

HELPING OTHERS AND LONG-TERM OUTCOMES: A 10 YEAR FOLLOW-UP STUDY IN PROJECT MATCH

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ABSTRACT

Most treatment programs encourage AA participation, and AA-related helping (AAH) has been linked with more time sober in the initial 1-2 years following treatment. However, we know very little about alcoholics' long-term patterns of AAH, and how these behaviors relate to drinking over time. This study applies fixed effects regression modeling to 10-year follow-up data of 148 Project MATCH clients recruited in Albuquerque, NM. Follow-up assessments were conducted at 3, 9, 15, 39, and 120 months following the baseline interview at treatment entry. Fixed effects regressions controlled for AA meeting attendance and step-work to identify the unique link between AAH and two subsequent outcomes: percent days abstinent (PDA) and interest in others (IO). Results showed a relatively constant rate of AAH (9%) at each follow-up assessment with the lowest rate (4%) at the 15-month assessment. A significant time by AAH interaction ($p < .01$) revealed a significantly stronger link between AAH and increased PDA at the 9-month and 39-month assessments ($p < .05$) in comparison to the 15-month assessment ($p = .24$). A significant main effect for AAH was found in relation to increased IO ($p < .05$). A significant time by AAH interaction revealed that this link was the least strong at the 15-month assessment ($p < .10$). AAH participation becomes increasingly important to reduced drinking and self-absorption as years from treatment increase.

INTRODUCTION

Most substance abuse treatment programs encourage AA attendance¹⁻³
 • Link between greater AA affiliation/decreased drinking well documented⁴. AA meeting attendance common measure of AA affiliation.
 • AAH and step-work are additional constructs of AA affiliation. Recent research demonstrates the impact of AAH on improved treatment outcomes independent of step-work and AA meeting attendance^{5,10}.
 • Long-term studies of AA affiliation are rare. Findings from the few longitudinal 12-step investigations with 10-plus years of follow-up are:
 ○ At least 7 months of AA participation in the first 3 years post-treatment predicted better 16-year outcomes⁵.
 ○ AA meeting attendance and improved drinking outcomes in the first year post-treatment predicted increased longevity at the 15-year follow-up⁷.
 ○ Limitations: lack of prospective data collected in short time intervals, advanced statistical modeling for more accurate coefficient estimates, and ethnicity representation; poor measurement of AA participation components – unclear which AA programmatic components account for long-term treatment outcomes.
 • This study extends knowledge to date of long-term course of AA affiliation and the impact of distinct programmatic components on treatment outcomes.
 • This study features: 1) outpatient sample well represented by Hispanic adults in Project MATCH who were followed for a decade following treatment admission and 2) a rarely studied social behavior linked with active addiction – self-absorption. At the opposite end, high interest in and consideration of others reflects sober behaviors outside alcohol/drug consumption.

• Aims of this study:
 ○ To explore the long-term course of programmatic components of AA affiliation: AAH, AA step-work, AA meeting attendance.
 ○ To examine the long-term impact of AAH on two treatment outcomes, independent of step-work and meeting attendance: alcohol consumption and other-oriented behavior.

Baseline	Characteristic	10 yr. Interview Done	Not Eligible for 10 yr.	Refused 10 yr. Participation	Deceased	Eligible/ Lost in 10 yr. Followup
Gender	Male	148 (66%)	23 (10%)	5 (2%)	22 (10%)	28 (12%)
Race	Caucasian	70 (48%)	13 (8%)	4 (8%)	16 (7%)	16 (57%)
	Hispanic	75 (51%)	10 (43%)	1 (20%)	6 (27%)	11 (39%)
	African-American	2 (1%)	0 (0%)	0 (0%)	0 (0%)	1 (4%)
Marital Status	Married	35 (24%)	4 (17%)	1 (20%)	1 (6%)	368 (11%)
Employed/Fulltime	Yes	65 (44%)	10 (43%)	3 (60%)	7 (32%)	10 (36%)
ASPD Diagnosis	Yes	16 (13%)	7 (35%)	1 (20%)	3 (16%)	1 (4%)
Treatment Assigned	CBT	49 (33%)	8 (35%)	0 (0%)	6 (27%)	9 (32%)
	MET	48 (33%)	11 (48%)	4 (80%)	7 (32%)	9 (32%)
	TSF	51 (34%)	4 (17%)	1 (20%)	9 (41%)	10 (36%)
Age (M, SD)		33.12 (8.56)	32.43 (9.00)	37.60 (10.41)	36.18 (7.77)	31.54 (11.01)
Education (M,SD)		12.72 (1.97)	12.57 (1.78)	11.80 (0.45)	12.91 (2.27)	12.68 (1.47)
Drinks per drinking day (M,SD)		13.23 (8.72)	16.65 (9.59)	16.03 (4.85)	13.38 (9.00)	12.16 (5.60)
No. Prior Treatments (M, SD)		1.11 (3.43)	1.09 (1.45)	1.00 (1.73)	1.50 (1.26)	0.79 (1.07)
Prior AA Attendance (M,SD)		0.02 (0.07)	0.03 (0.06)	0.12 (0.23)	0.04 (0.13)	0.04 (0.07)

Baseline	Characteristic	Albuquerque	Buffalo	Farmington	Milwaukee	West Haven
Gender	Male	226 (24%)	200 (27%)	201 (27%)	178 (19%)	141 (15%)
	Female	146 (17%)	140 (19%)	145 (20%)	115 (12%)	122 (83%)
Race	Caucasian	120 (53%)	173 (87%)	190 (95%)	165 (93%)	135 (92%)
	Hispanic	102 (44%)	7 (1%)	3 (1%)	4 (2%)	4 (3%)
	African-American	3 (1%)	25 (12%)	8 (4%)	9 (5%)	8 (5%)
Marital Status	Married	44 (19%)	72 (36%)	98 (49%)	59 (33%)	68 (46%)
Employed/Fulltime	Yes	95 (42%)	79 (40%)	125 (62%)	103 (58%)	83 (56%)
ASPD Diagnosis	Yes	28 (14%)	14 (7%)	11 (6%)	21 (12%)	7 (6%)
Treatment Assigned	CBT	72 (22%)	67 (33%)	61 (30%)	51 (29%)	50 (34%)
	MET	79 (35%)	72 (36%)	66 (33%)	55 (31%)	44 (30%)
	TSF	75 (33%)	61 (31%)	74 (37%)	72 (40%)	53 (36%)
Age (M, SD)		33.25 (8.50)	40.17 (10.62)	41.93 (10.07)	37.53 (10.66)	43.25 (11.01)
Education (M,SD)		12.70 (1.90)	13.50 (2.09)	14.16 (2.14)	13.50 (2.13)	13.49 (2.24)
Drinks per drinking day (M,SD)		13.52 (8.47)	12.80 (6.93)	13.30 (7.60)	12.02 (7.07)	16.43 (9.40)
No. Prior Treatments (M, SD)		1.13 (3.29)	0.83 (1.67)	8.2 (1.32)	1.17 (1.15)	1.30 (1.92)
Prior AA Attendance (M,SD)		0.03 (0.08)	0.02 (0.06)	0.4 (1.12)	0.02 (0.07)	0.5 (1.14)

*p<.05 **p<.01 ***p<.001 ****p<.0001

METHODS

SUBJECTS
 • 148 Project MATCH subjects recruited from outpatient setting in Albuquerque, NM.
 • **Inclusion criteria:** participation in outpatient treatment (outpatient arm) for alcohol abuse or dependence according to the DSM-III-R criteria¹², alcohol as principal drug of abuse, aged 18-67, and at least a 6th grade reading level.
 • **Exclusion criteria:** current DSM-III-R diagnosis of dependence for sedative/hypnotic drugs, stimulants, cocaine, or opiates, having taken these drugs intravenously during the past 6 months; being currently dangerous to self or others exhibiting acute psychosis; existing probation/parole requirements that could interfere with study participation; inability to identify a "locator" person to aid in tracking; and severe organic impairment.
MEASURES
 • **Alcoholics Anonymous-Related Helping:** Assessed with two items from the Alcoholics Anonymous Involvement (AAI) questionnaire¹³: being a sponsor and/or Step 12 completion in the past 90 days.
 • **AA Meeting Attendance:** Assessed with one item from the Form 90¹⁴: "How many AA meetings have you attended in the last 90 days?" Because AA attendance was positively skewed, this variable was log transformed.
 • **AA Step-Work:** Assessed with the continuous AAI item asking respondents to endorse the number of steps (1-11) completed in the past 90 days. Subjects who completed no steps in the past 90 days were given a score of zero.
 • **Alcohol Use:** Assessed with the Form 90¹⁴ as percent days abstinent (PDA) in the assessment period. PDA was negatively skewed and required arcsin transformation, as was done in the primary Match outcome analyses.
 • **Interest in Others (IO):** Assessed with one item from the Beck Depression Inventory (BDI)¹⁵: "During the past month, how often did you think about others?" Responses range from 0 "no loss of interest in other people," to 3 "lost all interest in people." Similar single-item scales have been used in psychiatric and addiction research^{16,18}.

PROCEDURES
 • Informed consent in accordance with the standards of the Committee on Human Experimentation with the Helsinki Declaration of 1975.
 • Follow-up assessments conducted at 3-months (end of treatment), 9-months, 15-months, 39-months and 120-months after baseline.
 • General aims, organization, and research design of Project MATCH described in detail elsewhere¹⁷.
STATISTICAL ANALYSES
 • Fisher's Exact Test for binary variables and Kruskal-Wallis ChiSq-Square Test for continuous variables analyses were performed to evaluate univariate differences between groups.
 • Fixed effects methods were selected given their utility for investigating the effects of variables that vary within a subject over time (i.e., AAH participation) while controlling for measured and unmeasured statistical covariates (i.e., gender) and adjusting for lack of independence among the multiple observations for each person¹⁹. Fixed effects methods restrict attention to the within-person variation only (between-person variation is ignored). A fixed effects analysis modeled within-person variation on the time-varying predictors in relationship to time-varying outcomes (PDA and IO). Time-varying predictors (AAH, AA meeting attendance, step-work) were lagged in relation to subsequent time-varying outcomes (e.g., AAH at 15-months to predict PDA scores at 39-months, AAH assessed at 39-months to predict PDA scores at 120-months).
 • To test for a differential effect between the 39-month and the 120-month assessment, a dummy coded ten-year variable (0,1) was added to all models, as well as interaction terms between this variable and three time-varying covariates. No significant main effect or interaction effect was found to indicate a differential pattern of predictor/outcome links spanning seven years in comparison to other time points.
 • Missing data patterns were non-monotone (i.e., many data were intermitently missing); therefore, the Markov Chain Monte Carlo (MCMC) method was employed for multiple imputation²⁰. The statistics reported (Tables 2 and 3) are the averaged results across the ten imputations performed.
 • Statistical tests were considered significant if the two-sided p value was less than .05.
 • Statistical analyses were performed using SAS version 9.1.3 (SAS Institute Inc., 2004), using the procedures PROC FREQ, PROC UNIVARIATE, PROC MI, PROC MIANALYZE, and PROC MIXED.

RESULTS

• As shown in Table 1, the majority of the outpatient sample was male (70%) and unmarried (76%) at baseline; approximately half were Caucasian (48%), Hispanic (51%), and employed fulltime (44%). On average, subjects were 33.12 years old, completed 12.72 years of school, were moderate to heavy drinkers (13.23 drinks per drinking day, 1.11 prior treatments), with low prior AA exposure (0.02 AA meetings attended). No significant differences in background characteristics or prior AA-exposure between the study sample (N=148) and those with complete follow-up data (N=78) at baseline.
 • Outpatients from the study site were similar to the other four outpatient sites in Project Match in terms of gender, treatment assignment, full-time employment, addiction severity variables, ASPD comorbidity, and prior AA meeting attendance (See Table 2). The study sample had a higher proportion of Hispanics, younger age, single status, and fewer years of education than the other outpatient sites in Project Match.
 • The attrition rate of the study sample in the year following treatment was similar to non-study participants at other outpatient sites (over 90% in the year following treatment).
 • At each time point, the rate of AAH, average number of steps completed, and average number of AA meetings attended were examined.
 • Consistent rate of AAH (9%) across time except at the 15-month assessment (4%).
 • Overall, step-work and AA meeting attendance declined as time from treatment increased.
 • Exception to the 15-month assessment ($p = .24$), AAH significantly predicted PDA (time X AAH interaction, $p < .01$).
 • Across time, AAH significantly predicted increased IO ($p < .05$).
 • Across time, higher AA meeting attendance significantly predicted increased PDA ($p < .001$).
 • Elevated step-work at the 39-month assessment significantly predicted 10-year PDA outcomes (time X step-work interaction, $p < .01$).

Table 3. Static and Time-Varying Predictors of Outcome: PDA

Variable	Type III SS	Mean Square	F-value	Pr > F
Time-Varying Main Effects				
AA Step-Work	0.277	0.277	2.66	0.104
AA Attendance	0.033	0.033	0.02	0.009
AAH Participation	0.314	0.314	3.21	0.043
Time	0.357	0.119	1.15	0.330
Time-Varying Interaction Terms				
TimeXAAH	0.321	0.107	1.01	0.317
TimeXSteps Worked	1.236	0.412	3.97	0.008
TimeXAA Attendance	0.248	0.083	0.80	0.497

Notes: *PDA = Percent Days Abstinent; **AAH=AA-related Helping

Table 4. Static and Time-Varying Predictors of Outcome: Interest in Others

Variable	Parameter Estimate	Standard Error	Chi Sq	Pr > ChiSq	Hazard Ratio
Time-Varying Main Effects					
AA Step-Work	0.676	0.386	3.172	0.088	1.803
AA Attendance	0.262	0.025	0.653	0.419	0.769
AAH Participation	0.984	0.217	3.468	0.031	2.179
Time	0.405	0.140	8.146	0.004	0.834
Time-Varying Interaction Terms					
TimeXAAH	1.179	0.499	3.447	0.062	3.252
TimeXSteps Worked	-0.160	0.112	2.096	0.148	0.852
TimeXAA Attendance	0.085	0.122	0.487	0.482	1.089

Notes: *Beck Depression Inventory Item; **AAH=AA-related Helping

DISCUSSION

• First study to examine individual-level changes in AAH participation in relation to prospectively assessed drinking outcomes and other-oriented behaviors.
 • With exception to the 12-month assessment when the rate of AAH was the lowest, AAH participation was significantly predictive of reduced drinking in the subsequent assessment; AAH participation predicted increased interest in others across time.
 • First study to provide empirical evidence that AAH reduces self-absorption by modeling it prospectively.
 • Empirical support for "Response Shift"²¹ via AAH participation.
 • AAH therapy: self-absorption dominant characteristic of alcoholics. Solution: getting out of self by helping others reduces self-absorption and obsession/craving to drink.
 • AA meeting attendance and step-work not related to changes in other-oriented interest.
Other important findings
 • The course of AA involvement in programmatic components (AAH, step-work, meeting attendance) is variable: the rate of AAH appears relatively consistent (9%) across time, whereas meeting attendance and step-work decline.
 • More AA meetings attended predicted less drinking across time.
 • Step-work 3-years post-treatment predictive of 16-year drinking outcomes (increased PDA).
Strengths
 • 10-year prospective follow-up
 • High retention of enrollment sample
 • Large proportion of Hispanic alcoholics
 • Advanced statistical modeling: time-varying predictors and outcomes
Limitations
 • Narrow measurement of AAH
 • Forms of AA service include making coffee at meetings, visiting detoxification centers, volunteering at local AA Service Centers, being a sponsor, and 12-step-work, the practice of conveying the message of AA to potential newcomers to AA.
 • Future studies to use comprehensive, validated instruments of AAH, such as SDS²¹.
 • Outpatient study sample-generalization of study findings to inpatient samples is warranted future research.
Clinical Implications
 • Extend demonstrated long-term benefit of AAH on drinking outcomes and other-oriented behaviors earlier during treatment.
 • Clinicians to include AAH participation goals in treatment planning.

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