Published in final edited form as:

Alcohol Clin Exp Res. 2006 June ; 30(6): 1079–1090. doi:10.1111/j.1530-0277.2006.00121.x.

Course of Recovery from Alcoholism

Kamilla L. Venner, Helen Matzger, Alyssa A. Forcehimes, Rudolf H. Moos, Sarah W. Feldstein, Mark L. Willenbring, and Constance Weisner

University of New Mexico Center on Alcoholism, Substance Abuse and Addictions (UNM CASAA), Albuquerque, New Mexico (KLV, AAF, SWF); the Department of Psychology, University of New Mexico, Albuquerque, New Mexico (KLV, AAF, SWF); the Department of Psychiatry, University of California, San Francisco, California (HM, CW); the Alcohol Research Group, Public Health Institute, Berkeley, California (HM); the Center for Health Care Evaluation Veterans Affairs Health Care System and Stanford University Palo Alto, California (RHM); National Institute of Alcohol Abuse and Alcoholism (NIAAA), Bethesda, Maryland (MLW); and the Kaiser Northern California Division of Research, Oakland, California (CW)

Abstract

This article represents the proceedings of a symposium at the 2005 Research Society on Alcoholism meeting in Santa Barbara, California, organized and chaired by Kamilla L. Venner. This symposium integrated current empirical research on the course of recovery from alcoholism from multiple perspectives, an aim that is consistent with NIAAA's new focus on the process of recovery. The presentations and presenters were as follows: (1) The Role of Community Services and Informal Support on 7-Year Drinking Outcomes in Treated and Untreated Drinkers, by Helen Matzger; (2) The Sequence of Recovery Events in a Native American Sample, by Kamilla L. Venner; (3) Transformational Change in Recovery, by Alyssa A. Forcehimes; (4) Social Settings and Substance Use: Contextual Factors in Recovery, by Rudolf H. Moos; and (5) A Broader View of Change in Drinking Behavior, by discussant Mark L. Willenbring. A theme connecting the presentations was that treatment is but one discrete aspect to recovery and that *sustained* recovery is often influenced by an individual interaction with others within a social context. Collectively, presentations underscored the need to think more broadly about factors contributing to the remission of alcohol dependence.

Keywords

Recovery; Alcohol Dependence; Social Context

Increasingly, addiction scholars are realizing the importance of focusing on positive outcomes rather than solely attending to the pathology of substance abuse and dependence. Further encouragement for this trend occurred when the National Institute on Alcohol Abuse and Alcoholism (NIAAA) renamed its Division of Treatment to Division of Treatment and Recovery Research. An important epidemiological perspective was provided by use of the National Epidemiological Survey on Alcohol and Related Conditions (NESARC) dataset examining those with prior-to-past-year dependence. Results revealed that only 25% were still classified as alcohol dependent in the past year while the remainder was in various states of remission (Dawson et al., 2005). Interest in recovery is growing and includes epidemiology, treatment outcome trajectories (Vaillant, 2003; Weisner et al., 2003a), theoretical contextual themes across modes of recovery (Moos, 2006), natural history

(Venner and Feldstein, in review), and qualitative stories of recovery in predominantly White samples (Sobell et al., 2001) and indigenous samples (Brady, 1993; Hazel and Mohatt, 2001; Quintero, 2000; Spicer, 2001). This symposium integrated current empirical research on the course of recovery from alcoholism from multiple perspectives, an aim that is consistent with NIAAA's new focus on the process of recovery. A theme connecting the presentations was that treatment is but one discrete aspect to recovery and that *sustained* recovery is often influenced by an individual interaction with others within a social context. Presentations were sequenced to reflect the chronic and cyclical nature of alcohol abuse, followed by presentations on the progression of recovery events, retrospective accounts of decisive events leading to recovery, and alternative conceptual frameworks to evaluate behavior change efforts. One of the strengths of this symposium was that the 5 presentations addressed recovery using various methodologies, theoretical bases, and populations.

Role of Community Services and Informal Support on 7-Year Drinking Outcomes in Treated and Untreated Drinkers

Helen Matzger and Constance Weisner

Community services and social networks play important roles in the course of drinking over time, and a better understanding of these roles will have important implications for clinical and community-level interventions. While studies have shown the long-term value of treatment (Finney and Moos, 1992; Hser et al., 1993, 1997; Shaw et al., 1997; Simpson et al., 2002), other research has demonstrated that individuals improve without treatment or that the effect of treatment can be enhanced by other factors. These may include contacts with medical and mental health clinics, welfare and criminal justice agencies, and changes in social networks (Humphreys et al., 1997; Regier et al., 1993; Timko et al., 2000; Weisner and Matzger, 2003).

The objective of this study was to gain further understanding of the roles that services and informal influences play in the course of drinking. To do this, we examined trajectories of alcohol consumption in treated and untreated dependent and problem drinkers drawn from representative samples. We used measurements at baseline and 1, 3, 5, and 7 years later. The 5 interview points make possible analytical techniques designed to examine long-term trajectories of drinking.

We based our conceptual framework on the medical utilization and outcome literatures (Aday and Andersen, 1974; Aday et al., 1999), while incorporating relevant modifications from the alcohol and drug literatures (Hser et al., 1997; Vaillant, 1988; Weisner et al., 2003a; Weisner and Schmidt, 2001). Our model examines *demographic characteristics* (e.g., age, gender, ethnicity, income, and employment); *problem severity* (e.g., DSM-IV baseline alcohol dependence, as well as the severity of drug, psychiatric, medical, social, and legal problems); *formal services* (contact with medical, mental health, welfare, and criminal justice agencies); and *informal supports* [Alcoholics Anonymous (AA), social networks, and interventions by family members] on drinking trajectories over time.

The study was conducted in a Northern California county and collected representative samples of 1,598 individuals experiencing a range of alcohol problems from problem drinking to alcohol dependence. The treatment sample ($N = 926$) included consecutive admissions to the 10 public and private programs in the county.

The general population sample of dependent and problem drinkers who had not received treatment in the prior year ($N = 672$) was collected in the same county using random-digit dialing (referred to as the "untreated sample"). One-, 3-, 5- and 7-year follow-up interviews were conducted with both samples. Follow-up response rates of the sample were 84% for

year 1, 82% for year 3, 79% for year 5, and 75% for year 7. Detailed methods on the sample and data collection have been described elsewhere (Delucchi et al., 2004; Matzger, 2004; Weisner and Matzger, 2003).

Chi-square tests and *t*-tests were used for bivariate analysis. For longitudinal analysis, using the 5 waves of data, we used Hierarchical Linear Modeling (HMLM) (Raudenbush et al., 2004) to estimate and test the effects of our covariates on the outcome of log-10 drinking volume measured at each interview. This method enables us to incorporate both time-varying and time-invariant characteristics in the analysis.

The samples were representative of clinical and untreated problem and dependent drinker populations. On the whole, the untreated group was younger (mean age, 35 vs 39 years, $p < 0.05$) and more educated (48 vs 27% with more than a high school education, $p < 0.05$) and had higher incomes (69 vs 41% with greater than \$25,000 baseline annual income, $p < 0.05$) and fewer minorities than the treatment sample (71 vs 54% white, $p < 0.05$). When comparing medical, legal, drug, and psychiatric severity at baseline and all follow-ups, both samples showed a trajectory of declining severity for each measure, but the treatment sample had higher severity than the untreated sample at each time point ($p < 0.05$ for all).

Table 1 shows the HMLM model predicting Log(10) volume using 5 waves of data. For both treated and untreated dependent and problem drinkers, men were more likely than women to have higher consumption ($p < 0.001$ for both). Increasing age was related to higher consumption for untreated dependent and problem drinkers ($p < 0.001$). Additionally, in the sample of general population dependent and problem drinkers, white ethnicity (vs other) and full-time employment (vs less than full time) were related to higher consumption ($p < 0.01$ for both). Among the severity measures, being DSM-IV alcohol-dependent at baseline was a key predictor of higher log-volume for both treated and untreated dependent and problem drinkers ($p < 0.001$ for each). Yet, for both these samples, those who were dependent at baseline had steeper declines in consumption over time compared with those who were not ($p < 0.001$ for treated sample, $p < 0.05$ for the untreated sample). Using data from the 5 time points, a higher ASI psychiatric score predicted higher volume for both samples ($p < 0.001$ for treated sample, $p < 0.05$ for untreated sample). For the treatment group, a higher ASI drug score was related to higher consumption ($p < 0.05$).

Examining formal influences over time, contact with the criminal justice system was related to higher consumption for the treatment sample ($p < 0.01$). Contact with mental health services was related to lower consumption for the treatment sample ($p < 0.01$) and marginally so for the untreated sample ($p = 0.062$). For both samples, among the informal influences, having a family member say something to them about their drinking was related to higher volume ($p < 0.001$ for both). Also, for both samples, a larger heavy alcohol and drug using social network size was related to higher volume ($p < 0.01$ for the treatment sample, $p < 0.001$ for the untreated sample), and an increasing number of days of AA attendance was related to lower volume ($p < 0.001$ for both).

We found that the influences on volume over the 7 years were on the whole similar for the treated and untreated samples. Being male, alcohol-dependent (as opposed to a problem drinker), and having higher psychiatric severity were related to higher consumption. Mental health contacts had a positive effect on lower consumption for the treatment sample and marginally so for the untreated sample. We also found this when looking at 5-year trajectories of dependent and problem drinkers (Weisner et al., 2003a).

Although high proportions of both samples had medical visits at each time point, these contacts were not related to lower consumption. This may have to do with medical providers not addressing drinking during medical visits. Other published work on this sample at 5

years found that medical contacts for problem drinkers compared to dependent drinkers were related to lower consumption over time (Weisner et al., 2003a). We also found missed opportunities in having drinking addressed by doctors and other health professionals (Weisner and Matzger, 2003) and that having drinking addressed by a medical practitioner was related to patient characteristics rather than number of visits (Weisner and Matzger, 2003). It may be that drinking is mentioned more often during mental health visits than medical visits. These findings have implications for continued attempts to increase screening and interventions in medical settings. Finally, we found that for both treated and untreated samples, having a family member say something was not related to lower consumption; we have found this in other analyses as well (Weisner et al., 2003a). It is likely that this represents an ongoing relationship, with family members complaining because of the drinking, and that this is not an optimal intervention. This may have implications for developing community intervention approaches helping family members address drinking.

However, we found that recovery-oriented social networks and AA or 12-step attendance were both related to lower consumption, findings that have been replicated in our other studies as well as the larger literature (Beattie and Longabaugh, 1997; Humphreys et al., 1997; Weisner et al., 2003a, 2003b). Other work on this sample suggests that within treatment populations, changing social networks may be the mechanism through which AA works (Kaskutas et al., 2001). This may work differently in the untreated sample where social networks were also important and in the same direction, but where AA did not have high levels of participation. Both of these findings have implications for treatment and community interventions: treatment programs could emphasize interventions aimed at changing social networks as well as engaging people in 12-step participation or related organizations. Community interventions might also be developed and encouraged that would help family members change social networks or participate in 12-step groups.

The Sequence of Recovery Events in a Native American Sample

Kamilla L. Venner and Sarah W. Feldstein

The majority of studies in the field of addictions focus on the downward spiral from substance abuse into dependence. This bleak picture of the consequences of substance dependence is especially prominent in the literature around substance use and dependence in Native communities. While the serious consequences of substance use and dependence must be addressed, only recently have investigators extended their focus from alcohol problem development to include the transition into remission.

Perhaps the best-known empirical effort to describe the development of alcohol problems was created by Jellinek (1946). His sequence begins with occasional relief drinking and ends with “admitting defeat” and deciding to stop drinking. Researchers found partial support for Jellinek's nomothetic progression (Orford and Hawker, 1974; Park, 1973; Park and Whitehead, 1973; Trice and Wahl, 1958), although they differ in details. A cross-cultural examination of Jellinek's model by Venner and Miller (2001) concluded that the reliability of Jellinek's model was reduced as the culture and gender of the samples varied from that of Jellinek's U.S. males.

Glatt (1958), an early proponent of recovery as part of the natural history of alcoholism, developed a U-shaped curve to describe the course of alcohol problem development through the remission process. Although he extended Jellinek's work to include remission, Glatt did not provide data supporting the development of the recovery half of the curve. Recently, Forcehimes (2005) used items from Glatt's (1958) recovery curve to study the process of transformational change among men and women attending AA meetings. She found good general concordance.

This study is one of several recent efforts to address Native and other peoples' recovery from substance abuse and dependence both with and without formal treatment (Bezdek et al., 2004; Fletcher, 2001; Prochaska and DiClemente, 1992; Quintero, 2000; Sobell et al., 1993; Vaillant, 2003). This shift to focusing on recovery and related positive outcomes is believed to be critical for 3 reasons. First, understanding the progression into recovery is imperative in the modification and creation of empirically supported and efficacious interventions for Native communities. Second, clear messages that Native Americans recover from alcohol and other substance dependence help refute the negative stereotypes regarding pathological and demoralizing "drunken Indian" stereotypes (Westermeyer, 1974). Third, clear evidence that Native Americans *can* and *do* recover from addictions may provide hope to Native Americans and others who are currently struggling with alcohol dependence.

In an effort to continue research on the movement out of alcohol dependence, this study sought to gain information from Native Americans who were currently in full, sustained remission from alcohol dependence. The aims of this study were 2-fold: first, to identify the natural history of alcohol problem development and remission with an emphasis on the interplay between them, and second, to conduct qualitative analyses regarding participants' recommendations to other Native Americans who are drinking too much.

Method—Through word of mouth, newspaper advertisements, and radio advertisements, 44 Native Americans (61% males) in full, sustained remission from alcohol dependence from various tribes across the continental United States were recruited for this study. At the time of participation, the sample was generally in their late-1940s ($M = 48$ years), having achieved approximately 14 years of education, 10 years of abstinence, with their cultural identification in the middle between traditional and mainstream. This sample was administered several measures, including a demographic questionnaire (UNM CASAA; casaa.unm.edu), the Alcohol-Related Behaviors Cardsort (comprised of 46 Jellinek items and 9 DSM-III-R dependence criteria, ARBS; Venner and Miller, 2001; APA) the Change Efforts Cardsort (CECS; Willoughby, 1996), and the Cultural Questionnaire (May, 1982).

Results—*Results* are organized into quantitative and qualitative analyses: first, the natural history of alcohol problem and recovery development, and second, qualitative analyses examining applicability of currently efficacious substance use treatments for Native communities.

For alcohol problem development, they reported drinking-related problems beginning during their early 1920s. Reports of clinical impairment and dependence items emerged during their late 1920s. Concurrently, most participants also reported experiencing social pressure to reduce their drinking. By their early 30s, about 4 of 5 said they had "admitted defeat" (decided they could not control their drinking) for the first time.

When queried regarding what change efforts they used in an effort to overcome their drinking problem, the fewest participants endorsed use of prescription drugs, detoxification programs, removing alcohol from their home, and traditional ceremonies. However, the most frequently noted change efforts included praying, realization that one's drinking was hurting themselves and others, and the decision to stop.

Perhaps the most novel aspect of this paper is the juxtaposition of the onset of alcohol problems with efforts to overcome those problems. Instead of waiting to embark on change efforts until one had "hit bottom," as suggested in the Glatt (1958) U-shaped curve, participants reported trying to change their drinking practices in the midst of alcohol problem development. In fact, on average, they had tried 12 of the 18 change efforts before the onset of the last alcohol-related problem. Thus, a better description of the natural history

of alcohol dependence and remission is that change efforts are intermingled among the alcohol-related behaviors. This is consistent with the alcohol dependence criteria of “unsuccessful efforts to cut down or control substance use” (*Diagnostic and Statistical Manual of Mental Disorders IV-TR*; DSM-IV-TR; APA, 2000).

Turning to the qualitative analyses, analyzed were participant responses to the question, “What would you recommend to other Native Americans who are drinking too much?” Responses were thought to capture acceptable and successful practices for Native Americans dealing with alcohol problems. Qualitative analyses were conducted to examine the concordance of responses with current recommendations from efficacious substance abuse treatment approaches. Categorizations of responses included alliance, behavioral strategies, and spiritual strategies. Participants expressed concern about loved ones and yet were respectful in their approach and interested in preserving the relationship. They also evidenced wisdom about behavioral principles such as not supporting the drinking and encouraging self-efficacy. These are considered consistent with gentle, supportive approaches such as motivational interviewing and with behavioral approaches such as the Community Reinforcement and Family Training (CRAFT) approach. In addition, participants included religious and spiritual suggestions such as going to church and returning to Native spiritual practices.

Discussion—Two aims were achieved in this study of Native Americans in full, sustained remission from alcohol dependence: first, to examine the normal course of recovery by including both alcohol problem development and efforts to overcome alcohol dependence, and second, to inform future dissemination of efficacious treatment for Native Americans.

First, in studying the interplay between alcohol problem development and remission efforts, it appears that remission efforts begin during the process of developing alcohol dependence rather than after the person “hits bottom” or “admits defeat” as suggested by the Glatt curve (1958). On average, participants tried 12 of the 18 change efforts queried before admitting defeat. This suggests that it is normative to try many strategies to overcome alcohol problems before obtaining full, sustained remission for at least 1 year. Remaining open to many possible change strategies and pathways to recovery rather than championing one strategy seems to fit these data.

These preliminary qualitative analyses indicate that efforts should be made to disseminate efficacious treatment approaches in Native communities to help improve treatment outcome and reduce health disparities. However, treatment approaches for Native people should address the inclusion of religion and spirituality based upon individual client wishes while respecting the vast array of religious and spiritual beliefs among individuals. Future research is needed to assess differential outcomes based on attending to spiritual and religious concerns among indigenous people.

Transformational Change in Recovery

Alyssa A. Forcehimes

Contrasted with the traditional, stepwise type of recovery from alcohol dependence, transformational change is markedly different, characterized by discrete and dramatic behavior change. Numerous writers (Hardy, 1979; James, 1902; Loder, 1989; Miller and C'de Baca, 1994, 2001) have described the qualitative differences in this type of change. Transformational changes occur at greater depth, are manifested dramatically, and are profound in their ability to provide great personal significance. The magnitude of effects is a unique aspect of transformational change. Positive changes are manifest in areas such as finding inner peace, experiencing a release from burden, and feeling an enhanced

relationship with the world. Specific behaviors, such as a shift from drinking to abstinence, are not the changes that define the effects of these experiences. Rather, the shifts affect the deeper levels of one's self that change the individual's view of themselves and the world.

The Big Book of AA is full of these stories of sudden transformation, including the personal experience of Bill W., the cofounder of AA. Bill's experience was of this white-light variety that burst upon him and left him feeling like a "free man," released from the burden of alcohol dependence (Kurtz, 1979, p. 20). In developing the 12-step program of AA, it is apparent that the profundity of Bill W.'s experience impacted his view on the importance of spiritual growth, the 12th step hinting at the importance of "having [had] a spiritual awakening" (AA World Services, 2001).

The function of spiritual transformations from the AA perspective is the means to move from destructive independence to proper dependence on God and others (Kurtz, 1979). Alcoholics Anonymous contends that the spiritual change process, brought about by a spiritual awakening, is the mechanism of change. The spiritual change can be gradual or transformational, and Bill W.'s view on different types of spiritual experiences was that members would receive whichever might be the most useful for their needs (AA World Services, 2001).

Given the predominance of stories of transformation in the book of AA and the emphasis of spiritual transformations in the Alcoholics Anonymous program, the aim of this study was to document spiritual transformation experiences in AA and examine the period that surrounds them from a developmental perspective. The present study asked the contextual question of whether or not there are certain experiences that occur before, during, or after the experience of transformational change. The study aimed to describe the events leading up to and resulting from the transformation in a way that can be used to gain a greater understanding of what focal events surround these experiences as well as examine the topography of the transformation itself.

Methods—Participants ($N = 16$) were recruited from 5 freestanding Alcoholics Anonymous clubs in the south-west. Signs were posted in the clubs' meeting areas requesting individuals who had experienced a spiritual transformation—a deep shift in core values, feelings, attitudes, or actions—and maintained abstinence for at least 6 months (Conaway, 1991, C1, C3). To distinguish from stepwise change, the transformational experience needed to be an "enduring change in a broad range of behaviors and attributes" (Miller and C'de Baca, 1994, p. 258). For this reason, potential participants were screened using questions that queried their certainty and memory of the experience.

To capture the complexity of these experiences, participants detailed their experience by completing a semistructured interview, describing in narrative form how it was before their experience, what happened during the experience, and how life had changed since the onset of the transformational event. Participants also completed questionnaires querying their AA involvement, religiosity, and spirituality. Finally, participants completed a card sort used to create a chronology of events surrounding the transformational experience using items from Glatt's (1958) progression of recovery from alcoholism.

A hermeneutic approach was used to analyze the transcriptions of the interviews. The transformational experiences were classified according to themes, and interviews were tabulated to form meaningful subgroups along various dimensions. The interviews were divided into 3 main time periods: before the transformation, during the transformation, and after the transformation.

Results—Sample characteristics of the 16 participants (8 male; 8 female) indicate a middle-aged (55 years of age $\pm$ 15), Caucasian (81%), highly educated (31% with a master's degree) group of individuals who had, on average 12.03 ± 7.79 years of abstinence from alcohol. Men, on average, were slightly younger, had less formal education, attended their first AA meeting almost 6 years earlier than the females in this sample, had approximately 1 year less abstinence, and experienced their transformational experience approximately 9 years earlier than the females in this sample. In AA involvement, participants tended to attend their first AA meeting at 38.75 ± 12.79 years of age and regarded themselves members of AA approximately 2 years after their first meeting (40.69 ± 11.3).

Before the experience, most participants reported low levels of happiness; a lack of desire to live; feeling out of control; having few close and loving relationships with others, little satisfaction with their life, and no sense of meaning in their life; and not having a close relationship with God. Physical sensations such as “a warm blanket,” cognitive/emotional experiences such as “confusion and frustrating after doing some step work,” and realizations of the present situations such as having “invited my son over for dinner, only I had been drinking all day and there was no dinner to give him,” were commonly reported as antecedents of the transformational experiences. A majority of the sample also reported that before the transformational experience, they were praying or trying to be close to God and were feeling emotionally distressed or upset. An interesting finding was that 25% of the participants in this sample were working on the fourth step of AA “Made a searching and fearless moral inventory of ourselves,” in the hours before their experience.

There were a wide variety of descriptions detailing what happened during the event. Some described a feeling of something going through their body “like a shock from an outlet—like a force straightening my backbone physically and emotionally.” Another reported, “I was looking at my dog and something I can't describe, it felt like a boulder, but it came down through my head and through my body and through the rock and through my dog and sailed off to the ponderosa pine below us and then across the canyon up to the sky.” Although the descriptions varied, there was significant overlap in how individuals felt during the experience. Many reported feeling peace and comfort, such as a “great weight was lifted” or “A sense of relief like taking a shower in the air.” Although hearing an actual voice or seeing a vision were not commonly reported, many reported having special feelings in their body.

In the days or weeks after the transformational experience, participants reported an increase in happiness, the desire to live, satisfaction with their life, a sense of meaning in their life, and a closer relationship with God. Surroundings tended to look different and many reported on the vibrant colors of the world and the newfound clarity with which they viewed the world. Another change was perceptual shifts resulting in participants viewing people and things with more respect and desire to “give back what has been given to me.” Many participants reported that after the experience, there was continuity in day-to-day routines, character traits, and beliefs. Likes and dislikes, material surroundings, and personality traits also tended to remain stable.

Although some things remained the same, participants shared a number of things that were different. Changes were reported in the cognitive domain of how they view the world, the emotional domain of increased positive feelings toward others, and changes to day-to-day life such as weight loss, substance use decline or abstinence, or job change. The category where most change was reported was in the area of direction or meaning. Almost all participants reported a shift in “knowing there was something more” and feeling like they “existed for a reason.”

Using participants' sequence of events from the card sort task, the progression of this sample was compared with the hypothetical progression proposed by Glatt. The progression offered by Glatt (1958) was positively correlated ($r = 0.59$) to the progression that emerged in this study through the card sort. Interestingly, participants in this sample indicated experiencing a rebirth of ideals and having a new set of moral values unfold earlier in recovery than the progression offered by Glatt (1958).

The sequences of events were also examined on an individual level to determine the timeline between recovery from alcohol dependence and the transformational event. For all participants, attending AA for the first time preceded the beginning of abstinence. An interesting finding was that for 11 participants, the beginning of abstinence from alcohol occurred before the transformational experience, but the feeling of confidence in sobriety occurred after the transformation.

Discussion—The transformational experience marked sudden and profound changes in the lives of the individuals interviewed for this study. Perhaps a major difference between those who experience stepwise change and those who experience a transformational change is the speed with which their values shift. Individuals attempting stepwise recovery are encouraged to “fake it til you make it,” whereas individuals who experience a transformational change seem to immediately realize the discrepancy between their newfound values and ideals and conform their drinking and lifestyle behaviors accordingly. Similarly, that most participants achieved abstinence before the transformational event has an interesting implication, suggesting that the transformational experience may be the distinguishing factor between abstinence and sobriety.

A longitudinal study following individuals who have experienced transformational change is an avenue not yet explored by the transformational change studies. Determining which changes remain stable across time would broaden the understanding of these experiences. A larger study of transformational change in Alcoholics Anonymous would assure that a greater variety of themes and categories would emerge. It would also be interesting to gain an understanding of other 12-step recovery groups (Narcotics Anonymous, Gamblers Anonymous, Cocaine Anonymous) to see whether themes remain consistent across groups.

Social Settings and Substance Use: Contextual Factors in Recovery

Rudolf H. Moos

Four theories about the role of social context factors in the development and maintenance of substance misuse can enhance our understanding of the recovery process. These theories highlight fundamental similarities between the characteristics of intervention programs and those of everyday life contexts, such as the family and peer groups. They point to common factors that underlie the influence of intervention programs, families, and peer groups on remission.

According to *social control theory*, strong bonds with family, school, work, religion, and other aspects of traditional society motivate individuals to engage in responsible behavior. When such social bonds are weak or absent, individuals tend to engage in deviant behavior, such as the misuse of alcohol and drugs. The main causes of weak attachments to existing social standards are social disorganization and inadequate monitoring of behavior (Hirschi, 1969).

According to *social learning theory*, substance use originates in the substance-specific attitudes and behaviors of the adults and peers who serve as an individual's role models. Modeling effects begin with observation and imitation of substance-specific behaviors,

continue with social reinforcement for substance use and expectations of positive consequences from use, and culminate in substance use and misuse (Bandura, 1977).

In behavioral economics or behavioral choice theory, the key aspect of the social context is involvement in traditional activities that shield individuals from exposure to substances and opportunities to use them. Specifically, access to rewarding activities, such as physical exercise and involvement in educational, work, social, and religious pursuits, lessens the likelihood of choosing alternative activities and rewards, such as substance use (Bickel and Vuchinich, 2000).

Stress and coping theory posits that the stressful life circumstances that often stem from social disorganization, especially stressors associated with family members and friends, lead to distress and alienation and eventually to substance misuse. Stressors are most likely to impel substance use among individuals with inadequate coping skills who try to avoid experiencing distress and alienation (Wills et al., 2001).

These theories identify common protective forces in social contexts, such as social bonding and monitoring, positive models and norms against substance use, adequate rewards from activities that shield against substance use, and building self-esteem and coping skills to manage life stressors (Moos, 2006). These common forces are present in intervention programs and contribute to initiating the process of remission; in addition, by their presence in families and peer groups, these forces play a key role in remission and recovery.

Intervention Programs—An emphasis on social bonding and monitoring is one of the key common aspects of intervention programs. Counselors who establish a supportive therapeutic bond and maintain an appropriate level of social control tend to engage clients in treatment. Cohesive group and residential treatment settings that provide some structure and monitoring strengthen clients' self-confidence and coping skills and contribute to a reduction in substance use. In contrast, clients of counselors who are impersonal or confrontational consistently do poorly, probably because criticism and conflict discourage social bonding and elicit resistance and withdrawal (Lebow et al., 2006).

The power of modeling and norms is evident in therapeutic community and residential programs that include successful graduates and staff members in recovery. Mutual help groups also encompass abstinence-oriented norms and role models who teach drink refusal skills and enhance clients' self-esteem and coping skills (Kaskutas et al., 2002). In addition, effective intervention programs provide alternatives to substance use, such as engagement in work, active leisure, and spiritual pursuits, which shield clients from activities likely to involve substance use and build their self-confidence and resistance skills.

Families—Bonding in the form of a partner's and other family members' general and abstinence-specific support has been associated with posttreatment abstinence and moderation of heavy drinking. Although not typically assessed directly, the monitoring and supervision associated with consistent, cohesive relationships likely contribute to stable remission (Beattie and Longabaugh, 1997). A partner who refrains from using alcohol or drugs also tends to have a positive influence on a family member's remission. In contrast, a partner who uses substances is likely to promote substance use by providing substance-related cues that may elicit craving, positive expectations of use, and opportunity and offers of use (McAweeney et al., 2005; Tracy et al., 2005).

Family-related stressors are associated with a higher likelihood of relapse. Clients whose partner expresses criticism and hostility toward them are more likely to relapse, relapse more quickly, and have fewer days of abstinence posttreatment than do clients whose

partners express less criticism and hostility. More broadly, family-related stressors have been associated with a lower likelihood of abstinence and more posttreatment substance use problems. Consistent with stress and coping theory, relapse is more likely among vulnerable individuals, that is, those who lack self-efficacy and effective coping skills (Brown et al., 1995; O'Farrell et al., 1998).

Friends and Peer Groups—Both general and abstinence-specific indicators of social support from or bonding with friends and peer groups have been associated with better posttreatment outcomes. General support tends to have a broader influence by enhancing patients' motivation and self-confidence to overcome their substance use problem and bolstering general well-being. Abstinence-specific support may have a stronger influence on reducing substance use when it occurs in the context of generally supportive relationships; in addition, it may mediate the association between general support and abstinence. There also may be a substitution effect in which bonding counteracts a lack of modeling for abstinence (Beattie and Longabaugh, 1999).

With respect to modeling, when individuals have fewer heavy or problem drinkers and fewer drug users in their social network, they are more likely to reduce their substance use or maintain abstinence. In Project MATCH, clients with more abstainers and recovering individuals in their social network at baseline had better 1- and 3-year alcohol outcomes. A social network free of tobacco and drug use is also associated with a higher likelihood of remission. These findings likely reflect both bonding with and modeling of individuals who do not use substances, a substance-free environment, more abstinence-specific and general support, and ongoing reinforcement of an individual's substance free life style (Bond et al., 2003; Zywiak et al., 2002).

Overall, the critical factors associated with long-term remission from alcohol dependence have been identified as compulsory supervision or monitoring with immediate negative consequences for relapse, involvement in new relationships, and participation in activities that provide alternative reinforcements to those obtained from substance use (Vaillant, 2003).

Conclusions—The emphasis on social bonding and monitoring, abstinence-oriented norms and models, engagement in rewarding activities that safeguard against substance use, and building self-esteem and coping skills reflect key active ingredients of intervention programs and mutual support groups. Family members' and friends' influence on remission also depends on comparable social processes: supportive relationships and moderate structure, abstinence-oriented norms, engagement in rewarding activities, and building self-confidence to manage temptations to use substances and other stressors. Most broadly, the curative social processes that underlie the resolution of addictive problems are common to formal treatment, mutual help groups, and relationships with family members and friends, and the essential dynamics of change are likely to be similar, regardless of the setting in which they occur.

A Broader View of Change in Drinking Behavior

Mark L. Willenbring

What Causes Change in Drinking Behavior, and How Does it Work?—The bulk of research concerning change in drinking behavior has taken place within the context of specialized treatment for a help-seeking population. This approach rested on assumptions that do not hold up under scrutiny. The most prominent assumption is that change does not occur without specialized treatment. A second less obvious assumption is that specific

treatment techniques administered by trained professionals are the mechanism by which change is mediated.

Research on psychosocial treatment for heavy drinking and alcohol use disorders (AUD) has progressed substantially in the past 20 years, with particularly important gains improving internal validity. However, the result has been surprising, even disappointing: with minor exceptions, therapeutic approaches using different models yield similar results, and there is only minimal interaction with a wide variety of demographic and clinical patient characteristics, demonstrating that the specific theoretical model and techniques used in a therapeutic approach are not determinative of outcome (1997; Orford, 2005). At this time, there is no evidence that specific therapy techniques used have much effect on outcome (as long as therapy is reasonably skillful). The failure to find significant differences in outcome from different psychotherapy models is not unique to AUD (Lambert and Ogles, 2004). Even where there is some evidence for specificity, such as in depression, dismantling studies comparing different versions of CBT with various components theoretically central to its action removed have not demonstrated a reduction in efficacy (Lambert and Ogles, 2004).

If specific techniques are not responsible for change, what is? One possibility that has been long debated in psychotherapy research regards “common factors” such as therapeutic alliance, expectancy, and empathy as mechanisms of change (Lambert and Ogles, 2004). The importance of common factors as opposed to specific techniques has received some study in the addiction treatment field. In Project MATCH, working alliance was a consistent independent predictor of outcomes, but its contribution was very modest (less than 3.5%) (Connors et al., 1997). In a large, multisite study of treatment for cocaine dependence therapeutic alliance was not a significant predictor of outcome, although it did predict retention in some psychotherapy conditions (Barber, 2001). Finney et al. (1998) studied change in proximal outcomes among patients participating in either 12-step-oriented treatment or CBT-oriented treatment. They found that some technique-specific changes in cognition (e.g., acceptance of the “alcoholic” identity) and behavior (e.g., attending more 12-step groups) occurred in the 12-step-oriented treatments, but that cognitions focused on by CBT (e.g., increased confidence and self-efficacy) improved in all patients during treatment. They further examined the relationship between proximal outcomes and 1-year drinking outcomes, but found only very modest associations ($r = 0.2-0.4$).

Dearing et al. (2005) conducted path analysis on expectations, working alliance, sessions attended, and satisfaction during treatment as predictors of posttreatment abstinence. Their results, accounting for 22% of the variance in outcome, reveal a complex dynamic interplay among disease severity, expectations, alliance, treatment adherence, and satisfaction. Expectations, although an independent predictor of satisfaction, also strongly predicted working alliance, replicating a finding reported from Project MATCH (Connors et al., 1997). Patient satisfaction emerged as a critical variable, statistically mediating the relationship between the other factors and outcome. (It is also important to keep in mind that analyses such as these only test for statistical mediation, not causal mediation, even though the language used, such as “x predicted y” may suggest otherwise. Thus, studies such as this are useful primarily for generating hypotheses).

Although additional explanatory research on mechanisms of behavior change is needed before we can arrive at even approximate answers to these questions, research to date suggests that the mechanisms we have examined are not responsible for the bulk of the change process. This analysis suggests that we have either been looking at the wrong mechanisms, at the wrong time, or both. Change may be mediated by other factors, such as social pressure, and it may occur before treatment entry. If that is true, treatment would be more of an outcome of change rather than an instigator of it. G. Edwards (2005, personal

communication) has asserted, “all recovery is natural recovery.” At this point, the evidence would support this contention.

Research is needed that examines the change process in a life context. For a specific episode of change (or deflection in the life trajectory of drinking), investigators must be careful to avoid implicit assumptions about the change process. For example, why should we assume that major change begins after treatment entry or that what therapists do is central to outcome? What is required instead are studies that ask those questions and then attempt to provide information to help answer them. The results of research to date suggest that the assumptions upon which much of it was based are not correct. Thus, more exploratory, inductive research is required to pose new hypotheses, which can then be tested using deductive methods. Careful longitudinal studies would be especially helpful in this regard.

Change Occurring with Professional Facilitation (“Natural Recovery”)—A significant proportion of people developing alcohol dependence eventually change their drinking without specific help from either mutual help groups or from addiction treatment providers (Bischof et al., 2001, 2003; Dawson et al., 2005; Sobell et al., 1996). People who resolve heavy drinking and its related problems without specialized treatment differ systematically from those who do. Recovery outside of treatment is more likely in those with fewer symptoms of dependence, less comorbid psychiatric disorders, less pressure to quit drinking, and more social capital (Almedom, 2005; Weitzman and Chen, 2005; Whitley, 2005). Progress has been made to delineate trajectories and their statistical predictors among young people, where much nontreatment change takes place (Sher et al., 2004).

However, not all heavy drinkers change, and even those who do may undergo or cause significant problems while they are engaging in heavy drinking. For that matter, it is likely that more excess morbidity and mortality are caused by nondependent heavy drinking than by dependent drinkers (Saitz, 2005). Even so, only about one-quarter of people developing alcohol dependence ever seek any type of treatment, including AA, and only about one-eighth do so in any given year (Dawson et al., 2005).

Thus, it is at least as important to understand how and why people change their drinking outside of specialized treatment settings as it is within them. This is important for improving public health, as well as to further understanding of the change process. A fuller understanding could also inform design of potential public health or other interventions to facilitate or promote change among heavy drinkers. A key question is whether change processes are fundamentally the same or different depending on whether the change is professionally facilitated. It is also important to better understand life trajectories of drinking and the processes that affect them. A change process occurs in the context of a life history and plays out over time. Change may be sudden or gradual, stable or unstable, and so forth. Mediators and moderators of change may be time-dependent, and their effect may itself change over time. Clinicians have known for a long time that treatment entry is most commonly precipitated by a crisis associated with significant social pressure to change. Recent research supports the importance of social support (pressure) to change. Formal coercion through the criminal justice system and employer mandates are other important determinants that are part of a complex cognitive-affective process that may lead to treatment seeking (Cunningham et al., 1995; Jakobsson et al., 2005; Polcin and Weisner, 1999). A qualitative study component of the recent UKATT trial found that treatment was part of a complex process that began in the weeks and months leading to treatment and that the social system of the participant continued playing an important role during and after treatment (Orford et al., 2006).

Social context, including social network, interpersonal relations, employers, the criminal justice and health care systems, religious institutions and other affiliate groups, and mutual help groups, all are likely to be important determinants of outcome, especially as time increases from the end of a treatment episode. Social context also is important in determining how an individual engaged in treatment perceives and processes the treatment experience. However, social context is too often ignored in treatment research. Social psychology and sociology offer potentially useful approaches that have not been fully exploited in the study of drinking and AUD. Furthermore, little research has been carried out focused on how social contextual factors actually influence change (as opposed to whether they do). More research of this type is urgently needed.

Summary

The presentations in this symposium highlight the importance of work that examines the change process with open eyes. Some assumptions upon which much of the extant research on treatment and change rests are not well supported. In particular, assumptions that the major portion of the treatment process occurs after treatment entry, and that it occurs within the treatment program, must be examined through a broader lens.

Having stated this, it should also be noted that the treatment program or process may still occupy an important part of the process of change. There is considerable evidence that people who participate in self-help groups and/or professional treatment have better outcomes than those who do not (Miller et al., 2001; Moos and Moos, 2005). The reason for this may be due in part to the social nature of treatment admission: walking through the treatment center door or attending a mutual help group meeting is a public admission and acceptance of a stigmatizing diagnosis and the need for outside help to overcome it. The process leading to that action may be the most critical part of the change process, because of the need to overcome the formidable resistance most people have to such an idea. This would not suggest that we should not support treatment, but that we need to find ways to make help seeking easier, less painful, and much more broadly accessible.

Acknowledgments

The views expressed here are those of the authors (R.H.M. and M.L.W.) and do not necessarily represent the views of the Department of Veterans Affairs of the National Institute on Alcohol Abuse and Alcoholism, the National Institutes of Health, the Department of Health and Human Services, or any other government agency

This symposium and work presented were supported by an NIH/NIAAA K23 014207; NIAAA (RO1AA-09750 and PO50-AA05595); Department of Veterans Affairs Health Services Research and Development Service and NIAAA Grants AA12718 and AA15685 (RFM); K23 014207 and U01 AA014926 (KLV).

References

- AA World Services. Alcoholics Anonymous: The Story of How Many Thousands of Men and Women have Recovered from Alcoholism. 4th. AA World Services; New York: 2001.
- Aday L, Andersen RM. A framework for the study of access to medical care. *Health Serv Res* 1974;9:208–220. [PubMed: 4436074]
- Aday LA, Begley CE, Lairson DR, Slater CH, Richard AJ, Montoya ID. A framework for assessing the effectiveness, efficiency, and equity of behavioral healthcare. *Am J Manage Care* 1999;25:25–44.
- Almedom AM. Social capital and mental health: an interdisciplinary review of primary evidence. *Soc Sci Med* 2005;61:943–964. [PubMed: 15955397]
- American Psychological Association (APA). Diagnostic and Statistical Manual of Mental Disorders (Text Revision). American Psychological Association; Washington, DC: 2000.

- Bandura A. Self-efficacy: toward a unifying theory of behavior change. *Psychol Rev* 1977;84:191–215. [PubMed: 847061]
- Barber JP. Therapeutic alliance as a predictor of outcome and retention in the National Institute on Drug Abuse Collaborative Cocaine Treatment Study. *J Consult Clin Psychol* 2001;69:119–124. [PubMed: 11302268]
- Beattie MC, Longabaugh R. Interpersonal factors and post-treatment drinking and subjective well-being. *Addiction* 1997;92:1507–1521. [PubMed: 9519493]
- Beattie MC, Longabaugh R. General and alcohol-specific social support following treatment. *Addict Behav* 1999;24:593–606. [PubMed: 10574299]
- Bezdek M, Croy C, Spicer P, the AI-SUPERPPF Team. Documenting natural recovery in American-Indian drinking behavior: a coding scheme. *J Stud Alcohol* 2004;65:428–433. [PubMed: 15376816]
- Bickel, WK.; Vuchinich, RE., editors. *Reframing Health Behavior Change with Behavior Economics*. Erlbaum; New Jersey: 2000.
- Bischof G, Rumpf HJ, Hapke U, Meyer C, John U. Factors influencing remission from alcohol dependence without formal help in a representative population sample. *Addiction* 2001;96:1327–1336. [PubMed: 11672497]
- Bischof G, Rumpf HJ, Hapke U, Meyer C, John U. Types of natural recovery from alcohol dependence: a cluster analytic approach. *Addiction* 2003;98:1737–1746. [PubMed: 14651506]
- Bond J, Kaskutas LA, Weisner C. The persistent influence of social networks and Alcoholics Anonymous on abstinence. *J Stud Alcohol* 2003;64:579–588. [PubMed: 12921201]
- Brady M. Giving away the grog: an ethnography of Aboriginal drinkers who quite without help. *Drug Alcohol Rev* 1993;12:401–411. [PubMed: 16840106]
- Brown SA, Vik PW, Patterson TL, Grant I, Schuckit MA. Stress, vulnerability, and alcohol relapse. *J Stud Alcohol* 1995;56:538–545. [PubMed: 7475034]
- Conaway J. Quantum change: when personal transformation happens overnight. *Albuquerque J C1, C3*. 1991
- Connors GJ, DiClemente CC, Carroll KM, Longabaugh R, Donovan DM. The therapeutic alliance and its relationship to alcoholism treatment participation and outcome. *J Consult Clin Psychol* 1997;65:588–598. [PubMed: 9256560]
- Cunningham JA, Sobell LC, Sobell MB, Kapur G. Resolution from alcohol problems with and without treatment: reasons for change. *J Subst Abuse* 1995;7:365–372. [PubMed: 8749795]
- Dawson DA, Grant BF, Stinson FS, Chou PS, Huang B, Ruan WJ. Recovery from DSM-IV alcohol dependence: United States, 2001–2002. *Addiction* 2005;100:281–292. [PubMed: 15733237]
- Dearing RL, Barrick C, Dermen KH, Walitzer KS. Indicators of client engagement: influences on alcohol treatment satisfaction and outcomes. *Psychol Addict Behav* 2005;19:71–78. [PubMed: 15783280]
- Delucchi KL, Matzger H, Weisner C. Dependent and problem drinking over five years: a latent class growth analysis. *Drug Alcohol Depend* 2004;74:235–244. [PubMed: 15194201]
- Finney JW, Moos RH. The long-term course of treated alcoholism: II. Predictors and correlates of 10-year functioning and mortality. *J Stud Alcohol* 1992;53:142–153. [PubMed: 1313935]
- Finney JW, Noyes CA, Coutts AI, Moos RH. Evaluating substance abuse treatment process models: I. Changes on proximal outcome variables during 12-step and cognitive-behavioral treatment. *J Stud Alcohol* 1998;59:371–380. [PubMed: 9647419]
- Fletcher, AM. *Sober for Good: New Solutions for Drinking Problems: Advice from those who have Succeeded*. Houghton Mifflin; New York: 2001.
- Forcehimes, A. Unpublished master's thesis. University of New Mexico; 2005. *Spiritual transformations in alcoholics anonymous*.
- Glatt M. Group therapy in alcoholism. *Br J Addict* 1958;54:133–143.
- Hardy, A. *The Spiritual Nature of Man: A study of Contemporary Religious Experience*. Clarendon Press; Oxford: 1979.
- Hazel KL, Mohatt GV. Cultural and spiritual coping in sobriety: informing substance abuse prevention for Alaska Native communities. *J Community Psychol* 2001;29:541–562.

- Hirschi, T. *Causes of Delinquency*. University of California Press; Berkeley: 1969.
- Hser YI, Anglin MD, Grella C, Longshore D, Prendergast ML. Drug treatment careers: a conceptual framework and existing research findings. *J Subst Abuse Treat* 1997;14:543–558. [PubMed: 9437626]
- Hser YI, Anglin MD, Powers K. A 24-year follow-up of California narcotics addicts. *Arch Gen Psychiatry* 1993;50:577–584. [PubMed: 8317951]
- Humphreys K, Moos RH, Cohen C. Social and community resources and long-term recovery from treated and untreated alcoholism. *J Stud Alcohol* 1997;58:231–238. [PubMed: 9130214]
- Jakobsson A, Hensing G, Spak F. Developing a willingness to change: treatment-seeking processes for people with alcohol problems. *Alcohol Alcohol* 2005;40:118–123. [PubMed: 15582987]
- James, W. *The Varieties of Religious Experience*. Harvard University Press; Cambridge: 1902.
- Jellinek EM. Phases in the drinking history of alcoholics. *Q J Stud Alcohol* 1946;7:1–88.
- Kaskutas LA, Bond J, Humphreys K. Social networks as mediators of the effect of alcoholics anonymous. *Addiction* 2002;97:891–900. [PubMed: 12133128]
- Kaskutas, LA.; Humphreys, K.; Bond, J. Social network characteristics and AA involvement as mediators of drinking outcomes. Paper presented at the Research Society on Alcoholism; Montréal, Canada. 2001.
- Kurtz, E. *Not-God: A history of Alcoholics Anonymous*. Hazelden; Minnesota: 1979.
- Lambert, MJ.; Ogles, BM. The efficacy and effectiveness of psychotherapy. In: Lambert, MJ., editor. *Handbook of Psychotherapy and Behavior Change*. 5th. John Wiley and Sons; New York: 2004. p. 139-193.
- Lebow, J.; Kelly, J.; Knobloch-Fedders, L.; Moos, R. Relationship factors in treating substance use disorders. In: Castonguay, LB.; Beutler, LE., editors. *Principles of Therapeutic Change That Work*. Oxford; New York: 2006. p. 293-317.
- Loder, J. *The Transforming Moment*. Helmers and Howard; Colorado: 1989.
- Matzger H, Delucchi K, Weisner C, Ammon LN. Does marital status predict long-term drinking? Observations from a group of problem drinking and dependent individuals. *J Stud Alcohol* 2004;65:255–265. [PubMed: 15151358]
- May PA. Substance abuse and American Indians: prevalence and susceptibility. *Int J Addict* 1982;17:1185–1209. [PubMed: 6757155]
- McAweeney MJ, Zucker RA, Fitzgerald HE, Puttler LI, Wong MA. Individual and partner predictors of recovery from alcohol use disorder over a nine-year interval: findings from a community sample of alcoholic married men. *J Stud Alcohol* 2005;66:220–228. [PubMed: 15957673]
- Miller, WR.; C'de Baca, J. Quantum change: toward a psychology of transformation. In: Heatherton, TF.; Weinberger, JL., editors. *Can Personality Change?*. American Psychological Association; Washington, DC: 1994. p. 253-280.
- Miller, WR.; C'de Baca, J. *Quantum Change*. Guilford Press; New York: 2001.
- Miller WR, Walters ST, Bennett ME. How effective is alcoholism treatment in the United States? *J Stud Alcohol* 2001;62:211–220. [PubMed: 11327187]
- Moos, R. Social contexts and substance use. In: Miller, WR.; Carroll, KM., editors. *Rethinking Substance Abuse: What the Science Shows and What We Should Do About It*. Guilford; New York: 2006. p. 182-200.
- Moos RH, Moos BS. Sixteen-year changes and stable remission among treated and untreated individuals with alcohol use disorders. *Drug Alcohol Depend* 2005;80:337–347. [PubMed: 15946805]
- O'Farrell TJ, Hooley J, Fals-Stewart W, Cutter HS. Expressed emotion and relapse in alcoholic patients. *J Consult Clin Psychol* 1998;66:744–752. [PubMed: 9803692]
- Orford J. Effectiveness of treatment for alcohol problems: findings of the randomised UK alcohol treatment trial (UKATT). *Br Med J* 2005;331:541–544. [PubMed: 16150764]
- Orford J, Hawker A. Note on the ordering of onset of symptoms in alcohol dependence. *Psychol Med* 1974;4:281–288. [PubMed: 4427976]
- Orford J, Hodgson R, Copello A, John B, Smith M, Black R, Fryer K, Handforth L, Alwyn T, Kerr C, Thistlethwaite G, Slegg G. The clients' perspective on change during treatment for an alcohol

- problem: qualitative analysis of follow-up interviews in the UK Alcohol Treatment Trial. *Addiction* 2006;101:60–68. [PubMed: 16393192]
- Park P. Developmental ordering of alcoholic experiences. *Q J Stud Alcohol* 1973;34:473–488. [PubMed: 4713836]
- Park P, Whitehead PC. Developmental sequence and dimensions of alcoholism. *Q J Stud Alcohol* 1973;34:887–904. [PubMed: 4742696]
- Polcin DL, Weisner C. Factors associated with coercion in entering treatment for alcohol problems. *Drug Alcohol Depend* 1999;54:63–68. [PubMed: 10101618]
- Prochaska JO, DiClemente CC, Norcross JC. In search of how people change: applications to addictive behaviors. *Am Psychol* 1992;47:1102–1114. [PubMed: 1329589]
- Quintero G. The lizard in the green bottle: “aging out” of problem drinking among Navajo men. *Soc Sci Med* 2000;51:1031–1045. [PubMed: 11005391]
- Raudenbush, SW.; Bryk, AS.; Congdon, RT, Jr. *HLM 6: Hierarchical Linear and Nonlinear Modeling*. Scientific Software International; Illinois: 2004.
- Regier DA, Narrow WE, Rae DS, Manderscheid RW, Locke BZ, Goodwin FK. The de facto U.S. mental and addictive disorders service system: epidemiologic Catchment Area prospective 1-year prevalence rates of disorders and services. *Arch Gen Psychiatry* 1993;50:85–94. [PubMed: 8427558]
- Saitz R. Unhealthy alcohol use. *N Engl J Med* 2005;352:596–607. [PubMed: 15703424]
- Shaw GK, Waller S, Latham CJ, Dunn G, Thomson AD. Alcoholism: a long-term follow-up study of participants in an alcohol treatment programme. *Alcohol* 1997;32:527–535.
- Sher KJ, Gotham HJ, Watson AL. Trajectories of dynamic predictors of disorder: their meanings and implications. *Dev Psychopathol* 2004;16:825–856. [PubMed: 15704817]
- Simpson DD, Joe GW, Broome KM. A national 5-year follow-up of treatment outcomes for cocaine dependence. *Arch Gen Psychiatry* 2002;59:538–544. [PubMed: 12044196]
- Sobell LC, Cunningham JA, Sobell MB. Recovery from alcohol problems with and without treatment: prevalence in two population surveys. *Am J Public Health* 1996;86:966–972. [PubMed: 8669520]
- Sobell LC, Klingemann H, Toneatto T, Sobell MB, Agrawal S, Leo GI. Alcohol and drug abusers' perceived reasons for self-change in Canada and Switzerland: computer-assisted content analysis. *Subst Use Misuse* 2001;36:1467–1500. [PubMed: 11693952]
- Sobell LC, Sobell MB, Toneatto T. What triggers the resolution of alcohol problems without treatment? *Alcohol Clin Exp Res* 1993;17:217–224. [PubMed: 8488958]
- Spicer P. Culture and the restoration of self among former American Indian drinkers. *Soc Sci Med* 2001;53:227–240. [PubMed: 11414389]
- Timko C, Moos RH, Finney JW, Lesar MD. Long-term outcomes of alcohol use disorders: comparing untreated individuals with those in Alcoholics Anonymous and formal treatment. *J Stud Alcohol* 2000;61:529–540. [PubMed: 10928723]
- Tracy SW, Kelly JF, Moos R. The influence of partner status, relationship quality, and relationship stability on outcomes following intensive substance use disorder treatment. *J Stud Alcohol* 2005;66:497–505. [PubMed: 16240557]
- Trice H, Wahl R. A rank order analysis of the symptoms of alcoholism. *Q J Stud Alcohol* 1958;19:636–648. [PubMed: 13614640]
- Vaillant GE. What can long-term follow-up teach us about relapse and prevention of relapse in addiction? *Br J Addict* 1988;83:1147–1157. [PubMed: 3191263]
- Vaillant GE. A 60-year follow-up of alcoholic men. *Addiction* 2003;98:1043–1051. [PubMed: 12873238]
- Venner KL, Feldstein SW. Natural history of alcohol dependence and recovery events for a Native American sample. in review.
- Venner KL, Miller WR. Progression of alcohol problems in a Navajo sample. *J Stud Alcohol* 2001;62:158–165. [PubMed: 11327182]
- Weisner C, Delucchi K, Matzger H, Schmidt L. The role of community services and informal support on five-year drinking trajectories of alcohol dependent and problem drinkers. *J Stud Alcohol* 2003a;64:862–873. [PubMed: 14743951]

- Weisner C, Matzger H. Missed opportunities in addressing drinking behavior in medical and mental health services. *Alcohol Clin Exp Res* 2003;27:1132–1141. [PubMed: 12878919]
- Weisner C, Matzger H, Kaskutas LA. How important is treatment? One-year outcomes of treated and untreated alcohol-dependent individuals. *Addiction* 2003b;98:901–911. [PubMed: 12814496]
- Weisner, C.; Schmidt, L. Rethinking access to alcohol treatment. recent developments in alcoholism. In: Galanter, M., editor. *Services Research in the Era of Managed Care*. Vol. 15. Kluwer Academic/Plenum Press; New York: 2001. p. 107-136.
- Weitzman ER, Chen YY. Risk modifying effect of social capital on measures of heavy alcohol consumption, alcohol abuse, harms, and secondhand effects: national survey findings. *J Epidemiol Community Health* 2005;59:303–309. [PubMed: 15767384]
- Westermeyer J. The drunken Indian: myths and realities. *Psychiatr Ann* 1974;4:29–63.
- Whitley R. Social capital and psychiatry: review of the literature. *Harvard Rev Psychiatr* 2005;13:71–84.
- Willoughby, KV. Unpublished master's thesis. University of New Mexico; Albuquerque, New Mexico: 1996. Progression of alcohol-related behaviors in a Navajo sample.
- Wills TA, Sandy JM, Yaeger AM, Cleary SD, Shinar O. Coping dimensions, life stress, and adolescent substance use: a latent growth analysis. *J Abnorm Psychol* 2001;110:309–323. [PubMed: 11358025]
- Zywiak WH, Longabaugh R, Wirtz PW. Decomposing the relationships between pretreatment social network characteristics and alcohol treatment outcome. *J Stud Alcohol* 2002;63:114–121. [PubMed: 11925053]

Table 1

Model of Log(10) Alcohol Volume Measured at Five Time Points for Treated and Untreated Dependent and Problem Drinkers

	Treatment sample coefficient	Untreated sample coefficient
Intercept	2.279	4.088
Wave	NS	-0.148
Demographic variables		
Men	0.587	0.561
White (vs Other)	NS	0.342
Wave × Men	NS	NS
Wave × White	NS	NS
Age	NS	0.017
Employed (vs Other)	NS	0.192
Income	NS	NS
Severity factors		
DSM-IV alcohol dependent (Baseline)	1.498	0.518
Wave × DSM-IV alcohol dependent	-0.186	-0.078
ASI Drug	1.031	NS
ASI Psychiatric	1.378	0.558
ASI Legal	NS	NS
ASI Medical	NS	NS
ASI Social	NS	NS
Formal contact		
Criminal Justice	0.315	NS
Medical	NS	NS
Welfare	NS	NS
Mental Health	-0.265	-0.154*
Informal influences		
Family Say Anything	2.826	0.892
Drug/Alcohol Social Network Size	0.024	0.033
# of AA Days	-0.0001	-0.013

* $p = 0.06$; All other numbers bolded are $p < 0.05$.

NS, not significant.