Published in final edited form as:
J Subst Abuse Treat. 2011 March ; 40(2): 183–188. doi:10.1016/j.jsat.2010.10.002.

Purpose in Life Predicts Treatment Outcome Among Adult Cocaine Abusers in Treatment

Rosemarie A. Martin, Ph.D.[1], **Selene MacKinnon, Psy.D.**[1], **Jennifer Johnson, Ph.D.**[3], and **Damaris J. Rohsenow, Ph.D.**[2,1]

[1]Center for Alcohol and Addiction Studies, Brown University, Providence, RI, 02912 USA

[2]Providence VA Medical Center, 650 Chalkstone Ave., Providence, RI, 02908 USA

[3]Department of Psychiatry and Human Behavior, Brown University, Providence, RI, 02912 USA

Abstract

A sense of purpose in life has been positively associated with mental health and well-being and has been negatively associated with alcohol use in correlational and longitudinal studies, but has not been studied as a predictor of cocaine treatment outcome. This study examined pre-treatment purpose in life as a predictor of response to a 30-day residential substance use treatment program among 154 participants with cocaine dependence. Purpose in life was unrelated to cocaine or alcohol use during the 6 months pretreatment. After controlling for age, baseline use, and depressive symptoms, purpose in life significantly ($p < .01$) predicted relapse to any use of cocaine and to alcohol, and the number of days cocaine or alcohol was used in the six months after treatment. Findings suggest that increasing purpose in life may be an important aspect of treatment among cocaine dependent patients.

1. Introduction

Spirituality has a prominent role in substance abuse self-help programs, such as Alcoholics Anonymous (AA) and other 12-step treatment programs. The construct of spirituality comprises beliefs, practices, and experiences (Miller & Thorensen, 2000) and can be broadly defined as that which gives people meaning and purpose in life (Puchalski, Dorff & Hendi, 2004). Having a sense of purpose, meaningfulness, or goals in life in particular has been described as important in overcoming adversity and is associated with improved psychological and physical well-being (Reker, Peacock, & Wong, 1987). A major aspect of spiritual growth in AA is to attend to lack of purpose in life (Carroll, 1993). While spirituality has been said to be one source of purpose in life (e.g., Elkins et al., 1988), purpose in life could derive from a variety of life goals and values (e.g., Maslow, 1970; Rokeach, 1979). One function of goals, values, or a sense of purpose is to motivate behavior toward preferred experiences consistent with the purpose or values (Wagner & Sanchez, 2002). Whether one's purpose in life is to have a family, material possessions, power or enlightenment, purpose in life may motivate behavior change by means of perceived discrepancy of values and goals with behavior (Miller & Rollnick, 2002).

Within social learning theory (Bandura, 1977, 1997), purpose in life may help define a set of reinforcers that are alternatives to the drug use an individual is seeking. Alternative reinforcers may prevent reliance on the use of drugs and alcohol. Another conceptualization

Corresponding author: Rosemarie A. Martin, PhD, Center for Alcohol & Addiction Studies, Brown University, Box G-S121-5, Providence, RI 02912 USA, Phone: 401-863-6656; Fax: 401-863-6697; Rosemarie_Martin@brown.edu..

consistent with social learning theory could be that substance dependent individuals lack coping skills for handling daily life without using substances. Having a sense of meaning in life can be viewed as a coping resource (Miller et al., 1996) and can be protective in high-risk situations for using (Marlatt & Gordon, 1985; Finney et al., 1980).

Marlatt's developmental model of relapse (Cummings, Gordon & Marlatt, 1980; Marlatt & Gordon, 1985) indicates the risk of relapse occurs when one's coping rescources are not adequate when faced with a high risk situation for drinking. In prospective testing of this model of relapse, lack of coping resources was predictive of returning to drinking among individuals seeking outpatient treatment for alcohol (Miller, Westerberg, Harris & Tonigan, 1996).

A low sense of meaning in life has been seen as both the cause and the effect of dependent drinking (Clinebell, 1963; Greaves, 1974; Kurtz, 1979). The perceived sense of purpose in life is lower among those entering alcohol treatment compared with normative samples (Crumbaugh & Maholick, 1964; Crumbaugh, 1968; Brown, Ashcroft & Miller, 1998; Jacobson, Ritter & Mueller, 1977; Waisberg & Porter, 1994; Noblejas de la Flor, 1997). However, sense of purpose in life has been shown to increase during alcohol treatment in studies with inpatient (Jacobson, Ritter, & Mueller, 1977; Waisberg & Porter, 1994) and outpatient samples (Robinson, Cranford, Webb & Brower, 2007). Change in purpose in life during outpatient treatment predicts heavy drinking 6 months after the start of treatment such that for every 1-unit increase in Purpose in Life score, the odds of not drinking heavily increase by about 3% (Robinson et al., 2007).

In cross-sectional studies there is mixed support for the relationship between purpose in life and alcohol use. Purpose in life at the start of inpatient treatment is not related to current alcohol consumed per drinking day, total consumed in the past 90 days, peak blood alcohol level, total number of life problems (Brown et al., 1998), and days since last drink (Waisberg & Porter, 1994). Purpose in life is not related to length of abstinence among those in outpatient alcohol treatment (Amodeo, Kurtz & Cutter, 1992), but is related to length of sobriety among AA members (Carroll, 1993) and those in inpatient treatment (Noblejas de la Flor, 1997).

Using a subset of data from Project MATCH, purpose in life is favorably related to drinking outcomes such that for every one-unit increase above mean baseline purpose in life score participants were 2% more likely to get sober 12 months after treatment and for every one-unit increase above the mean 15 month purpose in life score participants were 3.9% more likely to get sober (Krentzman, Farkas & Townsend, 2010). Race has been found to moderate the relationship between purpose in life and alcohol outcome such that for every one-unit increase in purpose in life, Blacks are 4.4% more likely to achieve sobriety than whites (Krentzman, Farkas & Townsend, 2010).

The relationship between purpose in life and cocaine use in general or after treatment remains unexplored. The purpose of the present study was to examine the relationship between pretreatment purpose in life among adult cocaine users in treatment and subsequent cocaine and alcohol use six months post-treatment. We hypothesized that after controlling for baseline use, pretreatment purpose in life would predict subsequent cocaine and alcohol use and frequency of use during the six months post treatment. Lower purpose in life may be related to higher depressive symptoms (Brown, Ashcroft, et al., 1998) and depression has been found to predict substance use outcomes in some studies (McKay, Pettinati, Morrison, Feeley, Mulvaney, & Gallop, 2002; Richardson et al., 2008), although not with cocaine dependent patients (Brown, Monti, et al., 1998). Therefore, primary analyses controlled for depressive symptoms to capture the unique contribution of purpose in life.

2. Materials and methods

2.1 Participants

Participants were 154 patients admitted to a 30-day inner-city state-funded residential substance abuse treatment program. The abstinence-oriented program combined a 12-step model based on principles from Alcoholics Anonymous with a social learning theory based model to identify high-risk situations and alternatives. The program provided educational information in a group format, an individual treatment coordinator, 12-step groups, family or marital therapy, and access to aftercare services. To be eligible for the study participants had to meet cocaine dependence criteria according to the Structured Clinical Interview for DSM-IV Patient Version (SCID-P; First et al., 1995) and to have used cocaine at least 10 days in the 6 months prior to admission. Patients who were intending to stay fewer than five business days or were actively psychotic were excluded.

2.2 Procedures

This study was part of a larger study of assessment of urges to use cocaine (Rohsenow, Martin, & Monti, 2005). All procedures were approved by the Institutional Review Boards of Brown University and The Providence Center. Recruitment into the study with informed consent occurred on the second or third day of admission. Assessments were conducted by trained research assistants immediately after recruitment (about 3 hours over 3 days) and off site at 6 months following discharge from residential treatment (about 1 hour). Participants were paid $40 for the 6-month interview.

Measures

Outcome measures—A 6-month Timeline Followback (TLFB; Sobell & Sobell, 1995; Ehrman & Robbins, 1994) interview completed at pretreatment and at follow-up, collected data on number of days of cocaine, alcohol and other drugs used, and quantity information for cocaine and alcohol use. At follow-up, urine drug screens were conducted and a family member or close friend (significant other; S.O.) was interviewed about the participant's drug and alcohol use. Urine data were used to confirm drug use and S.O. data were used as a bogus pipeline. Procedures increasing validity of self-report of Sobell and Sobell (1986) were followed. Urine drug screens used On Trak® test cups for screening, with confirmation of positives using EMIT, fluorescent polarization immunoassay and mass spectrometry for the cocaine metabolite benzoylecgonine, benzodiazepines, cannabinoids, opiates, and amphetamines.

Pretreatment measures—The Revised Purpose in Life questionnaire (PIL-R; Harlow, Newcomb, & Bentler, 1987) was revised from one developed by Crumbaugh (1968) based on Frankl's (1969) existential perspective (Frankl, 1959, 1963). The PIL-R assesses the degree to which an individual has a sense of meaning or purpose in life. The PIL-R is a self-administered, 20-item questionnaire with 7-point Likert scales ranging from strongly disagree (1) to strongly agree (7). Items refer to having goals or aims, life being empty or worthwhile, sense of boredom or excitement, free will, despair, sense of satisfaction with life, etc. Responses are summed for a total score with higher scores indicating a greater sense of purpose in life. The PIL-R was found to have good convergent validity with measures of meaninglessness ($r=-.89$), suicidality ($r=-.57$), and happiness ($r=.84$; Harlow, Newcomb, & Bentler, 1987). Reliability is high with Cronback's alpha=.88 (Robinson et al., 2007). Slit-half reliabilities of the measure range from .85 to .92 (Reker & Cousins, 1979; Crumbaugh, 1968; Amodeo et al., 1992, Carroll, 1993) and test-retest reliabilities range from .79 (Reker & Cousins, 1979) to .83 (Meier & Edwards, 1974).

A cocaine history and patterns questionnaire provided information on routes of administration and history of use. Diagnoses of cocaine and alcohol abuse and dependence were made using SCID-P criteria, other diagnosises were not made. Additional measures included the Beck Depression Inventory (BDI; Beck, Ward, Mendelson, Mock, & Erbaugh, 1961) and a demographics questionnaire.

2.3 Data Analysis Approach

In data analyses, people with self-reported drug abstinence at 6 months disconfirmed by urine drug screen were recoded as having used the substance identified by urine screen, and their number of cocaine use days during follow-up was estimated from baseline data using regression estimation procedures. People with missing/contaminated urine or lost to follow up were recoded as having used all substances. All variables were checked for distributional assumptions. We examined the relationship of purpose of life demographic variables and with other measures commonly related to relapse, such as treatment retention, treatment completion, employment, and income.

Analyses included four separate dependent variables. Any use of cocaine or alcohol during the follow-up interval, number of cocaine use days, and number of drinking days. Number of cocaine use days and number of alcohol use days were skewed and were log-transformed prior to analyses. The untransformed values of the variables are reported to ease interpretation. Dependent variables were analyzed separately rather than multivariately because the purpose was to investigate effects on each type of outcome, not on the common relationships among outcomes. First the relationship of the PIL-R score with demographic, depression, and baseline substance use variables are examined using Spearman correlations.

Two separate hierarchical logistic regressions were conducted to assess whether PIL-R was associated with any use of cocaine or alcohol post-treatment. Two hierarchical multiple linear regressions were conducted to assess whether PIL-R was associated with frequency of cocaine and alcohol use. The pretreatment substance use variable, age, and BDI scores were entered on step one as covariates and PIL-R was entered on step two.

3. Results

The sample was 50% male, 69% Caucasian, 21% Black, 5% Hispanic, 5% American Indian. The average age was 32.5 (SD = 7.1) years, 74% had at least a high school education, 80% were unemployed, and 10% were married or cohabiting. Seventy percent also met SCID-P criteria for alcohol abuse or dependence. The most common method of cocaine administration was smoking freebase cocaine (51%). The average amount of cocaine used per day for six months prior to treatment was 1.6 grams (SD = 1.9) and the average number of drinks per drinking day was 12.02 (SD = 0.97). The average frequency of cocaine use was 63 days (SD = 42) and the average frequency of alcohol use was 44 days (SD = 48) during the 6 months prior to treatment. Seventy five percent of the sample was interviewed at the 6-month follow-up. At 6-months, 42% of the follow-up sample had used cocaine and 33% had used alcohol, and the mean number of cocaine use days was 15.90 (SD = 26.08) and mean alcohol days was 10.29 (SD = 22.76).

PIL-R start of treatment was significantly correlated with age, $r = .11$, $p < .05$, and BDI score, $r = .61$, $p < .001$, but not with gender, marital status, employment status, or race. PIL-R was not significantly related to length of stay in treatment ($r = -.01$), treatment completion ($r = -.07$), and income in the past year ($r = -.16$). PIL-R was not significantly related to number of days cocaine was used ($r = -.04$) and number of days alcohol was used ($r = -.07$) in the 6 months prior to the intake interview.

Table 1 displays the unstandardized regression coefficients (B) and associated odds ratios of predicting any use of cocaine and any use of alcohol after entry of all IV's and the model chi-square for each step and significance for each step. Lower PIL-R significantly predicted use of cocaine (B = −.04, SE = .016, OR = .96, < .05) and use of alcohol (B = −.05, SE = .015, OR = .96, $p < .05$) after controlling for covariates. With all IVs in the equation, χ^2 (101) = 135.69, $p < .01$, for cocaine relapse, and χ^2 (101) = 133.54, $p < .01$, for alcohol relapse.

Table 2 displays the standardized regression coefficients (beta) and associated semipartial correlations (sr^2, indicating percent of variance accounted for by the variable) for predicting number of cocaine use days and number of alcohol use days after entry of all IV's, the R^2 change (percent of variance) for each step, and total R^2 after entry of each step. Lower PIL-R significantly predicted a higher number of cocaine use days (β = −.29, SE = .12, R^2 change = .05, $p<.01$) and a higher number of drinking days (β = −.31, SE = .12, R^2 change = .06, $p<.05$). With all IVs in the equation, R = .31, F(4, 102) = 2.75, $p < .05$ for number of cocaine use days, R = .37, F(4, 102) = 4.10, $p < .01$ for number of drinking days.

4. Discussion

Although spirituality has played a role in substance use treatment theory for many decades (Morgan, 1999), this study was the first to examine the role of one important aspect of spirituality, purpose in life, in predicting treatment outcomes in a cocaine dependent population. Having more purpose in life at baseline significantly predicted better substance use treatment outcomes for relapse and frequency of use of cocaine and alcohol among cocaine dependent patients, even after controlling for baseline depression, baseline substance use, and age. The magnitude of the effects for purpose in life predicting any use of cocaine and alcohol at follow-up were in the moderate range (Cohen's h=53). Although people reporting more depressive symptoms reported significantly less purpose in life, with 37% of variance shared, purpose in life predicted outcome above and beyond depressive symptoms. Since baseline purpose in life was not correlated with baseline substance using days, married or cohabiting status, or employment status, and shared only 1% of variance with age, the effects of purpose in life on substance use outcomes cannot be explained by these variables. Purpose in life was unrelated to pretreatment cocaine or alcohol use in this sample. This is consistent with some studies that have found a lack of relationship of purpose in life with current alcohol use (Brown et al., 1998; Waisberg & Porter, 1994; Amodeo, Kurtz & Cutter, 1992).

Findings suggest the possibility that treatment for substance dependence, as practiced at the community facility where the study took place, was more effective for individuals with more purpose in life or that these individuals were more able to take advantage of the treatment that was offered to them. The treatment offered at this facility was typical of many community facilities in that it was abstinence-oriented and blended 12-step principles with cognitive-behavioral skills to identify high-risk situations and alternatives. It is possible that people with greater spiritual focus may both have greater purpose in life (Ellens et al., 1988) and be more responsive to 12-step principles, or treatment may motivate change by highlighting discrepancies between the values associated with their purpose in life and the substance use behavior (Miller & Rollnick, 2002). People with little purpose in life may find less discrepancy with their behavior.

Results suggest that increasing purpose in life might in itself be one valuable focus of treatment. The fact that PIL-assessed purpose in life significantly increases during inpatient alcohol treatment (Jacobson et al., 1977; Waisberg & Porter, 1994) and 12-step treatment for substance dependence (Majer, 1992) suggests that purpose in life can be changed during treatment. One way could be to increase awareness of one's values (Miller & Rollnick,

2002) or long-term goals in life (Rohsenow et al., 2004) such as in motivational interviewing. 12-step programs could increase purpose in life by providing clear life goals: a sense of a higher power, or of a need to atone or to help others that may provide a sense of purpose. Cognitive-behavioral treatments could increase purpose in life by teaching skills that give clients more of a sense of hope or self-efficacy that conveys the idea that there is purpose in continuing to try to recover. Self-efficacy increases more after CBT than non-CBT treatment (Rohsenow et al., 2001) and self-efficacy has been found to predict cocaine use outcomes (Dolan, Martin & Rohsenow, 2008). Logotherapy is an existential therapy designed to increase purpose in life by emphasizing choice, responsibility, and living one's life consistent with one's personally meaningful values (Henrion, 1987), but it has not been the subject of any randomized trials.

Strengths of this study include its empirical attention to this spiritual construct, a reasonably sized, reasonably diverse sample of urban cocaine dependent individuals, and tests for the potential contribution of several possible confounding variables. The study's primary limitation is that purpose in life was examined only at baseline and only with one measure. There may be other valid ways developed to assess a sense of purpose or goals in life. Also, we did not measure other variables that may be related to purpose in life such as stressful life events, quality of life, and spirituality. Another limitation is that only patients at a single inner-city residential program were recruited. Despite the limitations, results clearly support future research on the role of purpose in life in substance dependence treatment.

Acknowledgments

This work was supported in part by grant R01DA11071 from the National Institute on Drug Abuse (to Damaris Rohsenow), by T32 AA07459, by K23 DA021159, and by a Career Scientist Award from the Department of Veterans Affairs. An earlier draft of part of the results was presented at the annual meeting of the Research Society on Alcoholism, Santa Barbara, CA, June, 2005.

References

Amodeo M, Kurtz N, Cutter HSG. Abstinence, reasons for not drinking and life satisfaction. International Journal of the Addictions 1992;7:707–716. [PubMed: 1612822]

Bandura, A. Social learning theory. Prentice-Hall; Englewood Cliffs, NJ: 1977.

Bandura, A. Self-efficacy: The exercise of control. Freeman; New York: 1997.

Baum S, Boxley R. Depression and old age identification. Journal of Clinical Psychology 1983;39:584–590. [PubMed: 6874999]

Beck AT, Ward CH, Mendelson M, Mock J, Erbaugh J. An inventory for measuring depression. Archives of General Psychiatry 1961;4:561–571. [PubMed: 13688369]

Brown JM, Ashcroft FG, Miller WR. Purpose in life among alcoholics: A comparison of three ethnic groups. Alcoholism Treatment Quarterly 1998;16(3):1–11.

Brown RA, Monti PM, Myers MG, Martin RA, Rivinus TM, Dubreuil ME, Rohsenow DJ. Depression among cocaine abusers in treatment: Relation to cocaine and alcohol use and treatment outcomes. American Journal of Psychiatry 1998;155:220–225. [PubMed: 9464201]

Carroll S. Spirituality and purpose in life in alcoholism recovery. Journal of Studies on Alcohol 1993;54:297–301. [PubMed: 8487537]

Clinebell HJ Jr. Philosophical-religious factors in the etiology and treatment of alcoholism. Quarterly Journal of Studies on Alcohol 1963;24:473–488. [PubMed: 14062849]

Crumbaugh JC. Cross-validation of Purpose in Life Test Based on Frankl's concepts. Journal of Individual Psychology 1968;24:74–81. [PubMed: 4385494]

Crumbaugh JC, Maholick L. An experimental study in existentialism: The psychometric approach to Frankl's concept of noogenic neurosis. Journal of Clinical Psychology 1964;20:200–207. [PubMed: 14138376]

Cummings, C.; Gordon, JR.; Marlatt, GA. Relapse: prevention and prediction. In: Miller, WR., editor. The Addictive Behaviors: Treatment of Alcoholism, Drug Abuse, Smoking, and Obesity. Pergamon Press; Elmsford, NY: 1980. p. 291-321.

Elkins DN, Hedstrom LJ, Hughes LL, Leaf JA, Saunders C. Toward a humanistic-phenomenological spirituality: Definition, description, and measurement. Journal of Humanistic Psychology 1988;28:5–18.

Ehrman RN, Robbins SJ. Reliability and validity of 6-month timeline reports of cocaine and heroin use in a methadone population. Journal of Consulting and Clinical Psychology 1994;62:843–850. [PubMed: 7962889]

Fetzer Institute/National Institute on Aging Working Group. Multidimensional measurement of religousness/spirituality for use in health research: A report of the Fetzer Institute/National Institute on Aging Working Group. Fetzer Institute; Kalamazoo, MI: 1999.

Finney JW, Moos RH, Mewborn CR. Posttreatment experiences and treatment outcome of alcoholic patients six months and two years after hospitalization. Journal of Consulting and Clinical Psychology 1980;48:17–29. [PubMed: 7365039]

First, MB.; Spitzer, RL.; Gibbon, M.; Williams, JBW. Structured Clinical Interview for DSM-IV Axis I Disorders - Patient Edition (SCID-I/P, Version 2.0). Biometrics Research Department, New York State Psychiatric Institute; New York, NY: 1995.

Frankl, VE. A Man's search for meaning. Washington Square Press; NY: 1984.

Frankl, VE. The will to meaning: Foundations and applications of Logotherapy. World Publishing; New York: 1969.

Greaves G. Toward an existential theory of drug dependence. Journal of nervous and Mental Disease 1981;159:263–370. [PubMed: 4473050]

Harlow LL, Newcomb MD, Bentler PM. Depression, self-derogation, substance use, and suicide ideation: Lack of purpose in life as a mediational factor. Journal of Clinical Psychology 1986;42:5–21. [PubMed: 3950015]

Harlow LL, Newcomb MD, Bentler PM. Purpose in Life Test assessment using latent variable methods. British Journal of Clinical Psychology 1987;26:235–236. [PubMed: 3664045]

Henrion R. Making logotherapy a reality in treating alcoholics. International Forum for Logotherapy 1987;10:112–117.

Hudspeth D, Canada R, Lim M, Jennings G. Purpose in life and teenage pregnancy. Family Therapy 1998;25:51–59.

Jacobson GR, Ritter DP, Mueller L. Purpose in life and personal values among adult alcoholics. Journal of Clinical Psychology 1977;33:314–316. [PubMed: 833324]

Krentzman AR, Farkas KJ, Townsend AL. Spirituality, Religiousness, and Alcoholism Treatment Outcomes: A Comparison between Black and White Participants. Alcoholism Treatment Quarterly 2010;28:128–150.

Kish G, Moody D. Psychopathology and life purpose. International Forum for Logotherapy 1989;12:40–45.

Kurtz, E. Not-God: A history of alcoholics anonymous. Hazelden Educational Services; Center City, MN: 1979.

Majer JM. Assessing the logotherapeutic value of 12-step therapy. International Forum for Logotherapy 1992;15:86–89.

Marlatt, GA.; Gordon, JR., editors. Relapse prevention: Maintenance strategies in the treatment of addictive behaviors. Guilford Press; New York: 1985.

Maslow, AH. Motivation and Personality. 3rd ed.. Harper & Row; New York: 1970.

McKay J, Pettinati H, Morrison R, Feeley M, Mulvaney F, Gallop R. Relation of depression diagnoses to 2-year outcomes in cocaine-dependent patients in a randomized continuing care study. Psychology of Addictive Behaviors 2002;16:225–235. [PubMed: 12236457]

Meier A, Edwards H. Purpose-in-Life Test: age and sex differences. Journal of Clinical Psychology 1974;30:384–386.

Miller WR. Spirituality: the silent dimension in addiction research. The 1990 Leonard Ball Oration. Drug and Alcohol Review 1990;9:259–266. [PubMed: 16840148]

Miller, WR.; Thorensen, CE. Spirituality and health. In: Miller, WR., editor. Integrating spirituality into treatment: Resources for practitioners. American Psychological Association; Washington, DC: 2000. p. 3-18.

Miller, WR.; Rollnick, S. Motivational interviewing: Preparing people for change. 2nd ed.. Guilford Press; New York: 2002.

Miller WR, Westerberg VS, Harris RJ, Tonigan JS. Section IIB. Extensions of Relapse Predictors Beyond High-Risk Situations. What predicts relapse? Prospective testing of antecedent models. Addiction 1996;91:S155–S171. [PubMed: 8997790]

Morgan, OJ. Addiction and spirituality in context. In: Morgan, OJ.; Jordan, M., editors. Addiction and spirituality. Chalice Press; St. Louis: 1999. p. 3-30.

Noblejas de la Flor MA. Meaning levels and drug-abuse therapy: An empirical study. International Forum for Logotherapy 1997;20:46–51.

Office of National Drug Control Policy. The Economic Costs of Drug Abuse in the United States, 1992–2002. Executive Office of the President; Washington, DC: 2004. Publication No. 207303

Padelford BL. Relationship between drug involvement and purpose in life. Journal of Clinical Psychology 1974;30:303–305. [PubMed: 4854084]

Reker GT, Cousins J. Factor structure, construct validity and reliability of the Seeking of Noetic Goals (SONG) and Purpose in Life (PIL) tests. Journal of Clinical Psychology 1979;35:85–91.

Reker GT, Peacock EJ, Wong PTP. Meaning and purpose in life and well-being: A life-span perspective. Journal of Gerontology 1987;42:44–49. [PubMed: 3794195]

Richardson K, Baillie A, Reid S, Morley K, Teesson M, Sannibale C, Weltman M, Haber P. Do acamprosate or naltrexone have an effect on daily drinking by reducing craving for alcohol? Addiction 2008;103:953–959. [PubMed: 18482418]

Robinson EAR, Cranford JA, Webb JR, Browler KJ. Six-Month Changes in Spirituality, Religiousness, and Heavy Drinking in a Treatment-Seeking Sample. Journal of Studies on Alcohol and Drugs 2007;68:282–290. [PubMed: 17286347]

Rohsenow DJ, Martin RA, Monti PM. Urge-specific and lifestyle coping strategies of cocaine abusers: Relationships to treatment outcomes. Drug and Alcohol Dependence 2005;78:211–219. [PubMed: 15845325]

Rokeach, M. Understanding Human Values: Individual and Societal. Simon & Schuster; New York: 1979.

Shean GD, Fechtmann F. Purpose in life scores of student marihuana users. Journal of Clinical Psychology 1971;27:112–113. [PubMed: 5539311]

Sobell LC, Sobell MB. Can we do without alcohol abusers' self-reports? The Behavior Therapist 1986;7:141–146.

Sobell, LC.; Sobell, MB. Alcohol Timeline Followback Users' Manual. Addiction Research Foundation; Toronto, Canada: 1995.

Stetz K. The relationship among background characteristics, purpose in life, and caregiving demands on perceived health of spouse caregivers. Scholarly Inquiry for Nursing Practice 1989;3:133–153. [PubMed: 2788913]

Tonigan, JS.; Miller, WR.; Connors, GJ. The search for meaning in life as a predictor of alcoholism treatment outcome. In: Longabaugh, R.; Wirtz, PW., editors. Project MATCH Hypotheses: Results and casual Chain Analyses. Vol. Vol. 8. Government Printing Office; Washington: 2001. p. 154-165.NIAAA Project MATCH Monograph SeriesNIH Publication No. 01-4238

Wagner, CC.; Sanchez, FP. The role of values in motivational interviewing. In: Miller, WR.; Rollnick, S., editors. Motivational interviewing: Preparing people for change. 2nd ed.. Guilford Press; New York: 2002. p. 284-298.

Waisberg JL, Porter JE. Purpose in life and outcome of treatment for alcohol dependence. British Journal of Clinical Psychology 1994;33:49–63. [PubMed: 8173543]

Westgate CE. Spiritual wellness and depression. Journal of Counseling and Development 1996;75:26–35.

Yalom, ID. Essential psychotherapy. Basic Books; New York, New York: 1980.

Table 1

Logistic regression analysis of pretreatment substance use, depression, age, and purpose in life predicting 6 month post-treatment use of cocaine, and alcohol.

Variable	B	Odds Ratio	Model χ^2	df
Cocaine use				
Step 1: Covariates			3.38	3
Age	.01	1.01		
BDI total score	−.03	.97		
Number of pretreatment cocaine use days	.01	1.01		
Step 2: Purpose in life			6.53*	1
PIL-R	−.04*	.96		
Alcohol use				
Step 1: Covariates			5.74	3
Age	.01	1.00		
BDI total score	−.09	.92		
Number of pretreatment cocaine use days	.01	1.01		
Step 2: Purpose in life			8.72**	1
PIL-R	−.05**	.96		

* $p < .05$

** $p \leq .01$

Table 2

Multiple regression analysis of pretreatment substance use, depression, age, and purpose in life predicting of 6 month post-treatment frequency and quantity of substance use

Variable	β	sr^2	R^2 change	R^2
Number of cocaine use days				
Step 1: Covariates			.05	.05
Age	−.05	−.05		
BDI total score	−.02	−.02		
Number of pretreatment cocaine use days	.10	.09		
Step 2: Purpose in life			.05**	.10**
PIL-R	−.29**	−.23		
Number of alcohol use days				
Step 1: Covariates			.08*	.08*
Age	−.01	−.01		
BDI total score	−.18	−.14		
Number of pretreatment alcohol use days	.26**	.25		
Step 2: Purpose in life			.06*	.14**
PIL-R	−.31*	−.24		

* $p < .05$

** $p \leq .01$