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Social network correlates of participation in telephone continuing care for alcohol dependence

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Abstract

Background and Objectives—Research on face-to-face treatment for substance misuse suggests that patients' social networks may impact treatment entry and participation, but there has been no similar research on entry and participation in telephone-based continuing care. We examined whether alcohol-specific social support predicted engagement and participation in telephone continuing care for alcohol dependence, and whether treatment participation resulted in beneficial changes in participants' social networks.

Methods—Participants were 252 adults (162 male) enrolled in a randomized clinical trial testing the effectiveness of telephone continuing care for alcohol dependence. Participants who completed three weeks of intensive outpatient treatment were randomly assigned to treatment as usual, telephone monitoring (TM; *N*=83), or telephone monitoring and brief counseling (TMC; *N*=83). TM and TMC included 18 months of telephone treatment. Alcohol-specific social support was measured with the Important People Inventory at baseline and 6, 12, 18, and 24 month follow-up.

Results—Alcohol-specific social support did not predict entry into TM or TMC. Among those who entered telephone treatment (*N*=127), participants with higher network percentage of daily drinkers, higher percentage of network members who accept drinking, and lower percentage of network members who don't accept drinking completed more continuing care calls. There was no effect of continuing care participation on alcohol-specific social support over 24 months of follow-up.

Conclusion—Participants with more problematic social networks may self-select additional support in the form of telephone continuing care. Telephone continuing care does not appear to result in social network change.

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Declaration of Interest

The authors report no conflicts of interest. The authors alone are responsible for the content and writing of this paper.

Background and Objectives

There has been increasing interest in providing treatment for alcohol dependence that is better matched to its chronic, relapsing course ¹, leading to a shift away from an acute care approach to a continuing care approach ². One such approach is telephone-based adaptive continuing care, which allows for extended monitoring with adjustments to session focus, frequency, and modality according to the patient's clinical response. Several studies have shown telephone-based continuing care to be effective as compared to group-based aftercare or step-down models for substance-dependent patients in intensive outpatient treatment ³. As is the case for all forms of continuing care, participation rates remain a challenge and it is important to explore correlates of treatment entry and participation in order to serve more patients more effectively ².

Patients' social networks and social support are of particular interest in understanding continuing care treatment participation and response. Many aspects of social network structure and functioning have been associated with outcome of treatment for alcohol use disorders ⁴. Prior research has shown that alcohol-specific support is especially relevant, with support for abstinence being associated with better treatment outcome, and support for drinking associated with poorer outcome ⁵⁻⁹; similar findings have been reported regarding substance-specific social support among drug-dependent individuals in treatment¹⁰. Having more nondrinking friends can predict better treatment outcome, whereas having more drinking friends and maintaining involvement with more of those friends after treatment is associated with poorer treatment outcome ⁴. Indeed, one rationale for continuing care is to ameliorate the effects of a toxic social network⁴. We recently found that an 18-month program of telephone continuing care that included continual assessment of interpersonal relapse risks and participation in sober social activities was differentially effective for alcohol-dependent participants with network support for drinking ¹¹.

There is evidence that patients' social environments affect whether they enter and are retained in continuing care for substance use disorders. For example, compared with patients who were placed in halfway houses following inpatient rehabilitation, those who lived in the community were more likely to reject care, drop out after entering care, and fail to complete relevant treatment milestones ¹². McKay et al ¹³ found that the social environment had differing effects on participation in different kinds of treatment, with higher family/social problem severity positively associated with participation in standard group-based aftercare and negatively associated with participation in individualized relapse prevention. However, there are no studies addressing social correlates of participation in telephone continuing care. Similarly, while the existing research generally indicates that treatment for alcohol use disorders can lead to beneficial changes in patients' social networks ⁴, some studies have shown little to no change in support for drinking and abstinence in patients' social networks ^{5,14}, and there have been no studies of the effects of telephone continuing care on alcohol-dependent patients' social networks.

The aim of the present paper is to examine telephone continuing care in the context of alcohol-dependent patients' social networks. First we will address the effect of alcohol-specific support – that is, social network drinking and social network response to patient

drinking⁸ – on entry into and participation in continuing care. There is some indication that those with more severe alcohol problems and lower stability and support may be less likely to enter or participate in continuing care^{15,16}. However those findings are mixed and inconsistent, with some studies showing that participants with fewer social resources take greater advantage of continuing care¹⁷.

Second, we will examine the effect of treatment participation on patients' social networks, to determine whether continuing care that includes attention to social factors in a broader relapse prevention framework leads to changes in alcohol-specific social support.

Methods

Participants

Participants were 252 adults enrolled in a randomized clinical trial testing the effectiveness of telephone continuing care for alcohol dependence¹⁸. Alcohol-dependent patients ages 18–65 who attended community-based drug-free intensive outpatient treatment (IOP) for three weeks were eligible to participate. Additional inclusion criteria were access to a phone, willingness to participate in research and be randomized, fourth-grade reading level, minimal housing stability, and identification of three contact people who could help locate the participant for research follow-up. Exclusion criteria were psychotic symptoms, dementia, or medical problems precluding outpatient treatment, and intravenous heroin use during the previous 12 months. Current users of other drugs, including cocaine, were not excluded. For a full description of the study, including CONSORT diagram, please see McKay et al¹⁸.

Procedures

The study was approved by the institutional review board of the University of Pennsylvania. Participants were screened at two community-based IOP sites during their first three weeks of treatment and completed the rest of the study entry procedures during their fourth or fifth week of IOP. After providing consent and undergoing baseline assessment at the research office, participants were randomly assigned to treatment as usual (TAU; n=86), telephone monitoring (TM; n=83), or telephone monitoring and brief counseling (TMC; n=83). TM and TMC participants were eligible to receive study treatment for 18 months following randomization. All participants continued to attend IOP and/or receive other treatment services as desired throughout the course of the study. Participants had quarterly face-to-face follow-up interviews throughout the 24-month follow-up period. A secondary aim of the treatment outcome study was to identify factors, such as alcohol-specific social support, that might predict differential response to treatment¹¹. Alcohol-specific social support was assessed at pre-randomization baseline and 6, 12, 18 and 24 months post-randomization. Participants were recruited between May 17, 2004, and August 7, 2007.

Telephone continuing care treatment conditions

TM and TMC included one in-person orientation session to build rapport and review procedures, followed by telephone contacts weekly for 8 weeks, biweekly for 44 weeks, and monthly for 6 months. Both treatment conditions were manualized, and adherence to the

treatment manuals was monitored throughout the study¹⁸. TM and TMC telephone sessions started with a brief structured assessment of substance use, risks for relapse such as time spent in isolation or in the participant's self-identified high-risk situations for relapse, and pro-recovery lifestyle behaviors such as 12-Step participation and involvement in community-based activities with people who do not drink or use drugs. TM and TMC counselors then informed participants of their overall risk for relapse (low, moderate, or high) based on the assessment results. TM calls included no formal counseling; however, counselors encouraged participants who reported substance use or who were determined to be at high risk for relapse to re-enter treatment or access other community supports. TMC calls included brief cognitive-behavioral relapse prevention counseling and goal-setting relevant to the participant's risk level and anticipated relapse risks. For participants at low risk, current goals and the specific objectives that needed to be accomplished to reach each goal were reviewed, and any problems identified in the risk assessment were addressed. In addition, reinforcement of positive behaviors and further encouragement for involvement in pro-recovery activities were provided. For participants at moderate or high risk, greater attention was devoted to identifying and rehearsing better coping responses to existing or anticipated risky situations¹⁸. TMC also included stepped care to more frequent and/or in-person sessions for participants at high risk for relapse. TM sessions were on average 8.2 (SD = 4.4) minutes long and TMC sessions averaged 16.8 minutes (SD = 10.9)¹⁸.

Neither TM nor TMC were designed specifically to alter the participant's social network. However, contact with persons supportive of - or detrimental to - the participant's ability to achieve and maintain alcohol abstinence was assessed regularly, and such monitoring may in itself serve as an aid to behavior change¹⁹. Furthermore, brief counseling in TMC included encouragement and problem-solving regarding avoiding risky situations, many of which were interpersonal in nature, and seeking out sober social activities and social support.

Measures

Demographic and clinical data—Demographic data and data regarding drug use history and problem severity above were collected using the Addiction Severity Index (ASI; ²⁰). Diagnoses of alcohol and cocaine dependence were obtained using the Structured Clinical Interview for DSM-IV (SCID; ²¹). The ASI and SCID were conducted during the baseline interview.

Alcohol-specific social support—Alcohol-specific social support was measured with the Important People Inventory (IPI; ²²). The IPI is a 20-minute structured interview that first asks the participant to identify up to 10 (12 at follow-up) people who are important to him or her and with whom he or she has had contact over the interval to be assessed. The IPI as published indicates the prior four months; we adapted the instructions to be consistent with our study's assessment interval of three months. Next, the participant is asked to indicate each network member's relationship to the participant, frequency of contact with each network member, each network member's importance, general supportiveness, drinking status and frequency, and how each network member has responded to the participant's drinking and coming to treatment. Constructs measured by the IPI include general network support, social investment, contact with the network, and alcohol-specific

support. The present analysis focuses on alcohol-specific support as defined by frequency of drinking in the network, as well as network members who are: drinkers, daily drinkers, heavy drinkers, people who do not accept the participant's drinking, and people who accept or encourage the participant's drinking⁸. IPI scoring yields counts of network members in each of those categories as well as percent of the network in each of those categories. We focused on percentages in our analyses in order to account for variations in size of participants' networks.

Data analysis

Differences between the treatment groups at baseline were evaluated with Kruskal-Wallis tests for continuous measures and Pearson's Chi-Square test for categorical measures. Further analyses to address the effect of alcohol-specific social support on treatment entry and participation were restricted to members of the TM and TMC groups. Treatment condition and IPI measures of alcohol-specific social support at baseline were entered into a logistic regression model to predict entry into treatment, defined as completion of orientation. Treatment condition and baseline alcohol-specific social support were entered into a Poisson regression model to predict the number of calls made by participants in TM and TMC who completed orientation.

To evaluate change in participants' alcohol-specific social support over the 24-month follow-up, generalized estimating equations (GEE) models with an exchangeable working covariance structure were used to compare the IPI measures over months 0–6, 7–12, 13–18, and 19–24. Baseline alcohol-specific social support measures were used as a covariate, as well as treatment condition, a linear effect for month, and the interaction between treatment and month. Score tests were used to assess the significance of the terms of the model; non-significant interactions were removed to simplify interpretation of final models. To evaluate the effect of treatment participation (i.e., calls made) on participants' alcohol-specific social support in later months, a similar longitudinal analysis was performed on participants from the TM and TMC groups who completed orientation: here, the responses were the IPI variables from months 7–12, 13–18, and 19–24, with the same covariates as described above, and with the previous period's number of telephone calls made, and separately the current period's number of telephone calls made, included as a time-varying covariate.

Results

Demographic and clinical characteristics

Participants averaged 43.0 years ($SD = 7.4$) of age and 11.8 years ($SD = 1.8$) of education, and the majority of participants were male (64.3%), African American (88.9%), and not currently married (91.3%). All participants had a current alcohol dependence diagnosis. Participants reported a mean of 20.9 years ($SD = 9.3$) of regular alcohol use, 11.2 years ($SD = 8.3$) of regular cocaine use, 3.4 ($SD = 3.7$) prior treatments for alcohol problems, and 3.1 ($SD = 3.8$) treatments for drug problems. There were no differences between treatment groups on any of the demographic and clinical characteristics assessed at baseline.

Nearly half (49.2%) of the sample had a diagnosis of current cocaine dependence. This reflects the frequent co-occurrence of alcohol and cocaine dependence in patients enrolled in local publically-funded IOP as well as in treatment-seeking stimulant misusers nationally^{23,24}. Preliminary analyses determined that there were no differences between participants with and without current cocaine dependence on alcohol-specific social support at baseline, participation in continuing care, or on pattern of change over time in social network variables; therefore, all further analyses include participants with and without current cocaine dependence in the same sample.

Alcohol-specific social support at baseline

Baseline values of the full set of social network characteristics measured by the IPI are presented in Table 1. The treatment groups differed in the number and percent of heavy drinkers present in the network at baseline; there were no other statistically significant differences in baseline social network variables between the three treatment groups.

Effect of alcohol-specific social support on entry into continuing care

Of the 166 subjects in TM and TMC, 127 (64 TM and 63 TMC) completed orientation. There were no differences on any of the demographic or clinical characteristics assessed at baseline between those who did and did not complete orientation. There were no significant effects for treatment condition or baseline IPI variables representing alcohol-specific social support on completion of orientation.

Effect of baseline alcohol-specific social support on participation in continuing care

TM participants who completed orientation made an average of 11.47 ($SD = 9.74$) calls throughout their 18 months of treatment eligibility. TMC participants who completed orientation made an average of 9.05 calls ($SD=9.64$). In addition to treatment condition, baseline IPI measures of percent daily drinkers ($p<.001$) and percent of people who accept drinking ($p<.0001$) were all positively related to the number of calls made; baseline percent network members who do not accept drinking ($p<.01$) was inversely related to calls made. That is, participants who had a higher percentage of daily drinkers in their network, participants who had a higher percentage of network members who accepted or encouraged their drinking, and participants who had a lower percentage of network members who did not accept their drinking completed significantly more continuing care telephone calls. Baseline IPI measures of frequency of drinking in the network, percent drinkers, and percent heavy drinkers were not related to calls made. These findings are summarized in Table 2.

These effects were quite small, particularly when expressed in terms of percentages of the social network. As indicated in Table 2, the correlation coefficients between the social network variables for which we obtained positive findings and number of calls completed were in the .09-.15 range. To place these findings in context, those who had any daily drinkers in their social network ($N=15$) completed an average of 14.73 ($SD=9.17$) calls, whereas those with no daily drinkers in their network completed 9.69 ($SD=9.67$) calls; those with any network members who accepted or encouraged their drinking ($N=40$) completed an average of 12.15 ($SD=10.12$) calls, whereas those with no such members completed 9.43 ($SD=9.46$) calls.

Longitudinal results

In the full sample of 252 participants, there were no significant changes in alcohol-specific social support throughout the follow-up period. Among participants who completed orientation, there were no significant associations between the longitudinal IPI responses and calls made in the previous time period (p -values ranged from 0.27 to 0.78), or between the longitudinal IPI responses and calls made in the current time period (p -values ranged from 0.24 to 0.94).

Discussion

We examined the impact of alcohol-dependent patients' social networks on their entry into and participation in telephone continuing care, and the impact of continuing care participation on patients' social networks. Regarding the impact of participants' social networks on treatment entry and participation, we found that alcohol-specific social support measured after completion of 3–4 weeks of IOP did not predict entry into continuing care as indicated by completion of an orientation session. Among those who completed orientation, participants whose social networks were more supportive of drinking, as measured by frequency of drinking by social network members, percent of daily drinkers in the network, and percent of members who accept or encourage the participant's drinking, completed more continuing care calls over the course of their first six months of treatment eligibility. Regarding the impact of continuing care on participants' social networks, there was no effect of treatment assignment or participation in the first 6 months on participants' social network support for drinking, either at the 6-month assessment or over the course of the full 24-month follow-up period.

Our finding that participants whose social networks were more supportive of drinking completed more continuing care calls could represent self-selection by participants who felt they needed additional support above and beyond that provided by IOP, in which all participants were enrolled, and self-help groups, which all participants were encouraged to attend by their IOP counselors. Taken together with our prior finding that TMC led to improved rates of "good clinical outcome" and fewer percent days drinking in patients with a network member who supported drinking but did not show an effect in patients without network support for drinking¹¹, this result suggests that telephone continuing care can fill an unmet need among patients with greater network support for drinking. Further research may determine whether it would be an effective and cost-effective strategy to target such continuing care efforts to patients with greater network support for drinking.

Over the course of two years, our participants generally reported stability in their alcohol-specific social support, with no effect of treatment participation. Therefore, our findings suggest that our model of telephone continuing care may be helpful in facilitating coping with a social environment that supports drinking, but it is not sufficient to facilitate beneficial changes in alcohol-specific social support as measured by the IPI. These longitudinal findings are consistent with cross-sectional findings indicating little difference in interpersonal problems among substance-dependent individuals at the start or end of treatment²⁵.

An alternate explanation for the observed stability in participants' alcohol-specific social support is that participants, when prompted to select important people, named those with whom they had the most stable relationships and who were least associated with their problem drinking. This possibility is supported by our finding that participants reported relatively small networks, mostly made up of family members, with little drinking present. Or, perhaps the self-report of important people was aspirational rather than reflective of those with whom the patient interacted with most. Therefore, the measure may be less sensitive to changes in the extent to which participants spent time with persons whom they deemed less important, but who were closely associated with alcohol use. It is possible that if we had asked participants whom they had spent the most time with, rather than whom they considered to be most important, the findings might have been different; we may also have found changes over time in self-reported interpersonal "problems"²⁶. Another possibility is that most participants made changes in their social networks quickly upon entry into IOP, aligning themselves with those whom they considered most essential to their recovery early in treatment even before becoming eligible for the continuing care study.

This study represents the first exploration of the social network correlates of telephone continuing care participation. We assessed participants' social networks prospectively, with a widely-used measure that assesses several aspects of alcohol-specific social support. However, the IPI relies on participants' self-report of others' drinking status and response to drinking, and its emphasis on "important" people may be inadequately sensitive to relevant changes in participants' social functioning. Furthermore, we focused solely on alcohol use and attitudes toward alcohol drinking in the networks of a population with a high rate of concurrent cocaine dependence. Given our sample size, we did not examine gender differences in the social network correlates of telephone continuing care participation, even though there may be important differences in the interpersonal problems experienced by alcohol dependent men and women²⁷. We were unable to distinguish between regularly scheduled contacts and those representing "step-up" adaptive care; a more finely grained analysis might have identified social network correlates or effects of additional care for those at greater risk for relapse. We offered continuing care to patients currently enrolled in IOP; our findings may not generalize to continuing care offered upon completion of IOP or as an adjunct to less-intensive treatment. Our relatively homogeneous sample may also limit the generalizability of our findings.

Conclusions

Our findings suggest that, upon completing an orientation to telephone-based treatment, alcohol-dependent patients with more problematic social networks make greater use of telephone continuing care. Ongoing monitoring with or without brief cognitive-behavioral relapse prevention counseling may help patients to cope with social networks that supported drinking, but does not appear to be sufficient to facilitate beneficial changes in their networks. Further research will determine whether telephone continuing care more closely focused on patients' social networks will lead to observable changes in alcohol-specific social support.

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Table 1

Baseline social network structure and alcohol-specific social support

Social Network Variable	Treatment Condition						$\chi^2(2 df)$
	TAU (N = 86)		TM (N = 83)		TMC (N = 83)		
	Mean	SD	Mean	SD	Mean	SD	
Network members	5.24	2.58	5.47	2.69	5.13	2.64	2.18
Family members	3.27	2.04	3.72	2.34	3.43	2.47	4.55
Friends	1.20	1.41	1.30	1.37	0.90	1.02	8.16
Co-workers	0.05	0.21	0.01	0.11	0.02	0.15	5.74
AA members	0.23	0.52	0.20	0.66	0.31	0.66	9.47
Network days drinking in past 90	6.12	9.08	8.33	12.3	5.82	7.93	2.22
Heavy drinkers	0.16	0.46	0.31	0.66	0.10	0.30	23.0 *
Abstainers	3.52	2.39	3.55	2.28	3.38	2.28	0.42
Daily drinkers	0.12	0.32	0.18	0.45	0.10	0.34	6.33
People who accept drinking	0.56	1.23	0.70	1.27	0.40	0.81	4.44
People who do not accept drinking	4.03	2.77	3.64	2.70	3.83	2.64	2.47
Percent heavy drinkers	3.64	13.2	5.76	12.6	2.31	8.23	21.7 *
Percent abstainers	64.4	30.2	65.7	27.9	69.0	27.1	3.50
Percent daily drinkers	1.96	5.82	3.28	8.91	1.83	6.49	5.93
Percent who accept drinking	10.4	21.7	13.1	24.2	9.62	21.3	3.46
Percent who do not accept drinking	75.8	31.4	67.4	35.3	71.8	32.0	7.19

* $p < .05$

Table 2

Baseline alcohol-specific social support prediction of continuing care calls made.

Variable	<i>B</i>	<i>SE B</i>	χ^2 (1 <i>df</i>)	<i>r</i>
Frequency of drinking	0.003	0.002	1.71	0.055
Percent heavy drinkers	−0.001	0.002	0.31	0.003
Percent abstainers	−0.001	0.001	0.36	−0.006
Percent daily drinkers	0.010	0.003	11.48***	0.121
Percent who accept drinking	0.005	0.001	20.70****	0.151
Percent who do not accept drinking	−0.002	0.001	7.14**	−0.088

**
 $p < .01$.***
 $p < .001$.****
 $p < .0001$.