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The relationship between recovery and health-related quality of life

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ABSTRACT

Building upon recommendations to broaden the conceptualization of recovery and to assess its relationship with health-related quality of life (HRQoL), this study addressed three primary aims. These included: 1) testing the model fit of a hypothesized latent measure of recovery, 2) examining the extent to which this multidimensional measure of recovery was associated with concurrently measured HRQoL, and 3) examining the extent to which this multidimensional measure of recovery predicted changes in HRQoL during the subsequent year. Data were from 1,008 adults who completed follow-up assessments at 15 and 16 years post-intake. Confirmatory factor analysis indicated a good fit for a hypothesized recovery measure (CFI = .98; RMSEA = .06). Additionally, structural equation modeling suggested that this recovery measure was not only concurrently associated with HRQoL ($\beta = .78$, $p < .001$), but was also a significant predictor of changes in HRQoL during the subsequent year ($\beta = .25$, $p < .001$).

1. Introduction

Recovery is a multidimensional concept that goes well beyond abstinence. Alcoholics Anonymous' (1939) *Big Book* provided a key turning point for the recovery movement when it described the process of recovery as not only involving abstinence from alcohol, but also developing new strategies for living sober across a number of domains. Similarly, Jellinek's (1960) *The Disease Concept of Alcoholism* defined both the descent into alcoholism and recovery in terms of use and abstinence, as well as in terms of the vast array of problems resulting for the individuals, their family, and society. In the second key turning point of the recovery movement, Edwards and Gross (1976) defined the "alcohol dependence syndrome" which was subsequently generalized to other drugs, and today remains the foundation for the modern definition of substance use disorders (SUD; APA, 2013). Thus, while substance "use" is a necessary condition for SUD to occur, it is interesting to note that no amount of use or abstinence is part of the definition of either having an SUD or being in remission/recovery. Given that recovery support services are included in the Affordable Care Act Essential Benefits (45 CFR part 156) with the likely consequential push to evaluate these services, there is an increasingly urgent need to advance the field in terms of defining recovery, as well as the development and validation of recovery measures.

While there has been considerable research on the definition, reliability, and validity of SUD as a measure of the problem, much less work has been done to date on defining, validating, and measuring "recovery." There is, however, a growing consensus that recovery is more than simply abstinence from alcohol and other drugs (Betty Ford Institute Consensus Panel, 2007; IOM, 2006; Laudet, 2007, 2008; Maddux & Desmond, 1986; SAMHSA, 2012; White, 2007, 2012; Witkiewitz, 2013). While these groups vary in how they define recovery, most conceptualize recovery as being multidimensional and including abstinence/sobriety, as well as improvements in other problems (e.g., mental or physical), and satisfaction with environment and relationships with others (referred to as "citizenship" by the Betty Ford Institute Consensus Panel).

Across many chronic conditions, there has been a parallel growing interest in going beyond just reduction in disease-specific symptoms to also evaluate course and interventions in terms of measures of quality of life or health-related quality of life (HRQoL) measures (Donovan, Mattson, Cisler, Longabaugh, & Zweben, 2005; Gold, Siegel, Russell, & Weinstein, 1996; Laudet, 2011; Morgan, Morgenstern, Blanchard, Labouvie, & Bux, 2003; Saarni et al., 2006). HRQoL typically focuses on the effects of a disease on an individual's health and have been the focus of early research in the SUD field (Burgess et al., 2000; Tracy et al., 2012). In general, the extant literature suggests that "samples" who report having an SUD, also report poor HRQoL (e.g., De Maeyer, Vanderplasschen, & Broekaert, 2010; Karow et al., 2010; Morgan et al., 2003; Nosyk et al., 2011; Préau et al., 2007; Robinson, 2006). Nonetheless, several researchers have noted that HRQoL research within the addictions field remains stalled in the early stages and has yet to examine its relation to a broader measure of recovery as discussed above (Laudet, 2011; Tracy et al., 2012).

In an effort to build upon both recommendations to broaden the conceptualization of recovery and to assess its relationship to HRQoL as an additional outcome of importance, the current study sought to address three primary aims: 1) test the model fit of a hypothesized

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latent measure of recovery, 2) examine the extent to which this multidimensional measure of recovery is associated with concurrently measured HRQoL, and 3) examine the extent to which this multidimensional measure of recovery predicts changes in HRQoL during the subsequent year.

2. Methods

2.1. Data source

Data are from the *Pathways to Recovery Study* (e.g., Dennis, Foss, & Scott, 2007; Dennis, Scott, Funk, & Foss, 2005; Scott, Dennis, Laudet, Funk, & Simeone, 2011; Scott, Foss, & Dennis, 2005), which is a longitudinal study that began in 1996. Between 1996 and 1998 a cohort of 1,326 adults (85% participation rate) were recruited from sequential admissions to a network of 22 substance use treatment programs, which included: ten outpatient drug-free programs, five intensive outpatient drug-free programs, three methadone maintenance programs, two short-term inpatient programs, one long-term inpatient program, and one halfway house. In order to be eligible, participants had to: a) reside in the city of Chicago or declare themselves homeless, b) report alcohol or drug use in the past 6 months (or the 6 months before being in a controlled environment), c) present for treatment at one of the publicly-funded treatment programs in the study, and d) be 18 years of age or older. Individuals seeking treatment as a result of a DUI level 2 or higher conviction were excluded because their treatment placement decisions were typically made outside the treatment system being studied (i.e., by a court officer). Informed and voluntary consent to participate was sought under the supervision of the state's and Chestnut Health Systems' Institutional Review Board.

2.2. Study procedures

Utilizing the follow-up management model described by Scott (2004), participants were interviewed at 6-months, 18-months, 2-years, 3-years, 4-years, 5-years, 6-years, 7-years, 8-years, 9-years, 15-years, and 16-years post-intake, with year-17 and year-18 currently scheduled to be completed. Participants received $100 for completion of the year-15 interview and $110 for completion of the year-16 interview. For both interviews, participants received an additional $10 if they completed their interview within 7 days of the targeted follow-up date. On average, each interview lasted 128 minutes.

2.3. Study participants

Participants for the current study were those individuals who completed follow-up interviews at both years-15 and 16 (N = 1,008; 93% of eligible sample), which were the first 2 years that included measures of HRQoL (i.e., primary dependent measure for the current study). The sample was predominately female (63%) and African American (90%) with an average age of 48 (*SD* = 7.3) at the year-15 interview. Clinically, 87% of the sample self-reported criteria for lifetime SUDs based on the new criteria in the *Diagnostic and Statistical Manual Version V* (*DSM-V*; APA, 2013), including for cocaine (49%), opiates (33%), alcohol (20%), and/or marijuana (5%). Many also reported major co-occurring problems related to physical health (41%), or disabilities (23%), and/or mental health (34%), or cognitive impairment (11%). At the time of the year-15 interview, 32% were in full sustained remission (no symptoms for past-year while living in the community), 6% were incarcerated, 24% were in treatment, and 37% were still using substances in the community. At the time of the year-16 interview, 44% were in full sustained remission (no symptoms for past year while living in the community), 6% were incarcerated, 13% were in treatment, and 44% were still using substances in the community.

2.4. Measures

2.4.1. Recovery measures

As also noted in the Introduction, there is growing consensus that the conceptualization of recovery should not be restricted to measures of abstinence/sobriety, but should be expanded to include other important dimensions. Below are descriptions of several measures that were collected as part of the *Pathways to Recovery Study* and which we believe most fully and accurately represent the key dimensions of recovery posited by others (e.g., Betty Ford Institute Consensus Panel, 2007; IOM, 2006; Laudet, 2007, 2008; Maddux & Desmond, 1986; SAMHSA, 2012; White, 2007, 2012; Witkiewitz, 2013). Table 1 provides descriptive statistics for each of the study measures, which are described below.

Physical and Mental Health Problems were assessed using the Addiction Severity Index's (McLellan et al., 1992) medical composite score and psychological composite score. The medical composite score is a composite of the number of days participants have been bothered by any health or medical problems, how bothered they were by these problems, and how important treatment was for these problems. The psychological composite score is the average of seven past-month types of psychological problems (e.g., whether they took prescribed medication in the past month; days experienced these problems divided by 30 days; a 0 to 4 rating of how bothered they were by these problems, and how important treatment was for these problems, each divided by 4).

Sobriety was defined in terms of years of continuous abstinence from alcohol and other drugs using the longitudinal expert all data (LEAD) standard (Dennis et al., 2007; Kranzler, Tennen, Babor, Kadden, & Rounsaville, 1997). This measure represents the total number of years of abstinence from alcohol and other drug use reported by the participant as of the 15-year interview. If they reported any use in the past year or were positive on a urine screen, this was reduced to 0. Years of abstinence was also reduced based on if they reported more recent use or had a positive urine screen more recently at any earlier wave of data collection. As part of sensitivity analyses, we evaluated “percent of time abstinent” or “duration of continuous abstinence” as alternative measures, but years of continuous abstinence resulted in the best model fit.

Satisfaction with environment and relationships was measured with the General Satisfaction Index (GSI; Dennis, Titus, White, Unsicker, & Hodgkins, 2003). The GSI is a sum of six yes/no questions that ask participants to indicate if they are satisfied with: 1) where they are living, 2) their family relationships, 3) their sexual or marital relationships, 4) their school or work situations, 5) how they spend their free time, and 6) the extent to which they are coping with or getting help with their problems.

Daily functioning was measured using the Activities of Daily Living scale from the Center for Disease Control's Behavioral Risk Factor Surveillance System (http://www.cdc.gov/brfss/). The Activities of Daily Living scale represents the average of 13 items that assess the extent to which individuals need help with several daily activities (e.g., take care of yourself, such as eating, bathing, grooming, dressing

Table 1
Descriptive statistics for model measures.

	Year 15 (n = 1,008)	
Variable	Mean (*SD*)	
Physical health problems	0.26	(0.29)
Mental health problems	0.13	(0.20)
Sobriety	2.47	(4.20)
Satisfaction with environment and relationships	4.33	(1.88)
Daily functioning	49.56	(4.01)
Health-related quality of life (HRQoL) at year 15	0.76	(0.29)
Health-related quality of life (HRdQoL) at year 16	0.77	(0.28)