Differences in motivation, coping style, and self-efficacy among incarcerated male and female drug users

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Received 3 March 2005; received in revised form 25 September 2005; accepted 18 October 2005

Abstract

This study compared sex differences in theoretically relevant cognitive–behavioral treatment concepts in a sample of 1,189 male and 300 female offenders participating in a prison-based substance abuse treatment program. Multivariate analysis of variance was used to examine the differences between men and women in the areas of motivation, self-efficacy, and coping styles. The results show that the women reported a greater recognition of having a substance use problem, less self-efficacy to remain abstinent in high-risk situations, and greater reliance on the coping strategies of seeking support, accepting responsibility, and escaping as compared with the men. The recognition of potential sex differences in the context of a theoretically driven treatment for substance users is discussed. © 2006 Elsevier Inc. All rights reserved.

Keywords: Drug abuse; Prisons; Sex differences

1. Introduction

Recent theoretical developments in the area of substance use treatment have focused on the role of motivation and relapse prevention from a cognitive–behavioral perspective (Annis & Davis, 1989; Irvin, Bowers, Dunn, & Wang, 2000). Motivation has been defined as a multidimensional process in which a person moves through different stages of readiness to change behavioral patterns related to his or her substance use. For men and women who enter substance use treatment, a lower recognition that a substance use problem exists has been associated with poorer treatment engagement (Hiller, Knight, Leukefeld, & Simpson, 2002; Pelissier, 2004; Ryan, Plant, & O’Malley, 1996; Simpson, Joe, Rowan-Szal, & Greener, 1995) and decreased treatment retention (DeLeon & Jainchill, 1986; Ryan et al., 1996; Simpson & Joe, 1993). Relapse prevention, the goal of most treatment programs, aims at improving a person’s coping skills to deal with high-risk situations and, thus, improving self-efficacy to remain abstinent upon completion of treatment. Several studies have linked efficacy and outcome expectations to the prediction of relapse for clients who present for treatment relating to smoking cessation (Coelho, 1984; Colleti, Supnick, & Payne, 1985; Conditte & Lichtenstein, 1981; DiClemente, 1981; McIntyre, Lichtenstein, & Mermelstein, 1983; Prochaska, Crimi, Lapanski, Martel, & Reid, 1982), drinking behavior (Annis & Davis, 1988; McKay, Maisto, & O’Farrell, 1993; Rist & Watzl, 1983; Rychtarik, Prue, Rapp, & King, 1992; Sitharthan & Kavanagh, 1990; Solomon & Annis, 1990), and drug use behaviors (Burling, Reilly, Moltzen, & Ziff, 1989; Stephens, Wertz, & Roffman, 1993), providing

\textsuperscript{*} The interpretations and conclusions contained in this article represent the views of the authors and do not necessarily represent those of the Federal Bureau of Prisons or of the Department of Justice. Nicole Jones conducted this study while she was still an employee of the Federal Bureau of Prisons.

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support that individuals are more likely to relapse in situations of lower perceived self-efficacy.

Although developed from a cognitive–behavioral perspective, most substance use treatment programs were designed for male substance users, and much of the literature on the program needs of women substance users claims that programs have been biased toward the needs of men (Kassebaum, 1999). Recent research efforts have begun to address some important questions regarding the epidemiology and etiology of substance use among women, and there are efforts to design treatment strategies for women that address their sex-specific needs (Conners, Bradley, Whiteside-Mansell, & Crone, 2001; Substance Abuse and Mental Health Services Administration, 1997). A review of the empirical literature on sex differences does substantiate that some of the issues frequently mentioned in the literature identifying sex-specific treatment needs—victims of sexual abuse, vocational training, child care, and parenting—are ones with which a greater percentage of women have a problem as compared with men (Pelissier & Jones, 2005). However, there have been few studies on substance users that have shown sex differences for specific attitudes that are important factors in the relapse process model. In high-risk situations involving positive emotional states, two studies found that women reported more self-confidence in their ability to remain abstinent than men did (Sklar, Annis, & Turner, 1999; Skutle, 1999). However, Walton, Blow, and Booth (2001) found no significant difference between men and women in their levels of self-efficacy. Regarding coping strategies, some have found that more women than men seek help from others (Kohn, Mertens, & Weisner, 2002) whereas others (Walton et al., 2001) did not find any sex difference among substance users in the use of effective coping strategies. However, there is no study that examined sex differences in these attitudes between male and female offenders undergoing substance use treatment.

2. Purpose of the study

Although some sex differences in background and psychological characteristics have been examined in previous studies, there has been limited work on sex differences in factors that are theoretically relevant to the elements of a cognitive–behavioral treatment model for drug users. An understanding of similarities and differences across a variety of attitudes of men and those of women at admission to drug treatment may improve the development of sex-specific programming, particularly if the attitudes examined are ones relevant to the theoretical underpinnings of the treatment program.

This study provides a comparative profile of the attitudes of men and those of women at the time they enter in-prison residential drug abuse programs (RDAPs). The measures selected for this study were ones related to the general theory underlying the Bureau of Prisons (BOP) as well as many other cognitive–behavioral treatment programs. These measures can be grouped into three categories: self-efficacy, coping style, and motivation (see Fig. 1). In capturing the differences between men and women in these three areas, we can have a better understanding of potential differences related to the variables that may influence the treatment process.

The first attitudinal category is motivation, which has been shown to be related to both treatment volunteerism and treatment retention (De Leon, Melnick, Thomas, Kressel, & Wexler, 2000; DeLeon & Jainchill, 1986; Joe, Simpson, & Broome, 1999; Kolden, Howard, Bankoff, Maling, & Martinovich, 1997; Simpson & Joe, 1993). One of the most common conceptualizations of motivation in the substance use treatment field is the transtheoretical model of the stages of change readiness (Prochaska & DiClemente, 1986). This model assumes different treatment strategies and interventions based on the stage of change a person is in. These stages include precontemplation—when an individual is unaware of his or her problem; contemplation—when an individual is aware that a problem exists and is contemplating taking some action; action—the individual not only has considered taking action but also is taking steps to remedy the problem; and maintenance—when an individual who has taken action works to maintain the gains attained during the action phase and, thus, to prevent relapse.

The second attitudinal category, self-efficacy, underlies the relapse prevention theory, a major component of the BOP program. Although the attitudinal measure of motivation captures whether a person is ready to make behavioral changes, relapse, by definition, involves failure to maintain a behavior rather than failure to initiate a behavioral change. One of the primary assumptions of the relapse prevention theory is that substance use is a result of overlearned maladaptive behavioral patterns where drug use is seen as a maladaptive coping mechanism (Marlatt & Gordon, 1985). The relapse prevention theory asserts that individuals must develop coping skills to be able to resist the temptation of using drugs in those situations that are of high risk for them and that these skills are learned during treatment. As an individual learns, develops, and practices effective cognitive or behavioral coping responses to those situations that are of high risk, his or her expectation of being able to resist the temptation of using drugs when faced with another high-risk

<table>
<thead>
<tr>
<th>Theoretical Construct</th>
<th>Indicator</th>
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<tr>
<td>Motivation</td>
<td>Change Assessment Scale</td>
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<tr>
<td>Coping Style</td>
<td>Ways of Coping Questionnaire</td>
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<tr>
<td>Self-Efficacy</td>
<td>Hope Scale</td>
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<tr>
<td>General</td>
<td>Attributional Style Questionnaire</td>
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<tr>
<td>Specific: Drug Use</td>
<td>Drug(Alcohol)-Taking Confidence Questionnaire</td>
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Fig. 1. Measures of motivation, coping, self-efficacy.
situation increases. Thus, in the substance abuse treatment literature, the concept of “self-efficacy” refers to an individual’s confidence in his or her ability to abstain from substance use in particular high-risk situations (Annis & Davis, 1991).

In addition to self-efficacy specific to substance use behavior (i.e., confidence in abstaining from drug use in high-risk situations), there are also more general indicators of self-efficacy such as hope and attributional style. Snyder et al. (1991) defined hope as two components that incorporate both outcome expectancies and efficacy expectancies. The first component of hope, agency, parallels the theory of self-efficacy by Bandura (1977) and refers to a person’s sense of successful determination in relationship to reaching his or her general goals. The second component of hope, pathway, goes beyond this optimism and assesses a person’s sense of being able to plan to meet his or her goals. Previous research has found that individuals with higher levels of hope set and attain more difficult goals, approach goals with more confidence, and appraise goals in a more positive light than persons with lower levels of hope (Snyder et al., 1991). More specifically, Strack, Carver, and Blaney (1987) found that optimism predicted successful completion of an aftercare program following treatment for alcoholism.

Another indicator of general self-efficacy, attributional style, is also associated with the concepts of optimism and depression. Attributional style (Abramson, Seligman, & Teasdale, 1978) involves three dimensions outlining the ways in which individuals explain events in their lives: internality, stability, and globality. Internality refers to attributing outcomes to oneself as opposed to others; stability refers to attributing outcomes to enduring causes as opposed to transient causes; and globality refers to outcomes that occur across a wide range of situations as opposed to specific situations (Abramson et al., 1978). The optimistic explanatory style is one where an individual attributes negative events in his or her life to external, unstable, and nonglobal causes. In contrast, the pessimistic explanatory style is associated with attributions that are internal, stable, and global (Seligman, 1990). The pessimistic explanatory style is often also associated with depression and low self-esteem (Peterson & Seligman, 1984; Sweeney, Anderson, & Bailey, 1986).

The third attitudinal category, coping, involves helping persons learn and practice appropriate coping mechanisms to deal with high-risk situations. The failure to cope adequately could lead to decreased self-efficacy and a higher probability of relapse. On the other hand, if individuals can cope with these high-risk situations, they could enhance their confidence or self-efficacy, thus decreasing the probability of relapse (Marlatt & Gordon, 1980, 1985). Inadequate coping skills have been associated with an increased likelihood of relapse (Donovan & Chaney, 1985; Festinger, Rubenstein, Marlowe, & Platt, 2001). Problem-solving coping skills are viewed as helpful to goal attainment: they have been found to occur more frequently among individuals with higher levels of hope. On the other hand, avoidant coping styles appear to be more prevalent among subjects with lower levels of hope and who are less optimistic (Aspinwall & Taylor, 1992; Friedman et al., 1992; Scheier, Weintraub, & Carver, 1986; Snyder et al., 1991).

By examining the three domains of self-efficacy, coping, and motivation, this study assesses aspects of functioning critical to the assumptions of cognitive–behavioral treatment programs that focus on relapse prevention. These three domains represent attitudes that are expected to change during treatment. Understanding sex differences in specific deficiencies at treatment entry among incarcerated drug-using populations is a first step that is to be followed by studying how these deficiencies are addressed and interact with other characteristics and how changes in these attitudes are related to long-term treatment outcomes.

3. Methods

3.1. Participants

This study was completed within the context of a multisite evaluation of in-prison RDAPs. Participants were offenders who volunteered for treatment between 1991 and 1995 at 20 of the RDAPs. All programs, operational at the time, except those serving high-security inmates (not near release for follow-up purposes), those serving Immigration and Naturalization Service detainees, and one program of only a 4-month duration were selected for the evaluation. Research staff trained by the project director and administrator approached treatment subjects within several weeks before or after their admission to a program. The surveys were completed as part of a 2- to 3-hour battery of surveys and interviews used for the multisite evaluation. A total of 90% of those participating completed the surveys within 1 week of admission to treatment and 99% completed them within 30 days after admission. Although policy prohibits payment for participation, subjects did not lose any work pay for the time they spent completing the surveys and interviews. Ninety percent of those approached signed the informed consent statement and agreed to be interviewed and to complete surveys. The sample consists of approximately 1,189 men from 16 treatment programs and 300 women from 4 treatment programs.

The federal prison system offered two types of RDAPs. The first type, the moderate-intensity programs, which included most programs in this evaluation effort, offered 500 hours of treatment over a 9-month period and had a staff-to-inmate ratio of 1:24. The second type, the high-intensity programs, was offered at three institutions. These programs provided 1,000 hours of treatment over a 12-month period and had a staff-to-inmate ratio of 1:12. Participation in both types of programs was voluntary.
All RDAPs were unit based; that is, all program participants lived together separate from the general population for the purpose of building a treatment community. Each unit had a capacity of approximately 100 inmates and conducted treatment for half a day and 5 days per week. The RDAPs were based on a cognitive–behavioral model that attempted to identify, confront, and alter the attitudes, values, and thinking patterns that led to criminal behaviors and drug or alcohol use. Program content was standardized across the treatment programs. Despite the standardization, anecdotal information indicated that the programs for women, as implemented, did address some of the female-specific issues such as sexual abuse and codependence in relationships.

3.2. Measures

3.2.1. Self-efficacy

Three measures of self-efficacy were used (see Fig. 1). The Drug-Taking Confidence Questionnaire (DTCQ; Annis & Martin, 1985; Annis, Skylar, & Turner, 1996; Sklar, Annis, & Turner, 1997) was used to assess self-efficacy related specifically to substance use. This 50-item measure assesses an individual’s self-reported confidence in his or her ability to resist using drugs in a variety of high-risk situations, including physical and emotional states. Response categories ranged from 0 (not at all confident) to 100 (very confident). Overall mean scores ranged from 0 to 100, with higher scores indicating higher levels of perceived self-efficacy to remain abstinent. Overall summary scores were used because other researchers have noted the unidimensional character of self-efficacy (Baer, Holt, & Lichtenstein, 1986; Mayer & Koeningsmark, 1991; Rounds-Bryant, Flynn, & Craighead, 1997). Individuals completed the DTCQ, for which the primary drug of use was that defined by each individual. It is to be noted that this primary drug may not have been the one most frequently used just before incarceration because individuals sometimes use a drug based on availability. The form was completed once for their primary illegal drug (this includes illicit use of prescription drugs) and a second time if they also used alcohol as a primary drug. Some individuals had alcohol as the only primary drug. Of the sample, 83% had a DTCQ score for an illegal drug (n = 1,232) and 17% (n = 257) had a score for alcohol only.

Two measures of general self-efficacy were used. The first measure of general self-efficacy, the Hope Scale (Snyder et al., 1991), is composed of two subscales. The first, agency, refers to a person’s sense of successful determination in relationship to reaching his or her general goals. The second, pathway, refers to a person’s sense of being able to plan to meet his or her goals. Each item was rated on a scale of 1 (definitely false) to 4 (definitely true). The scores for each subscale consisted of the overall mean score for the four items comprising each subscale.

In the second measure of general self-efficacy, the Attributional Style Questionnaire (ASQ; Peterson et al., 1982), individuals rated the internality, globality, and stability of the cause for each of 24 negative events on a scale of 1 to 7. The scores for internality, stability, and globality subscales consisted of the mean score across the 24 items.

3.2.2. Coping

Coping skills were measured using a modified version of the revised Ways of Coping Questionnaire (Folkman & Lazarus, 1988). Procedures developed before administering the survey helped ensure that the survey would elicit current coping mechanisms (e.g., ones used in prison) and not mechanisms that were used before incarceration (Jones, Boothby, & Pelissier, 2002). Confirmatory factor analyses conducted with this sample identified four scales (rather than eight as proposed by others (Folkman & Lazarus, 1985; Folkman, Lazarus, Dunkel-Schetter, DeLongis, & Gruen, 1986) using 17 of the 50 items. The four scales were problem solving (e.g., “I make a plan of action and follow it”), seeking support (e.g., “I accept sympathy and understanding from someone”), escaping/avoiding (e.g., “I avoid being with people in general”), and accepting responsibility (e.g., “I realize I brought on the problem myself”; Jones et al., 2002); they all correspond to scales found by various researchers who have examined this measure (Aldwin & Revenson, 1987; Stone, Kennedy-Moore, Newman, Greenberg, & Neale, 1992; Tennen & Herzberger, 1984). The scores consisted of the mean score across the three to six items comprising each scale factor.

3.2.3. Motivation

The four scales of the Change Assessment Scale—precontemplation, contemplation, action, and maintenance—were used to measure internal motivation (Prochaska & DiClemente, 1986). Individuals must realize that they have a problem (i.e., not deny their problem—precontemplation), contemplate acting to address the problem (contemplation), take specific action (action), and, after taking action, use strategies to maintain changes (maintenance). Individuals rated each item on a scale of 1 to 5 ranging from strongly disagree to strongly agree. Each factor score consisted of the mean score of the eight items comprising each particular factor.

4. Analyses and results

Data for one or several surveys were missing for some individuals owing to administrative reasons. A multiple-imputation procedure was used for estimating missing data. The procedure used the Markov Chain Monte Carlo algorithm, which provides maximum likelihood estimates for missing data (Allison, 2002; Little & Rubin, 1987; Schafer, 1997). Five complete data sets with independent imputations of the missing data were derived, and all statistical analyses (described below) were conducted five
times. The results report coefficients and other model statistics that represent the average across the five analyses (Little & Rubin, 1987; Schafer, 1997).

Multivariate analysis of variance (MANOVA) was used with sex as the independent variable. If the hypothesis of no sex difference was rejected, we then identified those attitudinal scales where there were sex differences. Because the DTCQ separated individuals by the type of primary drug that they used, it was necessary to conduct the analyses separately for each type of primary drug, alcohol, or other drug (illegal drug or prescription drug used inappropriately). However, the first analysis excluded DTCQ because any model with DTCQ would be a subset of the sample. The effect of sex was significant when including all measures except DTCQ (Hotelling’s $F = 17.31, p < .01$). Subsequent analyses where the DTCQ mean score for all primary drugs excluding alcohol was included were similar to the previous results. Finally, a third analysis with similar results was conducted using only those individuals who had alcohol as a primary drug.

Because the overall MANOVA showed sex differences, we followed up with logistic regression to identify what specific attitudes differed between men and women after controlling for confounding factors. The logistic regression analyses were conducted with each attitude serving as the dependent variable and sex, race, ethnicity, age at time of admission to treatment, and history of prior commitments serving as the independent variables. These variables were, in essence, control variables. Thus, the regression analyses established whether the sex differences in attitudes remained significant after controlling for other background factors that could mask or overstate sex differences. We selected control factors for which there were sex differences (e.g., race and prior commitments). However, we also included background factors without univariate sex differences (e.g., ethnicity) because of possible multivariate sex differences in these factors.

Table 1 shows the sex comparisons for the background factors. Women were more likely than men to be African American (49% vs. 31%, respectively) but did not differ significantly from men in ethnicity. The percentage of individuals who were Hispanic ranged from 10% among women to 11% among men. Women were significantly less likely than men to have a history of prior commitments (44% vs. 68%, respectively). Lastly, there were significant sex differences in the average number of years of education and the age at time of admission to drug treatment. Women were younger than men at their time of admission (33.9 vs. 35.4 years, respectively) and had fewer years of education (11.4 vs. 12.1 years, respectively).

The mean and standard deviation values for each measure are provided by sex in Table 2. The logistic regression analysis showed sex differences for at least one of the subscales of each attitudinal measure; that is, sex differences were significant even after controlling for background characteristics.

### Table 1
Background characteristics of the men and women admitted to in-prison residential drug treatment

<table>
<thead>
<tr>
<th></th>
<th>Women (n = 300)</th>
<th>Men (n = 1,189)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Race (%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>African American</td>
<td>49</td>
<td>31</td>
</tr>
<tr>
<td>White</td>
<td>49</td>
<td>65</td>
</tr>
<tr>
<td>Other</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>Ethnicity (%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hispanic</td>
<td>10</td>
<td>11</td>
</tr>
<tr>
<td>Other</td>
<td>90</td>
<td>89</td>
</tr>
<tr>
<td>History of prior commitments (% yes)</td>
<td>44</td>
<td>68</td>
</tr>
<tr>
<td>Average age at time of admission (years)</td>
<td>33.86</td>
<td>35.43</td>
</tr>
<tr>
<td>Average length of education (years)</td>
<td>11.40</td>
<td>12.06</td>
</tr>
</tbody>
</table>

Table 2 Mean and standard deviation values for attitudinal measures of the men and women admitted to in-prison residential drug treatment

<table>
<thead>
<tr>
<th></th>
<th>Women</th>
<th>Men</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
</tr>
<tr>
<td>Motivation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Precontemplation</td>
<td>1.79</td>
<td>0.76</td>
</tr>
<tr>
<td>Contemplation</td>
<td>4.07</td>
<td>1.06</td>
</tr>
<tr>
<td>Action</td>
<td>3.98</td>
<td>1.03</td>
</tr>
<tr>
<td>Maintenance</td>
<td>3.44</td>
<td>1.00</td>
</tr>
<tr>
<td>Coping</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Problem solving</td>
<td>3.38</td>
<td>0.64</td>
</tr>
<tr>
<td>Social support</td>
<td>3.26</td>
<td>0.73</td>
</tr>
<tr>
<td>Responsibility</td>
<td>3.71</td>
<td>0.73</td>
</tr>
<tr>
<td>Escape</td>
<td>2.77</td>
<td>0.73</td>
</tr>
<tr>
<td>Attributional style</td>
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<td></td>
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<tr>
<td>Locus</td>
<td>4.90</td>
<td>0.92</td>
</tr>
<tr>
<td>Stability</td>
<td>3.89</td>
<td>1.08</td>
</tr>
<tr>
<td>Globality</td>
<td>4.04</td>
<td>1.29</td>
</tr>
<tr>
<td>Hope Scale</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Agency</td>
<td>9.88</td>
<td>4.19</td>
</tr>
<tr>
<td>Pathway</td>
<td>9.59</td>
<td>4.23</td>
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<tr>
<td>Drug-taking confidence (%)</td>
<td></td>
<td></td>
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<tr>
<td>Illegal drugs</td>
<td>71.12</td>
<td>24.37</td>
</tr>
<tr>
<td>Alcohol</td>
<td>59.57</td>
<td>23.57</td>
</tr>
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</table>

* $p < .05$. 4.1. Self-efficacy

Correlations between specific self-efficacy scores (DTCQ) and general self-efficacy scores (Hope Scale and ASQ) showed low correlations. For example, the highest correlation of .18 was between DTCQ (illegal drug) and the pathway subscale of the Hope Scale. These low correlations suggest that drug-related self-efficacy differs from general self-efficacy.

The results for drug-related self-efficacy—the DTCQ—showed that women had significantly lower scores than did men, indicating that women reported less confidence in the ability to resist the urge to use drugs in a variety of situations. The results were consistent for those whose primary drug was not alcohol, as well as for those whose primary drug was alcohol.
The results for general self-efficacy, as measured by the Hope Scale, also showed women as having lower levels of self-efficacy. Women had not only lower agency but also lower pathway scores: women reported less confidence in their ability to attain general goals and in their ability to plan for reaching those goals.

Findings for the ASQ also established sex differences, but not for all three dimensions. The men and women reported no significant difference on the globality and internality subscales. However, women had lower stability scores than did men, meaning that women were more likely than men to attribute negative events in their lives to transient rather than stable causes.

4.2. Coping

The results for coping skills—Ways of Coping Questionnaire—showed significant sex differences in mean scores for three of the four scales. Problem-solving methods were used equally by men and women. However, in response to very stressful situations, women were more likely than men to report using the coping mechanisms of seeking social support, accepting responsibility, and escaping.

4.3. Motivation

Significant sex differences were found for one of the four scales of the Change Assessment Scale—precontemplation. This finding indicates that women were more likely than men to report having a problem with drugs. However, men and women did not report differences in their consideration to address the problem, taking steps toward behavioral change, or using strategies to maintain change.

5. Discussion

The findings from this study on 1,189 male and 300 female offenders in prison-based substance use treatment indicate that women self-reported a higher recognition that a substance use problem exists and lower levels of self-efficacy to remain abstinent in high-risk situations upon release from custody. In addition, when compared with men, women reported lower levels of general self-efficacy as well as greater perception that negative events in their lives are caused by transient rather than permanent causes. Although both men and women used problem-solving coping strategies equally in stressful situations, women were more likely to report using strategies of seeking social support, accepting responsibility, and escaping.

There are several possible interpretations for these findings. First of all, a summary of several studies (Bloom, Owen, Covington, & Raeder, 2003) concluded that women become immersed in serious drug use faster and deeper than men do. This deeper immersion into a drug-using lifestyle may be reflected in their lack of confidence. Our findings that incarcerated women had a greater awareness of having a substance use problem and lower levels of self-efficacy are consistent with this previous research. Another possible interpretation is that lack of confidence may reflect a realistic comprehension of their reasons for using drugs and a tacit acknowledgment that the contextual motivations for substance abuse have not yet been addressed. Finally, the extent to which lower self-efficacy is a precursor or a sequela of substance use remains unanswered by this study. The lower levels of both general and substance use-specific self-efficacy may reflect a greater feeling of powerlessness experienced by more women than men in society. Assessment of these explanations requires further studies on both incarcerated and nonincarcerated men and women undergoing drug treatment.

Another interesting finding was that although both men and women were equally likely to use the coping skills of problem solving, women reported a higher use of seeking social support, accepting responsibility, and escaping as methods for dealing with stressful situations. Thus, women appear to be more likely to use a wider array of coping mechanisms with the choice of strategy likely to depend on a specific situation. Given these differences, cognitive–behavioral models that focus primarily on problem-solving strategies may not adequately reflect the connection between substance abuse and criminality for women (e.g., substance use as a method of escaping other primary issues) or the other mechanisms that women use and incorporate to make behavioral changes (e.g., interpersonal relationships).

Our findings suggest that sex differences in attitudes are important to consider in the treatment and assessment of persons who abuse substances. Among substance users in a prison-based treatment program, more women than men recognized that a substance use problem existed. For men, early therapeutic interventions designed to help increase readiness for treatment and engage in the treatment process may help improve treatment retention and efficacy. For example, motivational interviewing, which has been shown to increase session attendance and the likelihood of treatment completion (Martino, Carroll, O’Malley, & Rounsaville, 2000; Stotts, Schmitz, Rhoades, & Grabowski, 2001), could be used with men. For women, who reported lower levels of self-efficacy, therapeutic interventions that evaluate and address the underlying causes for lower self-efficacy levels may enhance treatment effectiveness. In addition, because women were more likely to report seeking social support from others as a way to cope with difficult situations, additional research on the effectiveness of treatment programs that focus on the relational orientation of women (Covington & Surrey, 1997) may be warranted.

Additional research is needed to confirm whether these findings will be replicated among other samples of drug users, particularly nonincarcerated subjects. The stability of sex differences in attitudes relevant to the theoretical underpinnings of cognitive–behavioral programs is crucial to the development of sex-relevant programs. In addition,
the role of these attitudes and changes in them in treatment outcomes are needed to further validate the theoretical assumptions of cognitive–behavioral treatment programs. It is possible that the inconsistent findings in sex differences in outcomes may be related to differences across programs, in whether programs are adapting their treatment approaches and processes to most effectively address women’s issues.

Also needed is follow-up research on how these attitudes interface with other cognitive characteristics such as criminal thinking or psychiatric diagnoses such as antisocial personality disorder that are salient to offender populations. These other characteristics may serve as moderators that affect changes in coping styles and self-efficacy, which, in turn may affect long-term outcomes such as drug use and criminal behavior.

Research that examines these attitudes among substance users mandated to treatment and those assigned to drug courts would help further determine the interrelationship between motivation and other attitudes and their role in moderating treatment outcomes.

References


