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Recovery definitions: Do they change?

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Abstract

Background—The term “recovery” is widely used in the substance abuse literature and clinical settings, but data have not been available to empirically validate how recovery is defined by individuals who are themselves in recovery. The “What Is Recovery?” project developed a 39-item definition of recovery based on a large nationwide online survey of individuals in recovery. The objective of this paper is to report on the stability of those definitions one to two years later.

Methods—To obtain a sample for studying recovery definitions that reflected the different pathways to recovery, the parent study involved intensive outreach. Follow-up interviews ($n = 1237$) were conducted online and by telephone among respondents who consented to participate in follow-up studies. Descriptive analyses considered endorsement of individual recovery items at both surveys, and t -tests of summary scores studied significant change in the sample overall and among key subgroups. To assess item reliability, Cronbach’s alpha was estimated.

Results—Rates of endorsement of individual items at both interviews was above 90% for a majority of the recovery elements, and there was about as much transition *into* endorsement as *out* of endorsement. Statistically significant t -test scores were of modest magnitude, and reliability statistics were high (ranging from .782 to .899).

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Conflict of interest

No conflict declared.

Contributors

Dr. Kaskutas conceptualized and implemented the study, developed the first draft of the manuscript, instructed co-authors on areas where their input was needed, managed the bibliography, designed the tables for the manuscript, and wrote much of the results and discussion sections and portions of the introduction and methods sections. Dr. Kaskutas wrote the response to the reviewers and implemented their suggested changes in the resubmission.

Dr. Grella directed the fieldwork, co-wrote the introduction to the paper and the portion describing the recontact protocol, provided key input on text for the discussion section, and suggested edits and provided thoughtful comments during iterations of the writing of the submitted paper and the resubmission.

Dr. Witbrodt conducted the statistical analyses, wrote the statistical analysis section of the methods, created the tables, co-wrote the statistical results and interpretation sections, and suggested edits and advice during the manuscript preparation and resubmission.

Drs. Kaskutas, Grella and Witbrodt have read and approved of the submission of our manuscript “Recovery definitions: do they change?” (MS. No. DH-15-0875) to *Drug and Alcohol Dependence*.

Conclusions—Longitudinal analyses found little evidence of meaningful change in recovery definitions at follow-up. Results thus suggest that the recovery definitions developed in the parent “What Is Recovery?” survey represent stable definitions of recovery that can be used to guide service provision in Recovery-Oriented Systems of Care.

Keywords

Recovery; Recovered; Remission; Natural recovery; Validity; Reliability

1. Introduction

1.1. Background

Ten percent of Americans age 18 and older in a national sample survey say that they “used to have a problem with drugs or alcohol but no longer do” (The New York State Office of Alcoholism and Substance Abuse Services (OASAS) 2012), and the terms “recovery” and “recovered” are widely used in the research literature and in clinical settings. For example, a search of Google Scholar between 1959 and 2012 showed a nearly exponential increase in the number of articles about substance abuse with “recovery” in the title in the past decade (Fig. 1). There also has been significant effort towards developing broad definitions of recovery (reviewed below), but data have not been available to empirically validate these definitions. Given the recent heightened attention to recovery in scholarly articles and the acknowledged need for a research-based definition of recovery (The Betty Ford Institute Consensus Panel, 2007), such data are especially relevant. This paper empirically examines a recovery definition based on a longitudinal study of 1237 individuals in recovery.

Several definitions of recovery have been put forward in the past, which made the point that recovery is something more than abstinence from, or reduction in, substance use. As early as 1982, the American Society of Addiction Medicine (ASAM) defined recovery as reaching “a state of physical and psychological health such that abstinence from dependency-producing drugs is complete and comfortable” (American Society of Addiction Medicine, 1982). In 2007, both the Betty Ford Institute and the Center for Substance Abuse Treatment published broad definitions of recovery based on panels convened by these organizations; these respectively defined recovery as “a voluntarily maintained lifestyle characterized by sobriety, personal health, and citizenship” (The Betty Ford Institute Consensus Panel, 2007), or as “a process of change through which an individual achieves abstinence and improved health, wellness and quality of life” (Center for Substance Abuse Treatment, 2007).

While representing an advance towards building a definition of recovery that goes beyond substance use or substance abuse diagnoses, these institutional definitions may not reflect how recovery is personally defined by the individuals in recovery. In addition, they reflect broad concepts rather than specific elements of recovery that could be used in clinical and research settings. In an effort to offer a more specific and empirically-based definition of recovery that was grounded in the experience of individuals who have experienced recovery, the “What Is Recovery?” project developed a 39-item definition of recovery based on an online survey with a large nationwide survey (summarized below). The objective of this

paper is to report on the stability of those definitions among the subset of respondents who participated in a follow-up study one to two years later.

1.2. The “What Is Recovery?” study

The goal of the parent “What Is Recovery?” project was to obtain a sample for studying recovery definitions that reflected the heterogeneity of recovery in terms of demographics, recovery pathway, and recovery beliefs. Intensive outreach was undertaken with local and national study partners who notified their constituents of the study and gave them the study website (<http://www.WhatIsRecovery.org>). Details of the extensive recruitment effort can be found in (Subbaraman et al., in press). A total of 9341 individuals who considered themselves as in recovery, recovered, in medication-assisted recovery, or as having had an alcohol or drug problem completed a 47-item Internet-based survey.

Exploratory and confirmatory factor analyses resulted in a four-factor solution involving 35 recovery elements; the four factors are abstinence, essentials of recovery, enriched recovery, and spirituality. Four additional uncommon items that did not load on any factor were retained to represent recovery definitions that were endorsed by key subgroups in recovery. Eight redundant, nondiscriminatory items that were conceptually similar (and demonstrated similar patterns of support with other items) were deleted. The recovery definition thus included 35 recovery elements that loaded on four factors plus four uncommon elements (39 total).

Support for the 35 recovery elements in the four factors was high; see (Kaskutas et al., 2014). For example, 24 of the elements were endorsed by over 95% of the respondents, and only one item was endorsed by fewer than 80% of the sample. The items with the highest level of support were: *[recovery is] handling negative feelings without using drugs or drinking like I used to*—endorsed by 97%; *being able to enjoy life without drinking or using drugs like I used to*—98%; *being honest with myself*—99%; *taking responsibility for the things I can change*—98%; and *a process of growth and development*—99%. Re-test responses a week later were concordant, with 95% of the re-test sample ($n = 200$) endorsing a given item at both administrations. Taken together, these results suggest that these elements of recovery are reliable and receive widespread support among a large, heterogeneous group of individuals in recovery.

The next step in the “What Is Recovery?” project was to contact respondents who provided re-contact information for future studies, to determine whether these recovery elements continue to reflect their definition of recovery. We hypothesize that those with less time in recovery would be more likely change their view(s) of recovery than those with stable, longer-term recovery (five years or more). Prior research has suggested that five years of abstinence is associated with stable recovery and a significant reduction in odds of future relapse (Dennis et al., 2007; Hser et al., 2007; Sobell et al., 2000, 2002).

We also examine whether recovery definitions changed differentially based on substance use status at baseline (abstinent versus moderated use). Although there is some history of moderated or controlled drinking as one goal of treatment for alcohol problems, there is less acceptance of controlled drug use as a treatment goal; however, research has shown some

acceptance of these goals among clinicians (Davis and Rosenberg, 2013; Rosenberg and Davis, 2014; Rosenberg and Melville, 2005). Therefore, we examine whether complete abstinence versus moderation was associated with stability in recovery definitions, hypothesizing that there would be no differences.

Should endorsement of these recovery elements remain high for over a year, this would indicate that the pool of 35 recovery elements developed in the project, and the resultant four distinct conceptual factors derived from the prior analyses, could represent a reasonable and empirically-derived starting point for providers to use in guiding the mix of services they offer to support recovery. This approach is consistent with the goals of “Recovery-Oriented Systems of Care (ROSC),” which are a response to the recognition that addiction is a chronic disease requiring ongoing care (McLellan et al., 2000; White, 2009a; White et al., 2002). As opposed to the current acute-based approach to treatment of substance abuse disorders, a ROSC is a coordinated network of community-based services and supports that are designed to promote recovery across the lifespan (Sheedy and Whitter, 2009; Whitter et al., 2010). ROSCs build upon existing systems of care and support, including addiction treatment, mental health services, primary care, and peer support (White, 2009b). However, there is an evolving need for “operationalizing recovery-oriented systems of care and developing core measures, promising approaches, and evidence-based practices” (Sheedy and Whitter, 2009), and for “broader inclusion of the voices of individuals in recovery in developing outcome measures” (Sheedy and Whitter, 2009) as we have done here.

2. Material and methods

2.1. Sample

Among the 9341 respondents who completed the baseline interview between July 15 and October 31, 2012, 5667 (61%) gave their consent to be re-contacted for future recovery studies and provided either a telephone number, an email, or both: 1326 provided an email address only, 100 gave a telephone number only, and 4241 gave both types of contact information. The consent form specified that they would only receive a single email regarding future follow-up studies; it did not specify the number of telephone call-back attempts, so we called repeatedly, leaving messages whenever possible, throughout the six-month fieldwork period. We attempted to contact individuals who had given telephone numbers only, sent emails to those who provided an email address, and made follow-up calls to those with an email address who had not completed the online survey within one week.

Respondents to the follow-up survey provided informed consent using procedures approved by the Institutional Review Board of the Public Health Institute. The follow-up surveys were conducted from November 6, 2013 to May 30, 2014. The follow-up interval thus ranges between 13 months (baseline survey completed in October, 2012 and follow-up survey completed in November, 2013) and 23 months post-baseline (i.e., baseline completed in July, 2012 and follow-up completed in May, 2014).

The telephone follow-up effort was conducted by the UCLA Integrated Substance Abuse Programs (ISAP) in collaboration with online support from the Alcohol Research Group. The online survey was created using SurveyGizmo®. Respondents receiving emails were

provided with a personal website “click here” address that took them to the online survey and allowed us to link their follow-up survey to their baseline survey. Respondents reached by telephone were offered the option of completing their survey by telephone or online; the latter group was resent an email with their personal “click here” address, at their request.

The fieldwork effort (i.e., sending emails and making telephone calls) used a system for prioritizing respondents who were under-represented in the parent sample (e.g., younger, minority, less educated,) or who were of interest for targeted analyses (e.g., individuals who heard about the study through self-help groups, or in natural recovery). Successive batches of emails were sent out at approximately two-week intervals, in order of descending priority. In this way, there was a longer period for potential re-contact of the groups at highest priority, and less opportunity to re-contact individuals who were overrepresented in the sample. Among those we tried to call, 1803 telephone numbers were non-working and seven respondents were impaired, and among those we tried to email, 461 were rejected as undeliverable. Thus, a total of 2271 individuals are considered “non-interviewable.”

The survey took approximately 20 min to complete (either online or by telephone). A total of 1237 surveys were completed, yielding a response rate of 22% (1237/5667). The less conservative cooperation rate, which excludes the non-interviewable subjects (i.e., deceased, no valid telephone number or email, determined to be not able to complete interview due to cognitive impairment) from the denominator, is 36% ($1237/(5667-2271) = 1237/3396$). This rate is consistent with those reported for cross-sectional online surveys (Nulty, 2008); we were unable to locate reviews of response rates from longitudinal online surveys.

2.2. Measures

Sample characteristics are shown in Table 1. Questions from the baseline survey whose answers are used in our analysis include demographics, lifetime service utilization, substance misuse history, and current substance use, described in (Kaskutas et al., 2014). These variables are used to study the potential response bias associated with the follow-up design (see Table 1).

Both surveys included elements of the recovery definition (Table 2). Four response categories were available to indicate endorsement of each of the 39 recovery elements: (1) definitely belongs in your definition of recovery; (2) somewhat belongs in your definition of recovery; (3) does not belong in your definition of recovery, but may belong in other people’s definition of recovery; and (4) does not really belong in a definition of recovery.

2.3. Analysis

To determine the response bias arising from the longitudinal design, three sets of bivariate associations were estimated. The first set of analyses studied the potential bias that was initially introduced because some of the baseline respondents were not willing to participate in a follow-up study; to address this, we compared the baseline respondents who agreed to be re-contacted and provided contact information ($n = 5667$) to those who did not ($n = 3674$) on key variables (e.g., demographics, substance use history, and service utilization). Next, to determine whether the follow-up sample of respondents is representative of the original

baseline sample, the second set of bivariate analyses compared those who completed the follow-up survey ($n = 1237$) to those who had only completed the baseline survey ($n = 8104$) on the same key variables. The third set of bivariate analyses focuses on the potential bias associated with loss to follow-up; these analyses compared those who completed the follow-up survey ($n = 1237$) to those who provided re-contact information but did not complete the survey ($n = 4430$) on key variables. To account for the large number of tests conducted because of these three sets of analyses, we correct for alpha inflation by setting the p -value lower; statistical significance is set at $p = .0167$ (.05/3).

To explore the stability of personal endorsement and non-endorsement of the 39 retained recovery items, we constructed a four-category variable that captured (1) personal endorsement of the item in both surveys, (2) transition into personal endorsement at follow-up, (3) transition into non-endorsement at follow-up, and (4) non-endorsement at both follow-ups. As used here, the term “personal endorsement” refers to respondents who had either chosen definitely belongs in their definition of recovery or somewhat belongs in their definition of recovery for a given item; and “non-endorsement” applies to respondents who had indicated that the item either does not belong in their definition of recovery, but may belong in other people’s definition of recovery or that it does not really belong in a definition of recovery. This item-by-item exploration (see Table 2) was descriptive; i.e., no statistical tests were conducted.

We then turned to a statistical analysis of the stability of the four factors that arose from the factor analysis conducted in the parent study: abstinence, essentials, enriched and spirituality (Kaskutas et al., 2014). These are shown in Table 3. First, to assess the reliability of items within each factor, Cronbach’s alpha, a coefficient of internal consistency, was estimated. Cronbach’s alpha can be written as a function of the number of test items and the average inter-correlation among the items (Cronbach, 1951). For subsequent tests, factor scores were created by summing items within each factor, with responses assigned the following values: 0 = does not belong, 1 = may belong, 2 = somewhat belongs, 3 = definitely belongs.

To evaluate the effect of time on respondents’ factor scores, paired t -tests (baseline versus follow-up) were conducted for each of the four factors. This was done for the sample overall, and disaggregated based on recovery duration (≤ 5 years and >5 years) and on abstinence status at baseline (abstinent and non-abstinent). To take into consideration the multiple tests of change over time for the four factors of the recovery definition, corrections were made; statistical significance is thus judged at $p = .0125$ (.05/4).

3. Results

3.1. Differences associated with refusal to be re-contacted and with loss to follow-up

Table 1 shows (column 1) the sample distribution at baseline, (column 2) the distribution of the subsample who agreed to be re-contacted and provided contact information, and (column 3) the sample distribution at follow-up. In the three sets of bivariate analyses of potential sample bias, many significant ($p < .05$) differences were found due to refusal to provide re-contact information and from loss to follow-up, but most were of modest magnitude (i.e., <5% difference in proportions). Compared with those not included in the follow-up, the

follow-up sample was slightly older, more educated, employed full time and with more years in recovery. Significant sample-wise differences that arose from the three sets of bivariate analyses are noted by subscripts in Table 1.

3.2. Endorsement of recovery elements across survey administrations (Table 2)

3.2.1. Abstinence factor (three elements)—Four-fifths of the respondents personally endorsed the abstinence element *no use of alcohol* at both baseline and follow-up (first column of Table 2), and another 6% endorsed it at follow-up who had not done so at baseline (second column). However, some respondents who had originally endorsed the element did not endorse it at follow-up (8%; third column). Another 5% of the sample never endorsed the element, either at baseline or follow-up (fourth column). A similar pattern of endorsement stability/instability obtained for the second in this factor, *no abuse of prescribed medication*, and the magnitudes of endorsement and non-endorsement were similar for the two elements. The third element in this factor, *no use of non-prescribed drugs*, was not as widely endorsed, nor was endorsement as stable: only 64% endorsed it at both surveys, 12% moved into endorsement and 15% moved out of endorsement at follow-up, and 9% never endorsed it.

3.2.2. Essentials factor (15 elements)—For all but one of the elements in this factor, levels of endorsement were quite high at both administrations (88% or greater), the levels of non-endorsement at both interviews were quite low (0.3–2.5%), and there was about as much transition *into* endorsement (1.1–5.4%) as *out of* (0.9–4.8%) endorsement. However, the element trying to live in a place *that is not overrun with alcohol or drugs* was endorsed both times by only about three-quarters of the sample, with another 10% endorsing it at follow-up but 7% moving out of endorsement at follow-up; 5% never endorsed the element.

3.2.3. Enriched factor (10 elements)—All of the elements in this factor were endorsed at both administrations by over 90% of the sample, and the levels of non-endorsement at both interviews were low (0.1–1.6%); thus there were low levels of transition into or out of endorsement (respective ranges are 1.3–4.7% and 0.7–3.4%).

3.2.4. Spirituality factor (seven elements)—Four elements in this factor were endorsed in both surveys by 85% or more of the respondents, and the proportions moving into endorsement, moving out of endorsement, and never endorsing each item were similar (e.g., 2.2% transitioned into endorsement, 2.2% transitioned out of endorsement, and 1.6% never endorsed the item recovery is being grateful). Notably, none of these four elements involve the word ‘spiritual’ or ‘spirituality’—unlike the other three elements in the factor, which were endorsed in both surveys by only 74–79% and had fairly high levels of non-endorsement at both surveys (9.7–11.1%) as well as transition both into and out of endorsement (4.5–8.6%).

3.3. Reliability and change in factor scores over time (Table 3)

3.3.1. Reliability—The reliability results (see Table 3) yielded Cronbach alpha coefficients of .782, .899, .892, and .872 respectively for the abstinence, essentials, enriched, and

spirituality factors' coefficients $>.70$ are considered high. These coefficients are very similar to those estimated for the parent baseline sample (Kaskutas et al., 2014).

3.3.2. Changes in factor scores—In the paired *t*-tests to evaluate how much each respondents' endorsement of the set of elements in each of the four factors had changed between baseline and follow-up, significant but small increases in mean factor scores were found for the enriched factor from baseline (2.80) to follow-up (2.83) in the sample overall (Table 3). No significant differences emerged across time for the abstinence, essentials, or spirituality factors.

None of the stratified *t*-tests focusing on recovery duration over time were statistically significant. When considering changes in mean factor scores disaggregated by abstinence status at baseline, one very small but nonetheless statistically significant increase was found: on the enriched factor scores, among the abstinent group only (2.82 at baseline, 2.83 at follow-up).

4. Discussion

4.1. Significance of the results

The elements of recovery presented here are specific examples of the way of being that recovery entails, as envisioned by those with experiential knowledge of recovery. As such, they complement the broad recovery definitions put forward by ASAM, CSAT, and the Betty Ford Institute. The descriptive longitudinal analysis of how respondents' definitions of recovery changed over time provides additional evidence that the recovery elements reported at baseline in the "What Is Recovery?" study are valid representations of how individuals in recovery actually define recovery. We found continued widespread acceptance of the individual elements, against a backdrop of very modest, equal transition towards and away from endorsement at follow-up. The statistical analyses of the stability of the four factors in the sample overall, with high reliability and modest change over time, serve to further validate the recovery definition.

We had hypothesized that changes in recovery definitions would be more likely among those who had not yet crossed the five-year threshold that is often associated with stable recovery and less future relapse. This hypothesis was not supported, suggesting that the definition of recovery can be grasped (if not necessarily realized) early on. If replicated, this could have implications for providers who may otherwise have felt that those relatively new to recovery are unprepared to understand what recovery is all about. The elements of recovery could be used as topics for process groups in Recovery-Oriented Systems of Care.

We did detect small changes in enriched factor scores among those who were abstinent at baseline (which we had not hypothesized) and in the sample overall. The increases were only 0.01 and 0.03 respectively, of little practical significance for understanding the stability of recovery definitions over time.

4.2. Limitations

This study has several important drawbacks. First, we cannot claim that the original sample of 9341 individuals (upon which the longitudinal study was based) is representative of the population of individuals who used to have problems with alcohol and drugs and/or identify as being “in recovery,” “recovered,” “in medication-assisted recovery,” or “used to have a problem an alcohol or drug problem, but don’t any more.” Individuals who completed the initial survey were likely to be interested in the topic of recovery, as well as comfortable with the online survey administration. Related, there were small but significant response biases between those who did and did not consent to be followed, and between those in the former group who were vs. were not successfully re-surveyed. However, ours is the first large-scale longitudinal study dedicated to the topic of defining recovery among a heterogeneous group of individuals in recovery, and as such is but a first step in understanding recovery over time, awaiting replication.

For most of the individual elements, the rates for moving into or out of endorsement were quite low (2–5%). Given the high levels of endorsement that were sustained over time, there may be a ceiling effect operating, such that there is less room to move into endorsement than away from endorsement. This was a bit less so for the elements with “spiritual” in the wording, and for the elements in the abstinence factor. Future research might consider, for example, whether those who change their views about moderation in favor of abstinence also tend to report concurrent changes from moderate use status to abstinence to (and vice versa). In our followed sample, the number of individuals who became non-abstinent during the follow-up period was too low ($n = 37$) to permit such analyses.

4.3. Conclusions

Results suggest that the recovery definitions developed in the parent “What Is Recovery?” survey of 9341 individuals in recovery represent stable definitions of recovery that can be used to guide service provision in Recovery-Oriented Systems of Care. They offer researchers an alternative to defining recovery in terms of substance use status, or remission from a substance abuse diagnosis, as has often been the case in the past (Laudet, 2007). Future studies can continue to examine the stability of beliefs about how recovery is defined, as indicated by the recovery elements, particularly in relation to behavioral outcomes with regard to alcohol and drug use, quality of life, and overall functioning.

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Fig. 1.
Growth in number of articles about recovery.

Table 1

Sample characteristics: Baseline sample; sub-group with re-contact information; and sub-group successfully re-interviewed. Superscripts indicate significant differences in characteristics (a) between those providing contact information vs. not, among the baseline sample, (b) between those re-interviewed vs. not, among the baseline sample, and (c) between those re-interviewed vs. not, among those providing contact information.

		Interviewed at baseline <i>n</i> = 9341	Provided Re- contact data <i>n</i> = 5667	Interviewed at follow-up <i>n</i> = 1237
Characteristic		%	%	%
Gender	Female	54	55	53
Age ^{b,c}	18–20	1	1	<1
	21–35	17	17	13
	36–50	32	33	28
	51–65	41	41	46
	66+	9	9	12
Highest level of education ^{a,b,c}	<High school graduate/GED	12	11	6
	Some college/vocational degree	39	40	36
	Bachelor's degree	50	49	58
Marital status ^{a,b,c}	Married/marriage-like relationship	49	48	54
	Divorced/separated/widowed	28	30	27
	Never married	23	21	18
Ethnicity	Hispanic or Latino	5	5	4
Race ^c	White	88	88	90
	Black/African-American	8	8	7
	Other	4	4	3
Employment status ^b	Employed	62	65	67
Primary substance of choice ^{a,c}	Alcohol	59	58	62
	Cocaine/crack	10	11	10
	Marijuana	5	4	5
	Heroin/other opiates	11	10	10
	Methamphetamine	7	7	6
	Prescription “uppers” or “downers”	3	3	2
	Acid/ecstasy/other	1	6	6
Problem severity ^a	DSMIV dependence	98	98	99
Self-label re: prior alcohol or drug use ^{a,b,c}	In recovery	75	76	76
	Recovered	13	13	15
	In medication-assisted recovery	3	3	2
	Used to have alcohol/drug problem	9	8	7
Length of time in self-defined status ^{a,b,c}	Less than 1 year	15	14	9
	Between 1 and 2 years	10	10	8
	Between 2 and 3 years	7	8	6
	Between 3 and 5 years	12	12	11
	Between 5 and 10 years	16	17	17

		Interviewed at baseline <i>n</i> = 9341	Provided Re- contact data <i>n</i> = 5667	Interviewed at follow-up <i>n</i> = 1237
Baseline substance use behavior ^{a,b}	Between 10 and 20 years	17	17	18
	20 years or more	23	23	30
	Abstains from both alcohol and drugs	84	85	86
	Abstains from alcohol only	3	2	3
	Abstains from drugs only	11	10	8
Belief about recovery in terms of substance use ^{a,b,c}	Uses both alcohol and drugs	2	2	2
	Abstinence	87	88	88
	No use of substance of choice	4	4	5
	Moderated use of substances	9	8	6
Specialty treatment ^{a,c}	Lifetime attendance	72	74	72
Mutual-help ^a	Lifetime attendance	95	97	97
Quality of Life ^{b,c}	Poor	2	2	1
	Neither poor nor good	9	9	6
	Good	36	36	33
	Very good	53	53	59
	Other	24	23	22
Study recruitment venue ^{a,b,c}	Social Media, Craigslist, Ads	24	25	22
	Word of mouth	16	15	14
	Recovery organizations	12	14	16
	Self-help groups	12	12	16
	Treatment alumni groups	12	11	10

^a Cases with contact information (*n* = 5667) vs. no contact information (*n* = 3674), *p* = .0167.

^b Follow-up cases (*n* = 1237) vs. not followed cases (*n* = 8104), *p* = .0167.

^c Follow-up cases (*n* = 1237) vs. not followed re-contact cases (*n* = 4330), *p* = .0167.

Table 2

Endorsement of recovery elements across survey administrations.

	Endorsed in both surveys %	Moved into endorsement at follow-up %	Moved out of endorsement at follow-up %	Never endorsed item %
Abstinence factor				
No use of alcohol	80.2	6.4	8.1	5.3
No abuse of prescribed medication	79.1	9.9	7.7	3.3
No use of non-prescribed drugs	64.4	12.1	14.6	9.0
Essentials factor				
Being honest with myself	97.5	1.1	.9	.5
Being able to enjoy life without drinking or using drugs like I used to	96.7	1.5	1.6	.2
Changing the way I think through things	95.1	2.4	1.9	.7
A realistic appraisal of my abilities and my limitations	93.5	2.5	3.1	.8
Handling negative feelings w/o using drugs or drinking like I used to	95.4	2.3	2.0	.3
Dealing with mistakes	89.2	3.8	4.8	2.1
Being able to deal with situations that used to stump me	92.8	3.8	2.4	1.1
Freedom from feeling physically sick because of my drinking or using	89.6	5.4	3.1	1.9
Not replacing one destructive dependency with another	94.0	2.4	2.5	1.0
Taking care of my mental health more than I did before	93.3	3.4	2.5	.7
Striving to be consistent with my beliefs and values in activities that take up the major part of my time and energy	92.2	3.8	2.5	1.0
Trying to live in a place that is not overrun with alcohol or drugs	77.9	9.5	7.3	5.3
Getting along with family or friends better than I did before	87.8	5.3	4.7	2.1
Being able to have relationships where I am not using people or being used	88.6	5.4	3.5	2.5
Having people around me who know how to get through life w/o using alcohol or drugs like they used to	88.4	4.4	4.8	2.5
Enriched factor				
A process of growth and development	97.9	1.3	.7	.1
Developing inner strength	93.9	3.3	2.2	.6
Having tools to try to feel inner peace when I need to	95.1	2.4	1.9	.6
Improved self-esteem	92.5	3.1	2.9	1.5
Reacting to life's ups and downs in a more balanced way than I used to	96.4	1.7	1.8	.1
Taking responsibility for the things I can change	97.1	1.4	1.1	.4
Living a life that contributes to society, to your family, or to your betterment	95.1	1.5	2.5	.9
Being the kind of person that people can count on	91.6	3.3	3.4	1.6
Taking care of my physical health more than I did before	96.0	2.1	1.2	.7
Learning how to get the kind of support from others that I need	91.5	4.7	2.5	1.3

	Endorsed in both surveys %	Moved into endorsement at follow-up %	Moved out of endorsement at follow-up %	Never endorsed item %
Spiritual factor				
Being grateful	94.0	2.2	2.2	1.6
Appreciating that I am part of universe, something bigger than myself	85.8	5.1	4.5	4.6
Feeling connected to a spiritual being or force that helps me deal with difficulties	78.1	5.6	5.2	11.1
About helping other people to not drink or use drugs like they used to	88.9	3.8	3.8	3.5
About giving back	90.0	3.7	2.2	3.2
Becoming more open-minded about spirituality	79.4	6.4	4.5	9.7
Spiritual in nature and has nothing to do with religion	74.4	8.6	7.1	9.9
Unusual items				
Non-problematic alcohol or drug use	10.4	13.7	10.6	65.3
No use of tobacco	21.6	17.3	12.8	48.2
Religious in nature	10.1	5.5	8.3	76.0
Physical and mental in nature and has nothing to do with spirituality or religion	18.9	14.2	8.7	58.2

Table 3

Factor reliability and change in factor scores over time.

	Factors			
	Abstinence	Essentials	Enriched	Spirituality
Reliability^a				
Baseline (<i>n</i> = 9341)	.744	.902	.874	.869
Follow-up (<i>n</i> = 1237)	.782	.899	.892	.872
Change in factor scores				
<u>Overall sample</u>				
Baseline mean (SD)	2.56 (.77)	2.75 (.39)	2.80 (.36)	2.58 (.58)
Follow-up mean (SD)	2.53 (.72)	2.77 (.37)	2.83 (.34)	2.59 (.56)
Paired <i>t</i> -test results	<i>t</i> (1221) = -1.12	<i>t</i> (1234) = 2.24	<i>t</i> (1235) = 3.03, <i>p</i> = .002	<i>t</i> (1234) = .80
<u>Disaggregated by time in recovery at baseline</u>				
5 years				
Baseline mean (SD)	2.49	2.74 (.40)	2.80 (.37)	2.45 (.66)
Follow-up mean (SD)	2.50	2.77 (.34)	2.84 (.33)	2.48 (.62)
Paired <i>t</i> -test results	<i>t</i> (420) = -.33	<i>t</i> (429) = 2.01	<i>t</i> (429) = 2.47	<i>t</i> (428) = 1.58
>5 years				
Baseline mean (SD)	2.59	2.75 (.39)	2.80 (.37)	2.66 (.52)
Follow-up mean (SD)	2.56	2.77 (.38)	2.83 (.33)	2.65 (.52)
Paired <i>t</i> -test results	<i>t</i> (798) = -1.13	<i>t</i> (802) = 1.13	<i>t</i> (803) = 2.06	<i>t</i> (803) = -.17
<u>Disaggregated by abstinence status at baseline</u>				
Abstinent				
Baseline mean (SD)	2.64	2.77 (.38)	2.82 (.35)	2.66 (.51)
Follow-up mean (SD)	2.60	2.80 (.35)	2.83 (.32)	2.65 (.52)
Paired <i>t</i> -test results	<i>t</i> (1046) = -1.24	<i>t</i> (1059) = 2.41	<i>t</i> (1059) = 2.89, <i>p</i> = .004	<i>t</i> (1058) = .56
Moderated use				
Baseline mean (SD)	2.06	2.59 (.44)	2.72 (.40)	2.16 (.74)
Follow-up mean (SD)	2.06	2.60 (.44)	2.75 (.41)	2.19 (.71)
Paired <i>t</i> -test results	<i>t</i> (166) = 0	<i>t</i> (167) = .27	<i>t</i> (167) = 1.03	<i>t</i> (167) = .60

SD = standard deviation.

Non-significant *p*-values (<.0125) not shown; Eta squared values for the five significant *t*-tests all indicated small effect sizes (.01).^aCronbach's alpha coefficient.