



Treated and untreated individuals with alcohol use disorders: Rates and predictors of remission and relapse¹

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(Received January 16, 2006/ Recibido 16 de enero 2006)

(Accepted March 23, 2006/ Aceptado 23 de marzo 2006)

ABSTRACT. This observational descriptive study focused on whether individuals with alcohol use disorders who participate in professional treatment and/or Alcoholics Anonymous (AA) experience better long-term outcomes than individuals who do not obtain help. Participants were surveyed at baseline when they initiated help-seeking and 1 year, 3 years, 8 years, and 16 years later. Compared with individuals who obtained no help, individuals who participated in treatment and/or AA for 9 weeks or more in the first year after help-seeking had better 16-year outcomes. Participation in treatment and/or AA accelerated an overall pattern of change, so that individuals who obtained help improved somewhat more and more quickly than those who did not. Overall, individuals who did not obtain help were less likely to achieve remission and, even if they achieved remission, were more likely to relapse. The findings support the value of strengthening the referral process for individuals who seek help and indicate that providers should structure treatment programs to ensure continuing care and affiliation with AA.

¹ Preparation of this manuscript was supported by NIAAA grants AA12718 and AA15685, and by Department of Veterans Affairs Health Services Research and Development Service funds. The views expressed here are the authors' and do not necessarily represent those of the Department of Veterans Affairs.

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KEYWORDS. Alcohol use disorders. Help-seeking. Treatment. Remission. Relapse. Observational descriptive study.

RESUMEN. Este estudio descriptivo observacional se centró en si los individuos con trastornos en el consumo de alcohol que reciben tratamiento profesional y/o participan en Alcohólicos Anónimos (AA) experimentan mejores resultados a largo plazo que los individuos que no obtienen ayuda. Los participantes fueron encuestados como línea de base cuando iniciaron la búsqueda de ayuda, y también pasados 1 año, 3 años, 8 años, y 16 años. En comparación con los individuos que no obtuvieron ayuda, aquellos individuos que participaron en tratamiento y/o AA durante 9 semanas o más en el primer año presentaron mejores resultados en el plazo de 16 años. La participación en tratamiento y/o AA aceleraron un patrón global de cambio, de modo que los individuos que obtuvieron ayuda mejoraron algo más y de forma más rápida que los otros. En general, la remisión fue menos probable para los individuos que no obtuvieron ayuda y, aun si la consiguieron, presentaron mayor probabilidad de reincidir. Los resultados apoyan la importancia de fortalecer el proceso de asesoramiento para los individuos que buscan ayuda, e indican que los proveedores deberían estructurar programas de tratamiento que favorezcan atención continua y afiliación con AA.

PALABRAS CLAVE. Trastornos en el consumo de alcohol. Búsqueda de ayuda. Tratamiento. Remisión. Recaída. Estudio descriptivo observacional.

RESUMO. Este estudo descritivo observacional centrou-se em perceber se os indivíduos com perturbação de consumo de álcool que receberam tratamento profissional e /ou participam nos Alcoólicos Anónimos (AA) experimentam melhores resultados a longo prazo que os indivíduos que não obtêm ajuda. Os participantes foram entrevistados como linha de base quando iniciaram a procura de ajuda, e também passados 1 ano, 3 anos, 8 anos e 16 anos. Em comparação com os indivíduos que não obtiveram ajuda, aqueles indivíduos que participaram em tratamento e / ou nos Alcoólicos Anónimos durante 9 semanas ou mais no primeiro ano apresentaram melhores resultados no prazo de 16 anos. A participação no tratamento e / ou AA aceleraram um padrão global de mudança, de modo que os indivíduos que não obtiveram ajuda melhoraram algo mais e de forma mais rápida que os outros. Em geral, a remissão foi menos provável para os indivíduos que não obtiveram ajuda e, se a conseguiram, apresentam maior probabilidade de reincidir. Os resultados apoiam a importância de fortalecer o processo de monitorização para os indivíduos que procuram ajuda e indicam que os responsáveis deveriam estruturar programas de tratamento que favoreçam atenção contínua e afiliação com AA.

PALAVRAS CHAVE. Perturbação do consumo de álcool. Procura de ajuda. Tratamento. Remissão. Recaída. Estudo descritivo observacional.

Introduction

Most of the literature on the outcome of treatment for alcohol use disorders has focused on individuals who have had one or more earlier episodes of treatment. Accordingly, we know very little about the outcome of treatment for individuals who

have just recognized their alcohol-related problems and initiated help-seeking for the first time. Because so many individuals with alcohol use disorders participate in self-help groups, another issue involves the extent to which participation in treatment has an effect on outcome that is independent of participation in Alcoholics Anonymous (AA). Prospective studies are needed on the duration of initial episodes of treatment and AA, the extent to which longer episodes of treatment or AA confer a benefit over shorter episodes or over remaining untreated, and whether treatment and AA have independent effects on outcomes.

Because most studies of individuals who do versus those who do not enter treatment have been cross-sectional, we have few good estimates of the long-term rates of stable remission and comparative changes in personal and social context factors among treated versus untreated individuals. Moreover, although there is considerable information about short-term remission after treatment for alcohol use disorders, much less is known about rates of natural remission; that is, remission without participation in treatment or self-help groups. We have virtually no information about relapse rates following remission among untreated individuals or how they compare with relapse rates following remission among treated individuals.

To address these issues, we describe an observational descriptive study (Montero and León, 2005) of initially untreated individuals with alcohol use disorders and focus on the following questions: a) How does participation in professional treatment and/or self-help groups such as AA influence long-term alcohol-related outcomes? b) What are the comparative rates and predictors of stable remission, and changes in personal and social contexts, among treated and untreated individuals with alcohol use disorders? c) What are the rates and predictors of relapse after short-term remission among treated and untreated individuals? For organizing this article, we followed the proposal by Ramos-Álvarez and Catena (2004).

Method

Sample

The participants in this study were individuals with alcohol use disorders who, at baseline, had not received prior professional treatment for these disorders. These individuals had sought help by contacting the alcoholism service system via an Information and Referral center or detoxification program. At baseline, data were collected from 628 individuals (for more details, see Finney and Moos, 1995). At 1, 3, 8, and 16 years after entering the study, participants were located and re-assessed by mailed surveys and telephone interviews. A total of 121 of the 628 baseline participants (19.3%) had died by the 16-year follow-up.

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. These 461 individuals were evenly divided between women (50.3%) and men (49.7%). Most were Caucasian (80.0%), unmarried (76.4%), and unemployed (55.7%). On average, at baseline, these individuals were in their mid-30s and had 13 years of education and an annual income of \$12,800. They consumed an average of 12.5 ounces of ethanol on a typical heavy drinking day,

were intoxicated on an average of 13.0 days in the last month, and had an average of 5.0 dependence symptoms and 4.8 drinking problems.

Measures

At baseline and each follow-up, we assessed respondents' drinking patterns and problems and aspects of their life context and coping responses. At each follow-up, we obtained information about respondents' participation in professional treatment and AA. 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 ($\alpha = .94$) and whether they thought they had a significant drinking problem, as rated on a 5-point scale from "no problem" to "serious problem".

- Drinking patterns and problems. Alcohol consumption (frequency and quantity) was assessed by three items that asked about the usual amount of wine, beer, and hard liquor consumed on the days in which the individual drank that beverage in the last month. Respondents who noted that they had abstained from alcohol for the past six months were categorized as abstainers. Drinking problems were assessed by respondents' ratings of how often, on a 5-point scale varying from 0 (never) to 4 (often) in the last six months they had experienced each of nine problems (*e.g.*, with health, job, money, family arguments) as a result of drinking. To be considered remitted, individuals had to meet several criteria: Abstinence from alcohol or moderate drinking in each of the past six months, no drinking problems in the past six months, and no intoxication or consumption of more than three ounces of ethanol on any day in the past month. Self-efficacy to resist alcohol was assessed with 10 items (α at baseline = .93) adapted from the Situational Confidence Questionnaire (Annis and Graham, 1988). 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 "not at all confident" to "very confident"; individuals received a score of 1 for each item they rated as very confident.
- Life context and coping indices were assessed by 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). Each domain was assessed by several 4-point or 5-point items drawn from the Life Stressors and Social Resources Inventory (LISRES; Moos and Moos, 1994). Avoidance coping was measured by a subscale ($\alpha = .59$) composed of six 4-point items ranging from "no" to "fairly often" drawn from the Coping Responses Inventory (CRI; Moos, 1993). A 4-point item assessed 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, or had participated in AA, since the last assessment. If participants answered "yes", for each episode of treatment and AA they were asked to record the month and year and number of weeks of participation.

Results

Treatment, AA, and alcohol-related outcomes

Prior studies of variations in the duration of care have focused primarily on patients with severe and chronic substance use disorders. Many of these patients likely need longer episodes of care, whereas individuals who enter treatment for the first time and have less chronic disorders may respond more quickly and experience good outcomes with briefer treatment. Participation in 12-step self-help groups has been associated with short-term abstinence and remission (Connors, Tonigan, and Miller, 2001; Fiorentine, 1999), but much less is known about whether participation, or the duration of participation, predicts long-term outcomes. To extend the literature in this area, we posed three questions (Moos and Moos, 2006b): a) Do individuals who participate more extensively in professional treatment or AA in the first year after seeking help experience better 16-year outcomes? b) Does a longer duration of treatment or AA subsequent to the first year (that is, in years 2-3 or years 4-8) predict better 16-year outcomes beyond those obtained from participation in the first year? c) Are any associations between the duration of treatment or AA and 16-year outcomes independent of participation in the other modality of help?

Duration of treatment and AA in year 1 and 16-year outcomes

In the first year after initiating help-seeking, 273 (59%) of the 461 individuals entered treatment and 269 (58%) entered AA. To consider relatively broad and distinct treatment groups, we compared participants who remained untreated in the first year ($n = 188$) with three subgroups of individuals who were in treatment for between 1 and 8 weeks, 9 and 26 weeks, or 27 weeks or more (n values of 110, 68, and 95, respectively). We also compared participants who did not enter AA in year 1 ($n = 192$) with three subgroups of individuals who attended AA meetings for between 1 and 8 weeks, 9 and 26 weeks, or 27 weeks or more (n values of 60, 188, and 115, respectively).

Logistic regression analyses controlling for gender, marital status, and the baseline value of the outcome criterion showed that, independently of participation in AA, a longer duration of treatment in the first year was related to a higher likelihood of 16-year abstinence and a lower likelihood of 16-year drinking problems (Figure 1). Specifically, individuals who received 9 weeks or more of treatment were more likely to be abstinent and less likely to have drinking problems at 16 years than were individuals who remained untreated.

A longer duration of AA was related to a higher likelihood of 16-year abstinence and less likelihood of 16-year drinking problems, independently of participation in treatment. Compared to individuals who did not enter AA in the first year, individuals who participated in AA for 9 weeks or more had better 16-year alcohol-related outcomes (Figure 2). For example, 67% of individuals who participated in AA for 27 weeks or more in the first year were abstinent at 16 years, compared to only 34% of individuals who did not participate in AA.

FIGURE 1. Alcohol-related outcomes at 16 years by duration of treatment in the first year ($N = 461$).

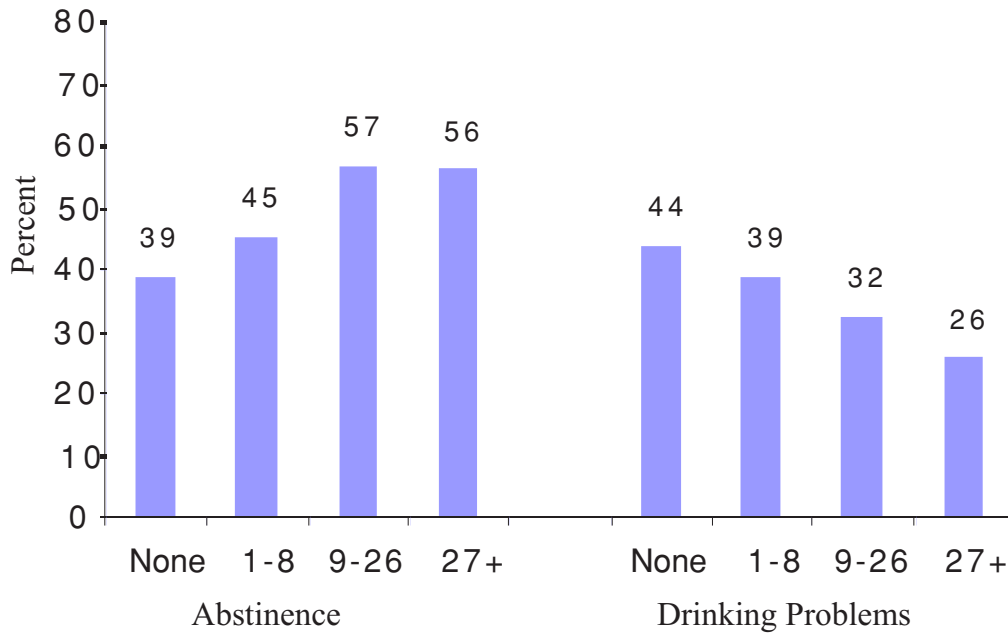
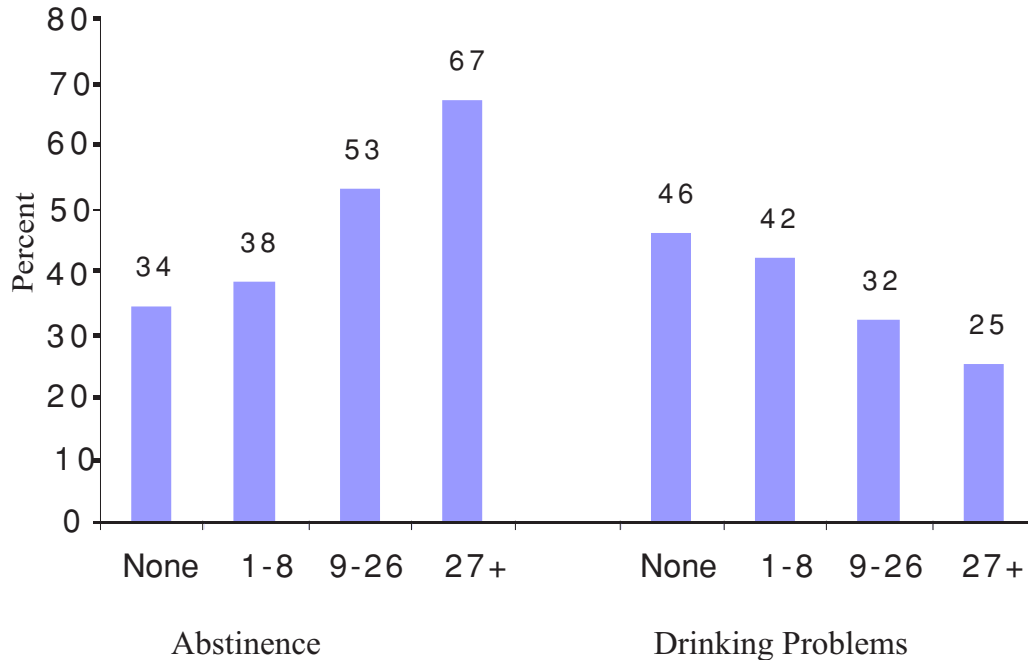


FIGURE 2. Alcohol-related outcomes at 16 years by duration of AA in the first year ($N = 461$).



Independent effects of treatment and AA in year 1, years 2-3, and years 4-8

More extended treatment in years 2-3 predicted a higher likelihood of 16-year abstinence; the duration of treatment in years 4-8 was not associated with 16-year outcomes. In contrast, participation in AA in years 2-3 predicted both a higher likelihood of 16-year abstinence and less likelihood of 16-year drinking problems; participation in

AA in years 4-8 predicted a higher likelihood of 16-year abstinence. For example, 72% of individuals who participated in AA for 27 weeks or more in years 2-3 were abstinent at 16 years, compared with only 38% of individuals who did not participate in AA in these years. Similarly, 67% of individuals who participated in AA for 27 weeks or more during years 4-8 were abstinent at 16 years, compared with only 39% of individuals who did not participate in AA in these years.

Rates and predictors of stable remission

Studies of untreated and treated individuals with alcohol use disorders have reported average annual remission rates of 2-3% and about 5%, respectively (Finney, Moos, and Timko, 1999; Vaillant, 1995). A related issue is whether individuals who do versus those who do not obtain help experience differential changes in alcohol-related functioning. In general, declines in alcohol-related health and psychosocial problems are common to natural remission and remission associated with entry into AA or treatment, implying that the process of resolution is similar irrespective of whether or not individuals receive help or the type of help (King and Tucker, 1998; Tucker, Vuchinich, and Rippens, 2002). However, natural recovery may be more gradual than is treated recovery, which may be associated with more profound changes in social contexts (Blomqvist, 1999).

With respect to predictors of remission, we do not know of any prospective studies that have focused on this issue among individuals who initially received no help, entered AA, or entered treatment. However, compared with untreated non-remitted individuals, natural remitters tend to be older, married, and employed, and to have a shorter history of dependent drinking. Lighter drinking and fewer dependence symptoms and drinking problems have been related to better outcome among individuals who do not obtain help. Natural remitters also tend to have more stable social resources and fewer interpersonal conflicts, and to rely less on avoidance coping (Bischof, Rumpf, Hapke, Meyer, and John, 2001; Russell *et al.*, 2001; Weisner, Matzger, and Kaskutas, 2003).

Based on this literature we addressed the following questions: a) Do individuals who enter AA or treatment in the first year after recognizing the need for help have higher rates of stable remission than individuals who obtain no help? b) Are there differential changes in alcohol-related indices between individuals who do versus those who do not obtain help in the first year after initiating help seeking? c) What are the predictors of stable remission and do these predictors vary for individuals who do versus those who do not obtain timely help?

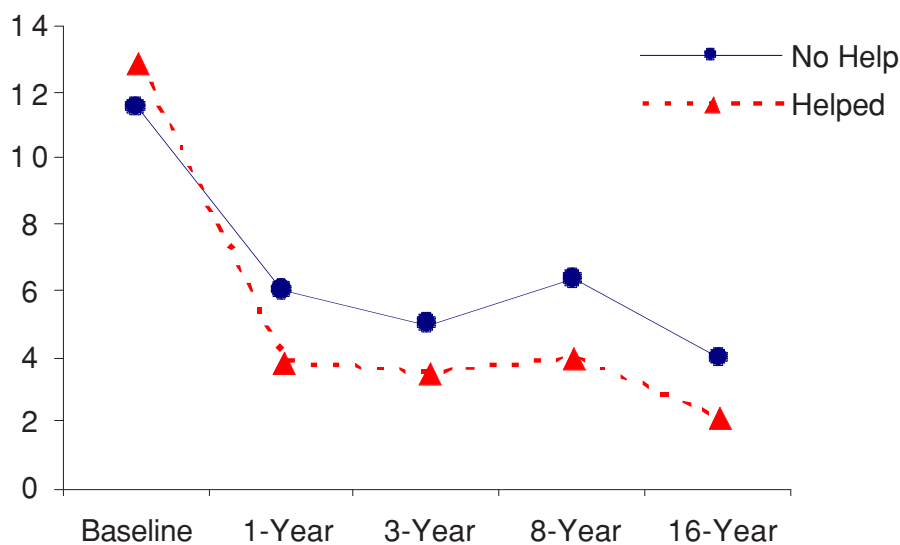
To consider these issues, we divided the 461 participants into three groups by their help-seeking experience in the first year: a) the no help group ($n = 99$) was composed of individuals who did not enter treatment or AA; b) the AA only group ($n = 89$) was composed of individuals who entered AA but obtained no treatment; and c) the treated group ($n = 273$) was composed of individuals who entered professional treatment, 180 (66%) of whom also participated in AA (Moos and Moos, 2005).

Rates of stable remission and changes in alcohol-related indices

The proportion of stably remitted individuals in the AA only group and the treated group was comparable (37.1% and 44.0%, respectively). However, a total of only

24.2% of individuals in the no help group were stably remitted, compared with 42.3% of individuals in the two helped groups combined ($\chi^2_1 = 10.68, p < .01$). According to repeated measures ANOVAs, there were significant declines in alcohol consumption, drinking problems, dependence symptoms, and self-efficacy to resist alcohol use. More important, all of these indices interacted significantly with help group (the no help group versus the two helped groups combined); in each case, the shape of the interaction showed a comparable pattern, but a somewhat sharper decline in the helped groups than in the no help group (for an example, see Figure 3).

FIGURE 3. Changes in alcohol consumption in the month prior to baseline and each follow-up for individuals in the first year no help ($n = 99$) and helped ($n = 362$) groups.



Predictors of stable remission

Partial correlations controlling for gender, education, and help group identified several 1-year predictors of stable remission. Less frequent and lighter alcohol consumption, fewer drinking problems, fewer chronic stressors, and less reliance on avoidance coping and drinking to reduce tension predicted stable remission, as did the perception of drinking as a significant problem, more self-efficacy to resist alcohol consumption, and more social resources. These predictors were comparable for the help and no help groups, with the one exception that social resources were more strongly related to remission in the help than the no help group.

Rates and predictors of relapse after remission

Among individuals who recognize their alcohol problems, treated individuals tend to achieve higher remission rates than untreated individuals do (Moyer and Finney, 2002; Weisner *et al.*, 2003). In treated samples, estimated long-term relapse rates have varied between 20 and 80% (Finney *et al.*, 1999); however, much less attention has been paid to relapse rates among individuals who achieve short-term remission.

With respect to predictors of relapse, studies of individuals who attained remission

without help suggest that long-term recovery is enhanced by high self-efficacy, more reliance on approach and less on avoidance coping, and support from family members and friends (Blomqvist, 1999; Rumpf, Bischof, Hapke, Meyer, and John, 2002; Tucker, 2002). The relative absence of these maintenance factors should increase the risk of relapse; however, we do not know of prospective studies on this issue among individuals who remitted without help. Among treated individuals, more severe alcohol-related problems, lack of self-efficacy, and poor coping skills have been associated with short-term relapse (Connors *et al.*, 1996; Miller, Westerberg, Harris, and Tonigan, 1996).

This literature raises two questions: a) Do individuals who remit without obtaining help have higher relapse rates than individuals who remit after participation in treatment and/or AA? b) What are the predictors of relapse among individuals who achieve short-term remission? To consider these issues (Moos and Moos, 2006a), we compared individuals who did not enter treatment or AA (the no help group; $n = 99$) with individuals who participated in treatment and/or AA (the helped group; $n = 362$).

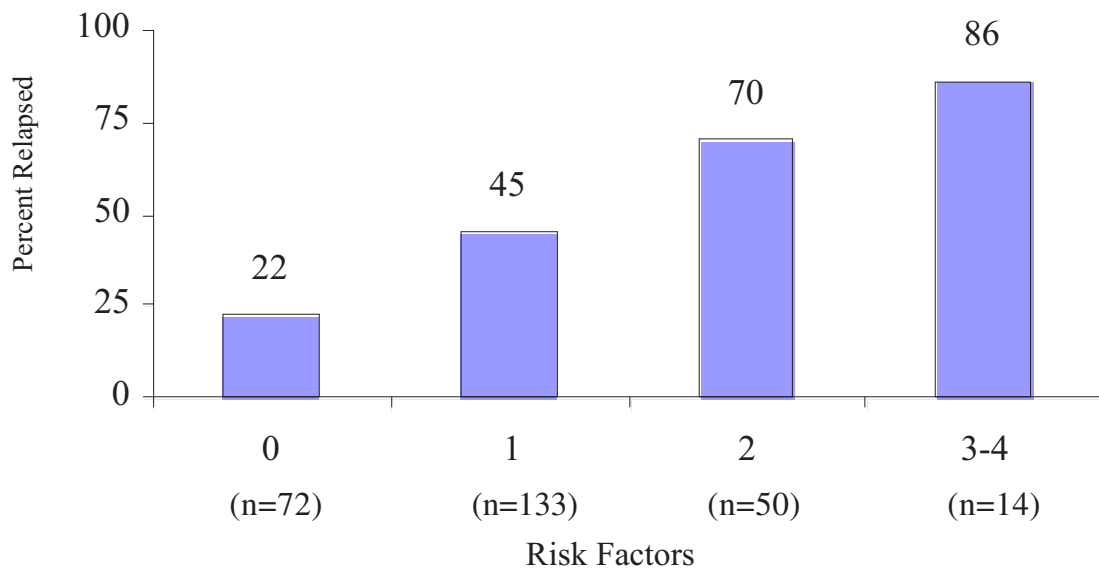
Rates of short-term remission and subsequent relapse

By the 3-year follow-up, 62% of individuals in the helped group were remitted, compared with only 43% of individuals in the no help group ($\chi^2_1 = 11.54, p < .01$). By the 16-year follow-up, 61% of the 3-year remitted individuals in the no help group had relapsed, compared with 43% of 3-year remitted individuals in the helped group ($\chi^2_1 = 4.48, p < .05$). The receipt of treatment or AA after the first year was not associated with either short-term remission or subsequent relapse.

Predictors of relapse after remission

Partial correlations controlling for help group showed that individuals who had less education, were not employed, and had fewer lifetime drinking problems, were more likely to relapse. At the 3-year follow-up, the then-remitted individuals who subsequently relapsed consumed alcohol more frequently and heavily, and were more likely to drink to reduce tension. Logistic regression analyses showed that less education, unemployed status, fewer lifetime drinking problems, and more frequent alcohol consumption at the 3-year follow-up, were independent predictors of relapse. To find out how well 16-year relapse could be predicted, we constructed a risk for relapse index based on these four risk factors. Remitted individuals with no risk factors had a 22% likelihood of relapse. The likelihood of relapse rose to 45% for individuals with one risk factor, 70% for individuals with two risk factors, and 86% for individuals with three or four risk factors (Figure 4).

FIGURE 4. Percent of initially remitted patients who relapsed by the number of risk factors for relapse.



Discussion

Treatment, AA, and alcohol-related outcomes

About 60% of individuals who sought help for their alcohol use problems entered professional treatment and/or AA within one year. Compared to individuals who obtained no help, individuals who participated in treatment and/or AA for 9 weeks or more in the first year were more likely to be abstinent and less likely to have drinking problems at 16 years. These findings extend earlier results on this sample (Moos and Moos, 2003, 2004a) and are consistent with prior studies that have shown associations between more extended treatment and AA and better substance use outcomes (Connors *et al.*, 2001; Fiorentine, 1999). The results support the value of extended engagement in AA, in that a longer duration of participation in the first year, and in years 2-3 and 4-8, was independently associated with better 16-year outcomes. In addition, consistent with prior research (Fiorentine, 1999; Ritsher, Moos, and Finney, 2002), longer participation in AA made a positive contribution to alcohol-related outcomes over and above the contribution of treatment.

For some individuals, involvement with a circle of abstinent friends may reflect a turning point that enables them to address their problems, build coping skills, and establish more supportive social resources (Humphreys, 2004). Participation in a mutual support group may enhance and amplify these changes in life context and coping to promote better long-term outcomes. More broadly, the findings support the idea that the enduring aspects of individuals' life contexts are associated with the recurrent course of remission and relapse. This probably is also true of alcoholic individuals with more severe symptoms and personality disorders (Fernández-Montalvo *et al.*, 2004; Landa, Fernández-Montalvo, López-Goñi, and Lorea, 2006).

In interpreting these findings, it is important to remember that participation in treatment likely motivated some individuals to enter AA; thus, some of the contribution

of AA to 16-year outcomes should be credited to treatment. Another consideration involves the differential selection processes into treatment versus AA. Specifically, there is a need-based model of treatment in which more treatment is allocated to individuals with more severe problems, versus an egalitarian model of self-help in which need factors play little or no role in continued participation (Moos and Moos, 2004b). These divergent selection processes may help explain the finding that AA is more strongly associated with positive long-term outcomes than is treatment.

Rates and predictors of stable remission

Compared with individuals who did not obtain timely help, individuals who entered treatment and/or AA in the first year were more likely to be stably remitted. Individuals in the AA only and treatment groups had similar remission rates, indicating comparable long-term consequences of entering either one of these two sources of help. The 24% stable remission rate in the no help group is comparable to the rates of between 15% and 23% identified in prior studies that followed untreated individuals over shorter intervals (Weisner *et al.*, 2003). However, the 42% stable remission rate for the helped groups is lower than the 5% average annual rate of treated remission identified in prior studies (Finney *et al.*, 1999). This is as expected, given that stably remitted individuals had to be problem free and/or abstinent at both 8 and 16 years.

Irrespective of whether or not individuals obtained help, there were substantial improvements in all of the drinking pattern and problem indices and self-efficacy to resist alcohol consumption and a decline in avoidance coping. These findings are consistent with the changes seen among individuals who participate in treatment and/or AA (Chung, Langenbucher, Labouvie, Pandina, and Moos, 2001; Morgenstern, Labouvie, McCrady, Kahler, and Frey, 1997) or who remit without treatment (Blomqvist, 1999; Tucker, 2002). In addition, individuals who obtained help in the first year improved more over the 16 years on all of the drinking pattern and problem indices and on self-efficacy to resist alcohol consumption. Thus, participation in AA or treatment may accelerate and strengthen an overall pattern of change, so that individuals who obtain help soon after initiating help-seeking improve somewhat more and more quickly than those who do not.

Stable remission was predicted by several personal and social factors that characterized individuals at the 1-year follow-up, including less frequent alcohol consumption and fewer drinking problems, less reliance on drinking to reduce tension, the perception of drinking as a significant problem, and more social resources. These findings are consistent with prior studies showing that lighter drinking and fewer drinking-related problems are associated with better short-term outcomes among both treated and untreated individuals. Similarly, stable social relationships and more support from family and friends have been associated with remission (Bischof *et al.*, 2001; Booth, Curran, and Han, 2004; Russell *et al.*, 2001; Weisner *et al.*, 2003).

Rates and predictors of relapse after remission

Compared to individuals who remitted after obtaining help, individuals who remitted without help were more likely to relapse subsequently and, in fact, the relapse rate

among these individuals was 60%. These findings indicate that the remission rates identified in cross-sectional studies of untreated individuals should be viewed with caution. Overall, individuals who recognize that they have an alcohol use problem and initiate help-seeking but do not obtain help quickly are at a double disadvantage: They are less likely to achieve remission and, once having achieved remission, may be more likely to relapse.

Compared to continuously remitted individuals, four key risk factors characterized initially remitted individuals who later relapsed: less education and a lower likelihood of employed status, more lifetime drinking problems, and more frequent consumption of alcohol when remitted. A risk factor score composed of these indicators can serve as an early warning sign of the potential for relapse after remission and perhaps trigger preventive or more intensive continuing care. Individuals who relapsed also relied more on drinking to reduce tension. These findings support the idea that the likelihood of relapse rises in the absence of personal and social resources that reflect maintenance factors for stable remission (Blomqvist, 1999; Tucker, 2002).

Conclusions and future directions

Our findings on the benefits of 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, arranging immediate initial intake assessments or regular clinic visits, and regular telephone reminders to sustain motivation and having relatives accompany patients to treatment (Martínez González and Trujillo Mendoza, 2005). 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.

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 (McKay *et al.*, 2005). A high priority for future research is to specify the optimal combination of participation in treatment and AA for individuals who vary in the severity of their disorder and level of community resources. Other issues to address include identifying key personal and social context predictors of the duration of treatment and AA, and formulating an integrative model of the role of treatment, AA, and life context factors as independent and joint influences on the long-term process of relapse and remission.

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