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Effect of Age and Number of Treatment Periods on Readiness to Quit Drinking

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Abstract

Treatment of alcohol abuse and dependence has been the subject of much discussion given the high rates of relapse and the ever-growing number of alcohol users worldwide. Motivation to quit drinking is regarded as a key factor in determining successful treatment and long-term abstinence. The six stages of change provided by Prochaska and DiClemente's transtheoretical model of behavioral change has remained the gold standard in assessing the level of motivation of patients in recovery. In this study, motivation, or readiness to change, was compared between groups based on age (above and below 30 years) and number of treatment periods (first time and multiple times). Among a sample of 124 participants (mean age = 35.7 years), who had been admitted into residential rehabilitation centers in Bangalore, India, for alcohol-related problems, the eighth version of the Stages of Change Readiness and Treatment Eagerness Scale (SOCRATES 8A) was administered. It was found that there were no main effects of age of patient or number of treatment periods on readiness to quit among clients. It was also found that there was no interaction between age of clients and number of treatment periods. These results suggest that motivation/readiness is largely state-dependent and cannot be largely generalized as characteristic of one's age or number of treatment periods.

Keywords: alcohol dependence, age, number of treatment periods, readiness to change, motivation

Alcohol is a substance with dependence producing properties that has been widely used across civilizations for centuries and has been embedded into many customs and cultures (Crocq, 2007). Alcohol dependence is a product of overindulgence and misuse of alcohol, characterized by frequent, compulsive, and uncontrolled consumption of alcohol along with degradation of the user's health, social and economic losses, and a host of psychopathological symptoms (Lesch, 2005; World Health Organization, 2014). It is the result of a complex interaction between environmental and biological factors and there remains no

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concrete distinction between "social", "moderate", "problematic", or "harmful" drinking (Desai, Kumar, Sengupta, & Sharma, 2006; Seneviratne & Johnson, 2015). Long term or excessive alcohol consumption is the fifth leading risk factor for premature death and disability in the world and it accounts for more than 3.3 million deaths every year (National Institute of Alcohol Abuse and Alcoholism, 2014). Alcohol consumption has also been implicated as a core cause for more than 200 diseases, injuries, and medical conditions in the International Classification of Diseases (ICD 10). The World Health Organization (2014) estimates up to 76.3 million people worldwide with alcohol use disorders, most of who remain lifelong users and never seek treatment.

In terms of treatment of alcohol dependence, millions of alcohol users are treated every year in community based and hospital emergency settings through psycho-pharmaceutical and psychosocial methods (Salwan & Katz, 2014). While cessation of alcohol use and maintenance of abstinence remain the primary goals of all treatment settings, the relapse rates after cessation remains at an all-time high, an issue of grave concern for states and private bodies working in the field. The most common and widely used methodology for alcohol treatment has been the Alcoholics Anonymous (AA) 12-step philosophy, which views addiction as a progressive and potentially fatal brain disease (Ingersoll, Wagner, & Gharib, 2002). The residential and outpatient based AA 12-step program has remained an idealized and popular method of treatment for decades in many countries, despite the unwelcome statistics of alcohol related harm and damages (Kaskutas, 2009).

Almost all substance abuse treatment programs are designed to assist patients who are ready to take actions and address their problems (DiClemente, Bellino, & Neavins, 1999). Alcohol users in treatment are often regarded as progressing through steps of recovery, the penultimate step of which is abstinence. The successful outcome of a treatment program in establishing sobriety has been seen to vary on a wide range of personal characteristics, such as age (Grant & Dawson, 1997; Nielson, Nielson, Lolk, & Anderson, 2010), age of onset (Johnson, Cloninger, Roache, Bordnick, & Ruiz, 2000; Prakash, Srivastava, Bhat, & Shashikumar, 2013), gender (Nolen-Hoeksenia, 2004; Lintzeris, Haber, Proude & Lopatko, 2009), cognitive functioning (Lemke & Moos, 2002), presence of comorbid psychiatric disorders (Petrakis, Gonzalez, Rosenheck, & Krystal, 2002), severity of alcohol dependence, motivation (Greene, 2010; deOliveira & Malbergier, 2003), personality, etc. (WHO, 2014).

Motivation to quit alcohol is conceptualized as the probability that a person will enter into, continue, and adhere to a specific change strategy with regard to alcohol use (Center for Substance Abuse Treatment, 1999). A central common pathway in alcohol consumption remains motivational, as a person consciously or unconsciously decides whether or not to consume alcohol, depending on analysis of costs and benefits of continuing alcohol use (Cox, Miles, & Klinger, 1988). Motivation in alcohol use remains a multilevel, dynamic, and fluctuating construct with interaction of various factors leading to alcohol use and cessation. Motivation to quit drinking as a necessity for recovery has been incorporated into many models of alcohol treatment and rehabilitation such as AA, Motivation Enhancement Therapy (MET), Motivation Based Treatment (MBT), Motivational Counseling, etc., which have been used prominently worldwide (Ingersoll, Wagner, & Gharib, 2002; Miller, 1995; Prochaska, DiClemente, & Norcross, 1992).

The transtheoretical model (TTM) is a state based approach of motivation that provides a temporal dimension of the processes of behavioral change in alcohol treatment (Migneault, Adams, & Read, 2005). The model suggests that a major challenge in alcohol and substance use treatment is actively adapting to the complexities of change, which often depends on one's treatment readiness (Velasquez, Sternberg, Dodrill, Kan, & Parson, 2005). It describes alcohol treatment as a sequence of stages in which the patient comes to terms with the requirements of the situation and builds a drive to initiate change. A major part of intervention programs based on the TTM model emphasizes assessing the motivational level or stage of change in which the patient finds him/herself before, or during treatment (Ziedonis & Trudeau, 1997). A patient's motivation to quit using alcohol during treatment remains one of the best predictors of treatment outcome and abstinence. Motivation as a multidimensional construct in alcohol treatment can be broken down into components of the source of motivation (self-determination), the consistency of the motivation, and the person's own beliefs in sustaining his/her motivation (self-efficacy) during, and after treatment.

Age of Individuals With Alcohol Dependence

During treatment, age of the patient remains an important factor for consideration as younger and older patients differ in a host of biological, social, and psychological factors (Lemke & Moos, 2002; Nielson, et al., 2010; Satre, Chi, Mertens, & Weisner, 2012). Some of the demographic factors related to age such as family, occupation, and socio-economic status are directly related to treatment experience and outcomes. Many patients in treatment for alcohol use disorder are elder adult males, who generally arrive for treatment with far more severe, and often longer durations of alcohol abuse, with history of past treatments and relapses. They differ drastically from younger patients in physical health, as well as in terms of the cumulative effects of aging and the physiological complications directly related to alcohol, such as atrophy of brain cells, Korsakoff's syndrome, liver damage, etc. (Bava & Tapert, 2010; Thomas & Rockwood, 2001).

In comparing treatment related factors between younger and older patients, it has been found that older patients generally report positive treatment experiences and the highest level of confidence in remaining sober (Lemke & Moos, 2002). The higher severity of alcohol use found in these individuals often leads to them spending more time in treatment, as they have greater insights into their alcohol problems. They are more likely to receive social support from family members during most steps of treatment, and are also less likely to relapse in the near future (Nielson, et al., 2010; Satre, Chi, Mertens, & Weisner, 2012). Among the younger groups however, it was seen that these individuals had more alcohol related social and legal problems, greater cravings, more tension anxiety, depression, dejection, anger, hostility, more childhood problems, and higher rates of anti-social personality disorders (Johnson, et al., 2010). Older patients can further be divided into early and late onset users, with early onset users having longer durations of treatment, and reporting negative treatment experiences, due to the severity of condition caused by years of alcohol abuse (Dennis, Scott, Funk, & Foss, 2005). Individuals with early onset alcohol dependence were more likely to be single, lower SES, had higher incidence of anti-social personality disorder, and were more likely

to have been convicted for criminal offences (Huang, Kamat, & Wang, 2006).While these two distinct groups in alcohol treatment differ a great deal in terms of demographics, as well as in alcohol related factors, it is unsure how these factors directly relate to their readiness to quit or adherence to abstinence. A difference in motivational systems between the two groups could be implicated in specific interventions during treatment, catering specifically to age dynamics.

Number of Treatment Periods

In psychosocial settings, treatment for alcohol dependence is generally regarded not as a onetime intervention, but rather as a continuous process that lasts for years, even after sobriety is attained (NIAAA, 2010). In rehabilitation centers utilizing the AA 12-step program, sobriety is ensured through a long-term residential stay in a controlled environment; however, relapse rates among the discharged patients range from 50 to 80 percent, depending on the severity of alcohol dependence (Moos & Moos, 2006). Factors such as everyday living conditions, satisfaction with daily activities, and psychiatric problems have often been attributed as influencing relapse, which frequently leads to readmission to treatment facilities (Vanderplasschen, Colpaert, & Broekaert, 2009). Relapse and subsequent readmission to inpatient settings often appear as evidence for the lack of effectiveness and quality of treatment programs such as the AA 12-step program, but such claims are unwarranted, as the nature of alcohol dependence dissuades any premonition about long-term abstinence (Humphreys & Weingardt, 2000).

In terms of treatment experience and outcomes, previous history of similar treatments primes the person regarding the expectations and efficacy of the treatment regimes. Failure to commit to abstinence despite treatment in the past might dissuade the person from acknowledging one's own capability of long-term sobriety, such that self-efficacy in abstinence remains low (Goldbeck, Myatt, & Aitchison, 1997). Similarly, a person entering a complex program such as the AA 12-step for the first time might be apprehensive at first in relating to the values of the program and accepting the label of "alcoholic." It follows logically that some differences exist between individuals in treatment, based on their experience of prior treatments in similar settings. There remains some room for speculation regarding how the experience of first or repeated treatment affects the motivation of the person to quit alcohol in terms of readiness to change or the progression of the stages.

Outline of the Study

The current study aimed to measure the level of motivation (as described by readiness to change) among a group of individuals with alcohol dependence in treatment. Readiness to change is often synonymously used with motivation. This relates to the current level of readiness to change in an individual, as described by the stages of the transtheoretical model of behavioral change (Prochaska, DiClemente, & Norcross, 1992). In terms of age, participants were divided into two groups, using a cutoff mark of 30 years, based on reviewed

literature of similar studies. Although 30 years was taken arbitrarily, it differentiates two groups that differ vastly in terms of life positions with respect to occupation, family situation, social status, health, etc., which inevitably affects the person's alcohol use and treatment outcome. Participants were also divided into two groups based on the number of treatment periods in the past. Participants undergoing their first treatment were differentiated from participants who had completed similar treatment in the past. Thus, the two variables for consideration in the study were age and number of treatment periods. In both instances, previous studies have found considerable differences in various demographic, lifestyle, and treatment-related variables between groups within age and number of treatment periods. The main objective of this study was to explore how those differences relate to differences in motivation or readiness to quit alcohol among individuals with alcohol dependence, who arrive in controlled environments for treatment. The three main hypotheses of the study were as follows:

H1: There is a significant difference in readiness to change between young and older individuals with alcohol dependence who are in treatment.

H2: There is a significant difference in readiness to change between the first time and multiple periods of treatment among individuals with alcohol dependence.

H3: There is a significant relationship between readiness to change, age, and number of treatment periods among individuals with alcohol dependence who are in treatment.

The current study sought to explore the differences in readiness to change based on two personal variables that could have substantial implications in how treatment is structured. In residential treatment settings, where large numbers of participants are subjected to similar methods, age and the number of treatment periods remain distinguishing characteristics that have been shown to be related to treatment outcomes and experiences. Given the possibility that the groups differ in readiness to change as well, the results of the current study will help in structuring the treatment model, such that groups with lower readiness to change would receive necessary assistance.

Methods

Participants

The participants for the study consisted of 124 males from Bangalore, India, who had been admitted into residential drug rehabilitation/de-addiction centers, due to some problems related to alcohol use. Participants were drawn from four rehabilitation centers across Bangalore. The average age of the participants was 35.7 years (24-57 years) and the average number of days spent by the participants in their ongoing treatment was 43 days, with a range from 14 to 150 days. All participants reported having used spirits as the preferred form of alcohol. In addition, tobacco use (cigarettes, *beedis*, chewing tobacco) was seen in 120 (97%) of the 124 participants. The average age of first drink among the participants was 19.4 years.

Materials

Questionnaire booklets were prepared for data collection that included an informed consent form, a sociodemographic form, and an alcohol use information form. The consent form informed the participants of their rights during the course of filling the questionnaire booklet. The sociodemographic form included questions relating to address, occupation, nationality, and education of the participants. The alcohol use information form included questions about the nature of past drinking (in terms of volume, frequency, and type of alcohol), number of treatment periods, number of days of current treatment, abuse of other substances, and age of first drink. In order to measure specific information relating to alcohol use, participants were asked about their drinking habits during their peak drinking period, and the time period prior to arriving at the rehabilitation center. The details assessed were frequency of drinking (number of days in a week), volume of drinking in a day (number of bottles), and patterns of drinking (early morning/afternoon), using checkboxes for all possible responses. Participants were specifically asked if they had received treatment in the past. The nature of the past treatment was specified as residential, employing psychosocial methodology (preferably AA 12 steps), and a minimum treatment period of one week for it to be accepted as previous treatment.

The main segment of the questionnaire relating to the hypotheses of the study was the Stages of Change Readiness and Treatment Eagerness Scale (SOCRATES 8A) developed by William R. Miller and J. Scott Tonigan (1996). The SOCRATES 8A is a 19 item self-report tool developed to measure a drug or alcohol user's current state of readiness to change in terms of three components; recognition (7 items), ambivalence (4 items), and taking steps (8 items). Recognition refers to the extent to which an individual has personal insight into his or her own problematic alcohol use and the recognition of it being a serious problem. Ambivalence refers to the extent to which the person feels in control of his or her own problematic drinking and whether it is causing problems. The taking steps score indicates the extent to which the person is engaged in activities to curb or control drinking. The three subscales reflect three vital prerequisites for behavioral change to occur, as described by the outcome variable, "Readiness to change." The scale consists of 19 items about changing one's drug use behavior on a 5-point Likert scale from "strongly agree" to "strongly disagree." Interpretation of the scores is based upon a standardized sample of 1726 men and women who sought treatment for alcohol use through project MATCH(Matching Alcoholism Treatment to Client Heterogeneity). In terms of the psychometric properties of the SOCRATES, the reliability (Cronbach's alpha) of the scale ranged between .71 and .91 for the three subscales among a sample of 546 adolescents in substance abuse treatment. Among a sample of 377 drug users, convergent validity was found to be mixed with some subscales loading negatively with the stages (Doerfler, Melle, Haddad, & Cram, 2011).

Procedure

The drug/alcohol rehabilitation centers from which participants were recruited were approached for data

collection between August and December 2015. All four centers used the AA 12 step philosophy as the primary method of treatment. Once contact had been initiated with the client groups, the questionnaire booklets were administered after a brief provision of information regarding the nature of the study. The selection of participants was based on the following inclusion criteria. First, only males were included in the sample, as the rates of alcohol use and dependence among women in India is considerably low, with the number of women in treatment also being particularly low. Second, only participants between the age of 21 and 55 years were included in the sample, with the lower age limit taken in accordance with the legal age of drinking in India, and the upper limit specified in order to exclude participants with probable cognitive disorders due to advanced age. Third, alcohol consumption of at least one drink per week for a period of six months was taken as criteria for alcohol dependence. As participants were already in treatment and fulfilled the admission criteria of the respective centers, a minimal alcohol use criteria was set for the study. Fourth, for inclusion into the current study, participants must have been enrolled into a residential facility for treatment at the time of data collection. Responses were collected from rehabilitation centers where participants were undergoing treatment. Finally, only participants who were proficient in written and spoken English were included, as the mode of instruction of the questionnaire booklet was in English. Participants with poly substance abuse or dependence who had sought treatment for substance use beside alcohol and tobacco in the past were excluded. In addition, participants who were undergoing the initial detoxification period of treatment were excluded because of a possible lack of cooperation due to withdrawal symptoms.

Data Analysis

A two-way analysis of variance (ANOVA) was used as the only parametric test for the analysis of the obtained data according to the hypotheses of the study. The two-way ANOVA is a statistical test used to determine the effect of two nominal predictor variables on a continuous outcome variable. The design of the study was a 2 X 2 matrix for comparison. The main effect of the two main variables, age (30 years and below, above 30 years) and number of treatment periods (first time, multiple times), as well as the interaction between the two was tested for each of the three subscales of the SOCRATES, recognition, ambivalence, and taking steps. In terms of main effects, the significance of the difference of means between two groups for each of the two comparison conditions (age and number of treatment periods). The tests were performed on the Statistical Package for Social Sciences (SPSS v. 17).

Results

Among the 124 participants of the study, the groups were divided based on the two categorical variables of age and number of treatment periods. Information about alcohol use was also collected from the participants and a brief summary can be found in Table 1.

Table 1
Demographic And Alcohol Use Characteristics

Characteristic	*n* (%)
Age	
30 years and below	59 (47.6%)
Above 30 years	65 (52.4%)
Treatment periods	
First-time treatment	59 (47.6%)
Multiple treatment periods	65 (52.4%)
Frequency of drinking (days)	
Once per week	4 (3.2%)
3-4 days per week	53 (42.7%)
Daily	67 (54.1%)
Amount of alcohol consumed daily	
90 to 180 ml	39 (31.4%)
180 to 375 ml	68 (54.8%)
More than 375 ml	17 (13.8%)

($N = 124$)

The questionnaire booklet was comprised primarily of the Stages of Change Readiness and Treatment Eagerness Scale (SOCRATES) questionnaire, which assessed the extent of readiness of change in terms of the three defining qualities of motivation. Specifically, these include recognition of a problem, ambivalence towards cessation, and taking steps towards cessation. Three separate two-way ANOVAs were performed in order to test for the differences in readiness to change between the participants based on criteria of age and number of treatment periods in the past.

Table 2
Two-Way ANOVA Results for the Dependent Variable of Recognition

Source	Type III sum of squares	*df*	Mean square	*F*	Sig.
Corrected model	54.398	3	18.133	1.493	.220
Intercept	103027.367	1	103027.367	8484.941	.000
Age	9.668	1	9.668	.796	.374
Treatment period	44.796	1	44.796	3.689	.057
Age * Treatment period	.013	1	.013	.001	.974
Error	1457.085	120	12.142		

In Table 2, the two independent variables were tested on the dependent variable of recognition, which explores the extent to which the person acknowledges the presence of problems related to drinking. The main effect of age was not statistically significant in relation to changes in recognition [$F(1, 120) = .796$, $p = .374$]. In addition, the main effect of the number of treatment periods was also not significant [$F(1, 120) = 3.69$, $p = .57$]. Furthermore, the interaction between age and number of treatment periods was also not significant [$F(1, 120) = .001$, $p = .974$]. Overall, the mean raw score of all the 124 participants on the Recognition domain was 28.94, which when converted to a decile score, amounted to 20, representing a low level of average recognition.

Table 3 shows the results of the same two independent variables on the second domain of the readiness to change, ambivalence. Ambivalence measures the extent to which participants wonder whether they are in control of their drinking, are drinking too much, or are hurting others. The main effect of age was not significant [$F(1, 120) = .055$, $p = .814$], and the main effect of the number of treatment periods was similarly not significant [$F(1, 120) = .094$, $p = .760$]. In addition, the interaction between age and the number of treatment periods was also not significant [$F(1, 120) = .710$, $p = .401$]. The average score of the participants on ambivalence was 15.46, which transforms to a decile score of 50, indicating medium ambivalence. As according to the SOCRATES manual, the ambivalence scores can only be interpreted based on the recognition scores.

Table 3

Two-Way ANOVA Results for the Dependent Variable of Ambivalence

Source	Type III sum of squares	*df*	Mean square	*F*	Sig.
Corrected model	6.090	3	2.030	.290	.833
Intercept	29493.670	1	29493.670	4209.831	.000
Age	.389	1	.389	.055	.814
Treatment period	.656	1	.656	.094	.760
Age * Treatment period	4.976	1	4.976	.710	.401
Error	840.708	120	7.006		

Finally, Table 4 shows the analysis of the two independent variables on the third domain of readiness to change, taking steps. Taking steps indicates the extent to which a problem drinker has already started to make positive changes in his/her drinking and may have experienced some success. This variable represents a behavioral component of treatment. In the current study, the mean score of the 124 participants was 32.42, which converts to a decile score of 50, indicating a medium level of taking active steps in addressing the alcohol problem. As can be seen on Table 4, the main effect of age was not significant in taking steps [$F(1, 120) = .473$, $p = .493$]. In addition, the main effect of the number of treatment periods was similarly not significant [$F(1, 120) = .253$, $p = .615$]. Furthermore, the interaction effect of age and the number of treatment periods on taking steps was also not significant [$F(1, 120) = .591$, $p = .444$].

Table 4
Two-Way ANOVA Results for the Dependent Variable of Taking Steps

Source	Type III sum of squares	*df*	Mean square	*F*	Sig.
Corrected model	21.499	3	7.166	.470	.704
Intercept	129550.436	1	129550.436	8491.886	.000
Age	7.217	1	7.217	.473	.493
Treatment period	3.880	1	3.880	.254	.615
Age * Treatment period	9.000	1	9.000	.590	.444
Error	1830.695	120	15.256		

There were three hypotheses tested in the current study that were formulated based upon the type of analysis that had been chosen. The first hypothesis examined the main effect of the age of participants on readiness to change, by comparing two age groups on three domains of the readiness to change scale. There was no significant main effect of age on recognition [$F(1, 120) = .796$, $p = .374$] (Table 2), ambivalence [$F(1, 120) = .055$, $p = .814$] (Table 3), or taking steps [$F(1, 120) = .473$, $p = .493$] (Table 4). Thus, the hypothesis was not accepted. Similarly, the second hypothesis explored the main effect of the number of treatment periods on readiness to change, by comparing two treatment groups (first time and multiple times) on the three domains of the readiness to change scale. There was no significant main effect of the number of treatment periods on recognition [$F(1, 120) = 3.69$, $p = 0.57$] (Table 2), ambivalence [$F(1, 120) = .094$, $p = .760$] (Table 3), or taking steps [$F(1, 120) = .253$, $p = .615$] (Table 4). Thus, this hypothesis was similarly not accepted. Finally, the third hypothesis investigated the interaction effect between age and number of treatment periods to determine the effect of each independent variable on all levels of the second independent variable. The interaction effect was tested on the three domains of readiness to change. Results indicated that there was no significant interaction effect of age and the number of treatment periods on recognition [$F(1, 120) = .001$, $p = .974$] (Table 2), ambivalence [$F(1, 120) = .710$, $p = .401$] (Table 3), and taking steps [$F(1, 120) = .591$, $p = .444$] (Table 4). Thus, the third hypothesis was also not accepted. The analyses revealed that there were no differences in readiness to change among participants based on their age or the number of treatment periods.

In terms of analyzing the nature of the responses of participants, the alpha coefficient of the responses on each of the 19 items of the scale was calculated in order to assess the reliability of responses across the domains. This was done primarily in an effort to rule out the presence of factors inherent to the tool that might have influenced the total scores, and the data subsequent analysis. Among the three domains of the SOCRATES, it was found that the Cronbach's alpha for each of the sub scales of the SOCRATES were .795 (recognition), .691 (ambivalence), and .787 (taking steps). These results indicated that the items in each of the domains moved together. There were no single items that were moving in the opposite direction of the rest of the items or skewing the overall scores. A Shapiro-Wilk test of normality was also conducted to test for the nature of the distribution of scores. Results indicated that there were significant differences between the distribution of the study sample and the ideal normally distributed population in all three domains,

including recognition (W = .966, p < .01), ambivalence (W = .966, p < .01), and taking steps (W = .976, p < .05). The data set was negatively skewed, with a high number of scores towards the right extreme of the distribution, indicating an overall high recognition, ambivalence, and taking steps, among the participants. All three subsets had scores closely surrounding the means, which fell on the extreme right of the possible range, whereas there were hardly any responses falling in the first half of the distributions.

The results revealed that there were no significant differences in readiness to quit alcohol based on age or number of treatment periods, thus resulting in a failure to support the hypotheses proposed. No significant differences were revealed from the three ANOVA analyses. In addition, further analyses were performed to explore the nature of the non-significant results, particularly effect size estimates and power analysis as given in Table 5. Effect size estimates denote the extent of the effect one variable has on another, and are measured as partial eta squared ($\square^2$) values. Power analysis refers to the extent of ability of a test to detect an effect if it exists.

Table 5
Effect Size and Power Estimates for the Two-Way ANOVA Results

Effect	Recognition		Ambivalence		Taking steps	
	Effect size	Power	Effect size	Power	Effect size	Power
Age	.007	.143	.000	.056	.004	.105
Treatment period	.030	.478	.001	.061	.002	.079
Age * Treatment period	.000	.050	.006	.133	.005	.119

The results of these additional analyses indicated that the effect of both age and the number of treatment periods on readiness to change was very weak overall, with all nine partial eta squared estimates being below the .05 mark. It showed that very little proportion of the total variance in readiness to change could be accounted for by age, the number of treatment periods, or interaction of the two. Not surprisingly, the power estimates of all significance tests too were weak. This means that the probability of correctly rejecting a null hypothesis was very low when considering the insignificant results of the prior main analysis.

Discussion

The main objective of the current study was to explore differences in readiness or motivation to quit drinking among participants who were already in controlled settings for the treatment of alcohol abuse or dependence. The differences were explored along the lines of two demographic variables, specifically the age of the participant and number of treatment periods. The interaction between age and the number of treatment periods was also explored with regard to differences in readiness to quit. However, the analysis of the data obtained from 124 participants revealed that there were no statistically significant differences in

readiness to quit based on age or number of treatment periods (Tables 2, 3, and 4). In addition, there was also no effect of the interaction of age and number of treatment periods on the readiness to quit. This means that participants' level of motivation could not easily be gauged based solely upon their age or their history of past treatment. Although other important factors such as severity of alcohol dependence, heredity, health status, etc. were not controlled, the outcome measure indicated that the sample was a largely homogenous group that could not be subdivided based on any of the treatment variables or the sociodemographic and alcohol use information. Thus, the three main hypotheses were duly discarded, and possible explanations were considered regarding why the hypotheses were not supported.

In terms of interpretation of raw scores based on the norms provided with the SOCRATES questionnaire, the conclusions of the current study were very different from what the mean scores suggested. The raw data, which appeared to lean highly toward the right extremes in terms of total scores, had a different interpretation according to the norms. The mean scores for the three domains of SOCRATES among the 124 participants were 28.94 out of 35 (*SD* = 3.50), 15.46 out of 20 (*SD* = 2.62), and 32.42 (*SD* = 3.88), for recognition, ambivalence, and taking steps, respectively. In terms of total scores, each of the three means surpassed the three quarter mark of the possible range, indicating a very high degree of the respective qualities measured. When the raw scores were transformed into decile scores, it was found that for recognition, the mean of 28.94 translated to a decile score of 20, indicating very low recognition on average. Similarly, in ambivalence, the average raw score of 15.46 translated to a decile score of 50, indicating a medium level of ambivalence. Finally, the average raw score of 32.42 in taking steps translated to a decile score of 40, indicating a low level of taking steps. There was a mismatch in the initial impression of how the participants had performed and the interpretation of their scores based on the norms. It must be noted that the interpretation ranges were based on a standardization sample of 1726 men and women who sought out treatment for their alcohol use through project MATCH (Miller & Tonigan, 1996). Thus, the interpretation range of low, medium, or high of participants' scores is relative to other individuals who are currently seeking treatment for alcohol problems. The scale makers had clearly anticipated the huge proportion of respondents who would answer favorably on all measures. This is owed particularly to the difficulty of working with a population of individuals with substance dependence, specifically given the nature in which most patients are admitted into treatment against their will. The concept of motivation or readiness to change in substance rehabilitation remains particularly troublesome given the low association between motivation to quit and long term abstinence.

In terms of defining motivation to quit, this concept has been described in terms of both a trait and state model. While trait models emphasize the responsibility of clients for their level of motivation, the state based models look at motivation as shifting through stages (Ziedonis & Trudeau, 1997). The TTM (upon which the SOCRATES questionnaire was based) is a state model of motivation, and describes treatment as a series of stages in which a person builds up a drive to initiate change, often progressing from pre-contemplation, to contemplation, and eventual subsequent action (Migneault, Adams, & Read, 2005). All of the participants for the study were recruited from residential rehabilitation centers following the AA 12-step program. The TTM becomes problematic in such settings, as many participants are forced into the action

stage of change, without necessarily completing the stages of contemplation and preparation. The reason for this complication is that the central pathway in motivation remains the rational analysis of costs and benefits associated with future alcohol use (Cox, Miles, & Klinger, 1988). While rehabilitation centers might provide the most appropriate environments to enforce sobriety, the overall long-term outcome depends to the extent to which the processes have been completed. The TTM suggests that each stage has its own set of difficulties, and maintaining the same level of motivation in all of the stages ensures long-term maintenance of the change. More often than not, people forced into treatment often do not develop the necessary mechanisms to support long-term change, and often relapse shortly after being discharged.

A further confounding variable in overall motivation assessment remains the primary philosophy under which most centers operate. The 12-step philosophy emphasizes strict internalization of step work and values of the program. It was noticed in the centers that all members, regardless of the nature of dependence, were required to take the label of "addict", and were dissuaded from openly expressing opinions about the nature of addiction or recovery that were different from the opinions prescribed by the program. Given this, it is no surprise that there remains high conformity in client fraternities, often enforced by strict discipline in rehabilitation centers. The extent of social desirability in the responses thus remains an important issue, as there were no mechanisms to detect biased responses. While homogeneity was ensured by not including participants during their first two weeks of treatment, the downside of this was that the eligible participants had all been in treatment long enough to be influenced by the program. However, since there were no differences in any of the domains between first time and multiple time treated participants, we can safely say that the number of days spent in rehabilitation centers, with multiple time participants having high total days, had little effect on the overall outcome. The current results also suggest some deficiency in the motivational assessment tool. Although the tool has been proven useful in assessing change in motivation of a client during treatment from induction to discharge, its efficacy in conducting cross-sectional comparisons between client groups at different stages of motivation remains to be seen.

While the SOCRATES tool may be most effective in addressing the interplay of the first four stages of change, it does not necessarily suggest any favorable chances in terms of long-term success or maintenance in treatment. In addition, this measure also remains open to interpretation when assessing participants that are already in long-term treatment in controlled environments. While changes in the recognition of one's alcohol problems, or ambivalences regarding the same, may occur at any point during treatment, the taking steps category is most likely to be wrongly identified by many participants. The items in the third category of "taking steps" address the extent of the behavioral steps completed by the person with regard to his/her alcohol problem. For individuals who are already in centers and have completed a certain number of days of abstinence, the information gained from the "taking steps" items might not necessarily reflect the behavioral change that has been enforced upon the client through the program, as the behavior is taking place in a controlled environment. It would be better to conceptualize the steps being taken towards abstinence in terms of one's behavior once outside of treatment. In the current study, it was not entirely clear whether the participants answering the questions understood the items in the same manner.

For similar studies in the future regarding motivation to quit alcohol, many lessons can be drawn from the

current study based on its limitations. First, it is very important to consider the situation of the patients regarding whether they are in treatment on their own volition. It would be interesting to note the difference in motivational outlook between patients who are in treatment with and without their consent. Next, while the current study focused on motivation as a measurable state and compared degree of motivation, it would be more sensible to explore the types of motivation (e.g. intrinsic/extrinsic) operating within each group. Finally, while the study attempted a cross-sectional comparison of separate groups based on age and number of treatment periods, it would be more informative if a single group of individuals with alcohol dependence were studied for an extended period of time, in order to examine the effects of the progression of age, as well as patterns of relapse and readmission in the same patients.

Conclusion

The current study sought to determine differences in motivation or readiness to quit drinking among different groups of individuals with alcohol dependence that were currently undergoing treatment. The results indicated that there were no significant main effects of age on readiness to quit in the three domains of recognition, ambivalence, and taking steps. There were also no significant main effects of treatment periods on readiness to quit across all three domains. In terms of the interaction of age and number of treatment periods, there were no significant relationships between age, treatment periods, and readiness to quit. The results indicated a fairly homogenous participant group that responded very similarly, with total scores towards the upper spectrum in each of the three domains. However, the interpretation of the high raw scores yielded the impression of the participant group being fairly low to medium in recognition, ambivalence, and taking steps, in terms of readiness to change. The lack of significant results could be explained by an array of factors. Specifically, the participants represented a very homogenous group, which was not normally distributed. In addition, there were issues regarding the effectiveness of the assessment tool and the appropriateness of its interpretations, as well as the influence of treatment models (such as the AA 12-step program) in bringing out socially desirable responses among the participants. Nonetheless, the study provided some insight into the nature of drinking patterns among individuals who arrive in rehabilitation centers, and the factors associated with motivation in remaining abstinent. It gives some indications as to how motivation can be conceptualized in treatment, and how the same can be related to factors of age and number of treatment periods in order to increase chances of long-term sobriety.

In terms of the study's limitations, it was not able to anticipate the emergence of two distinct categories of patients in terms of whether they had come to the rehabilitation centers on their own will after careful consideration, or if they had been forced into treatment. It is not known how this distinction might affect the overall readiness to change. In addition, the current study also did not have an accurate mechanism to distinguish between those with alcohol dependence and those with alcohol abuse. The criteria of the rehabilitation centers for admission of patients were accepted without full consideration. Furthermore, the data set was not normally distributed, as the scores were negatively skewed and were clustered only at one-

half of the possible data range. Finally, the study looked at motivation within the context of rehabilitation centers only, whereas a larger amount of patients are treated through hospital and emergency settings every year, resulting in a sample is not fully representative of the total population of individuals with alcohol dependence.

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