

## Gender, Treatment and Self-Help in Remission from Alcohol Use Disorders

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**Objectives:** To examine gender differences in the influence of treatment, self-help groups and life context and coping factors on remission among initially untreated individuals with alcohol use disorders.

**Design:** A naturalistic study in which individuals were assessed at baseline and 1, 8 and 16 years later.

**Setting:** Participants initiated help-seeking with the alcoholism service system by contacting an information and referral service or detoxification program.

**Participants:** A total of 461 individuals with alcohol use disorders (50% women).

**Methods:** Participants were assessed by mail surveys and telephone interviews on participation in professional treatment and Alcoholics Anonymous (AA), alcohol-related functioning and indices of life context and coping.

**Results:** Compared to men, women were more likely to participate in treatment and AA, and to experience better alcohol-related and life context outcomes. In general, women and men who participated in treatment and/or AA for a longer duration were more likely to achieve remission. However, women benefited somewhat more than men from extended participation in AA. Continuing depression and reliance on avoidance coping were more closely associated with lack of remission among men than among women.

**Conclusion:** Compared to men, women with alcohol use disorders were more likely to obtain help and achieve remission. Women tended to benefit more from continued participation in AA and showed greater reductions in depression and avoidance coping than men did. These findings identify specific targets for clinical interventions that appear to be especially beneficial for women and that may also enhance the likelihood of recovery among men.

**Keywords:** Alcohol; Alcoholics Anonymous; Gender; Help-seeking; Outcome; Treatment

The findings in existing studies of the long-term course of alcohol use disorders are based largely on men.<sup>1-3</sup> Relatively little is known about gender differences in participation in treatment for alcohol use disorders, long-term alcohol-related and life context outcomes, whether longer treatment episodes confer a benefit over shorter episodes or remaining untreated, or the most important predictors of stable remission. Moreover, the literature on the outcome of treatment for alcohol use disorders has focused largely on individuals who have had one or more earlier episodes of treatment.<sup>4,5</sup>

Accordingly, the information we have on the outcome of treatment for alcohol abuse is based primarily on studies of individuals who have not responded to prior episodes of care or have relapsed.

Many individuals with alcohol use disorders participate in self-help groups, especially Alcoholics Anonymous (AA). However, research on AA has also relied mainly on samples of men, even though large numbers of women participate in AA. Prior studies have focused on participation in AA in relation to short-term outcomes, but there is relatively little

information about gender differences in involvement in AA or the effect of the duration of participation in AA on long-term outcomes.<sup>6,7</sup> We address these issues here by focusing on gender differences in participation in professional treatment and AA among previously untreated women and men who initiated help-seeking for their alcohol use disorder and address four questions: 1) compared to men, are women as likely to participate in treatment or AA in the first year after initiating help-seeking and do they participate as intensively? Are there long-term gender differences in participation in treatment or AA?, 2) are there gender differences in the patterns of change in alcohol-related and life context and coping indices? For example, are women as likely to reduce their alcohol consumption and experience improvements in functioning and life contexts as are men?, 3) compared to men, do women obtain as much benefit from participation in treatment or AA in the first year after initiating help-seeking? Are there gender differences in the extent to which continuing participation in treatment or AA is associated with stable remission?, and 4) what are the best predictors of stable remission and do any of these predictors vary by gender?

### **Participation in Treatment and AA**

Compared to men, some evidence suggests that women experience more difficulties in entering alcohol treatment, report fewer alcohol-related treatment episodes and obtain more limited services for help with drinking problems.<sup>8</sup> However, other evidence indicates that women and men are equally likely to initiate treatment in the first few years after onset of alcohol abuse or dependence,<sup>9,10</sup> or that women are even more likely than men to obtain alcohol and drug treatment.<sup>11</sup> Moreover, women are more likely to utilize medical and mental health care,<sup>12,13</sup> and this gender difference may generalize to care for alcohol use disorders.

Regarding participation in self-help groups, women and men lifetime drinkers appear to be equally likely to attend AA and to continue to participate in it.<sup>9,14</sup> After an initial episode of treatment, women were more likely than men to participate in self-help groups and obtain additional treatment.<sup>15,16</sup> However, little is known about ongoing patterns of involvement in AA among women and men who have just initiated help-seeking. We focus here on identifying gender differences in the likelihood of entering treatment or AA and in the long-term duration of participation in these two sources of help.

### **Changes in Life Context and Coping Factors**

Life context factors and methods of coping have an important influence on the outcome of alcohol use disorders. Chronic stressors increase the risk of relapse,<sup>17</sup> whereas social resources are associated with remission.<sup>18,19</sup> In this regard, before obtaining help for drinking problems women may experience more social stressors than men do.<sup>20,21</sup> Nevertheless, women tend to have more support from family members and friends,<sup>22</sup> suggesting that problem-drinking women may remain more socially integrated than their male counterparts.

When responding to life stressors, women tend to rely more than do men on avoidance coping strategies that serve to discharge or deny emotion, such as venting their feelings and drinking to cope, that is, the tendency to use alcohol to escape, avoid or otherwise regulate unpleasant emotions. Reliance on avoidance coping predicts worse alcohol-related treatment outcomes<sup>23,24</sup> and appears to be more closely associated with heavy drinking among men than among women.<sup>25</sup> In addition, a propensity to drink alcohol as a coping mechanism is a risk factor for the development of an alcohol use disorder<sup>26</sup> and seems to strengthen the association between emotional distress and drinking behavior more among men than among women.<sup>27</sup> To consider these issues, we compare women and men on aspects of their life context and coping, and examine gender differences in long-term changes in these domains.

### **The Influence of Treatment and AA on Outcomes**

Compared to men, women tend to do as well or better in professional alcoholism treatment.<sup>28-30</sup> Participation in treatment may be more beneficial for women than for men because women are more responsive and committed to the treatment process.<sup>15,31,32</sup> With respect to the duration of treatment, individuals who receive more extended episodes of substance use care tend to have better outcomes and higher remission rates<sup>33,34</sup> than do individuals who obtain care for a shorter interval. However, little is known about whether the duration of treatment has comparable effects on women and men.

More frequent and sustained participation in self-help groups is associated with positive alcohol-related outcomes. For example, in two multi-site studies, patients who attended more self-help group meetings had better treatment outcomes than did patients who were less involved in such groups.<sup>34,35</sup> More participation in self-help groups has also been associated with reduced substance use for women.<sup>32</sup> In fact, women may benefit more from treatment and self-help groups because relationships are more central to them and they are more focused on the therapeutic aspects of these settings.<sup>16,36</sup> Here, we examine gender differences in the influence of the length of participation in treatment and AA among initially untreated women and men with alcohol use disorders.

### **Predictors of Stable Remission**

Stable remission tends to be predicted by specific personal and social factors, including lighter drinking, fewer dependence symptoms and drinking problems, fewer interpersonal conflicts and more stable social resources, and less reliance on avoidance coping.<sup>37-39</sup> In addition, participation in treatment and affiliation with AA tend to increase self-efficacy and reliance on approach coping, which are associated with better outcomes.<sup>23,40,41</sup> We focus here on gender differences in the extent to which alcohol-related and life context and coping indices predict stable remission.

## Methods

### *Sample and Procedure*

The participants were women and men with alcohol use disorders who, at baseline, had not received prior professional treatment for this disorder. These individuals had an initial contact with the alcoholism treatment system via an information and referral (I&R) center or detoxification (detox) program. The four I&R centers involved in the study provided services over the telephone or in person during information and referral sessions. The three detox programs provided detox services to individuals in the three counties in which they were located. One program was for women only, the other two admitted both women and men.

At baseline, data were collected from 628 eligible individuals. After providing institutional review board-approved informed consent, these individuals completed a baseline inventory described below. Individuals in the study had an alcohol use disorder, as determined by one or more substance use problems, dependence symptoms, drinking to intoxication in the past month and/or perception of alcohol abuse as a significant problem.

At 1, 3, 8 and 16 years after entering the study, participants were located, contacted by telephone and asked to complete an inventory that was essentially identical to the baseline inventory. A total of 121 of the 628 baseline participants (19.3%) had died by the 16-year follow-up. At baseline, compared with the individuals who survived, those who died were older (40.1 versus 33.4 years,  $t=7.39$ ,  $P<0.01$ ), less likely to be married (13.2% versus 22.9%,  $t=2.35$ ,  $P<0.05$ ) and consumed more alcohol (14.9 versus 12.7 ounces of ethanol on a typical drinking day,  $t=1.99$ ,  $P<0.05$ ). Of the remaining 507 individuals, 422, 391, 408 and 405 completed the 1-year, 3-year, 8-year and 16-year follow-ups, respectively.

We focus here on 461 (90.9%) of the 507 surviving individuals who completed two or more follow-ups or the 16-year follow-up. Compared with the remaining 46 surviving individuals, these 461 individuals were more likely to be women (50.3% versus 32.6%,  $t=2.30$ ,  $P<0.05$ ) and to be employed at baseline (44.3% versus 21.7%,  $t=2.97$ ,  $P<0.01$ ).

### *Measures*

At baseline and at each follow-up, we assessed respondents' drinking patterns and problems, alcohol-related functioning and life context and coping factors. In addition, we obtained information about respondents' participation in treatment and AA.

### *Drinking Patterns and Problems*

An index of drinking problems was drawn from the health and daily living form.<sup>42</sup> Respondents rated how often in the last 6 months they had experienced each of nine problems (e.g., with health, job, money, family arguments) as a result of drinking. Dependence symptoms were assessed using items from the Alcohol Dependence Scale.<sup>43</sup> On a 5-point scale, varying from 0 = never to 4 = often, respondents rated how

often in the past 6 months they had experienced each of 11 symptoms as a result of drinking (e.g., "shakes" when sobering up, blackouts, craving for a drink the first thing after waking up; alpha at baseline = .88). Collaterals and participants showed significant agreement at baseline on these two alcohol-related indices.<sup>44</sup>

Quantity of alcohol consumption was assessed by three items that asked about the largest amount of wine, beer and hard liquor consumed on any one day in the last month. We converted the responses to reflect the ethanol content of these beverages and then summed them. In addition, we asked participants about lifetime drinking problems, as based on 28 items designed to reflect DSM-III-R symptoms of alcohol abuse and dependence (alpha = .94).

To be considered stably remitted, individuals had to meet several criteria at both the 8-year and 16-year follow-ups: abstinence or moderate drinking in each of the past 6 months, no intoxication and consumption of no more than three ounces of ethanol on drinking days in the past month, and no drinking problems in the past 6 months.

### *Alcohol-Related Functioning*

Self-efficacy to resist alcohol was assessed with 10 items (alpha at baseline = .93) adapted from the situational confidence questionnaire.<sup>45</sup> The items covered situations involving negative and positive emotions, interpersonal conflict and testing one's self-control. Each item was rated on a 6-point scale varying from 0 = not at all confident to 5 = very confident.

Depression was based on a measure included in the health and daily living form and derived from the research diagnostic criteria.<sup>46</sup> Respondents rated how often (on a 5-point scale with 0 = never and 4 = often) they experienced each of nine symptoms of depression in the last month, such as feeling sad or blue; feeling guilty, worthless or down; thoughts about death or suicide (alpha at baseline = .92).

### *Life Context and Coping Indices*

Life context and coping indices were assessed by standardized summary measures of chronic stressors and social resources in several life domains, such as spouse/partner, other relatives, finances and work (average alphas at baseline = .75 and .76 for stressors and resources, respectively). Each domain was assessed by several 4-point or 5-point items drawn from the life stressors and social resources inventory.<sup>47</sup> We also asked participants how many friends they had, as defined by close friends, membership in a circle of close friends, and friends who could be counted on for help when needed.

Coping responses were measured by two 6-item subscales, which reflected problem solving and avoidance coping (alphas at baseline = .75 and .59, respectively). The subscales were composed of 4-point items ranging from "no" to "fairly

often” drawn largely from the coping responses inventory.<sup>48</sup> We also used a 4-point item to assess individuals’ tendency to drink to reduce tension as a coping strategy.

#### Participation in Treatment and AA

At each follow-up, participants were asked whether or not they had obtained professional treatment for their drinking habits or drinking-related problems since they completed the last questionnaire. They also were asked whether or not they had participated in AA. The month and year when the last questionnaire was completed were provided. If participants answered “yes,” for each episode of treatment they were asked to record the month and year and number of weeks and sessions. In addition, they were asked to record the month and year and number of weeks and meetings for each episode of participation in AA.

#### Analytic Plan

We first used the Chi square test for dichotomous variables and analyses of variance (ANOVA) for continuous variables to compare women’s and men’s demographic characteristics, drinking patterns and participation in treatment and AA. Next, we conducted repeated measure analyses of variance (RM-ANOVA) to describe average within-person changes from baseline through the three follow-ups and to focus on differential changes by gender.

To examine associations between the duration of participation in treatment and AA and stable remission, we calculated 2 x 4 analyses of covariance (ANCOVA) comparing women versus men over the four assessment occasions. We controlled for the four variables that differentiated women and men at baseline (i.e., ethnicity, income, dependence symptoms and lifetime drinking problems). When the duration of participation in treatment was significantly associated with remission, we conducted follow-up Student-Newman-Keuls

(SNK) tests to identify the significance of the differences in remission between individuals who obtained no treatment and those who obtained treatment for different lengths of time. We conducted comparable analyses to identify the significance of the differences in remission between individuals who did not enter AA and those who participated in AA for different lengths of time.

We then conducted partial correlation and logistic regression analyses (again controlling for the four variables that differentiated between women and men at baseline) to identify predictors of stable remission. We included zero-centered interaction terms in the regressions to examine interactions between gender and the predictors. We used a regression-based maximum likelihood model<sup>49</sup> and information from baseline and completed follow-ups to impute missing values for the duration of treatment and AA, and the alcohol-related outcomes for surviving individuals, more than 90% of who had completed at least two follow-ups.

#### Results

The participants were evenly divided between women (n=232; 50.3%) and men (n=229; 49.7%). Most were unmarried and less than 50% were employed (table 1). On average, at baseline, these individuals were in their mid-30s and had completed more than 13 years of education. A higher proportion of women than men were Caucasian and women reported less average annual income than did men. There were no gender differences in the frequency or amount of alcohol consumption or number of current drinking problems. However, women reported more current dependence symptoms but fewer lifetime drinking problems than men did.

#### Participation in Treatment and AA

In the first year after seeking help, about 60% of the participants entered professional treatment. Individuals who

**Table 1.** Gender differences in demographic and drinking pattern characteristics.

Characteristic	Women (n = 232)	Men (n = 229)	F or Chi square
<i>Demographic</i>			
Age (years)	33.1 (8.7)	33.9 (8.9)	<1
Caucasian (%)	85.3	74.7	8.22**
Education (years)	13.2 (2.2)	13.0 (2.3)	<1
Married (%)	21.6	25.8	1.13
Employed (%)	40.1	48.5	3.29
Annual income (in thousands)	10.4 (10.2)	15.2 (12.9)	19.78**
<i>Drinking patterns</i>			
Alcohol (frequency)	5.0 (2.2)	5.3 (2.2)	1.10
Alcohol (quantity, oz)	11.8 (9.8)	13.1 (12.3)	1.51
Dependence symptoms (0-11)	5.3 (2.9)	4.6 (2.9)	6.13*
Current drinking problems (0-9)	4.8 (2.5)	4.8 (2.4)	<1
Lifetime drinking problems (0-27)	13.6 (8.3)	15.1 (7.8)	3.94*

\*P<0.05; \*\*P<0.01



**Table 2.** Gender differences in participation in professional treatment and Alcoholics Anonymous (AA).

Characteristic	Women (n=232)	Men (n=229)	F or Chi square
<i>Treatment Year 1 (%)</i>	62.1	56.3	1.57
Duration (weeks/year)	12.6 (17.0)	11.1 (16.5)	<1
Sessions (number/year)	22.2 (38.9)	17.8 (35.8)	1.64
<i>Treatment Years 1-8 (%)</i>	76.3	72.9	<1
Duration (weeks/year)	7.5 (9.0)	5.3 (7.2)	6.25*
Sessions (number/year)	14.9 (17.8)	11.1 (18.3)	3.88*
<i>AA Year 1 (%)</i>	65.1	51.5	8.72**
Duration (weeks/year)	16.9 (19.5)	13.8 (18.2)	3.27
Meetings (number/year)	55.6 (79.3)	41.0 (72.0)	4.25*
<i>AA Years 1-8 (%)</i>	78.4	69.0	5.32*
Duration (weeks/year)	15.4 (16.6)	13.3 (14.7)	1.41
Meetings (number/year)	40.9 (51.6)	37.3 (54.7)	<1

\* $P < 0.05$ ; \*\* $P < 0.01$

Note: Means for the duration and number of treatment sessions and AA meetings in each interval are based on individuals who participated in treatment or AA during that interval.

entered treatment participated for an average of about 12 weeks and 20 sessions (table 2). About 75% of the participants obtained treatment in years 1 to 8. On average, women obtained treatment for a longer duration and more sessions than men did. With respect to AA, more women than men participated in this modality of help in the first year. In addition, women participated in more meetings (table 2). A higher proportion of women than men participated in AA in years 1 to 8. However, there were no gender differences in duration or number of meetings attended.

#### *Changes in Alcohol-Related and Life Context and Coping Indices*

Overall, as compared to men, women were less likely to have drinking problems and consumed less alcohol. However, they were more likely to experience depressive symptoms (table 3). Gender by time interactions showed that women improved more rapidly than men with respect to reductions in drinking problems, dependence symptoms and depressive symptoms. They also showed more rapid increases in self-efficacy.

With respect to the life context and coping indices, women overall had more social resources and were less likely to drink to cope (table 3). Gender by time interactions showed that, compared to men, women increased more in number of friends and problem-solving coping and declined more in chronic stressors and reliance on drinking to reduce tension.

#### *Duration of Treatment and Remission*

A total of 46% of women and 35% of men were remitted at the 1-year follow-up ( $F=5.58$ ,  $P < 0.05$ ). At 8 years, 56% of women and 45% of men were remitted ( $F=4.41$ ,  $P < 0.05$ ) and at 16 years, 60% of women were remitted compared to 49% of men ( $F=6.63$ ,  $P < 0.01$ ). To focus on the association between

the duration of treatment and remission, we compared participants who remained untreated in the first year with three subgroups of women and men who were in treatment between 1 and 8 weeks, 9 and 26 weeks, or 27 weeks or more. These categorizations reflect designations of no treatment, brief treatment, and moderate and long-term treatment, and the empirical distribution of the duration of treatment. We also compared participants who did not obtain treatment in the first 8 years with three subgroups of women and men who, on average, obtained 1 to 8 weeks, 9 to 26 weeks or 27 weeks or more treatment in these years.

We then conducted two 2 x 4 ANCOVAs comparing women and men and the four duration of treatment groups with respect to 1-year remission and stable remission defined as remission at both 8-year and 16-year follow-ups. A longer duration of treatment in the first year was associated with a higher likelihood of 1-year remission (table 4). The overall duration of treatment in years 1 to 8 was not associated with stable remission. In addition, there were no interactions between gender and the duration of treatment. Follow-up SNK tests showed that women and men who participated in treatment for 27 weeks or more in the first year were more likely to be remitted at the 1-year follow-up than were women and men who obtained no treatment or those who obtained only 1 to 8 weeks of treatment.

#### *Duration of AA and Remission*

Again, to consider relatively broad and distinct groups, we compared participants who did not enter AA in year 1 with three subgroups of individuals who attended AA between 1 and 8 weeks, 9 and 26 weeks, or 27 weeks or more. We also compared individuals who did not participate in AA in the first 8 years with three subgroups of women and men who, on

**Table 3.** Changes between baseline and 16-year follow-up in alcohol-related and life context and coping indices for women (n = 232) and men (n = 229).

Index	Baseline	1-Year	8-Year	16-Year	Gender	Time	Interaction
<b>Alcohol-related</b>							
<i>Drinking problems (%)</i>					13.10**	236.97**	2.88*
Women	94.4	45.3	31.9	28.4			
Men	94.8	57.6	45.4	39.7			
<i>Dependence symptoms (0-11)</i>					1.33	233.10**	7.30**
Women	5.3	2.0	1.3	1.1			
Men	4.6	2.2	1.9	1.6			
<i>Alcohol consumption (maximum oz)</i>					10.94**	167.22**	1.36
Women	11.8	3.5	5.8	1.5			
Men	13.1	4.7	3.0	2.6			
<i>Self-efficacy (0-10)</i>					2.67	79.16**	10.14**
Women	4.9	7.3	8.2	8.1			
Men	5.6	7.1	7.5	6.9			
<i>Depression (0-36)</i>					13.28**	158.86**	7.53**
Women	23.2	14.9	13.7	13.6			
Men	18.8	13.3	11.9	13.2			
<b>Life context and coping</b>							
<i>Chronic stressors</i>					1.45	<1	2.90*
Women	51.0	50.7	50.3	50.4			
Men	49.3	50.3	50.3	50.3			
<i>Number of friends (0-12)</i>					<1	38.29**	2.68*
Women	3.9	4.7	5.0	5.7			
Men	4.2	4.8	4.6	5.4			
<i>Social resources</i>					8.46**	<1	1.17
Women	50.2	50.4	50.3	50.0			
Men	49.2	48.7	48.7	49.2			
<i>Problem-solving (0-18)</i>					<1	31.58	4.75**
Women	9.0	11.6	11.7	11.6			
Men	10.3	11.7	11.4	11.2			
<i>Avoidance (0-18)</i>					1.85	162.37**	2.24
Women	9.3	6.4	5.4	5.2			
Men	8.5	6.3	5.6	4.7			
<i>Drink to reduce tension (%)</i>					3.87*	158.97**	6.34**
Women	88.3	39.8	28.1	29.4			
Men	79.8	50.0	41.2	35.5			

\* $P < 0.05$ ; \*\* $P < 0.01$

**Table 4.** Gender differences in remission by the duration of participation in treatment and Alcoholics Anonymous (AA), controlling for ethnicity, income, baseline dependence symptoms and lifetime drinking problems (women, n = 232; men, n = 229).

<b>Part A – Duration of treatment</b>					<b>F values</b>		
<b>Outcome (% patients)</b>	<b>None</b>	<b>1-8 weeks</b>	<b>9-26 weeks</b>	<b>27+ weeks</b>	<b>Tx</b>	<b>Gender</b>	<b>Tx by gender</b>
<i>Remission</i>							
(by treatment in year 1)					7.02**	4.63*	<1
Women	39.8 <sup>b</sup>	38.2 <sup>c</sup>	47.4	62.8 <sup>b,c</sup>			
Men	28.0 <sup>b</sup>	30.9 <sup>c</sup>	30.0	59.1 <sup>b,c</sup>			
<i>Stable remission</i>							
(by treatment in years 1-8)					1.13	4.82*	2.05
Women	41.8	29.0	51.4	44.2			
Men	27.4	33.3	26.5	44.3			

<b>Part B – Duration of Alcoholic Anonymous (AA)</b>					<b>F values</b>		
<b>Outcome (% patients)</b>	<b>None</b>	<b>1-8 weeks</b>	<b>9-26 weeks</b>	<b>27+ weeks</b>	<b>AA</b>	<b>Gender</b>	<b>AA by gender</b>
<i>Remission</i>							
(by AA in year 1)					13.15**	4.19*	<1
Women	37.0 <sup>b</sup>	25.0 <sup>c</sup>	52.1	65.1 <sup>b,c</sup>			
Men	25.2 <sup>a,b</sup>	15.4 <sup>c</sup>	50.0 <sup>a</sup>	53.9 <sup>b,c</sup>			
<i>Stable remission</i>							
(by AA in years 1-8)					10.96**	4.35*	3.52*
Women	28.0 <sup>b</sup>	29.8 <sup>c</sup>	39.5	86.7 <sup>b,c</sup>			
Men	32.4	29.2	40.5	46.9			

Note: Means that share the same superscript differ significantly ( $P < 0.05$ ).

<sup>a, b</sup> Differences between the no treatment or no AA group and the 9-26 weeks and 27+ weeks duration of treatment or AA groups, respectively

<sup>c</sup> Difference between the group that received 1-8 weeks of treatment or AA and the group that received 27+ weeks of treatment or AA.

\* $P < 0.05$ ; \*\* $P < 0.01$

average, were in AA for 1 to 8 weeks, 9 to 26 weeks, or 27 or more weeks annually in these years.

We again conducted 2 x 4 ANCOVAs comparing women and men with the four groups of AA duration. A longer duration of AA in the first year was associated with a higher likelihood of 1-year remission (table 4). A longer duration of AA in years 1 to 8 also was associated with a higher likelihood of stable remission. In addition, a significant interaction between gender and the duration of AA showed that, as compared to men, women benefited more from continuing longer in AA.

According to follow-up SNK tests, women and men who participated in AA for 27 weeks or more in the first year were more likely to be remitted at 1 year than were women and men who did not participate in AA, or those who participated for only 1 to 8 weeks. Women who participated in AA for an annual average of 27 weeks or longer in years 1 to 8 were

more likely to achieve stable remission than were women who did not participate in AA or who participated in AA for only 1 to 8 weeks annually. Although men who participated in AA for an average annual duration of 27 weeks or more were more likely to be stably remitted than men who did not participate in AA, this difference was not statistically significant.

#### *Predictors of Stable Remission*

We conducted partial correlation analyses, controlling for the four variables that discriminated between women and men at baseline to examine the extent to which the 1-year alcohol-related and life context and coping factors predicted stable remission. We focused on the 1-year values of these indices in order to incorporate changes associated with participation in treatment and AA. For both women and men, more drinking problems and dependence symptoms, heavier alcohol use and more reliance on alcohol to reduce tension predicted a lower likelihood of stable remission (table 5). More self-efficacy

and a larger circle of friends predicted a higher likelihood of stable remission.

Next, we conducted logistic regression analyses to identify the best independent predictors of stable remission. For women, the significant independent predictors were higher self-efficacy and more friends (table 5). For men, the significant independent predictors were fewer chronic stressors, more social resources and less reliance on drinking to reduce tension. Consistent with the gender differences in the partial correlations, follow-up logistic regression analyses that included interaction terms between gender and the significant predictors identified in the partial correlation analyses showed that two indices were associated with a lower likelihood of stable remission for men but not for women: more depressive symptoms and more reliance on avoidance coping (both, *P* values <0.01).

### Discussion

The majority of women and men participated in treatment and/or AA in the first year after they began to seek help for an alcohol use disorder and more than 75% eventually obtained some form of help. Women participated more intensively in treatment and were more likely to join AA. Compared to men, women improved more in several alcohol-related and life context and coping indices, were more likely to achieve remission and benefited more from extended participation in AA.

### Changes in Alcohol-Related and Life Context and Coping Indices

Overall, as compared to men, women improved more quickly and had better alcohol-related outcomes. Women were more likely to be free of drinking problems and had fewer dependence symptoms, consumed less alcohol overall, and improved more in self-efficacy to resist drinking in high-risk situations and in depressive symptoms. In addition, consistent with earlier findings, women gained more friends, increased more in reliance on problem-solving coping and reduced their reliance on alcohol as self-medication more than did men.<sup>50</sup> Similar findings have been obtained among individuals addicted to substances other than alcohol.<sup>51</sup> Compared to men, women in treatment improved more in self-confidence, family relationships and social functioning,<sup>15</sup> and achieved recovery more quickly.<sup>51</sup>

These findings imply that women with alcohol use problems may be somewhat more able than their male counterparts to rally their social resources and enhance their coping skills. In fact, women may elicit and profit from social support more than men do. For example, women are more likely to use coping methods that involve social joining and coalition building and that are team oriented.<sup>52</sup> Accordingly, women may benefit more than men from programs designed to foster social bonds with supportive peers.<sup>53</sup>

**Table 5.** One-year predictors of stable remission for women (n=232 women) and men (n=229 men). Ethnicity, income, baseline dependence symptoms and lifetime drinking problems were controlled for.

Characteristic	Partial correlations		Logistic regression	
	Women	Men	Women	Men
<i>Alcohol-related</i>				
Drinking problems	-0.24**	-0.25**		
Dependence symptoms	-0.16*	-0.26**		
Alcohol use (maximum oz)	-0.16*	-0.19**		
Self-efficacy	0.29**	0.22**	0.19**	
Depression	-0.04	-0.28**		
<i>Context and coping</i>				
Chronic stressors	-0.09	-0.20**		-0.07*
Friends	0.20**	0.17**	0.12*	
Social resources	0.00	0.24**		0.06*
Problem solving	-0.01	0.06		
Avoidance coping	-0.04	-0.26**		
Drink to reduce tension	-0.22**	-0.31**		-1.36**
<i>Constant</i>			-3.33	-0.56
<i>Nagelkerke R<sup>2</sup></i>			0.28**	0.30**

\**P*<0.05; \*\**P*<0.01



### *Participation in Treatment and Remission*

Compared to men, women were more likely to be remitted at all three follow-ups. This finding is consistent with prior studies showing that women tend to have treatment outcomes that are as good as or better than those of men.<sup>28,30</sup> About 60% of women and men who sought help for their alcohol use problems entered professional treatment within 1 year. Compared to untreated women and men and to those who obtained only 1 to 8 weeks of treatment, women and men who obtained 27 weeks or more of treatment in the first year were more likely to be remitted at 1 year. These findings extend earlier results on this sample<sup>54,55</sup> and are consistent with prior studies that have shown an association between a longer duration of treatment and better substance use outcomes.<sup>33,34</sup>

The findings highlight the limitations of a short duration of treatment in producing better alcohol-related outcomes. Women and men who received 1 to 8 weeks of treatment in the first year were no more likely to achieve remission than were those who remained untreated. Accordingly, although a short episode of treatment may produce a time-limited benefit over remaining untreated, in and of itself, it may not contribute to better alcohol-related outcomes, even among individuals with less severe and chronic disorders who have never been in treatment before.

### *Participation in AA and Remission*

Women were more likely than men to attend AA in the first year and overall during years 1 to 8, and went to more AA meetings in the first year. More extended participation in AA in the first year was associated with a higher likelihood of 1-year remission for both women and men. However, the positive association between a longer duration of AA attendance and stable remission was stronger for women. These findings extend those of prior studies,<sup>35,55-57</sup> support the value of continuing engagement in AA for women and suggest that women may benefit more from long-term participation in AA than men do.

Women may be more likely than men to attend and benefit from AA because they are more in tune with AA's philosophy, which involves acceptance of powerlessness over alcohol, lack of control over one's behavior and dependence on a higher power to attain sobriety.<sup>58</sup> In this regard, women with alcohol use disorders often report low self-esteem, an external locus of control and stable attributions for failure, and frequent drinking when feeling powerless or inadequate. These personal characteristics are congruent with the AA ideology that expects individuals with alcohol-related problems to admit past wrongdoing, acknowledge inability to control alcohol use and trust a higher power to achieve recovery.<sup>59</sup>

AA may be an attractive form of help for women because it is free (eliminating financial barriers to help), readily accessible in most urban and suburban communities and anonymous, such that family members and friends need not know about attendance there. Anonymity may be particularly important for women, due to the stronger social stigma of alcoholism for

women than for men,<sup>59</sup> although such stigma has been reduced in recent years.<sup>10</sup> Self-help groups, especially all-women groups, may be particularly helpful because they allow identification with other women who have overcome their difficulties, which may allay guilt and shame associated with the alcohol misuse. In addition, because self-help groups are non-hierarchical and non-authoritarian, they foster recovery in a relational, mutually-enhancing and safe context.<sup>60,61</sup>

### *Predictors of Stable Remission*

Stable remission was predicted by several personal and social factors that characterized individuals at the 1-year follow-up, including fewer drinking problems and dependence symptoms, less heavy alcohol consumption, more self-efficacy to resist temptations to drink, more friends and less reliance on drinking to reduce tension. These findings held for both women and men, and are consistent with prior studies showing that lighter drinking and fewer drinking-related problems predict better short-term outcomes among both treated and untreated individuals.<sup>37,39</sup> Similarly, prior studies have found that stable social relationships are associated with remission and that individuals who remit tend to have more support from family and friends and to rely less on avoidance coping.<sup>18,23,39</sup>

With respect to gender differences, self-efficacy and a larger circle of supportive friends were the most important predictors of stable remission for women, whereas more overall social resources and less depression, chronic stressors, and reliance on avoidance coping and drinking to cope predicted a higher likelihood of stable remission for men. Enhanced self-confidence and support from close relationships with friends may be especially important factors in recovery for women, whereas men appear to need a broader array of social resources from both family members and friends, along with skills that enable them to reduce their reliance on avoidance coping. Consistent with these ideas, reliance on avoidance coping is more closely associated with heavy drinking among men than among women, perhaps because it is more likely to reinforce the association between emotional distress and men's drinking behavior.<sup>25,27,50</sup>

### *Limitations and Future Directions*

Our findings are of potential clinical interest, but some limitations should be noted. We conducted a naturalistic longitudinal study in which individuals self-selected into treatment and AA and, on the basis of their experiences, decided on the duration of participation. Thus, in part, the benefits we identified are due to the influence of self-selection and motivation to obtain help, as well as that of longer participation per se. Our findings probably reflect the real-world effectiveness of participation in treatment and AA for alcohol use disorders. However, the naturalistic design precludes firm inferences about the causal role of treatment or AA. In addition, individuals who remained alive and were successfully followed consumed somewhat less alcohol at baseline than did individuals who died. Therefore, the findings may be limited to individuals with less severe alcohol use disorders.

Another limitation is that we obtained information only on 6-month windows of alcohol-related outcomes at each follow-up and thus cannot trace the complete drinking status of participants over the 16-year interval. In addition, our data were based on self-report obtained by mail and telephone assessments, which may provide more opportunity, as compared to face-to-face assessments, for less than accurate self-disclosure. However, self-reported alcohol-related outcomes appear to be reasonably valid, especially when they are obtained independently of treatment providers and with assurance of confidentiality, as was the case here.<sup>62</sup> There also is some support for the reliability and validity of self-reports of episodes of treatment<sup>63</sup> and AA.<sup>41,64</sup>

Our findings on the benefits of relatively rapid entry into treatment and AA support the value of strengthening the referral process for individuals who seek help. Some useful procedures include personal introductions to treatment staff, immediate intake assessments or clinic visits, motivational interviewing, which tends to enhance individuals' entry into and attendance in treatment,<sup>65</sup> and telephone reminders to sustain treatment involvement. Women often recognize their alcoholism, but family members and professional treatment providers tend to reject this diagnosis in favor of other psychiatric explanations. Primary care providers should screen women as carefully as they do men about alcohol use in order to identify women's alcohol problems.

With respect to AA, providers can introduce patients to an AA sponsor or recovery guide, address potential barriers such as lack of transportation and child care services, and maintain contact to enhance continuing attendance. For example, providers can follow up with patients on agreements made for AA attendance and encourage involvement beyond attendance per se, such as reading 12-step literature, doing service and becoming a sponsor.<sup>66</sup> In this regard, assuming a helper role and learning new attitudes and skills from role models are related to better abstinence outcomes among 12-step self-help group members.<sup>67-69</sup>

Treatment providers should also encourage patients who are reluctant to join and become involved in 12-step groups to reconsider these options. One method is to clarify patients' misconceptions about 12-step groups, such as that higher power is necessarily a religious concept rather than reflecting a power greater than oneself, such as treatment staff and/or other patients.<sup>70</sup> Another option is to refer patients to self-help groups with a more cognitive-behavioral focus, such as SMART (Self-Management and Recovery Training).<sup>71</sup> If patients are reluctant to join 12-step self-help groups, counselors should accept this decision and look for later opportunities to raise the topic again.<sup>72</sup>

The findings also imply that a longer duration of treatment for alcohol use disorders is associated with better outcomes and that providers should structure treatment programs to ensure continuing care and ongoing affiliation with AA. A cost-effective

approach for some patients may be to provide brief, telephone-based monitoring spaced out over several months.<sup>73</sup> Although some patients benefit from brief interventions, booster sessions and more extended care are likely to be needed for individuals who have difficulty establishing a working treatment alliance and lack adequate family and community support.

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