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Gender differences in alcohol and substance use relapse

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Abstract

This review explores gender differences in relapse and characteristics of relapse events in alcohol and substance use. For alcohol, relapse rates were similar across gender. Although negative mood, childhood sexual abuse, alcohol-related self-efficacy, and poorer coping strategies predicted alcohol relapse, gender did not moderate these effects. Gender did moderate the association between marriage and alcohol relapse. For women, marriage and marital stress were risk factors for alcohol relapse; among men, marriage lowered relapse risk. This gender difference in the role of marriage in relapse may be a result of partner differences in problem drinking. Alcoholic women are more likely to be married to heavy drinking partners than are alcoholic men; thus, alcoholic women may be put at risk of relapse by marriage and alcoholic men may be protected by marriage. There are fewer studies documenting gender differences in substance abuse relapse so conclusions are limited and tentative. In contrast to the lack of gender differences in alcohol relapse rates, women appear less likely to experience relapse to substance use, relative to men. Women relapsing to substance use appear to be more sensitive to negative affect and interpersonal problems. Men, in contrast, may be more likely to have positive experiences prior to relapse.

Keywords: Relapse; Gender; Alcoholism; Substance abuse; Treatment; Outcome

In the last several decades, appreciation has increased for the importance of the role of gender in the prediction of alcohol and substance abuse treatment outcome. Prior to that time, most alcoholism and substance abuse[1] treatment research focused on the typical (i.e., male) patient, resulting in an under-representation of outcome literature relating to women (e.g., Vannicelli & Nash, 1984). Two relatively recent reviews of the literature on gender and treatment outcome have suggested that women may fare better after treatment in terms of general treatment outcome. The first review was a quantitative and qualitative review by Jarvis (1992). Twenty reports with a total of 30 samples were analyzed via meta-analysis to evaluate gender differences in alcohol treatment outcome as a function of time after treatment. Jarvis' findings indicate that women had superior alcohol treatment outcome relative to men during the first year following treatment, although this effect was small. After 1 year, however, men showed greater improvement than women, but again, the effect was modest.

In a review by Toneatto, Sobell, and Sobell (1992) of 38 alcohol outcome studies, 31 (84%) included both genders; of the 16 substance abuse studies reviewed, 13 (81%) included both genders. Of the 31 alcohol studies, only 12 tested gender differences in outcome; 58% reported that women had better treatment outcome than men and the remaining

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[1] We will use the term substance abuse throughout the paper to refer to studies and programs where a drug other than alcohol was the primary substance of interest (but not to the exclusion of alcohol).

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42% reported no gender differences. Of the 13 substance abuse outcome studies, only five tested gender differences; four reported no gender differences and one study reported that men had superior outcome. In sum, these two reviews suggest that women appear to have some advantage in alcohol treatment outcome, while gender appears not to be a factor in substance abuse outcome.

Understanding the potential influence of gender on treatment outcome and relapse is important in order to develop and provide the most effective forms of treatment. Previous research has identified gender differences in the amount, context, and consequences of alcohol use (e.g., Olenick & Chalmers, 1991) and drug use (e.g., Latkin et al., 1998; Robbins, 1989). Differences also are seen in the *effects* of alcohol (Graham, Wilsnack, Dawson, & Vogeltanz, 1998) and drugs (e.g., Lukas et al., 1996) by gender. Further, men and women make differential use of coping strategies and support systems (Sigmon, Stanton, & Snyder, 1995). Thus, it is plausible that men and women may respond differently to treatment. To evaluate this hypothesis, we have gathered empirical studies examining gender differences in relapse to alcohol and drug use. Exploring the nature of relapse across gender may identify areas that warrant further research, as well as lead to practical, adjunctive, gender-specific services to enhance existing treatment programs.

Connors, Maisto, and Zywiak (1996) have proposed a useful framework for understanding the array of interrelated factors that culminate in a relapse event. In brief, drawing on Moos and Finney's (1983) "systems model," Connors et al.'s paradigm includes five constellations of factors: background characteristics (e.g., age, gender, ethnicity), alcohol involvement and symptoms, treatment variables (e.g., duration, attendance), coping skills and responses (e.g., use of coping strategies, self-efficacy to refrain from drinking), and stressors (e.g., marital problems). In the presentation of their relapse framework, Connors et al. highlight the need for more studies of relapse using samples that include women. In our review, we have attempted to include components of Connors et al.'s model and to construct our review with these contributing characteristics in mind. We expand the use of the model beyond alcohol relapse by including substance use relapse events as well. Although our focus is on the role of gender (a background characteristic) in relapse, we are interested especially in how gender interacts with other aspects of the model. We begin our review by presenting general findings regarding relapse rates as a function of gender, followed by a section focusing on studies that consider marital and family factors as they pertain to relapse. Although marital and family factors could be categorized as background factors, as we will discuss, these factors also emerge as potential stressors (especially for women). Our next two sections focus on specific background characteristics that have been investigated in their relations to relapse: Mood and Affective Factors and Childhood Sexual and Physical Abuse. The next section, entitled Other Situational and Environmental Factors, includes background factors not covered elsewhere (e.g., family history), as well as stressors (e.g., interpersonal conflict). Consistent with Connors et al.'s model, we then present sections on Self-Efficacy and Coping and Treatment-Related Factors.

The conceptual relationship between alcohol and substance use *relapse* and general *treatment outcome* is complex. To the extent that relapse is conceptualized as the first occurrence of alcohol or substance use following treatment (or first use at some specified quantity), relapse and treatment outcome (e.g., measures of quantity-frequency of use, or, conversely, abstinence) may have little in common. When relapse is more broadly defined as a return to pretreatment levels of substance use (e.g., substance use of a specific quantity or more over a longer period of time), relapse and treatment outcome measures may be more strongly related.

Relative to the larger literature available on gender differences in alcoholism and substance abuse treatment outcome, a smaller body of work exists examining gender and episodes of relapse to alcohol or substance use. We identified the articles included in the current review using a variety of search strategies. First, we used PsycINFO to locate all empirical studies, chapters, and reviews that included a combination of the following terms: relapse, gender, gender differences, alcohol rehabilitation, drug rehabilitation, treatment outcome, alcoholism, substance abuse, drug abuse. Studies were included if they (1) included both men and women, (2) used relapse (variously defined) as an outcome variable, and (3) performed either gender-specific analyses or compared across gender. Within these citations, other articles were identified that had not been located by the initial search. Such articles were also included in our review when they met the above criteria. The characteristics of each study reported on throughout the paper are summarized in Table 1.

1. Gender and relapse to alcohol and substance use

Prior to examining gender differences in specific factors that relate to relapse events, we first explore rates of relapse and basic characteristics of relapse (e.g., time to relapse) as a function of gender.

Table 1
Sample characteristics and relapse information for studies summarized

Year	Authors	Treatment setting	Type of treatment (alcohol, drugs, both)	Initial sample size (by sex)	Follow-up sample size (by sex)	Length of follow-up	Definition of relapse	Relapse adjusted for gender?	Percent relapsed	Gender effect for time to relapse?	Other issues addressed
1998	Annis, Sklar, & Moser	Inpatient	Alcohol	Not reported	35 ♀, 90 ♂	12 weeks	Any use	N/A	46% ♀, 42% ♂, n.s.	Not reported	Mood, Self-efficacy
1998	Connors, Maisto, and Zywiak	Inpatient and outpatient	Alcohol	65 ♀, 77 ♂	$N=161$ at 6 months; $N=116$ at 12 months	6 months, 12 months	4 days of abstinence followed by any alcohol consumption	N/A	Not reported	Not reported	Marital/family, Mood, Situational/ Environmental
1992	Ellis and McClure	Inpatient	Alcohol	35 ♀, 40 ♂	6 months: 35 ♀, 40 ♂; $N=70$ at 12 months	6 months, 12 months	Any use	N/A	6 months: 55% ♀, 34% ♂; 1 year: 61% ♀, 47% ♂; significance not reported	Not reported	Situational/ Environmental
1997	Fiorentine, Anglin, Gil-Rivas, and Taylor (same sample as Gil-Rivas et al., 1997)	Outpatient	Substance abuse	$N=356$	182 ♀, 148 ♂	6 months after in-treatment interview (2–5 months post-tx)	Any use	N/A	22% ♀, 32% ♂ ($p<.05$)	No	Abuse history, Treatment
2000	Foster, Peters, and Marshall	Detox (inpatient)	Alcohol	41 ♀, 41 ♂	39 ♀, 40 ♂	12 weeks	≥21 drinks ♀, ≥14 drinks ♂ over 7 days	Yes	54% ♀, 70% ♂, n.s.	17 days ♀, 14 days ♂, n.s.	None
1991	Glenn and Parsons	Inpatient	Alcohol	Not reported	45 ♀, 58 ♂	14 months	≥17 drinks during 6 months prior to assessment	No	29% ♀, 48% ♂ significant	No	Mood
2000	Greenfield et al. (same sample as 1998 and 2002)	Inpatient	Alcohol	41 ♀, 59 ♂	$N=93$	Monthly for 12 months	≥3 drinks ♀, ≥5 drinks ♂	Yes	Not reported	No gender effect	Mood, Abuse history, Self-efficacy
1991	Hall, Havassy, and Wasserman	Inpatient and intensive outpatient	Cocaine	28 ♀, 76 ♂	$N=92$ at 12 weeks	12 weeks, 6 months	Any use	N/A	Men>women significant at 12 weeks and 6 months; percent not reported	Not reported	Mood, Self-efficacy

1995	Hodgins, el-Guebaly, and Armstrong (same sample as Hodgins et al., 1997, 1999)	Outpatient	Alcohol	29 ♀, 55 ♂	6 months: 25 ♀, 52 ♂, $N=57$ at 3 years	6 months, 12 months (1997), 3 years (1999)	Multiple definitions including both alcohol and drug use	No	No significant differences by gender (% not reported)	Not reported	Mood, Situational/ Environmental, Self-efficacy
1983	Litman, Stapleton, Oppenheim, Peleg, and Jackson	Inpatient	Alcohol	64 ♀, 192 ♂	N/A	N/A	N/A	N/A	N/A	N/A	Mood
1996	McKay, Rutherford, Cacciola, Kabasakalian-McKay, and Alterman	Inpatient and outpatient	Cocaine	N/A	33 ♀, 65 ♂	N/A	Use after 2 or more weeks of abstinence	N/A	N/A	N/A	Mood, Situational/ Environmental
2003	Pelissier, Camp, Gaes, Saylor, and Rhodes	Prison-based	Substance abuse	473 ♀, 1842 ♂	430 ♀, 1692 ♂	3 years	Evidence of (or reported) drug or alcohol use	N/A	42% ♀, 54% ♂ (included treated and untreated participants), significant	Not reported	Treatment
1985	Pickens, Hatsukami, Spicer, and Svikis	Inpatient (only if completed 25-day program)	Alcohol	N/A (retrospective follow-up)	57 ♀, 151 ♂	12 months	Any alcohol or drug use	N/A	No significant gender difference (percentage not reported)	No significant gender difference (days not reported)	Mood
1996	Rubin, Stout, and Longabaugh	Inpatient and outpatient	Alcohol	104 ♀, 126 ♂	N/A	N/A	Alcohol consumption to .10 BAC (preceded by 4 abstinent days)	Yes	N/A	N/A	Mood, Situational/ Environmental
1993	Saunders, Baily, Phillips, and Allsop	Not specified	Alcohol	44 ♀, 50 ♂	38 ♀, 31 ♂	3 months	>5 drinks ♀, >10 drinks ♂	Yes	47% ♀, 55% ♂, n.s.	38 days ♀, 27 days ♂ ($p<.01$)	Marital/family, Self-efficacy
1995	Schneider, Kviz, Isola, and Filstead	Inpatient	Alcohol	180 ♀, 412 ♂	94 ♀, 193 ♂	3 months up to 15 months	Any use	No	Not reported	Not reported	Marital/family, Treatment
1997	Weiss, Martinez-Raga, Griffin, Greenfield, and Hufford	Inpatient	Cocaine	37 ♀, 64 ♂	31 ♀, 43 ♂	6 months	Relapse to DSM-III-R dependence	N/A	To use 49% ♀, 75% ♂, significant; to dependence 22% ♀, 33% ♂, significant	Not reported	None

1.1. Relapse to alcohol use

Seven studies were identified that examined gender differences in alcohol relapse rates. The first three reports followed patients for a year or longer, three followed patients for a shorter time period, and the seventh investigated "relapses" that occurred prior to treatment. As is true throughout this review, the methodology utilized in these studies varies. The majority is prospective, whereas several rely on retrospective reports. Several studies use consecutive admissions for sample ascertainment; more use samples of convenience or only patients completing treatment. Finally, relapse is defined uniquely in virtually each study; some definitions of relapse specify any use, whereas others look at a minimum level of consumption during a specified time frame. Studies using a minimum level of consumption vary in terms of whether they adjust quantity of consumption by gender. Moreover, some studies report relapse rates, some report time to relapse, but few report both indices of outcome. The final study in this section (Rubin, Stout, & Longabaugh, 1996), although using an alcohol treatment sample, assessed a 'relapse' event that occurred *prior* to treatment entry.

Considering the studies that assess longer-term (1 year or greater) follow-ups first, Glenn and Parsons (1991) interviewed 58 men and 45 women monthly for 14 months after 12-step based treatment. This inpatient sample was, on average, 37 years old, with 13 years of education, and predominantly White (88%). The baseline assessment occurred at the completion of treatment; the follow-up questionnaire assessment occurred 14 months later. The treatment programs lasted between 28 and 35 days. At baseline, women were more likely than men to score higher on depressive symptomatology and psychosocial maladjustment, and to report previous treatment experiences. Relapse was defined as consumption of 10 oz or more of ethanol (roughly 17 drinks) over the course of the 6 months preceding the final interview. Men were significantly more likely to meet this definition of relapse (48%) than women (29%). Time to relapse was not presented.

Greenfield et al. (2000) (the same sample used for Greenfield et al., 1998, 2002) prospectively followed 41 women and 59 men for 1 year following inpatient alcohol treatment. Participants, who were consecutive admissions, were interviewed monthly about their use of alcohol. The sample was primarily White (94%), averaged 43 years old, and was well educated (79% had some college education). Fifty-seven percent of the sample had comorbid psychiatric disorders, primarily depression (38%) and anxiety (25%). Using gender-adjusted definitions of relapse (3 and 5 drinks or greater for women and men, respectively), no gender differences were demonstrated for time to relapse during the year following treatment. Unfortunately, relapse rates as a function of gender were not presented.

The one retrospective, longer-term study of relapse also reported no gender differences. Pickens, Hatsukami, Spicer, and Svikis (1985) contacted patients 12 months after they had successfully completed a 25-day inpatient alcoholism treatment program. The sample averaged 44 years of age; 51% were college graduates. Although specific rates and means are not presented, the authors indicate that for the 151 men and 57 women included in the report, no gender differences were found for rates of relapse to any alcohol (or alcohol and drug) use or time to relapse. As with the Glenn and Parsons (1991) report, this study is limited by focusing only on those who "successfully" completed the inpatient treatment program.

In the first of the three shorter-term outcome studies, Foster, Peters, and Marshall (2000) prospectively assessed 40 men and 39 women 12 weeks after inpatient detoxification from alcohol. This South London sample averaged 42 years of age and was predominantly White English (62%; 21% Irish; 11% Scottish). At baseline, women were more depressed and reported lower quality of life, more general health problems, and more physical symptoms, as compared to men. Relapse was defined for men as consuming at least 21 drinks and, for women, consuming 14 drinks, over the course of 7 days. Using this definition, the authors report no significant gender differences in either relapse rates (70% for men, 54% for women) or days to relapse (14 days for men, 17 days for women).

In the second shorter-term study, Saunders, Baily, Phillips, and Allsop (1993) reported 3-month follow-up data for 38 women and 31 men subsequent to participation in an alcohol treatment program. This Australian sample averaged 41 years of age and 52% had post secondary education. When gender-adjusted definitions of relapse were used (i.e., 5 and 10 drinks per episode for women and men), the women in their sample were as likely to relapse to heavy drinking at 3 months after intake as men (82% and 85%, respectively). However, women had a longer time to relapse (38 days) relative to men (27 days). It should be noted that the findings reported by Saunders et al. only considered the participants who were available for follow-up, and that the attrition rate differed for men (38%) and women (14%). Thus, it is impossible to know whether the higher rate of attrition in men was related to having relapsed. Therefore, interpretation of these data must be accepted cautiously.

In the third shorter-term study, Annis, Sklar, and Moser (1998) interviewed 35 women and 90 men, recruited from inpatient alcoholism treatment, at 4, 8, and 12 weeks following discharge. The sample was, on average, 41 years old. There was no difference in the proportion of men (42%) and women (45%) who relapsed to any alcohol use following treatment. Further, men and women did not differ in the types of relapse crisis situations described.

Finally, Rubin et al. (1996) retrospectively interviewed 126 men and 104 women from six different inpatient and outpatient alcoholism programs regarding their most recent *pretreatment* 'relapse' experience (defined as consuming alcohol to reach a .10 blood alcohol concentration, following 4 days of abstinence) prior to entering treatment. Although the age of the sample was not reported, the sample was predominantly White (82%) and had some college education (36%). No gender differences were found in the number of hours spent drinking, amount consumed, or on number of days to relapse using this gender-adjusted definition of relapse. It should be noted, however, that participants were reporting on a drinking event that occurred *prior to* treatment, unlike other studies where the drinking event (i.e., relapse event) occurred *after* a treatment experience.

1.2. Relapse to substance use

Fewer studies have reported on gender and relapse to drugs other than alcohol. Four treatment studies were identified: two examining rates of cocaine relapse, one examining relapse to a variety of drugs, and a fourth large-scale multi-site study examining prison-based substance abuse treatment programs.

In one of the two studies of cocaine-dependent patients, Weiss, Martinez-Raga, Griffin, Greenfield, and Hufford (1997) compared 37 women and 64 men consecutively hospitalized for cocaine dependence. This predominantly White (86%) sample had an average age of 32 years. Men were more likely to have a diagnosis of antisocial personality disorder (38%) than women (14%). Major depression (14%) and anxiety disorders (16%) were also prevalent, but did not differ by gender. Men and women were similar in pretreatment addiction severity, except that women had more severe family and social problems. Drug-use outcomes were classified as either consistent abstinence, non-dependent use (1 to 6 days of use in the previous 6 months), or relapse to cocaine dependence. Six months after treatment, 18% of the women and 33% of the men were lost to follow-up. Of those for whom outcome data were available, fewer women had relapsed to cocaine dependence relative to men (22% and 33%, respectively), and fewer women than men returned to cocaine use (49% and 75%, respectively).

The second study of relapse to cocaine use following treatment also demonstrated a higher rate of relapse for men than for women (Hall, Havassy, & Wasserman, 1991). This sample of 28 women and 76 men was about half Caucasian (52%) and the remainder African-American; the average age was 32 years. Participants were recruited from four inpatient programs and one intensive outpatient program. Following treatment discharge, participants were assessed weekly for 12 weeks, then again at 6 months after baseline. Women were less likely to have returned to cocaine use at 12 weeks ($p = .019$) and at 6 months following treatment ($p = .015$; percentages not reported), relative to men.

Fiorentine, Anglin, Gil-Rivas, and Taylor (1997) (same sample as Gil-Rivas, Fiorentine, Anglin, & Taylor, 1997) investigated 330 individuals (55% women) drawn from 26 outpatient drug treatment programs in Los Angeles County. Baseline and follow-up interviews were conducted 6 months apart, corresponding to between 2 and 5 months after treatment (i.e., depending on length of treatment). The average age of the sample was 35, the largest ethnic group was African-American (41%; 31% Caucasian; 26% Latino), and 26% had some college education. Women were less likely to be high school graduates and more likely to be younger, relative to men. At baseline, it was noted that women, relative to men, had "a variety of psychological factors empirically associated with relapse to drug use" (p. 659), including recent "emotional troubles," lifetime depression, and suicidal behavior. Fiorentine et al. defined relapse as return to drug use subsequent to treatment entry. Women were less likely to relapse to drug use relative to men; the relapse rate was 22% for women and 32% for men in the 6-month interval between interviews.

Finally, in a large, quasi-experimental study examining the efficacy of prison-based substance abuse treatment, Pelissier, Camp, Gaes, Saylor, and Rhodes (2003) followed incarcerated drug-using offenders for 3 years after prison release. Offenders were drawn from prison sites that either did or did not have drug abuse residential treatment programs, thus yielding a treated group and an untreated comparison group. Although the age of the sample was not reported, the average years of education was 11, and the sample was mostly White (61% of the men, 54% of the women). Of the 1193 treatment participants, 80% of the men and 70% of the women completed the 500 h of treatment. At baseline, men and women differed on many characteristics, indicating that women had more severe

problems. Women, relative to men, were more likely to use hard drugs on a daily basis (48% vs. 28%), have a depression diagnosis (33% vs. 16%), a history of mental health treatment (40% vs. 20%), and have a spouse with a drug problem (55% vs. 23%). Men were more likely to have a criminal history than women (69% vs. 40%) and to have a diagnosis of antisocial personality disorder (38% vs. 30%). Relapse rates were reported for the 1692 men and the 430 women who were released from prison to supervision and who had urine tests as a condition of supervision. Relapse was defined as any evidence or report of drug or alcohol use. There was a significant gender difference in the rate of relapse; overall, approximately 54% of the men and 42% of the women relapsed to drug use after release.

1.3. Summary

Considering the seven alcohol-related treatment relapse studies first, only two report gender differences in the occurrence of relapse or time to relapse. Glenn and Parsons (1991), using a 14-month follow-up period, reported that women were less likely to consume 17 or more drinks in the 6 months prior to the 14-month interview, relative to their male counterparts. The only other positive finding in this literature also favors women; Saunders et al. (1993) reported that women had a longer time to relapse than men during a 3-month follow-up period. The remaining seven comparisons (both relapse rates and time to relapse) did not yield significant gender differences.

While the data suggest that women and men relapse to alcohol similarly after treatment, an important caveat should be noted. A few studies (e.g., Foster et al., 2000; Glenn & Parsons, 1991) found that women began treatment with more poor-prognosis characteristics, aside from alcohol, relative to men. This is a finding that emerges frequently in the studies discussed throughout this paper. Also, women often began treatment with similar severity of alcohol involvement (Annis et al., 1998; Glenn & Parsons, 1991; Greenfield et al., 1998, 2000, 2002), yet research indicates that alcohol has a more deleterious effect on women (e.g., Graham et al., 1998; Lieber, 1997). Research that makes use of gender-adjusted definitions of relapse partially addresses this second issue. However, the indication that women may have other baseline characteristics that predict poor outcome, and have significantly more of these characteristics than their male counterparts, warrants consideration. For example, in studies where women have demonstrated substantially poorer prognosis characteristics at pretreatment, the acceptance of a "no gender difference" finding for relapse outcome should be made in the context of these baseline differences (i.e., suggesting that despite the similar relapse outcomes, women actually fare better in treatment given their poorer pretreatment prognosis).

Although there are substantially fewer substance abuse relapse studies, the pattern of findings is more consistent. Of the four studies reported here, all of the comparisons within these studies indicate that women were less likely to relapse to substance use following treatment. Similar to the alcohol studies described above, the three substance abuse studies that address baseline gender differences (Fiorentine et al., 1997; Pelissier et al., 2003; Weiss et al., 1997) all reported that women, relative to men, had one or more poorer prognostic characteristics for treatment outcome.

In sum, the evidence suggests that relapse rates to alcohol use do not differ between women and men, despite evidence that women are disadvantaged prognostically at pretreatment. In terms of other substance abuse, however, women appear to be less likely to experience post-treatment relapse, despite these poorer pretreatment prognostic indicators.

2. Marital and family factors

Marital and family issues are background characteristics as well as potential stressors, in terms of Connors et al.'s (1996) relapse model and these issues have received much attention in the literature related to drinking and alcohol problems (e.g., Collins, Leonard, & Searles, 1990) and alcohol treatment (e.g., O'Farrell & Fals-Stewart, 2003). As reviewed by Roberts and Leonard (1997), the transition into marriage typically has a protective effect against alcohol abuse and associated consequences. However, as a result of the gender differences in problem drinking, wives are more likely to be married to a problem drinker partner than are husbands. Further, Roberts and Leonard (1998) present data suggesting that married couples for whom the husband and wife have *discrepant* drinking patterns (one partner is a heavier drinker than the other partner) experience lower marital functioning relative to couples with similar drinking patterns (e.g., both partners were either heavier or lighter drinkers).

The treatment outcome literature, within both the alcoholism (e.g., O'Farrell & Fals-Stewart, 2003) and substance abuse (e.g., McCrady, Epstein, & Sell, 2003) fields, has recognized the importance of marital and family factors.

These recent reviews suggest that involving the spouse of the alcoholic or drug abuser in treatment improves general treatment outcome relative to individual treatment.

These findings suggest that marital functioning and partner drinking are influential in treatment outcome, and that women patients are more likely to have problem drinking and, possibly, substance abusing, husbands. We review three studies below that examine marital and family factors as a function of gender in posttreatment relapse to evaluate these interrelations.

2.1. Relapse to alcohol use

In all three of the studies described below, participants were in alcoholism treatment. In the first study, Connors, Maisto, and Zywiak (1998) recruited 77 men and 65 women who were entering alcohol treatment (78% inpatients, 32% outpatients). The average age of study participants was 34; 63% had completed high school; 56% were White and 35% were African American. Follow-up interviews were completed at 6 months (with an 88% follow-up rate) and 12 months (with an 82% follow-up rate) after treatment. Women in this sample were more likely than men to have current DSM-III-R diagnoses of major depression (25% vs. 8%) or PTSD (28% vs. 10%), and to report having been in outpatient psychiatric treatment (74% vs. 69%). Men tended to have longer histories of alcohol problems (12.3 years vs. 9.8 years). A relapse event, defined as the onset of drinking after four consecutive days of abstinence from alcohol, was reported by 33 men and 34 women. The event described pertained to the participant's first return to drinking during the 2 months prior to the 6 or 12 month assessment. Women and men were compared on factors that participants identified as influential in the onset and termination of the relapse events. In terms of factors contributing to the onset of a relapse event, women and men were similar overall on the majority of items assessed (e.g., feeling down, desire to drink, physical urges). The few gender differences that emerged indicated that more women than men reported spouse or partner factors (52% vs. 24%) and "letting down one's guard" (52% vs. 28%) as contributing to the onset of drinking. Similarly, women and men were comparable on the majority of factors contributing to the termination of a relapse (e.g., entering a treatment program, work problems, decided to stop). However, marital and family problems (reported by 44% of women vs. 16% of men) distinguished the genders in relation to the termination of a relapse event.

In a second study, Schneider, Kviz, Isola, and Filstead (1995) followed 180 women and 412 men for a minimum of 3 months, and some up to 15 months after discharge from inpatient alcoholism treatment. Participants were generally over 40 years old (65%), primarily White (95%), and over half had more than a high school education (54%). Women in this sample were more likely to report psychological problems in the 6 months prior to treatment, in contrast to men, who reported more legal and job-related problems. In terms of marital and family factors predicting relapse (defined as nonabstinence), marriage was protective for men for up to 15 months following treatment; for women, however, marriage contributed to risk of relapse at 3 months. It is noteworthy that there was substantial attrition from study participation; only 52% of participants initially enrolled in the study completed a follow-up interview.

Similar to the findings of Schneider et al. (1995), Saunders et al. (1993) (described in the preceding section) reported that men were more likely to relapse prior to 3-month follow-up if living alone; this effect was not found for women. Women, but not men, were more likely to relapse if they had fewer children living at home. As mentioned in the previous section, the gender-specific findings of this study should be interpreted with caution, given the different rates of attrition as a function of gender in this study.

2.2. Summary

Although only three studies were available for review that included this constellation of factors (and all were alcohol studies), the findings from the studies summarized in this section suggest that in addition to influencing men's and women's drinking generally, marital and family factors also play a role in vulnerability to relapse for both genders. Whereas being married appears to serve as a protective factor in men's relapse to alcohol use, it seems that women who are married are actually more likely to relapse (Schneider et al., 1995) and that marital stress may precipitate women's relapse to drinking following treatment (Connors et al., 1998). This gender difference–marriage serving as a protective factor for men but a risk factor for relapse for women–may be related to the earlier mentioned partner-differences in heavy and problem drinking. As married women are more likely to be married to a drinking spouse, marriage may be a risk factor. Married men are more likely to be married to a light or non-drinking spouse,

and marriage thus may serve as a protective factor for relapse. Unfortunately, the drinking status of the partners was not included in these reports, so this interpretation cannot be evaluated. It is also interesting to note that having more children in the home may serve as a protective factor for women (Saunders et al., 1993), although further evidence in studies with lower attrition rates is needed to substantiate this finding.

When considering how men and women may differ regarding relapse, general gender differences in drinking, aside from relapse, are important to bear in mind. Although not a relapse study per se, Olenick and Chalmers (1991) examined gender differences in drinking styles and reasons for drinking in women and men alcoholics and contrasted the resulting gender differences with those found in female and male controls. The gender differences noted in the alcoholic sample, but not found in the control sample, were related to drinking following marital problems. Specifically, the female alcoholics drank much more often as a result of marital conflict relative to their male counterparts; this was not true for the control sample. Multiple gender differences, not specific to this alcoholic sample, also were noted. Of particular relevance, men generally were more likely to report that their drinking was a cause of marital stress.

In sum, the few studies identified in this area suggest that, after alcoholism treatment, women appear to be more vulnerable to marital-related issues in terms of relapse, relative to men. The Olenick and Chalmers data suggest that alcoholic women are more likely, relative to men, to drink as a result of marital conflict. Men, problem drinking or not, are more likely than women to report that their drinking was a *cause* of marital stress. Because no studies were available that examined marital and family factors as they pertain to relapse to substance abuse, we are unable to speculate about the relevance of these issues to drug relapse.

3. Mood and affective factors

Another important background factor in treatment and relapse is the presence of depressive symptoms and mood disorders, both of which are frequently present in individuals with alcohol and substance use disorders (Kessler et al., 1996). Rates of depressive disorder are even more profoundly elevated among individuals entering treatment for alcohol problems (see Lynskey, 1998) and drug problems (Rounsaville & Kleber, 1985). Whereas alcohol and substance use disorders are more prevalent in men, mood disorders are more common in women (Kessler et al., 1994). Similarly, among individuals with an alcohol or substance use disorder, comorbid mood disorders tend to be more prevalent in women (Helzer & Pryzbeck, 1988; Kessler et al., 1997). These gender differences in comorbidity also are seen in individuals in alcohol and drug treatment (Brady, Grice, Dustan, & Randall, 1993). However, there is little consensus as to the influence of depression on alcohol and drug treatment outcomes (e.g., Charney, Paraherakis, Negrete, & Gill, 1998; Kranzler, Del Boca, & Rounsaville, 1996; Rounsaville, Dolinsky, Babor, & Meyer, 1987), and little conclusive data on whether gender moderates this relationship (see Greenfield, 2002; Zilberman, Tavares, Blume, & el-Guebaly, 2003).

As in the prior sections, more studies were found that investigated alcohol relapse, as compared to relapse to substance abuse. Studies included in this section investigated not only diagnoses and symptoms of depression, but also other aspects of affect, such as reports of transient negative mood, as precipitants of relapse.

3.1. Relapse to alcohol use

In the presentation of alcohol studies that investigated mood in relation to relapse, we begin with studies that focused mainly on diagnostic criteria or symptoms of depression, followed by studies that inquired about a variety of mood states, and conclude with studies where affective factors were included in the range of issues that contributed to relapse. In one study that used diagnostic criteria as a predictor of relapse, Greenfield et al. (1998) interviewed 40 women and 61 men monthly for 1 year after inpatient alcoholism treatment to examine the relations of depressive symptoms and/or diagnosis of current major depression with time to first drink and time to relapse (defined as drinking 3 or more drinks for women and 5 or more drinks for men). The sample had an average age of 43, was primarily college educated (79%), and was almost exclusively White (94%). Forty-six percent of the women in the study had a diagnosis of major depression versus 32% of the men, although this difference was not statistically significant. Likewise, no significant gender differences were found for depressive symptoms based on Beck Depression Inventory (BDI; Beck, Ward, Mendelson, Mock, & Erbaugh, 1961) scores at baseline. Although individuals with a current diagnosis of major depression had a shorter time to first drink and to relapse than those

without this diagnosis, gender did not moderate this relationship. Specifically, among those returning to any drinking, individuals with current major depression had median time to first drink of 38 days as compared to 125 days for individuals without a current diagnosis. Similarly, among those who *relapsed*, median days to relapse among depressed participants were 41 days compared to 150 days for non-depressed participants. In contrast, BDI depressive *symptoms* (as opposed to depression diagnosis) did not predict time to first drink or relapse.

In another set of studies, Hodgins et al. (Hodgins, el-Guebaly, & Armstrong, 1995; Hodgins, el-Guebaly, Armstrong, & Dufour, 1999; Hodgins, Ungar, el-Guebaly, & Armstrong, 1997) interviewed 29 women and 55 men at 3, 6, and 12 months following outpatient alcoholism treatment. The average age of participants in this sample was 37 years, all were White, and 74% had completed at least high school. At intake, all 84 participants (66% male) met criteria for alcohol dependence and 23% met criteria for a current diagnosis of depression, based on DSM-III-R criteria. Men (29%) were more likely to be depressed than women (10%), which is inconsistent with the usual finding that women in treatment for alcohol problems have a higher prevalence of depression than men (Brady et al., 1993). Overall, an unusually high percentage of participants (81%) had at some point in their life had at least one major depressive episode; this frequency did not differ by gender (Hodgins et al., 1999). At the 3-year follow-up (68% retention rate), Hodgins et al. (1999) reported that neither baseline nor lifetime diagnosis of depression predicted relapse at 1 or 3 years posttreatment. However, they found a strong positive association between depressive episodes that occurred *during* the follow-up interval and alcohol relapse (defined as any posttreatment alcohol consumption). Analyses were also performed using additional relapse definitions, such as six or more drinks on a given day. The authors did not report details of the gender-specific analyses, but stated that "no gender differences in outcome were found" (p. 155).

As detailed in an earlier section, Glenn and Parsons (1991), using a prospective design, interviewed 58 men and 45 women 14 months after inpatient alcoholism treatment. At baseline assessment, female participants in this sample had more symptoms of depression and general psychosocial maladjustment, as compared to their male counterparts. Glenn and Parsons reported that, although baseline depressive symptoms and psychosocial maladjustment predicted greater likelihood of relapse, gender did not moderate this relationship.

Two studies assessed the role of a variety of mood states (rather than symptoms) on relapse following treatment. In the first study, Pickens et al. (1985) reported no gender differences in their 12-month retrospective examination of the effect of four mood states (depression, anxiety, tension, or happiness) as contributors to relapse. In the second study, Connors et al. (1998) investigated affective factors in the onset and termination of relapse events over a 12-month follow-up period. Of the four affective factors assessed (feeling good, angry, down, and uptight), similar percentages of women and men reported these factors as contributing to relapse. In terms of their degree of influence on the relapse, only one of the four factors differed as a function of gender; women reported that "feeling uptight" contributed more to relapse than did men. In the examination of factors relevant to termination of relapse, "feeling bad emotionally" was reported by more women (56%) than men (32%); however, there were no gender differences in the degree to which this was influential or number of times it was endorsed.

Whereas some studies investigated depressive diagnoses, symptoms, and mood states as they relate to relapse, other studies queried participants about the range of issues, including affective factors, that contribute to relapse episodes. Using the same sample described previously, Hodgins et al. (1995) interviewed participants regarding relapse precipitants and reasons and strategies for terminating relapses. When describing precipitants of relapse (any use of alcohol or drugs) and precipitants of relapse crisis (strong temptation to use) during the previous 6 months, women reported precipitants relating to interpersonal conflict more often and negative emotional states less often than men. In another study, Annis et al. (1998) (described in an earlier section) found that when describing the most common relapse situations encountered which either led to relapse or led to temptation to drink following inpatient alcohol treatment, an equal proportion of men and women described negative emotional states as tempting.

A few additional alcohol studies reported selected findings relating mood states to relapses that occurred prior to the current treatment episode. In one such study, a questionnaire assessing relapse precipitants was administered to 192 men and 64 women presenting for inpatient alcoholism treatment in Great Britain (Litman, Stapleton, Oppenheim, Peleg, & Jackson, 1983; sample demographic information not provided). The questionnaire, completed at the beginning of treatment, asked patients about "situations dangerous to staying off drink." Although men and women did not differ in their report of unpleasant mood states leading to relapse, men did report that "external situations and euphoric states" were more dangerous with regards to relapse relative to women's reports. Rubin et al. (1996) retrospectively interviewed 126 men and 104 women from six different inpatient and outpatient programs regarding their most recent relapse experience (defined as consuming alcohol to reach a .10 blood alcohol concentration,

following 4 days of abstinence) before entering treatment. Although both men and women recalled experiencing negative affect *prior* to the relapse, men reported more positive affect *following* drinking relative to women.

As mentioned previously, gender differences in general drinking patterns must be kept in mind when considering differences between men and women on traits related to relapse. For example, Olenick and Chalmers (1991) examined gender differences among male and female alcoholics and controls and found that female alcoholics were more likely to use alcohol to enhance or alter their mood relative to male alcoholics; the reverse was true for the non-alcoholic control sample.

3.2. Relapse to substance use

In the first of two relevant studies, Hall et al. (1991) (described earlier) examined cocaine relapse in a sample of 76 men and 28 women as a function of positive mood, negative mood, and stressful life events. Although each of these factors predicted time to first use of cocaine during the 12-week follow-up period (negative mood and stress predicted a higher risk of use; positive mood predicted a lower risk of use), gender did not moderate any of these effects.

McKay, Rutherford, Cacciola, Kabasakalian-McKay, and Alterman (1996) interviewed 33 women and 65 men who had participated in substance abuse treatment outcome studies regarding a cocaine relapse that had occurred in the previous 6 months. The sample was primarily African American (79% of women and 88% of men); participants' average age was 33 years. Information was gathered regarding experiences during the week before the relapse, the day of the relapse, after initial use, and factors in terminating the relapse. Relapse was defined as one or more days of cocaine use after 2 weeks of abstinence. Regarding experiences the week prior to relapse and the day of relapse, women reported more unpleasant affect and interpersonal problems relative to men; men reported more positive experiences during that week. Interestingly, more women reported an impulsive quality to the relapse—56% indicated that they first thought of using immediately before the relapse compared to only 17% of the men. In reference to the time following the onset of relapse, more women reported initial help-seeking than men; more men reported self-justification for using and stronger appetitive reactions than women. There were no gender differences reported among the 79 participants who had terminated their relapse in terms of reasons for returning to abstinence.

3.3. Summary

Although some general treatment outcome studies have reported that individuals with comorbid depression and alcohol or substance abuse have better drinking outcomes (see Charney et al., 1998), this was not the case in the alcohol *relapse* studies. Without exception, the presence of depressive diagnosis, depressive symptoms, and negative mood states was related to an increased rate of relapse. The effect of mood on relapse was not a function of gender with the exception of one study, where women reported negative mood less frequently as a precipitant of relapse (Hodgins et al., 1995) relative to men. It is interesting to note that feeling bad emotionally was also reported as a reason for *termination* of a relapse, and that this reason was more likely to be mentioned by women (Connors et al., 1998). For men, positive emotional states were a potential contributor to relapse (Litman et al., 1983) and were more prevalent following relapse events (Rubin et al., 1996).

The finding of no gender differences in the contribution of mood to relapse to alcohol use was not the case for relapse to substance use, based on the findings of McKay et al. (1996). In this study, women were more likely than men to report relapse as a result of negative emotional states, whereas men were more likely than women to report that positive mood states contributed to their relapse. In a second study, Hall et al. (1991) reported no gender differences in the relationship between positive or negative mood and cocaine relapse.

It appears, then, that negative mood states and depression are risk factors for relapse to alcohol use in men and women, and possibly to substance use for women. Positive emotional states may also play a role in relapse to both alcohol and possibly substance use for men. The findings of the studies reviewed in this section provide strong evidence for the importance of mood-related issues in alcohol and substance abuse treatment and relapse.

4. Childhood sexual and physical abuse

Much has been theorized and written about the relationship between childhood sexual and physical abuse, adult alcohol consumption, and gender. A recent review of literature linking childhood abuse, adult alcoholism, and gender

(Langeland & Hartgers, 1998) concluded that, for women, childhood sexual or physical abuse is associated with a higher likelihood of developing alcohol problems later in adulthood. For men, however, the authors assert that the dearth of research in this area precludes any conclusions about the link between childhood abuse and later alcoholism. Langeland and Hartgers note that the most frequent interpretation of the association of childhood abuse and alcoholism among women is that substance use may be a means of self-medicating psychological consequences of early abuse. Bulik, Prescott, and Kendler (2001) examined the risks associated with sexual abuse and adult substance use and psychiatric disorders in a sample of 412 women who were abused during childhood. These data suggest that childhood abuse is a particularly detrimental, although non-specific, psychiatric risk factor. Particularly damaging are cases that involve attempted or completed intercourse, use of threats or force, abuse by a relative, or a negative response by a confidant. Also, their findings indicate that an intervening response that stops the abuse is protective against later psychopathology.

There is some evidence that childhood physical and sexual abuse has a negative impact on alcoholism and substance abuse treatment outcome (e.g., Haver, 1987; Kang, Magura, Laudet, & Whitney, 1999; Rosen, Ouimette, Sheikh, Gregg, & Moos, 2003), although this finding is not universal (e.g., Burgdorf, Chen, Walker, Porowski, & Herrell, 2004; Gutierres & Todd, 1997). In sum, because abuse may play an etiological role in the development of some alcohol disorders, at least in women, and may have a negative effect on treatment outcome, theorists have posited that a history of abuse also may be an important factor in addiction relapse (e.g., Young, 1995), especially among women.

4.1. Relapse to alcohol use

Two prospective studies were located that examine physical and sexual abuse in relapse as a function of gender—one focusing on inpatient alcoholics and the second on outpatient drug abusers. In the Greenfield et al. (2002) study, 41 women and 59 men were followed for 1 year following inpatient alcoholism treatment. Relapse was defined as three or more standard drinks for women and five or more for men. Considering sexual abuse first, more women (68%) than men (22%) reported abuse. For the sample as a whole, those reporting abuse were more likely to relapse (88% vs. 63% not reporting sexual abuse). There were no gender differences, however, on the influence of sexual abuse on time to first drink or to relapse (i.e., there was no interaction effect). Considering physical abuse, there was no gender difference in the report of abuse (54% women, 59% men), and physical abuse status was not related to time to first drink or relapse for the sample as a whole, or as a function of gender.

4.2. Relapse to substance use

Gil-Rivas et al. (1997) interviewed 359 individuals while they were participating in 26 outpatient drug treatment programs and conducted a telephone interview 6 months later with a 92% follow-up rate. This Los Angeles sample (which is the same as Fiorentine et al., 1997) had an average age of 35, was 45% African American (30% White; 25% Latino), with nearly 50% having completed high school. Gender differences were found in the prevalence of both sexual abuse (61% women vs. 13% men) and physical abuse (62% women vs. 45% men). For those reporting abuse, approximately half of the women were more likely to report that abuse had occurred on a daily or weekly basis compared to less than one-third of the men. A positive history of abuse was associated with the presence of psychopathology for both men and women. Specifically, sexual abuse was more often associated with psychological distress among women; in contrast, physical abuse appeared more often associated with distress among men. History of abuse was not associated with completion of the substance abuse treatment program. At 6-month follow-up, neither physical nor sexual abuse predicted relapse to drug use for men or women.

4.3. Summary

There are unfortunately few data from which to draw firm conclusions regarding the relationships between gender, relapse, and history of childhood abuse. The authors of both studies reported that women had higher rates of childhood sexual abuse relative to men; Gil-Rivas et al. (1997) reported that the substance abusing women had higher rates of physical abuse relative to their male counterparts. Only within the alcoholic sample did sexual abuse predict

time to first drink and time to relapse among both men and women. Neither study provided evidence that gender moderated the relationship between abuse and relapse rates, time to first drink, or time to relapse.

One important caveat to the absence of gender findings in this area, however, is the issue of under-reporting of sexual abuse (Widom, 1997), especially among men (see Cermak & Molidor, 1996; Romano & De Luca, 2001). If those individuals who are most psychologically affected by childhood abuse are more likely to under-report the abuse, the relationship between abuse and alcoholism treatment outcome and relapse may be obscured. Moreover, if the extent of under-reporting is influenced by gender, the absence of gender effects on the abuse/relapse relationship is uncertain.

5. Other situational and environmental factors

As we have already demonstrated, the factors that influence treatment outcome and relapse are numerous and complex. Although we already have presented findings demonstrating the effects of marital and family factors and childhood abuse, other contextual and interpersonal factors are likely to influence relapse in ways that may differ by gender. Moos et al. (e.g., Moos, Finney, & Cronkite, 1990) have written extensively on the effects of posttreatment life context on recovery. For example, individuals with supportive social networks are likely to fare better following treatment than those who have depleted their social resources. Similarly, supportive and cohesive family environments are more conducive to successful recovery (Moos et al., 1990). In this section, we review studies that have investigated whether gender influences the relationships of an assortment of situational and environmental factors and relapse—factors that would be categorized either as background factors or stressors, in the context of Connors et al.'s (1996) relapse model.

5.1. Relapse to alcohol use

One study of situational and environmental factors as contributors to alcohol relapse risk investigated the predictive utility of family history and demographic factors. In this study, Ellis and McClure (1992) followed individuals engaging in inpatient alcoholism treatment and found that among men, relapse was predicted by a positive family history of alcoholism (6 and 12 months), being unemployed (12 months only), and belonging to lower socioeconomic groups (6 months only); these effects were not present among women.

The other alcohol studies that examined situational and environmental factors focused primarily on interpersonal factors, such as the presence of others and the effects of interpersonal conflict. In their investigation of relapse precipitants, Connors et al. (1998) found that although interpersonal situations pertaining to family members (other than one's spouse) and non-family members sometimes contributed to relapse, the number of times reported and the degree of influence on relapse of these situations did not differ by gender. Rubin et al.'s (1996) retrospective relapse interviews found several gender differences concerning the environment in which a relapse occurs. Specifically, women were more likely to relapse in the company of a male or female friend or of a romantic partner. Men, in contrast, were more likely to relapse when alone. As mentioned in the section on mood and affective factors, Hodgins et al. (1995) found that interpersonal factors (specifically interpersonal conflict) were more likely to be reported as relapse precipitants by women than men; however, social influences and interpersonal considerations did not differ by gender in their reported contribution to relapse termination (Hodgins et al., 1997).

5.2. Relapse to substance use

Similar to the findings of Hodgins et al. (1997), McKay et al.'s (1996) study of cocaine relapse showed that women were more likely than men to report interpersonal problems in the week prior to relapse. Most participants reported being alone at the time of their relapse to cocaine use, however, the percentage did not differ for men (60%) versus women (62%). For those who were with others when their relapse occurred, there was no gender difference in likelihood of being in the presence of drug-using buddies or with casual friends.

5.3. Summary

Although few gender differences emerged, when combined with data from the marital and family section, the limited available data on situational and environmental factors suggest that at least for alcohol use, relapse may be

more of a social phenomenon for women, and more an issue of isolation for men. More specifically, whereas marital (e.g., Connors et al., 1998) and interpersonal conflict (Hodgins et al., 1995) seem to contribute to alcohol relapses in women, being alone (Rubin et al., 1996) or being unmarried (Schneider et al., 1995) seems to put men at risk for relapse. The finding of interpersonal conflict for women as a relapse precipitant was also reported for individuals relapsing to drug use (McKay et al., 1996); however, gender differences regarding being alone versus in the company of others did not emerge in the one study of relapse to drug use—among cocaine users, men and women were equally likely to relapse when alone (McKay et al., 1996).

6. Self-efficacy and coping

Coping skills and responses are one of the five critical aspects of Connors et al.'s (1996) model of relapse. Connors et al. describe self-efficacy as a component of coping skills and responses. In order to be the most inclusive, we have reported on studies that address self-efficacy, coping, or both. Whereas *self-efficacy* regarding potential relapse relates to one's belief in his or her ability to deal with difficult situations, *coping* is the behavioral act of implementing strategies to master these situations. Self-efficacy expectations have been found to be predictive of some aspects of recovery from alcohol abuse (e.g., Blomqvist, Hernandez-Avila, Burleson, Ashraf, & Kranzler, 2003; Rychtarik, Prue, Rapp, & King, 1992) and drug abuse (Rounds-Bryant, Flynn, & Craighead, 1997). Similarly, successful use of some active coping strategies has been found to predict better treatment outcome (e.g., Chung, Langenbucher, Labouvie, Pandina, & Moos, 2001). Below, we review the studies that relate self-efficacy or coping to relapse and gender.

6.1. Relapse to alcohol use

All of the reports located that addressed aspects of self-efficacy or coping were alcohol studies. Greenfield et al. (2000) followed 59 men and 41 women and tested whether patients' pretreatment global self-efficacy to refrain from drinking alcohol was associated with time to first drink and time to relapse (3+ drinks for women, 5+ drinks for men in 1 day) during 12 months after inpatient treatment. Although higher self-efficacy predicted longer time to first drink and to relapse for both men and women, no gender differences were noted.

Saunders et al. (1993), as previously described, examined relapse data at 3-month follow-up subsequent to alcohol treatment. Relapse was defined as at least 5 drinks for women and at least 10 drinks for men. Although several areas pertaining to self-efficacy and coping were measured (e.g., belief in the ability to control one's drinking, situational confidence, use of coping behaviors), the only significant gender-specific finding was that men who did not relapse reported greater resolve for long-term abstinence at intake interview relative to men who relapsed to heavy drinking; this difference was not found for women.

Annis et al. (1998) found no gender differences in whether coping strategies were used in an attempt to ward off relapse to alcohol use, nor in the types of coping strategies tried; both men and women most frequently used combined cognitive and behavioral coping strategies to deal with potential relapse situations. For both genders, use of any coping response was protective against relapse, and use of two or more coping strategies was more effective than use of only one tactic.

As described in the mood and affect section, Hodgins et al. (1997) interviewed participants regarding termination of drinking following relapses that occurred during the 1-year follow-up interval. Reasons for termination were coded as intrinsic, extrinsic, or both (see Curry, Wagner, & Grothaus, 1990); coping strategies used for return to sobriety were coded as either behavioral or cognitive (see Annis, Schober, & Kelley, 1996). There were no gender differences on the reasons for termination or use of cognitive versus behavioral coping strategies.

6.2. Relapse to substance use

In the only study that examined substance use relapse and self-efficacy, Hall et al. (1991) presented data bearing on the relationship between gender, self-efficacy, and cocaine relapse. In their report of 76 men and 28 women, they assessed whether clients endorsed a goal of "total abstinence, never use again" at intake and at each week of the 12-week follow-up. Although clients who endorsed the desire to "never use again" were less than half as likely to use

cocaine during the 12 weeks as those who did not endorse absolute abstinence, this effect was not moderated by gender.

6.3. Summary

Results were fairly consistent across all of the studies reviewed: although greater self-efficacy and use of coping strategies were related to better relapse outcomes for men and women, there were few gender differences in this finding. In fact, the only gender difference noted was Saunders et al.'s (1993) finding that for men, having higher resolve for long-term abstinence at intake was predictive of better relapse outcome; this result was not found for women. Therefore, although self-efficacy and coping are salient issues pertaining to alcohol and substance use relapse, these factors seem to hold equal import for men and women.

7. Treatment-related factors

As noted earlier, the alcohol and substance abuse treatment literature has suggested that there may be differences in the effect of treatment on relapse for men versus women. In their relapse model, Connors et al. (1996) suggest that particular aspects of treatment may contribute to a relapse event. Consistent with this idea, specific facets of the treatment experience have been related to treatment outcome, such as the number of therapeutic sessions (Miller, 2000), treatment compliance (Mattson et al., 1998), and whether treatment consists of group versus individual therapy (Fiorentine, 2001). Further, women may need or prefer treatment programs that offer a different array of services than what is desired by men (Grella, Polinsky, Hser, & Perry, 1999). Only a few studies, discussed below, have addressed how aspects of alcohol and substance abuse treatment may relate to relapse and how these aspects compare across gender.

7.1. Relapse to alcohol use

In the only study located that investigated treatment factors associated with relapse to alcohol use, Schneider et al. (1995) reported that, among women, a full inpatient stay in treatment was associated with increased risk of relapse during the follow-up period (between 3 and 15 months); this finding was not replicated for the male sample. The authors suggest that the women who relapsed may have remained in treatment longer due to having less self-efficacy for remaining abstinent, resulting in a higher risk for relapse relative to men; however, self-efficacy was not measured in this study so this interpretation cannot be evaluated. Schneider et al. also suggested the possibility that, because this particular program was comprised primarily of male patients, the program may not have ultimately met women's treatment needs.

7.2. Relapse to substance use

In the first study of treatment factors relevant to drug relapse, Fiorentine et al. (1997) interviewed 330 individuals (55% women) drawn from outpatient drug treatment programs. Men and women did not differ on number of weeks in treatment or frequency of attendance at individual counseling, family counseling, or 12-step meetings. However, women attended more group counseling sessions per month ($M = 10.9$), as compared to men ($M = 7.9$; $p < .001$). Women in this study were less likely to relapse to any drug use (22%) than men (32%), despite the fact that women in the treatment sample tended to have more psychological risk factors usually associated with relapse, such as emotional distress, depression, and suicidality. Women's lower rate of relapse also was not attributable to pretreatment drug use or problem severity, and did not appear to be explained by women having greater levels of social support. Fiorentine et al. attribute the lower relapse rate, despite greater risk factors, to greater group therapy attendance by women.

In a large study ($N = 1193$) of the efficacy of prison-based substance abuse treatment, Pelissier et al. (2003) did a 3-year post-release evaluation of incarcerated drug-using offenders who had been released from prisons that either did or did not have drug abuse residential treatment programs. Pelissier et al. found that although treated males were significantly less likely to relapse than untreated males (50% vs. 59%), the treatment effect was not significant for women (35% of treated women relapsed vs. 43% of untreated women), and the gender comparison of the treatment effect was not significant.

7.3. Summary

The findings relating to aspects of treatment as a function of gender are largely inconclusive. Whereas one study found that for women, longer stay in treatment was related to an increased chance of relapse (Schneider et al., 1995), another study found that women attended more group treatment than men, and were less likely to relapse to drug use (Fiorentine et al., 1997). Finally, a third study found that the effect of treatment on relapse did not differ by gender (Pelissier et al., 2003). The limited number of studies and the lack of consensus preclude any generalizations of the findings.

8. Discussion

Prior to providing general conclusions regarding gender differences in the relapse experiences of alcohol abusing and substance abusing clients, several caveats regarding this literature must be kept in mind. Primary is the magnitude of methodological diversity within this body of research, which presents the strong possibility of obscuring patterns and consistencies of findings. The list of important features on which these studies vary includes the definition of relapse, statistical methodology, prospective versus retrospective designs, and sample characteristics. These considerations should be kept in mind in evaluating this literature as a whole.

8.1. Relapse to alcohol use

We first turn our attention to alcohol abusing women and men. Relapse rates and time to relapse appear to be similar across gender. The one study (of seven; Glenn & Parsons, 1991) that indicated a longer time to relapse for women used a definition of relapse (17 drinks over 6 months) that might be considered to reflect general treatment outcome as opposed to a relapse event. The other study favoring women (Saunders et al., 1993) had a problematically high attrition rate. Thus, if we accept the finding of similar alcohol relapse rates across gender, this conclusion is in contrast to that of the general alcohol treatment outcome findings. As noted earlier, the reviews of gender and treatment outcome favor women (Jarvis, 1992; Toneatto et al., 1992), although the Jarvis review noted that this advantage was present only for the first year and was small.

The apparent inconsistency between the gender-related alcohol relapse findings and treatment outcome findings is curious. Obviously, because women have, at least somewhat, better general treatment outcome than men, one would expect women to experience relapse less and a longer time to relapse. One possible interpretation of these seemingly discrepant findings is that women, although they experience the same rate of relapse as men, are able to recover from these relapse experiences more effectively than men and return to improved alcohol-related functioning.

An important consideration in accepting that alcohol relapse rates are similar for men and women is that women appear to begin treatment with more poor prognostic indicators relative to men (e.g., Brady & Randall, 1999; Fiorentine et al., 1997). Women also have different, and perhaps greater, barriers to treatment entry (e.g., Brady & Randall, 1999) that might explain why women begin treatment with a larger array of problems. Thus, the finding that women and men have similar relapse outcome, despite women possibly experiencing more pretreatment challenges, is noteworthy.

Several factors and characteristics were identified as risk or protective factors for alcohol relapse for both genders. Depression and negative mood states were consistently identified as a risk factor for relapse. The one study that examined childhood sexual abuse found that such abuse was a risk factor for alcohol relapse. The majority of findings reviewed suggest that positive self-efficacy for not drinking heavily was protective for both men and women. Finally, use of alcohol-specific coping strategies was also protective against relapse.

Gender did appear to moderate the relationship between several characteristics and relapse. Alcoholic women appear much more vulnerable to marital issues and interpersonal conflict. Specifically, women, relative to men, appear to be put at risk for relapse by marriage and marital stress and conflict. Further, our review suggests that men's drinking is likely to create marital stress, and in turn marital stress is likely to influence alcoholic women's drinking. Women are more likely to relapse when with a romantic partner or male or female friend. Finally, other interpersonal conflict appears to be an additional risk factor for women. In contrast, alcoholic men appear to be protected from relapse by marriage and may be more likely to relapse when alone. In terms of mood, positive emotional states may be a risk factor and also a consequence of relapse among men, relative to women.

8.2. Relapse to substance use

Considering the literature on substance use relapse next, the consistent finding is that women are less likely to experience relapse following treatment, relative to men. This relapse outcome advantage for women is despite greater pretreatment risk factors among women in the current studies (see Fiorentine et al., 1997; Pelissier et al., 2003). This advantage for women is in contrast to the substance abuse literature reviewed by Toneatto et al. (1992) indicating an absence of gender effects in the general substance abuse treatment outcome field. One possible interpretation of this contrasting pattern of findings is that women are more effective at preventing relapse but those who return to drug use, do so more severely. Men, although they are more likely to return to drug use, may be more resilient to substance use relapse when it occurs.

Before summarizing the findings associated with specific relapse characteristics among substance abusing men and women, we must recognize that the literature base for the majority of these topics is sparse. Without the benefit of numerous studies from which to draw consistent patterns, we must temper our confidence in the conclusions that emerge from only one or two studies.

Having said this, several characteristics of substance use relapse may differ as a function of gender. Considering first the characteristics of women who relapse, the one study available indicated that women experienced more negative affect and interpersonal problems prior to relapse. Women also reported a more "impulsive" quality to relapse. One other finding (again, based on one study) was that women attended more group treatment sessions and were subsequently less likely to relapse. Men who relapsed to substance use, in contrast to the women, reported more *positive* experiences during the week prior to relapse. Men and women did not differ on whether they were alone at the time of relapse, or if they were with drug-using or casual friends.

8.3. Relapse theoretical framework

The findings of our review provide support for Connors et al.'s (1996) systems approach to the study of relapse. We found specific evidence for the relevance of four sets of factors in their model: background characteristics, stressors, coping skills and responses, and treatment variables. Some of these characteristics were moderated by gender (e.g., marital factors, interpersonal conflict, mood states), whereas others were relevant to men and women similarly (e.g., sexual abuse history, self-efficacy).

In the studies that we reviewed, the relation of pretreatment alcohol involvement (the fifth factor in Connors et al.'s model) with gender was not expressly tested as related to relapse. However we found indirect evidence for this link, in that despite poorer pretreatment prognostic characteristics (often related to or caused by alcohol involvement), women seem to fare similarly to men for alcohol relapse and slightly better than men for substance relapse. Thus, we offer a tentative and speculative hypothesis that women may have an advantage overcoming pretreatment problem severity.

8.4. Is relapse different as a function of gender?

Having reviewed the literature on gender similarities and differences in alcohol relapse and substance use relapse, we turn our attention to examine the implications of this literature. For alcohol relapse, the majority of the research acknowledges that men drink more than women, as evidenced in Table 1 by the vast majority of studies that use gender-adjusted definitions of relapse. Except for one alcohol study (Glenn & Parsons, 1991), all studies that used a specific threshold of alcohol use (greater than "any use") to define relapse, used a higher threshold for men than for women. The rationale for this quantitative gender difference in relapse definition is that although women typically drink less than men (e.g., Ross, 1989), women are biologically more susceptible to alcohol than their male counterparts (e.g., Graham et al., 1998) and thus reach a higher BAC following consumption of a given dose of alcohol. When looking at relapse definitions, it is methodologically sound to adjust the definition as a function of gender, due to the gender difference in quantity consumed. Thus it seems fairly straightforward to conclude that there is a quantitative difference in alcohol relapse between men and women—upon relapse, men return to drinking more alcohol, as compared to women.

More difficult to answer is whether alcohol relapse is *qualitatively different* as a function of gender; that is, is the nature of the relapse experience different for men and women. Our review indicates that the majority of characteristics that predict relapse function similarly for both genders. One notable exception, however, stands out: marital issues. A clear, gender-specific finding emerged indicating that alcoholic women are put at risk for relapse by marital stress and

conflict. Similarly, interpersonal conflict appears to be particularly risky for women. Men, in clear contrast, appear to be *protected* by marriage and at risk when alone. This one, major difference in alcohol relapse between the genders is the only qualitative difference apparent in the literature. We would argue that this gender difference is of import. An important subgroup of alcoholic women may exist–women in marriages characterized by conflict and/or a heavy drinking husband or intimate partner–who are highly vulnerable to relapse and resistant to traditional individual treatment. Given the absence of substance abuse research in this area, we speculate that a corresponding subgroup of drug abusing women exists. Conversely, alcoholic men, perhaps those in relationships with abstaining or light-drinking partners, appear to obtain protection from relapse as a result of marriage. In summary, relapse episodes of men and women appear qualitatively similar, with one notable exception. Men and women respond very differently to marital stress and conflict and to interpersonal conflict, and this may be a result of differences in partner drinking levels.

8.5. Closing caveats

One issue that arises frequently in discussions of gender issues in treatment is whether existing treatment programs are able to adequately meet the needs of women. The findings summarized here suggest that women fare as well as, or better than, men following treatment in terms of relapse. Thus, it seems reasonable to conclude that for the women who enter an alcohol or substance use program, the treatment provided *is* successful at addressing their needs. However, this statement is not meant to discount the potential treatment barriers that delay women from entering treatment or keep them from entering treatment altogether. Discussion of these barriers to treatment are well summarized elsewhere (e.g., Schober & Annis, 1996; Weiss, Kung, & Pearson, 2003). It is important to note, however, that treatment barriers that are specific to women have the potential to create an important methodological bias in the treatment outcome and relapse literature. For example, because women are more likely than men to seek mental health treatment, rather than substance abuse treatment, when experiencing alcohol or drug problems (Weisner & Schmidt, 1992), this gender-based sample bias in substance abuse research samples may obscure true gender effects in outcome and relapse research.

Taken together, our review of the literature of gender differences in relapse to alcohol and substance use reveals several limitations within this area of research. First is the paucity of research focusing on gender differences in the characteristics of substance abuse relapse. Several domains of relapse precipitants were addressed by only one or two studies; marital and family factors–where clearly a gender difference exists in alcohol relapse–has no corresponding published research in the substance abuse treatment field.

A second relapse issue not well understood is the events and prediction of events *following* the occurrence of relapse. Only two studies, Connors et al. (1998) and Hodgins et al. (1995), examined factors that predict termination of relapse. Connors et al. reported that more alcoholic women, relative to men, reported that marital and family issues and negative emotions were important reasons for their return to sobriety. The Hodgins et al. (1995) data did not yield any gender differences in either reasons for termination of alcohol relapses (intrinsic reasons, extrinsic, or both), or drinking-specific coping strategies. Entirely absent from this literature, but of potential theoretical and clinical interest, is the prediction and exploration of relapses subsequent to the initial relapse. Identifying characteristics that predict whether relapse is a one-time event, followed by abstinence, continued drinking, or abstinence followed by another relapse event has considerable potential to further our understanding of the relapse process in general, as well as the stability of existing gender differences in the relapse process.

The final limitation to the present literature is the unfortunate artificial distinction made in the majority of the studies between alcohol and other substance use. Only three studies–Hodgins et al. (1995), Pelissier et al. (2003), and Pickens et al. (1985)–used a definition of relapse that combined both alcohol and drug use. The remainder of the studies focused exclusively on alcohol or drug outcomes. The call to focus on polydrug using clients and polydrug outcomes (e.g., Rounsaville, Petry, & Carroll, 2003) is based on the need to improve the representativeness of the samples to the population of interest and to reduce the bias in the results when outcome is based on only one substance.

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