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Gender Differences in Treatment Outcomes for Alcohol Dependence among Older Adults*

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ABSTRACT. Objective: This study examined clinical characteristics and treatment outcomes of older alcohol-dependent men and women in a mixed-age private outpatient chemical dependency program. **Method:** The sample comprised 92 patients aged 55 to 77 (63 men and 29 women). The measures consisted of demographic characteristics, alcohol and drug use and dependence, drinking history, health status, psychiatric symptoms, length of stay in treatment, use of Alcoholics Anonymous and 6-month treatment outcomes. **Results:** The women reported later initiation of heavy drinking (5+ drinks per occasion) than the men, but had similar drinking levels at the treatment intake inter-

view. At the 6-month follow-up, 79.3% of women reported abstinence from alcohol and drugs in the prior 30 days versus 54.0% of men ($p = .02$). Greater length of stay in treatment predicted abstinence at 6 months. Among those who were not abstinent, none of the women reported heavy drinking in the 30 days prior to follow-up, whereas nonabstinent men reported a mean (SD) of 4.0 (9.2) heavy drinking days ($p = .025$). **Conclusions:** The results suggest that older women may have better drinking outcomes compared with older men, following treatment for alcohol dependence. (*J. Stud. Alcohol* 65: 638-642, 2004)

TREATMENT OF alcohol dependent older adults has received little research attention. Older women, in particular, have been overlooked by clinical investigations (Blow, 2000; Wilsnack et al., 1995); however, there are a number of reasons why this group should be studied. Older women may be especially vulnerable to the negative health effects of heavy drinking (Blow, 2000). Alcohol sensitivity is greater in older women than in either younger women or older men (Beresford and Lucey, 1995). Older women constitute a fast-growing segment of the population and are heavy users of health services (National Center for Health Statistics, 2003). In addition, growth in the number of older women with alcohol problems in coming decades is expected to increase treatment demand (Gfroerer et al., 2003).

In studies of long-term treatment outcomes in a managed care setting, we found that female gender and older age were factors associated with abstinence at 5 years (Weisner et al., 2003). Following a brief intervention for at-risk drinkers in primary care, older women drank less

alcohol than older men at follow-up, although women also consumed less alcohol at baseline (Fleming et al., 1999). Among older problematic drinkers, women may have a later onset of alcohol problems, higher rates of depression (Brennan et al., 1993) and greater use of prescription drugs than men (Gomberg, 1995). Therefore, while older women appear to be good candidates for treatment, their treatment needs may differ from those of men.

Alcohol dependence is the most frequent diagnosis among older adults in chemical dependency treatment (Moos et al., 1993; Satre et al., 2003), yet gender differences in clinical characteristics, treatment retention and outcome of alcohol-dependent older adults have not been investigated. This article examines the treatment outcome of older women and older men. We also compare the women and men on factors that potentially contribute to outcomes. These include individual characteristics (e.g., age of heavy drinking initiation, baseline alcohol consumption and psychiatric symptoms), treatment characteristics (e.g., length of stay in treatment) and extra-treatment factors (e.g., marital status and recovery support; Weisner et al., 2001b).

Method

Study participants were members of Northern California Kaiser Permanente, a large nonprofit group model managed care health plan. Participant data were drawn from two randomized studies conducted at the Kaiser Permanente Chemical Dependency Recovery Program in Sacramento. The first study (Weisner et al., 2000) compared day hospital to traditional outpatient treatment, and recruited partici-

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pants between 1994 and 1996 ($N = 1,204$). The second study (Weisner et al., 2001a) examined integrated delivery of medical and addiction services, and recruited patients between 1997 and 1998 ($N = 749$). Both studies were conducted in the same program, in which patients received either outpatient day hospital or lower intensity outpatient treatment. Program components were consistent across both studies. Among the participants ages 55 and over in the two samples, there were no significant differences in age, gender, ethnic composition or drinking level. The two samples were combined to obtain sufficient statistical power to examine gender differences in adults ages 55 and over.

From the total study population of 1,953 patients, 127 were ages 55 and over. Of these 127 patients, 78% (70 men and 29 women) met the Diagnostic and Statistical Manual of Mental Disorders, 4th edition (American Psychiatric Association, 1994) criteria for alcohol dependence. Three alcohol-dependent older adults (1 woman and 2 men) also met criteria for drug dependence. Twenty-seven patients were diagnosed with drug dependence only (2 women and 3 men) or did not meet diagnostic criteria for dependence (5 women and 17 men), but also received treatment in the program. One patient had diagnostic data missing.

The length of treatment including aftercare was 12 months for both programs. The treatment goal was total abstinence. Sessions included supportive group therapy, education, relapse prevention and family-oriented therapy. Pharmacotherapy and individual counseling were available as needed, and patients were expected to attend 12-step meetings off-site. Patients received random breath analyzer and urine screens weekly during the first 4 weeks and monthly thereafter. The two treatment conditions had the same content but differed in intensity: The day hospital program provided four times the intensity of the other outpatient program during the first 3 weeks (Weisner et al., 2000). Day hospital treatment was received by 62.9% of men and 69.0% of women (NS). There were no differences in treatment condition by age or ethnicity.

Measures

Participants completed the Addiction Severity Index (ASI; McLellan et al., 1992) composite scales at baseline and 6 months. Validity and reliability of the ASI has been found across age ranges (McLellan et al., 1985). Patients were asked about their frequency of drinking, heavy drinking (five or more drinks on a single occasion) and use of illicit and prescription drugs in the prior 30 days. Questions adapted from the Diagnostic Interview Schedule for Psychoactive Substance Dependence provided a diagnosis of alcohol and drug dependence and abuse (American Psychiatric Association, 1994). For each substance, we established whether three of seven dependence symptoms (or one of three abuse symptoms) were present in the prior 30

days (Weisner et al., 2001a). To measure initiation of heavy drinking, patients were asked the age at which they first consumed five or more drinks on a single occasion.

Patients were asked if they had experienced severe anxiety or depression in the prior 30 days (yes/no), as part of the ASI. We used these as rough indicators of mood, cautioning that these measures are not sufficient to determine diagnosis. Studies have found single-item measures to have adequate specificity but limited sensitivity (Osborn et al., 2003). To measure health status, patients were asked: "In general, would you say your health is excellent, very good, good, fair or poor?" Responses were scored continuously from 1 to 5 (Burstrom and Fredlund, 2001). This measure is predictive of health care utilization (Bierman et al., 1999) and morbidity (Weisen et al., 1999).

Treatment initiation was measured as a dichotomous variable: Patients were considered to have begun treatment if they attended at least one group session following intake (Weisner et al., 2001b). Length of stay was measured in number of days between treatment intake and last treatment visit and was truncated at 180 days for this analysis. Health plan data (Selby, 1997) were used to measure the number of continuous days in treatment before dropping out for either 7 continuous days during the first 8 weeks of treatment (i.e., the rehabilitation phase) or 30 continuous days after the first 8 weeks of treatment (i.e., the aftercare phase). This was consistent with the program's definition of dropout. The length-of-stay measure was independent of treatment intensity (e.g., a week in the day hospital program and a week in the outpatient program were both scored as 7 days of treatment).

At the 6-month follow-up, the drinking, anxiety and depression measures were the same ASI questions as used at baseline. Participants were asked the number of Alcoholics Anonymous (AA) meetings attended during the prior 30 days. Abstinence from drugs and alcohol during the prior 30 days was the outcome measure. All responses to the ASI items on drug and alcohol use during this time period had to be negative. Self-reported abstinence at 6 months was verified in patient subsamples by breath analyzer and urinalysis testing given in person at the testing site. These tests had high agreement with self-report. Only 5.8% of patients in the integrated care study (Weisner et al., 2001a) and 2.5% in the day hospital study (Weisner et al., 2000) reported abstinence but screened positive for substance use at 6 months.

Procedure

All patients completed in-person baseline interviews at a scheduled evaluation prior to the beginning of treatment. The research staff obtained informed consent and conducted baseline interviews, which required 1 to 1.5 hours to complete, and assessed treatment outcome 6 months after intake

(integrated treatment study) or 6 months after the end of the 8-week rehabilitation phase of treatment (day hospital study). Follow-up interviews were administered by telephone from the Kaiser Division of Research by different research staff from those who conducted baseline interviews.

Gender differences were analyzed using chi-square tests for categorical variables and *t* tests for continuous variables. Analysis of outcome was conducted on all individuals from the baseline sample who were followed, regardless of whether patients started treatment or length of stay. We also examined gender differences in abstinence among all older adults in the program who completed follow-up ($n = 116$) for the purpose of comparison with the subset who met criteria for alcohol dependence ($n = 92$). We used logistic regression to examine contributors to the gender difference in outcome. Noting that the sample size limits statistical power, we drew from the conceptual framework upon which the original studies were designed (i.e., that individual, treatment and extra-treatment factors influence outcome). The specific variables selected have been associated in the literature with better outcome (female gender, greater age, longer length of stay in treatment, greater number of AA meetings attended in the 30 days prior to follow-up; Weisner et al., 2003) and treatment adherence (later initiation of heavy drinking; Atkinson et al., 1993). We included the number of days between baseline and follow-up interview as a control variable because length of time to follow-up differed between the two studies. Greater treatment intensity was also included as a control variable because it has been associated with abstinence (Satre et al., 2003). To explore differences in predictors by gender, we also ran the model separately for men and women but the conclusions are limited by sample size (27 women and 57 men). In a post-hoc analysis of alcohol-dependent patients not abstinent at 6 months, we tested gender differences in frequency of drinking and heavy drinking during the prior 30 days with *t* test.

Results

Of the 99 alcohol-dependent older adults who completed baseline measures, 92.9% participated in follow-up interviews at 6 months ($N = 92$): 100% of the women and 90% of the men. The women ($n = 29$) had a mean age (SD) of 60.4 (5.30) years, with a range of 55 to 77. The men ($n = 63$) had a mean age of 60.7 (4.37), with a range of 55 to 72. The sample was 89.2% white and 58.7% married, with no significant differences in ethnicity or marital status by gender. Household income differences approached significance, with 35.7% of women reporting over \$40,000 per year versus 53.1% of men ($n = 92$, $\chi^2 = 2.37, 1$ df, $p = .09$). Mean self-reported health score (from 1 to 5) was 2.8 (0.94), with no gender difference.

The women reported an older age of first alcohol use ($p < .001$) and a greater age of first heavy drinking ($p < .05$)

than men; however, frequency of drinking and heavy drinking were similar during the 30 days prior to admission (Table 1). Fewer than 4% reported use of illegal drugs in the prior 30 days, with no gender differences (not shown). At the 6-month follow-up, 79.3% of the alcohol-dependent women reported total abstinence from alcohol and drugs versus 54.0% of the men ($p = .02$; Table 1). Among all older adults, including those who did not meet alcohol dependence criteria ($N = 116$), 72.2% of the women were abstinent versus 57.5% of the men, a not statistically significant difference (not shown).

In the logistic regression analysis of alcohol-dependent patients, we examined gender, age, age of heavy drinking initiation, treatment intensity, length of stay, time to follow-up and number of AA meetings attended in the 30 days prior to the 6-month follow-up. The dependent variable was total abstinence from alcohol and drugs in the prior 30 days. Of the 92 patients who completed the follow-up interview, 8 were eliminated due to missing data, leaving 84 cases in the model (Cox and Snell pseudo $R^2 = 0.21$, $p < .01$). Length of stay in treatment was the only

TABLE 1. Gender differences of older adults in treatment for alcohol dependence

	Gender	
	Men ($n = 63$)	Women ($n = 29$)
Drinking history		
Age at first alcohol use, mean (SD)	15.8 (3.66)	21.2 (11.27) [‡]
Age first drank 5+, mean (SD)	28.0 (13.62)	35.2 (15.53)*
Baseline (prior 30 days)		
Days drank alcohol, mean (SD)	19.0 (9.85)	19.8 (10.17)
Days drank 5+, mean (SD)	16.8 (10.91)	16.4 (12.15)
Used painkillers (%)	7.9	6.9
Used tranquilizers (%)	28.6	25.0
Self-reported depression (%)	55.9	57.7
Self-reported anxiety (%)	60.0	77.8
Treatment		
Initiated treatment (%)	84.3	93.1
Length of stay, mean (SD) days	59.2 (65.69)	83.0 (74.20)
Six-month outcomes (prior 30 days)		
Abstinent from alcohol and drugs (%)	54.0	79.3*
AA meetings, mean (SD)	29.1 (38.21)	41.5 (39.12)
Self-reported depression (%)	15.6	24.1
Self-reported anxiety (%)	14.1	20.7

Notes: *N* varies between 87 and 92. Baseline and 6-month questions refer to consumption or symptoms in the prior 30 days. AA meetings = number of Alcoholics Anonymous meetings attended in the prior 30 days. Use of painkillers and tranquilizers and presence of depression and anxiety were measured by dichotomous questions (yes/no) from the Addiction Severity Index. Gender differences were tested using chi-square and *t* tests.

* $p < .05$; [‡] $p < .001$.

significant variable in the model ($p = .003$). To explore predictors by gender, we ran the model separately for men ($n = 57$) and women ($n = 27$): Length of stay was significant for the men ($p = .001$) but no variables were significant for the women.

Among the alcohol-dependent patients who were not abstinent at follow-up (29 men and 6 women), the difference in mean (SD) number of drinking days in the 30 days prior to follow-up was large but not statistically significant: 8.8 (10.54) days for the men versus 2.3 (3.88) days for the women. Men reported a mean of 4.0 (9.20) days of heavy drinking (5 or more drinks per occasion) in the prior 30 days, and women reported 0 days ($t = 2.36$, 1/35 df, $p = .025$).

Discussion

This study of alcohol-dependent patients in a managed care outpatient treatment setting found that older women had better 6-month abstinence rates than older men. However, gender differences in abstinence were not significant after controlling for length of stay in treatment. These results highlight potential similarities and differences between older alcohol-dependent men and women. The women began heavy drinking later than the men, consistent with previous findings (Gomberg, 1995; Schuckit et al., 1978), although their drinking levels were similar at baseline to those of the men.

On several measures, differences between the women and men were not significant, despite trends in the data (e.g., greater length of stay and better AA attendance among women). These factors have been strongly associated with good outcomes in previous studies of the treatment programs from which our data were drawn (Satre et al., 2003; Weisner et al., 2003). In chemical dependency treatment, greater length of stay has been consistently associated with better outcomes (Gottheil et al., 1992). In the current analysis, length of stay was found to predict abstinence at 6 months, possibly explaining the higher abstinence rates among the women. In treatment studies, motivation has predicted subsequent retention (Joe et al., 1999); therefore, a longer stay in treatment may represent a greater commitment to recovery.

The women had better outcomes than the men on other drinking measures in addition to abstinence. In particular, the nonabstinent women reported elimination of heavy drinking, whereas the men reported an average of 4 heavy drinking days (5 or more drinks per occasion) in the month prior to follow-up. This difference did not reflect lower baseline severity, which was comparable. Because older adults are more sensitive than younger adults to alcohol, it is especially important that they not consume large quantities. Therefore, elimination of heavy drinking by older women and reduction in frequency of heavy drinking by

older men may be considered good outcomes. The difference in the 6-month follow-up rates, although not significant, also favored women. Because a higher follow-up rate is associated with better outcome (Hansten et al., 2000), our results regarding gender differences in outcome may be conservative.

This study has several limitations. The small sample size resulted in limited statistical power. Also, participant data were drawn from two different studies that differed in length of time to follow-up. The sample was drawn from a single region (Sacramento, California), which may not generalize to other areas. The measures are also subject to limitations. Mood symptom findings must be interpreted with caution, since the study relied on single-item screening questions for depression and anxiety rather than established diagnostic measures. Additional measures would be desirable to examine by gender, especially intensity of medical conditions and use of medications, which may influence alcohol and drug use. We note that it would have been preferable to use a lower cutoff for heavy drinking for women than men (e.g., 4 or more drinks on a single occasion), because women are more sensitive alcohol. The 6-month follow-up was relatively short, conducted over the telephone rather than in person, and not completed by all participants.

Treatment of alcohol-dependent older women has been identified as a critically important issue for clinical research (Blow, 2000). Our analysis found that alcohol-dependent women over age 55 in outpatient treatment had 6-month abstinence rates higher than men over age 55 and identified factors potentially contributing to good outcomes. These results suggest that older women can persist and succeed in treatment. We caution that these results may not be robust for drug-dependent older women. Although we found significant gender differences in outcome, further investigations with larger samples are needed. Future studies should investigate how to maximize successful treatment in this important population.

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