

Regular article

Outcomes at 1 and 5 years for older patients with alcohol use disorders

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Abstract

Older patients with alcohol use disorders who had gone through residential treatment were compared with matched groups of young and middle-aged patients ($N = 432$ in each age group) on their 1- and 5-year outcomes, use of continuing care services, and outcome predictors. Older patients had better outcomes than did young and middle-aged patients but had comparable levels of continuing substance abuse care and 12-step self-help group involvement. Similar factors predicted outcomes across the age groups. Longer duration of continuing substance abuse care and greater self-help group involvement were related to better outcomes, as were patients' attitudes and coping strategies at program discharge. The findings indicate that older patients with alcohol use disorders respond to age-integrated substance abuse treatment programs at least as well as do younger patients and are equally involved in formal and informal continuing substance abuse care. Published by Elsevier Science Inc.

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1. Introduction

In recent years, increasing attention has been focused on the older alcoholic. Noting that older patients are usually a minority in age-integrated treatment programs, some reviews of substance abuse treatment have raised the issue of possible ageism in these settings (e.g., Segal, Van Hasselt, Herson, & King, 1996). In spite of these concerns, there is limited empirical evidence with which to evaluate the presence or pervasiveness of age biases in the treatment of older people with problem drinking (Robb, Chen, & Haley, 2002).

In an earlier report, we compared matched samples of older, middle-aged, and young substance abuse patients on their intake characteristics, treatment experiences, discharge functioning, and outcome predictors (Lemke & Moos, 2002). In the present report, we extend these comparisons to the 5-year period following discharge from residential treatment. We address three questions: (a) Is patient age related to short- and long-term treatment outcomes? (b) Do

older and younger patients have similar patterns of continuing outpatient care and participation in self-help groups following residential treatment? (c) What factors, including patient characteristics and treatment resources, are related to achieving better outcomes, and do these factors differ in importance between older and younger patients?

1.1. Treatment outcomes

Several studies have compared treatment outcomes for older and younger patients (see Atkinson, 1995, for a review). Research has consistently found that older patients are at least as likely as are younger patients to experience positive outcomes (e.g., Fitzgerald & Mulford, 1992; Rice, Longabaugh, Beattie, & Noel, 1993). In addition to limited follow-up periods and outcome measures, however, most such comparisons fail to consider confounding factors, such as the severity of alcohol-related problems at treatment entry.

In our earlier comparison, we found that older patients were functioning better than younger patients at intake to residential treatment in terms of their drinking-related behaviors and attitudes (Lemke & Moos, 2002). When intake status was controlled, age group was not significantly related to discharge functioning. The present report extends

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the age-group comparisons to 1- and 5-year outcomes and examines outcomes in terms of alcohol consumption, problem consequences of drinking, and psychological distress, while controlling for possible confounding factors, such as initial problem severity and personal characteristics.

1.2. Treatment allocation

Although relatively few studies have focused on treatment outcomes for older alcoholics, even less attention has been given to patterns of treatment allocation related to patient age. There is suggestive evidence that older patients are less likely to be referred for specialized treatment of alcohol problems (Curtis, Geller, Stokes, Levine, & Moore, 1989; Moos, Mertens, & Brennan, 1993), but, once in treatment, they appear to receive generally equivalent services (Brennan, Nichol, & Moos, in press; Janik & Dunham, 1983; Lemke & Moos, 2002).

Continuing outpatient care and involvement in informal self-help groups such as Alcoholics Anonymous (AA) may be important in maintaining gains achieved during residential treatment, but concerns have been raised about older patients' ability to benefit equally from this phase of treatment due to health problems, financial constraints, transportation difficulties, and social isolation. The few empirical comparisons addressing these issues have shown that older alcoholics are at least as likely as are younger patients to obtain outpatient specialty care following a treatment episode (Brennan et al., in press) and to participate in AA meetings (Fitzgerald & Mulford, 1992; Janik & Dunham, 1983). Here we compare older, middle-aged, and young patients in terms of their participation in specialized outpatient care and in self-help groups during the period following discharge from a residential substance abuse program.

1.3. Predictors of treatment outcome

1.3.1. Personal characteristics

In mixed-age populations, having more personal and social resources is thought to contribute to better treatment outcomes, and the declines in such resources that may accompany aging have been viewed as risk factors for problem drinking among older persons. Health, psychiatric comorbidity, and cognitive status also are seen as key factors impacting the treatment of substance abuse in older patients (Segal et al., 1996). Poorer health, dual diagnoses, or cognitive limitations might interfere with participation in substance abuse treatment. On the other hand, serious health problems may increase motivation to change and consequently improve outcomes.

1.3.2. Functioning at discharge from the acute phase of treatment

Some alcohol treatment approaches conceptualize particular attitudes, beliefs, and behaviors as mediators of treatment's impact on drinking behaviors. Among these

are the individual's expectations about the effects of alcohol, self-efficacy or confidence about handling drinking temptations, and the capacity to cope effectively with stressful situations. Some research has shown that increases in coping skills or self-efficacy are related to better outcomes following treatment (Brown, Vik, Patterson, Grant, & Schuckit, 1995; Chung, Langenbucher, Labouvie, Pandina, & Moos, 2001; Maisto, Connors, & Zywiak, 2000). Research has not addressed whether these factors play a role for older patients or whether older patients have equal capacity to change in these areas.

1.3.3. Continuing care and self-help involvement

Correlational studies tend to indicate better outcomes for patients who obtain continuing care, but findings are mixed for controlled comparisons (McKay, 2001). The literature also suggests that AA involvement improves outcomes (Emrick, Tonigan, Montgomery, & Little, 1993; Timko, Moos, Finney, & Lesar, 2000). As with most substance abuse research, older patients are poorly represented in these samples and have not been systematically compared with younger patients. Thus, it remains an open question whether older patients benefit from continuing care and from informal self-help group involvement.

In the present report, we examine personal factors, functioning at discharge from the acute phase of treatment, continuing care, and self-help involvement as possible predictors of the 1- and 5-year outcomes of older patients. We also test whether there are age-group differences in these predictors of long-term outcomes.

2. Methods

2.1. Sample

As part of a larger evaluation of Veterans Administration (VA) services, information was obtained from patients with alcohol use disorders entering a targeted residential substance abuse treatment program in 12 VA medical centers drawn from different regions of the United States. The project was exempted from Institutional Review Board (IRB) approval in some facilities as part of ongoing quality assurance monitoring, while IRB approval was obtained in the remaining facilities. These programs were selected, based on program surveys and direct observation, to systematically reflect the variety of treatment orientations that are commonly used in working with individuals with substance use disorders (see Ouimette, Finney, & Moos, 1997, for details).

The four programs designated as 12-step emphasized such treatment activities as 12-step meetings, targeted the patient's acceptance of an alcoholic identity and powerlessness over alcohol, and emphasized abstinence as a treatment goal. The four cognitive-behavioral programs emphasized participation in relapse-prevention groups and

skills training. The goals were to teach patients more adaptive ways of coping, to increase their self-efficacy to manage high-risk situations, and to help them develop more realistic expectations of the effects of alcohol. The four eclectic programs combined techniques and treatment philosophy drawn from both 12-step and cognitive-behavioral treatment approaches.

In each program, consecutively admitted patients were approached, unless it was determined that the patient volume would be in excess of data collection capacity, in which case a systematic sampling procedure was implemented. Informed consent was obtained; 88% of patients who were approached agreed to participate. Among these patients there were 450 older men (ages 55 to 77) with alcohol use disorders. From participants with alcohol use disorders who were younger than 55, we selected young and middle-aged patients to match the older patients at the group level on demographic characteristics (married status, ethnicity, educational level), presence of dual diagnoses, and program treatment orientation. This process resulted in a group of 432 older patients and equal-sized, matched groups of young (ages 21–39) and of middle-aged (ages 40–54) patients. These 1296 patients are the focus of this report.

In each age group, 19% were currently married, 71% were white, and the average educational level was completion of 12 years of schooling. In each group, 31% were dual-diagnosis patients. Each age group had the same representation in the three treatment orientations: 26% of each age group were from 12-step programs, 40% were from cognitive-behavioral programs, and 34% were from eclectic programs.

2.2. Data collection procedures

Patients completed a Background Information Form (BIF) at intake to treatment. Questions focused on substance use and related attitudes, current functioning, and personal and life context factors. Patients also completed a Discharge Information Form (DIF) at program discharge. The DIF included questions about their substance use, functioning, and attitudes. A Follow-Up Information Form (FIF) covered questions about substance use, functioning, and attitudes, in parallel with the earlier surveys.

Patients were contacted to complete the FIF approximately a year after treatment entry (the average follow-up interval was 1 year, 2 months), 2 years after treatment (average follow-up interval of 2 years, 3 months), and 5 years after treatment (average follow-up interval of 5 years, 3 months). Because the results at the 2- and 5-year follow-ups are generally similar, only the 1- and 5-year follow-up outcomes are reported here.

By the 1-year follow-up, 37 patients (3%) had died; of the surviving patients, 1019 (81%) completed the follow-up (FIF-1). The death rate varied somewhat by age group, from 1.6% for young patients and 2.8% for middle-aged patients to 4.2% for older patients. Among surviving patients, the

completion rate also increased across the age groups (77% for young patients, 82% for middle-aged patients, and 84% for older patients). Thus, 1-year follow-up data were available for 329 young patients, 344 middle-aged patients, and 346 older patients.

By the 5-year follow-up, 222 patients (17%) had died and, of the survivors, 842 (78%) completed the follow-up (FIF-5). Here again, the death rate increased across the age groups (6.3% for young patients, 14.1% for middle-aged patients, and 31% for older patients). Among surviving patients, the response rate ranged from 74% for young patients, 80% for middle-aged patients, to 82% for older patients. As a result, 5-year follow-up data were available for 301 young patients, 298 middle-aged patients, and 243 older patients.

2.3. Measures

2.3.1. Outcome measures

We focused on three indicators of patients' functioning at follow-up. *Maximum alcohol use* reflects the patient's report of alcohol consumption (translated into ounces of ethanol) on the heaviest drinking days during the previous 3 months. *Drinking problems* reflects the patient's report of problems due to alcohol use during those 3 months; the 15 items cover health, employment, finances, and relationships. *Psychological distress* was measured with 22 items from the Brief Symptom Inventory (Derogatis, 1993). The score reflects the number of symptoms that bothered the patient moderately or more in the previous 3 months.

2.3.2. Continuing formal and informal care

Information on formal service use during the 2 years following discharge from residential treatment was obtained from the VA National Patient Care Database, which tracks patient treatment contacts nationwide. To assess their receipt of continuing care, we focused on whether patients had substance abuse and psychiatric outpatient contacts and the number of months in which they received such care in the 2 years after residential treatment. For informal care during the first 2 years after residential treatment, we asked patients how many 12-step self-help meetings (e.g., AA/NA/CA) they had attended during the previous 3 months and whether or not they had a sponsor.

2.4. Other outcome predictors

2.4.1. Personal factors as predictors of outcome

In addition to the personal characteristics that were used to match the age groups, we included several personal factors, assessed at intake, as possible outcome predictors. *Motivation for treatment* comprises eight items drawn from the Determination and Action subscales of the Stages of Change Readiness and Treatment Eagerness Scale (Miller & Tonigan, 1996), scored in terms of agreement. *Health status* was based on the number of physician-diagnosed medical

conditions (range from 0 to 9). *Cognitive functioning* was assessed with the 20-item abstraction subscale of the Shipley Institute of Living Scale (Shipley, 1940). For *Social support*, 11 items were drawn from the Life Stressors and Social Resources Inventory (LISRES; Moos & Moos, 1994) to reflect the availability of support and absence of stressors in close friendships.

2.4.2. Functioning at discharge from the acute phase of treatment

We measured several aspects of functioning at discharge from acute treatment. *Positive expectancies for use* consists of 12 items adapted from the Alcohol Expectancy Questionnaire (Brown, Goldman, Inn, & Anderson, 1980) and reflects the number of positive effects expected from substance use. *Situational confidence* was assessed with 14 items drawn from the Situational Confidence Scale (Annis & Davis, 1988). These items tap patients' perceived ability to refrain from drinking in tempting situations. *Approach coping* was evaluated with 12 items reflecting positive reappraisal and problem solving action (Coping Responses Inventory; Moos, 1993); the score reflects the proportion of coping responses that involved such approach-coping strategies.

2.5. Data analysis

We used analysis of covariance, with intake status controlled, to compare the 1- and 5-year outcomes of the age groups. We used analysis of variance and chi-square tests to compare the age groups on continuing care services and informal self-help involvement. We used correlations and regression analyses to identify predictors of outcome, including testing for age-group differences in factors that predict outcomes. Because of the large sample size and the large number of comparisons made, $p < .01$ was used as the significance level, except in evaluating possible selection biases, where we tried to identify all potential biases ($p < .05$).

3. Results

In preliminary analyses we explored the impact of using 65 as the lower age cutoff for the older patients vs. grouping them with the 55- to 64-year-olds. Similar results were obtained when the older group was limited to those patients who were age 65 and over. We found that the 55- to 64-year-olds were more similar to the patients over age 65 in their initial functioning and outcomes than they were to the 40- to 54-year-old patients. For these reasons, we used 55 as the lower cutoff for defining the older patient group.

3.1. Followed sample is representative of overall sample

Successfully followed and not-followed patients were not significantly different in terms of any of the matching

variables, personal factors, or intake levels on the outcome indices at either of the follow-ups. This finding of no significant differences held across the age groups.

Patients who were successfully followed and those who were known to have died by the 1-year follow-up did not differ significantly, except that older patients who completed the 1-year follow-up had higher intake treatment motivation than did older patients who had died. Patients who were successfully followed at 5 years had better health at intake and were more likely to be non-white than those who died. Otherwise, successfully followed and deceased patients were similar at the 5-year follow-up, except that young patients who completed the survey had lower baseline alcohol use than did young patients who died.

Matching of the age groups on demographic and program factors was not disrupted by loss to follow-up of patients due to death or failure to complete the follow-up surveys. At both follow-ups, the age groups were not significantly different on any of the matching criteria.

3.2. Treatment outcomes

Table 1 compares the age groups on indicators of outcome at the 1- and 5-year follow-ups, controlling for baseline functioning on the corresponding index. At intake, older patients consumed less alcohol on their heaviest drinking days, had fewer drinking problems, and reported less psychological distress than did the younger patients (Lemke & Moos, 2002).

Table 1
Comparison of age groups on outcomes at the 1- and 5-year follow-ups (adjusted means with intake status controlled)

Outcome (range)	Young patients (ages 19–39)	Middle-aged patients (ages 40–54)	Older patients (ages 55+)	F-ratio
1-year follow-up				
Maximum alcohol use (oz. ethanol per day)	8.3	8.3	7.7	<i>ns</i>
Drinking problems (0–15)	4.1 ^a	4.5 ^b	3.0 ^{a,b}	11.38**
Psychological distress (0–22)	6.5	8.3 ^b	6.5 ^b	10.66**
5-year follow-up				
Maximum alcohol use (oz. ethanol per day)	8.0 ^a	6.0	5.0 ^a	5.84*
Drinking problems (0–15)	4.2 ^a	3.7	3.0 ^a	5.76*
Psychological distress (0–22)	6.9	8.5 ^b	5.8 ^b	13.26**

^a Means of the young and older patients differ significantly ($p < .01$).

^b Means of the middle-aged and older patients differ significantly ($p < .01$).

* $p < .01$.

** $p < .001$.

Even after controlling for their better intake functioning, older patients were doing better than younger patients at follow-up. Compared with young patients, older patients drank less at the 5-year follow-up and had fewer drinking problems at both follow-ups. Compared with middle-aged patients, older patients reported fewer drinking problems at the 1-year follow-up, and they reported fewer symptoms of psychological distress at both follow-ups.

3.3. Participation in formal and informal continuing care

The age groups were very similar in their patterns of outpatient substance abuse care and self-help group involvement following discharge from residential treatment (see Table 2). The age groups did differ in their levels of continuing psychiatric care during the first year. Although the age groups had similar proportions of dually diagnosed patients, fewer older than middle-aged patients received outpatient psychiatric care, and older patients were seen for fewer months than were young and middle-aged patients. Even after controlling for intake levels of psychological distress, middle-aged patients were more likely to

receive outpatient psychiatric treatment than were older patients (analysis not shown).

3.4. Predictors of outcomes

Functioning on the outcome variables was moderately stable over time (r of .19 to .50).

3.4.1. Personal characteristics

Because of the large number of personal characteristics included as potential predictors of outcomes, we performed preliminary analyses based on partial correlations controlling for intake functioning on the corresponding index. Most personal characteristics were unrelated to outcome and were dropped from subsequent analyses; these were educational level, ethnicity, health status, cognitive functioning, social support, and initial motivation for treatment. We found that married persons were less likely to report drinking problems at the 5-year follow-up ($r = -.09, p < .01$), and dual diagnosis patients reported more psychological distress at the 1-year follow-up ($r = .15, p < .001$).

Table 3 summarizes results of partial correlations controlling for intake level on the outcome index and the relevant personal factors (married status for 5-year drinking problems; dual diagnosis for psychological distress at the 1-year follow-up).

3.4.2. Treatment discharge functioning

Attitudes and behavior patterns targeted in treatment were related to long-term outcomes. In particular, patients who at discharge felt more confident about their ability to handle tempting situations and used more approach-coping strategies drank less, had fewer drinking problems, and reported less psychological distress. Discharge alcohol expectancies were not significantly related to outcomes, except that those with positive expectancies reported more psychological distress at follow-up than did those with less positive expectancies. (In contrast with these findings for discharge functioning, intake levels on these measures were generally not predictive of outcomes; analyses not shown.)

3.4.3. Continuing care

The amount of continuing substance abuse care was related to short-term outcomes. Patients who had more months of outpatient substance abuse care in the first year following residential treatment had lower alcohol consumption and less psychological distress at the end of that year. Continuing outpatient psychiatric care was not related to outcomes except that those who received more psychiatric care following residential treatment experienced more psychological distress at the 5-year follow-up.

3.4.4. Self-help groups

Patients who were more involved in self-help groups following treatment had better outcomes. Those who

Table 2
Comparison of age groups on continuing care following residential treatment

Continuing care service	Young patients (ages 19–39)	Middle-aged patients (ages 40–54)	Older patients (ages 55+)	Chi-square or F -ratio
Outpatient Substance Abuse Care				
1st year				
% with contact	59	65	59	<i>ns</i>
# months seen	4.0	4.3	4.3	<i>ns</i>
2nd year				
% with contact	31	33	30	<i>ns</i>
# months seen	3.7	4.3	4.3	<i>ns</i>
Outpatient Psychiatric Care				
1st year				
% with contact	33	44 ^b	30 ^b	20.72**
# months seen	3.9 ^a	4.2 ^b	3.1 ^{ab}	5.37*
2nd year				
% with contact	25	29	21	<i>ns</i>
# months seen	3.5	4.0	3.6	<i>ns</i>
Self-Help Group Involvement				
1st year				
% attending	53	56	51	<i>ns</i>
# meetings/month	5.9	6.3	5.6	<i>ns</i>
% with sponsor	25	28	25	<i>ns</i>
2nd year				
% attending	51	50	42	<i>ns</i>
# meetings/month	5.9	6.4	6.2	<i>ns</i>
% with sponsor	25	27	25	<i>ns</i>

*N*s were 1259 and 1204 for 1st and 2nd year outpatient care, respectively, and 1019 and 967 for 1st and 2nd year self-help group involvement, respectively.

^a Means of the young and older patients differ significantly ($p < .01$).

^b Means of the middle-aged and older patients differ significantly ($p < .01$).

* $p < .01$.

** $p < .001$.

Table 3
Predictors of patients' outcomes at 1- and 5-year follow ups (partial correlations with intake level and personal factors controlled)

Predictor	1-Year outcomes			5-Year outcomes		
	Maximum Alcohol Use	Drinking problems	Psychological distress	Maximum alcohol Use	Drinking problems	Psychological distress
Intake level & personal factors (<i>R</i>)	.32**	.34**	.52**	.19**	.38**	.43**
Discharge attitudes & behaviors						
Positive expectancies	.08	.04	.09*	.04	.09	.12**
Situational confidence	-.16**	-.14**	-.20**	-.10*	-.17**	-.11*
Approach coping	-.12**	-.16**	-.21**	-.09	-.12**	-.17**
Outpatient substance abuse care						
1st year—# months seen	-.11**	-.07	-.08*	-.03	-.04	.03
2nd year—# months seen				.00	.03	.06
Outpatient psychiatric care						
1st year—# months seen	-.05	-.03	.05	-.02	.01	.13**
2nd year—# months seen				-.03	.02	.14**
Self-help group involvement						
1st year—# meetings/month	-.16**	-.13**	-.11**	-.05	-.07	-.01
1st year—sponsor (yes/no)	-.21**	-.16**	-.12**	-.07	-.09	-.03
2nd year—# meetings/month				-.11*	-.08	.00
2nd year—sponsor (yes/no)				-.13**	-.12*	-.05

* $p < .01$.

** $p < .001$.

attended more meetings and those who had a sponsor during the first year drank less, had fewer drinking problems, and reported less psychological distress at the 1-year follow-up. Having a sponsor during the second year after treatment discharge continued to predict less alcohol use and fewer drinking problems at the 5-year follow-up, and self-help group participation predicted less alcohol use. Subsidiary analyses showed that individuals who were involved in self-help activities in the first 2 years after discharge from residential treatment were likely to continue that involvement at the 5-year follow-up.

3.4.5. Interactions with age

In order to determine whether any of the treatment factors varied in importance for older vs. younger patients, we computed regression equations in which we used intake status, age group (scored dichotomously for older/other), the predictor, and the interaction term (older status \times zero-centered predictor) to predict the 1- and 5-year outcomes. Although some of the predictive relationships summarized in Table 3 were weaker for the older patients, only one of the resulting interaction terms was significant (for older patients, psychiatric care was not related to the level of psychological distress at follow-up).

4. Discussion

The results of this long-term follow-up are consistent with the pattern seen for these patients during residential treatment (Lemke & Moos, 2002). These older patients, who were treated in age-integrated programs, had relatively good outcomes, received treatment services that were generally comparable to those provided matched middle-aged

and young patients, and responded to similar aspects of treatment.

4.1. Outcomes

As in our earlier comparison at discharge from the acute phase of treatment (Lemke & Moos, 2002), we found that older patients achieved at least comparable outcomes to those shown by young and middle-aged patients. Even taking into account the fact that older patients functioned better at program entry, they had somewhat better outcomes over the 5-year follow-up than did younger patients. These results support the view that older age should not be viewed as a barrier to actively addressing drinking problems. Nor should older persons be screened out of substance abuse treatment because they tend to have more health problems or lower cognitive functioning, as variations in these personal characteristics were not related to outcomes.

It is possible that differential attrition from the age groups produced outcome differences between them. However, given that followed and both not-followed and deceased patients were equivalent for baseline functioning on the outcome indices, there is no evidence that dropouts biased the outcome results. If anything, one would expect that those with poorer outcomes would be less likely to complete the follow-up, and because the not-followed rate was higher among younger than among older patients, this selective effect may have slightly improved the average outcomes of the younger groups.

4.2. Service equity

The present results indicate that matched groups of young, middle-aged, and older patients were about equally

involved in continuing substance abuse treatment following participation in a residential treatment program. The age groups also showed similar levels of involvement in informal support groups in the first 2 years after program discharge. Despite concerns that older patients may have greater difficulty with transportation and other demands of continuing care or informal support group attendance, they seemed to manage these demands about as well as did young and middle-aged patients.

In contrast, older patients were less likely than middle-aged patients to participate in continuing psychiatric treatment following discharge, and they averaged fewer months of care than did younger patients. Because older patients reported lower levels of psychological distress than did middle-aged patients, the age-group difference in psychiatric services may in part reflect an appropriate response to differences in symptom severity. Indeed, we found that those reporting more psychological distress were likely to receive more outpatient psychiatric treatment. But even after controlling for initial psychological distress and presence of dual diagnoses, the older patients received less outpatient psychiatric treatment. Thus, some older patients with psychiatric symptoms may not have real needs addressed or may be placed in a different treatment track than are comparable middle-aged patients.

4.3. Outcome predictors

Maximum alcohol use, number of drinking problems, and levels of psychological distress showed some stability over time, such that individuals who were functioning better at treatment entry tended to function better over long-term follow-up. Consistent with other research (e.g., Blow, Walton, Chermack, Mudd, & Brower, 2000), we found that personal characteristics were relatively weak predictors of long-term outcomes. In particular, long-term outcomes were not related to initial treatment motivation, health, or cognitive status. These personal characteristics are therefore unlikely to explain the age-group differences in outcomes.

Treatment discharge functioning, particularly as reflected in situational confidence and approach-coping strategies, was related to outcomes. Because intake levels on these measures were generally not related to long-term outcomes, it appears that change experienced during the program was key. In addition, these relationships were about as strong at the 5-year follow-up as at the 1-year follow-up, suggesting internalization. These results lend support to the theoretical arguments for emphasizing these aspects of personal functioning during treatment.

We found that the duration of continuing substance abuse care was related to outcomes in the first year following discharge from residential treatment but did not predict longer-term outcomes. Our findings also confirm the benefits of self-help group participation for reducing alcohol use and drinking problems. An important element of aftercare planning would be facilitating such involvement in continu-

ing care and self-help groups and anticipating barriers that may interfere with it. In particular, the relationship with a sponsor appears to be an important factor in helping patients maintain gains made during treatment.

Although some of the predictive relationships were weaker when the older sample was considered alone, these factors did not differ significantly in predictive power for older patients as compared with the younger patients. Similar treatment considerations appear to apply to older patients as apply generally.

4.4. Limitations and conclusions

We have found evidence that older patients being treated in age-integrated residential treatment programs can achieve good outcomes, both in the period following treatment and over a longer, 5-year period. The evidence suggests that differential loss to follow-up does not account for the comparatively good outcomes achieved by these older patients, but we recognize that the older patients who enter a residential substance abuse program may have been more strongly selected than were younger patients for those likely to have good outcomes.

We have also found evidence for equity in older patients' use of VA substance abuse treatment and informal self-help groups. The substance abuse programs evaluated here provided similar levels of continuing care and showed similar long-term effectiveness across the age groups. Some concern may be merited regarding the lower levels of continuing psychiatric care received by older as compared with younger substance abuse patients with similar levels of subjective distress, although the difference in services does not seem to impact older patients' outcomes.

Our findings indicate equity in services received and outcomes achieved in these age-integrated programs, but they do not address the possibility that older patients might do even better in programs limited to and tailored to older participants. Furthermore, research will be needed to determine whether these conclusions can be generalized to other types of treatment programs, such as community treatment programs or programs treating women patients.

The relationships we have described between alcohol-related attitudes, coping responses, and informal continuing care and long-term outcomes are predictive and may point to causal relationships that can guide improvements in treatment practices. However, it is important to keep in mind that, as in any naturalistic study, various confounding factors are present, limiting causal inferences. For example, factors such as motivation to change, social skills, or personal resources may predispose an individual to participate in a self-help group or establish a relationship with a sponsor, and these factors, in addition to self-help participation per se, may lead to improved outcomes. We have tried to address these possibilities by statistically controlling various personal factors and have found that these control variables did not relate directly to the outcomes, nor did they

reduce the predictive relationships between self-help group participation and positive outcomes. Nevertheless, more definitive causal statements will necessitate trials with experimental controls, although controlled trials may have their own limitations, such as limited generalizability to real world conditions.

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References

- Annis, H. M., & Davis, C. S. (1988). Self-efficacy and the prevention of alcoholic relapse: initial findings from a treatment trial. In T. B. Baker, & D. Cannon (Eds.), *Addictive disorders: psychological research on assessment and treatment* (pp. 88–112). New York: Praeger.
- Atkinson, R. M. (1995). Treatment programs for aging alcoholics. In T. Beresford, & E. Gomberg (Eds.), *Alcohol and aging* (pp. 186–210). New York: Oxford University Press.
- Blow, F. C., Walton, M. A., Chermack, S. T., Mudd, S. A., & Brower, K. J. (2000). Older adult treatment outcome following elder-specific inpatient alcoholism treatment. *Journal of Substance Abuse Treatment, 19*, 67–75.
- Brennan, P. L., Nichol, A. C., & Moos, R. H. (in press). Older and younger patients with substance-use disorders: outpatient mental health service use and functioning over a 12-month interval. *Psychology of Addictive Behaviors*.
- Brown, S. A., Goldman, M. S., Inn, A., & Anderson, L. R. (1980). Expectations of reinforcement from alcohol: their domains and relation to drinking patterns. *Journal of Consulting and Clinical Psychology, 48*, 419–426.
- Chung, T., Langenbucher, J., Labouvie, E., Pandina, R. J., & Moos, R. H. (2001). Changes in alcoholic patients' coping responses predict 12-month treatment outcomes. *Journal of Consulting and Clinical Psychology, 69*, 92–100.
- Curtis, J. R., Geller, G., Stokes, E. J., Levine, D. M., & Moore, R. D. (1989). Characteristics, diagnosis and treatment of alcoholism in elderly patients. *Journal of the American Geriatrics Society, 37*, 310–316.
- Derogatis, L. (1993). *Brief Symptom Inventory: administration, scoring, and procedures manual* (3rd ed.). Minneapolis, MN: National Computer Systems.
- Emrick, C. D., Tonigan, J. S., Montgomery, H., & Little, L. (1993). Alcoholics Anonymous: what is currently known? In B. S. McCrady, & W. R. Miller (Eds.), *Research on Alcoholics Anonymous: opportunities and alternatives* (pp. 41–75). Brunswick, NJ: Rutgers Center of Alcohol Studies.
- Fitzgerald, J. L., & Mulford, H. A. (1992). Elderly vs. younger problem drinker 'treatment' and recovery experiences. *British Journal of Addiction, 87*, 1281–1291.
- Janik, S. W., & Dunham, R. G. (1983). A nationwide examination of the need for specific alcoholism treatment programs for the elderly. *Journal of Studies on Alcohol, 44*, 307–317.
- Lemke, S., & Moos, R. H. (2002). Prognosis of older patients in mixed-age alcoholism treatment programs. *Journal of Substance Abuse Treatment, 22*, 33–43.
- Maisto, S. A., Connors, G. J., & Zywiak, W. H. (2000). Alcohol treatment, changes in coping skills, self-efficacy, and levels of alcohol use and related problems 1 year following treatment initiation. *Psychology of Addictive Behaviors, 14*, 257–266.
- McKay, J. R. (2001). The role of continuing care in outpatient alcohol treatment programs. *Recent Developments in Alcoholism, 15*, 357–372.
- Miller, W. R., & Tonigan, J. S. (1996). Assessing drinkers' motivation for change: The Stages of Change and Treatment Readiness Scale (SOC-RATES). *Psychology of Addictive Behaviors, 10*, 81–89.
- Moos, R. H. (1993). *Coping Responses Inventory: Adult Form manual*. Odessa, FL: Psychological Assessment Resources.
- Moos, R. H., Mertens, J. R., & Brennan, P. L. (1993). Patterns of diagnosis and treatment among late-middle-aged and older substance abuse patients. *Journal of Studies on Alcohol, 54*, 479–487.
- Moos, R. H., & Moos, B. S. (1994). *Life Stressors and Social Resources Inventory: Adult Form manual*. Odessa, FL: Psychological Assessment Resources.
- Quimette, P. C., Finney, J. W., & Moos, R. H. (1997). Twelve-step and cognitive-behavioral treatment for substance abuse: a comparison of treatment effectiveness. *Journal of Consulting and Clinical Psychology, 65*, 230–240.
- Rice, C., Longabaugh, R., Beattie, M., & Noel, N. (1993). Age group differences in response to treatment for problematic alcohol use. *Addiction, 88*, 1369–1375.
- Robb, C., Chen, H., & Haley, W. E. (2002). Ageism in mental health and health care: a critical review. *Journal of Clinical Geropsychology, 8*, 1–12.
- Segal, D. L., Van Hasselt, V. B., Herson, M., & King, C. (1996). Treatment of substance abuse in older adults. In J. R. Cautela, & W. Ishaq (Eds.), *Contemporary issues in behavior therapy: improving the human condition* (pp. 69–85). New York: Plenum.
- Shiple, W. C. (1940). A self-administering scale for measuring intellectual impairment and deterioration. *Journal of Psychology, 9*, 371–377.
- Timko, C., Moos, R. H., Finney, J. W., & Lesar, M. D. (2000). Long-term outcomes of alcohol use disorders: comparing untreated individuals with those in Alcoholics Anonymous and formal treatment. *Journal of Studies on Alcohol, 61*, 529–540.