>
<td>I feel less shy.</td>
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<td>33.</td>
<td>I am more relaxed in social situations</td>
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<td>34.</td>
<td>I feel very happy</td>
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<td>35.</td>
<td>I think more clearly</td>
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<td>36.</td>
<td>It is easier to escape from problems and responsibilities.</td>
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APPENDIX G

SUBSTANCE USE ATTRIBUTIONAL STYLE QUESTIONNAIRE (SUASQ)
INSTRUCTIONS: You have consumed your chemical(s) of choice. Please answer the following questions.

1. Write down one major cause for having used your chemical of choice.

2. Is the cause of your use of alcohol and/or drugs due to something about you or due to something about other people or circumstances? (Circle one number)

   1  2  3  4  5  6  7
   Totally due to other people or circumstances
   Due partly to other people or circumstances AND due partly to me
   Totally due to me

3. In the future if you use your chemical(s) of choice again, will this cause be present? (Circle one number)

   1  2  3  4  5  6  7
   Will never again be present
   May or may not again be present
   Will always be present

4. Is the cause something that just influences your use of alcohol and/or drugs, or does it also influence other areas of your life? (Circle one number)

   1  2  3  4  5  6  7
   Influences just this particular situation
   Influences half the situations in my life
   Influences all situations in my life

5. How guilty do you feel about using your chemical(s) of choice? (Circle one number)

   1  2  3  4  5  6  7
   Not at all guilty
   Somewhat guilty
   Very guilty
APPENDIX H

HISTORY OF PHYSICAL AND SEXUAL ABUSE
INSTRUCTIONS: Please answer the following questions about your experiences with physical violence and sexual abuse.

1. Using your own definition of abuse, do you believe that you were ever physically abused as a child?
   1a. If yes, how old were you the first time? _____ (or _____ can't remember)
   1b. About how many times did this occur? _____ or a) daily b) weekly c) monthly
   1c. What was the relationship of the person(s) to you? List as many as apply.

2. As an adult, have you ever been physically hurt or attacked by someone -- such as husband, parent, another family member, or friend (for example, have you ever been kicked, bitten, pushed, or otherwise physically hurt by someone)?
   2a. How old were you at the last episode of physical abuse? _____
   2b. How many times were you physically abused as an adult? _____ or a) daily b) weekly c) monthly
   2c. What was the relationship of the person(s) to you? List as many as apply.

3. Using your own definition of abuse, were you ever sexually abused as a child?
   3a. If yes, how old were you the first time? _____ (or _____ can't remember)
   3b. About how many times did this occur? _____ or a) daily b) weekly c) monthly
   3c. What was the relationship of the person(s) to you? List as many as apply.

4. As an adult, have you ever been pressured into doing something more sexually than you wanted to do or were too young to understand? (By sexually we mean being pressured against your will into forced contact with the sexual part of your body or his/her body.)
   4a. How old were you at the last episode of sexual abuse? _____
   4b. How many times were you sexually abused as an adult? _____ or a) daily b) weekly c) monthly
   4c. What was the relationship of the person(s) to you? List as many as apply.
APPENDIX I

CONSENT FORM
INFORMATION SHEET

Research Conducted By: Renee Cormier, M.A., under the supervision of Charlene Senn, PhD
Department of Psychology
University of Windsor, Windsor, ON

This research is being conducted in order to understand what happens after substance-addicted women leave treatment. If you decide to take part in this study, you will be asked to answer some questions today, and again in one month, two months, and three months after you leave treatment. Also, you will be asked to answer more questions if you should use any substance within three months of leaving treatment. These questions will ask about your background, your past drug use, and your feelings and thoughts about your drug use. Today’s questions will take about 30 minutes to answer. The questions you answer after you leave treatment will take about 15 minutes each time.

Your responses are confidential - that is, your name will not be on any of the questionnaires. Instead, a code number, which appears on this consent form and all the questionnaires, will be used to match your surveys from the different times. However, this number will NOT be used to identify YOUR responses. The code number and your name, address, and phone number (all asked for on the next page) will be kept in a locked filing cabinet separate from the surveys.

If you choose to take part in this study, your responses will only be seen by the principal researcher (Renee Cormier) and the research advisor (Charlene Senn). Your participation is not related to your treatment or to your aftercare. Your responses will NOT be seen by any staff member at this treatment centre; and, your records at this treatment centre will NOT be seen by the researcher.

If you want to take part in this study, you will be given a complete package of all the surveys, the ones you will fill out today and other ones for you to complete later. The package also includes a sheet explaining how to complete all of the questions as well as a special calendar that tells you when to send them in. If I haven’t heard from you within a few weeks after the scheduled dates, I will call to remind you to send in your surveys. But at every stage you can decide to continue or to stop participating. Your participation is completely voluntary - - you do not have to take part in this study. You can refuse to answer any question and you can drop out of this study at any point for any reason without any penalty or effect on your treatment or aftercare.

If you decide to participate, we would like to thank you for your time by sending you $5 when you answer the questions at one month after treatment, $7 when you answer the questions at two months after treatment, and $10 when you answer the questions at three months after treatment. We will use the code number on the surveys we get back to tell us that we should send you your payment.

The results of this study will be used in a Doctoral Dissertation in Psychology at the University of Windsor. A copy of the final report of this study will be made available at your treatment centre by October, in the year 2000.

This survey has been cleared by the ethical review committee of the Department of Psychology. If you have any questions or concerns regarding this study, please contact any of the persons listed below.

Renee Cormier (Principal Researcher) 253-3000, ext. 2216 (leave message)
Dr. Charlene Senn (Research Advisor) 253-3000, ext. 2255
Dr. Doug Shore (Psychology Ethics Committee Chair) 253-3000, ext. 2253

***Please complete the attached form and seal it in the envelope provided. Please note that we have asked for your mailing address and your phone number. These are needed to mail you the money and to call you to remind you to fill out the questionnaires. Only the principal researcher will have this information and will only use it for these reasons.***

Please keep this form for your records. Thank you for your participation.
Consent Form

I, ____________________________, understand the
(please print your full name)

information provided on the Information Sheet and voluntarily consent to participate in
this study.

____________________________  __________________________
Signature                      Date

Mailing Address:

____________________________
No. Code

____________________________
Street  Apt.  City  Prov.  Postal

Telephone:

____________________________
Area Code  Home

Name and telephone number of someone who will always know how to reach you:

____________________________
Name  Phone

**Put this sheet in the small white envelope and seal it**
APPENDIX J

INSTRUCTIONS FOR COMPLETING MEASURES
THANK YOU FOR PARTICIPATING IN THIS STUDY.

Please find enclosed the following materials:

- 1 - change of address card
- 1 - 4-month calendar (marked with blue, red, and green dots)
- 4 - envelopes containing measures to be completed on designated dates (labelled: "1-Month Measures", marked with a blue dot; "2-Month Measures", marked with a red dot; "3-Month Measures", marked with a green dot; and "In the Case of a Lapse..."); each envelope also contains a self-addressed, stamped envelope in which to return the completed measures

INSTRUCTIONS:

- On the dates marked on your calendar (next page) with coloured dots, please open the appropriate envelope ("1-Month Measures", "2-Month Measures", or "3-Month Measures"), complete the enclosed measures and mail them in the pre-addressed, stamped envelope provided. You will be mailed $5 for the return of the 1-Month Measures, $7 for the 2-Month Measures, and $10 for the 3-Month Measures. Please keep the researcher advised of any changes to your address and/or phone number using the change of address card.

- If you use any of your chemical(s) of choice over the three months after you leave treatment, please complete and return the measures enclosed in the envelope marked "In the Case of a Lapse..." Please complete these measures within 24 HOURS of your FIRST LAPSE only.

- DO NOT WRITE YOUR NAME ON ANY OF THE MEASURES.

- If you have any questions or concerns please contact the treatment centre you recently attended and leave your name, phone number, and message for RENEE CORMIER.

ONCE AGAIN, THANK YOU FOR YOUR PARTICIPATION!
### JULY, 1999

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**D** = Discharge date  
**B** (to be replaced by blue dot) = Complete 1-Month Measures  
**R** (to be replaced by red dot) = Complete 2-Month Measures  
**G** (to be replaced by green dot) = Complete 3-Month Measures

194
APPENDIX K

LETTER PROMPTING PARTICIPANTS TO RETURN FOLLOW-UP PACKAGE
Date:

Dear Participant:

Recently, you took part in a study of women’s experiences after treatment. If you’ll remember, you answered questions when you were still in treatment, and then were asked to return some questionnaires after you left. Thank you so much for participating so far. I know how busy and stressful life can be so you may have lost or misplaced the questionnaire packages. I have enclosed one for you with this letter so that if you are still willing to participate, you can complete it now.

Please look over the enclosed questionnaire. It should take about 15 to 20 minutes to complete. If you choose to complete the questionnaire, fill it out and mail it in the enclosed pre-stamped, pre-addressed envelope. As promised before, you will be mailed $10.00 when I receive it.

Once again, I can’t stress enough how important it is for us to learn about the thoughts and experiences that chemically dependent women have during recovery. If we can learn from your struggles and your successes, we can help other women who are in the same position as you are. Thank you and I hope to hear from you soon!

Sincerely,

Renee Cormier

/encl.
VITA AUCTORIS

Renee A. Cormier was born June 28, 1971 in Saint-Claude, Manitoba. She received her high school diploma from Le Complexe Scolaire de Saint-Claude in July, 1989. She received her Honours Bachelor of Arts in Psychology in May, 1993 from the University of Manitoba and received her Master of Arts in Psychology in October, 1995. Since May, 1993, she has been enrolled in the Doctoral Program in Applied Social Psychology at the University of Windsor.