



UNIVERSITY
OF WOLLONGONG
AUSTRALIA

University of Wollongong
Research Online

Faculty of Health and Behavioural Sciences - Papers
(Archive)

Faculty of Science, Medicine and Health

2009

Do spirituality and religiosity help in the management of cravings in substance abuse treatment?

Sarah J. Mason
University of Wollongong

Frank P. Deane
University of Wollongong, fdeane@uow.edu.au

Peter Kelly
University of Wollongong, pkelly@uow.edu.au

Trevor P. Crowe
University of Wollongong, tcrowe@uow.edu.au

Publication Details

Mason, SJ, Deane, FP, Kelly, P & Crowe, TP, Do spirituality and religiosity help in the management of cravings in substance abuse treatment?, *Substance Use and Misuse*, 44(13), 2009, 1926-1940.

Research Online is the open access institutional repository for the University of Wollongong. For further information contact the UOW Library:
research-pubs@uow.edu.au

Do spirituality and religiosity help in the management of cravings in substance abuse treatment?

Abstract

The purpose of this study was to examine the relationship of spirituality, religiosity and self-efficacy with drug and/or alcohol cravings. A cross-sectional survey was completed by 77 male participants at an Australian Salvation Army residential rehabilitation service in 2007. The survey included questions relating to the participants' drug and/or alcohol use and also measures for spirituality, religiosity, cravings, and self-efficacy. The sample included participants aged between 19 and 74 years, with more than 57% reporting a diagnosis for a mental disorder and 78% reporting polysubstance misuse with alcohol most frequently endorsed as the primary drug of concern (71%). Seventy-five percent of the clients reported that spirituality and religious faith were useful components of the treatment program. A multivariate multiple regression analysis identified that spirituality and self-efficacy have significant relationships with cravings. Self-efficacy mediated the relationship between spirituality and drug and/or alcohol cravings. The limitations of this study included its cross-sectional design and a sample that was drawn from a faith-based program. Future research would benefit from the longitudinal examination of the relationship between spirituality, self-efficacy, and cravings; the exploration of a broader range of client-specific and interpersonal variables; and the inclusion of a control group from a secular treatment facility.

Keywords

help, do, management, cravings, substance, abuse, treatment, spirituality, religiosity

Disciplines

Arts and Humanities | Life Sciences | Medicine and Health Sciences | Social and Behavioral Sciences

Publication Details

Mason, SJ, Deane, FP, Kelly, P & Crowe, TP, Do spirituality and religiosity help in the management of cravings in substance abuse treatment?, *Substance Use and Misuse*, 44(13), 2009, 1926-1940.

This is a copy of the authors final peer-reviewed manuscript as accepted for publication. The article was published in Substance Use and Misuse. This article may not exactly replicate the final version published in the journal. It is not the copy of record.

<http://informahealthcare.com/doi/abs/10.3109/10826080802486723>

Please cite:

Mason, S., Deane, F. P., Kelly, P. & Crowe, T. (2009). Do spiritual and religious practices help in the management of cravings in substance abuse treatment? **Substance Use and Misuse**, 44. 1926 – 1940.

Running head: Spirituality and cravings

Do spirituality and religiosity help in the management of cravings in substance abuse treatment?

Sarah J. Mason, Frank P. Deane, Peter J. Kelly and Trevor P. Crowe

Illawarra Institute for Mental Health and School of Psychology

University of Wollongong, Australia

Preparation of this article was supported by the Australian Rotary Health Research Fund and The Salvation Army.

Author for correspondence: Frank Deane, Illawarra Institute for Mental Health, Building 22, University of Wollongong, Wollongong, NSW 2522, Australia. Telephone: +61 2 4221 4523, Email: fdeane@uow.edu.au.

Section of journal: Full-length article

Running head: SPIRITUALITY AND CRAVINGS

Do spirituality and religiosity help in the management of cravings in substance abuse treatment?

Keywords

Craving, religion, substance misuse, spirituality, residential, alcohol, coping

Abstract

The purpose of this study was to examine the relationship between spirituality, religiosity and self-efficacy with drug and/or alcohol cravings. A cross-sectional survey was completed by 77 male participants at an Australian Salvation Army residential rehabilitation service in 2007. The survey included questions relating to the participants' drug and/or alcohol use and also measures for spirituality, religiosity, cravings and self-efficacy. The sample included participants aged between 19 to 74 years, with more than 57 % reporting a diagnosis for a mental disorder and 78% reporting poly-substance misuse with alcohol most frequently endorsed as the primary drug of concern (71%). Seventy-five percent of clients reported that spirituality and religious faith were useful components of the treatment program. A multivariate multiple regression analysis identified that spirituality and self-efficacy have significant relationships with cravings. Self-efficacy mediated the relationship between spirituality and drug and/or alcohol cravings. The limitations of this study included its cross-sectional design and a sample which was only drawn from a faith-based program. Future research would benefit from the longitudinal examination of the relationship between spirituality, self-efficacy and cravings, the exploration of a broader range of client specific and interpersonal variables, and the inclusion of a control group from a secular treatment facility.

Do spirituality and religiosity help in the management of cravings in substance abuse treatment?

Self-reported experiences of craving for a substance whilst undergoing treatment have been linked to depression, low self-efficacy, psychological distress and relapse (Bottlender & Soyka, 2004; Daughters, Lejuez, Kahler, Strong & Brown., 2005; Gordon et al., 2006). A craving is defined by the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV) as a 'persistent desire to use a substance' (American Psychiatric Association, 2000, p. 201). This classification is consistent with craving being characterised as a subjective state where an individual experiences an intense desire to recommence past drug-taking behaviours (Kozlowski & Wilkinson, 1987).

Craving measures at entry to treatment have been found to predict relapse (e.g., Gordon et al., 2006; Bottlender & Soyka, 2004). Not only are those with higher levels of craving more likely to drop-out and relapse before completing their treatment program, but high craving at treatment completion predicted relapse at a 12 month follow-up (Bottlender & Soyka, 2004). Further, Gordon et al. (2006) found that increased craving in the week prior to discharge predicted relapse more effectively than treatment duration or levels of alcohol severity measured at admission.

In contrast, factors such as self-efficacy, spirituality, and religiosity may improve substance abuse outcomes. Self-efficacy can be defined as an individual's belief that he or she can effectively cope with difficult situations (Bandura, 1986). For substance misuse, self-efficacy is considered important in preventing relapse and increasing confidence in high relapse-risk situations (Greenfield et al., 2000; Ilgen, McKellar & Tiet, 2005; Moos, 2007; Walton et al., 2003). Self-efficacy can be measured in terms of situational confidence and through these measures research suggests that higher self-efficacy is associated with decreased relapse

(Greenfield et al., 2000; Ilgen et al., 2005). Gordon et al., (2006) also found that participants who were experiencing increased cravings for alcohol were less confident about the ability to refuse alcohol.

The role of spirituality and religion in managing substance abuse has been of increasing interest to researchers (Geppert, Bogenschutz & Miller, 2007). However, whilst spirituality and religion are related constructs, theoretically they are distinct. Spirituality is considered to be a predominantly individual experience, whereas religiosity is often thought to include individual and institutionalised components (Seidlitz et al., 2002). Religiosity is generally characterised by an involvement with a religious institution that contains prescribed theology and rituals (Seidlitz et al., 2002). In contrast, spirituality is often referred to as a subjective experience involving personal experiences with a higher power or sensing the mysteries of existence (Sussman, Nezami & Mishra, 1997).

The combined roles of spirituality and self-efficacy on craving have rarely been evaluated. Spiritual well being has been positively correlated with abstinence self efficacy at both intake and discharge to a 3-week outpatient treatment facility (Piderman, Schneekloth, Pankratz, Maloney and Altchuler, 2007). A study involving telephone interviews of 130 participants 3 months after completing an inpatient alcohol treatment program included measures of cravings, spirituality and self-efficacy being collected at intake, during treatment and at end of treatment (Gordon et al., 2006). As noted, craving prior to discharge was related to drinking relapse at 3 month follow-up. At follow-up, “two distinct clusters of participants” were identified, those who reported no craving to drink (59%) and those still actively craving (41%). Discriminant function analysis indicated that the active cravers were more likely to have entered treatment with lower levels of spirituality and self-efficacy for refusing alcohol and higher levels

of depression (Gordon et al., 2006). The authors noted that limitations of their study were the use of a single item craving measure and a relatively homogeneous sample of white, middle-aged individuals who were primarily alcohol-dependent.

Some effort has been made to articulate a conceptual substance abuse behaviour change model incorporating spiritual transformation processes. Neff and MacMaster (2005, p. 674) suggested that “an intervention which enhances a sense of spirituality, meaning, forgiveness, and spiritual connectedness, thus motivating further engagement into program activities (i.e., enhancing social integration), may enhance social support and peer influence processes”. These authors reflect upon the existential characteristics of spiritual transformation, with an emphasis on the “radical (though not necessarily sudden) change in the self” in relation to contact with “other” (including a higher power and/or their social environment) (Neff & MacMaster, 2005, p. 674). Although this model recognises a range of faith-based interventions (e.g. acceptance, forgiveness, discipline, etc), readiness factors and the likely influence of social learning processes and environments, there is a suggestion that a person’s initial levels of spirituality is likely to be associated with social engagement, self-efficacy and positive coping with substance use stressors such as craving.

The aim of the current research is to extend prior findings by exploring the relationship between spirituality, religiosity and self-efficacy with cravings. A description of participants’ perception of the usefulness of religious and spiritual practices for helping them cope with cravings is provided. It is hypothesised that there will be a negative relationship between spiritual and religious beliefs and self-reported cravings. Self-efficacy will be negatively associated with cravings and positively related to spirituality and religiosity. Although it is unclear exactly how spirituality operates to predict craving, it is possible that spirituality may

improve one's sense of confidence in a range of situations (self-efficacy) and the capacity of individuals to effectively cope with cravings over the course of treatment. The researchers recognise the complexity of the intrapersonal, interpersonal and existential factors associated with spirituality and change processes, thus this is clearly a pilot study aimed at clarifying the associations between but a few of these variables. Never the less, it is hypothesised that the relationship between spirituality and cravings will be mediated by self-efficacy.

Method

The Program

The study was conducted at the Lake Macquarie Recovery Service Centre (LMRSC) which is a male only rehabilitation centre for substance misuse run by The Salvation Army in New South Wales, Australia. The long-term residential program is known as the 'Bridge Program' and lasts for eight to ten months with variation dependent on individual needs. The program is abstinence-based and is primarily involved in treating problems associated with drugs and alcohol. As a faith-based treatment provider, spirituality is an important component of the program. This spiritual aspect of recovery is explored through involvement in 12-step program activities (e.g. Alcoholics Anonymous meetings) and regular attendance at onsite chapel services. The chapel services are Christian based and are run through The Salvation Army church. The treatment program also includes a range of psycho-social intervention modules such as cognitive behavioural therapy, social skills training, individual and group therapy delivered with a therapeutic milieu aimed at maximising the benefits of a therapeutic community.

Participants

Participants consisted of 77 males who were currently residing in the LMRSC. The age of the participants ranged between 19 to 74 years with the average age being 37.01 years ($SD =$

11.10). Co-morbidity of a mental illness with a substance use disorder was a common factor for residents in the LMRSC. This included 57.1% of the residents self-reporting a previous diagnosis for a mental disorder, with the highest prevalence of mood (31%) or psychotic type disorders (19%; See Table 1). The primary drug of concern was alcohol (71.4%).

Measures

Background Information. Basic background information was obtained from the participants in order to maintain confidentiality, and decrease acquiescence, deference or social threat (Kleinig, 2004). The questions included asking the participants age and if English was their preferred language. Questions were also asked regarding prior drug use and treatment history. The items were adapted from the Brief Treatment Outcome Measure (BTOM; Lawrinson, Copeland & Indig, 2005). This included the types of substance(s) that had been used in the last 12 months, the substance(s) for which they were seeking treatment, and length (years) of substance abuse problems. In each question the participant could endorse more than one response from a list. Treatment history items included, prior treatment sought for their current problematic substance use, prior access to a residential rehabilitation treatment service and previous access to self-help groups such as AA and NA. Participants were also asked if they had ever received treatment for a mental health problem and if they had they were asked to specify their diagnosis.

Desires for Alcohol Questionnaire (DAQ; Clark, 1994). The short form of the DAQ is an 8-item questionnaire that loads on three factors known as negative reinforcement, mild desire and strong desire (Kavanagh et al., 2007). Three questions that loaded on the 'strong desire' factor were used in this current study (e.g 'My desire to drink and/or use drugs now seems overwhelming'). The questions for the DAQ were modified to reflect both drug and alcohol

cravings. Reliability analyses for the DAQ were conducted on the three factors for the original 36 item version of the DAQ. An internal consistency for the 'strong desires and intentions to use alcohol' factor revealed a Cronbach alpha of 0.97 (Love et al., 1998). In the present study the Cronbach alpha was 0.79.

Obsessive Compulsive Drinking Scale (OCDS; Anton et al., 1995). Similar to the DAQ, the OCDS also measures cravings associated with alcohol. The OCDS consists of two subscales and is 14 items in length. The compulsive subscale was not used for the current study as the compulsive aspects associated with drinking behaviour were not relevant for the participants whilst they were residing in a rehabilitation centre. The Obsessive Drinking Sub-Scale (ODS) contained the first six items of the OCDS and measured thoughts and cravings associated with drinking. A previous study also used the obsessive sub-scale and found it to be a good predictor of alcohol cravings and drinking behaviours for the previous week of treatment (Flannery et al., 2001). The ODS scale was also modified for this study in order to assess cravings associated with both drugs and alcohol (e.g., 'How much distress or disturbance do these ideas, thoughts, impulses, or images related to drinking or using drugs cause you when you're not drinking or using drugs?') The OCDS was found to have good reliability with an internal consistency in the range of 0.84-0.87 (Anton et al., 1995). The internal consistency for the obsessive thoughts subscale was also good with an alpha of 0.85 (Anton et al., 1995). In the present study the Cronbach alpha was 0.86.

Drug Taking Confidence Questionnaire (DTCQ; Sklar, Annis & Turner, 1999). This is an 8-item self report questionnaire that measures a person's self-efficacy in terms of resisting the urge to drink alcohol or take drugs in specific high relapse risk situations. The scale was used in this current study to determine the extent participants' utilised self-efficacy as a means of coping

with recovery. This was calculated by asking participants to rate their confidence in different high relapse risk situations on a scale from 0 to 100%. The scores were then averaged to form an overall confidence percentage. The construct validity of the DTCQ was supported by positive correlations with measures of confidence and motivation to quit drinking or using drugs and negative correlations with a measure of difficulty quitting drugs and alcohol (Sklar & Turner, 1999). Also the DTCQ had a Cronbach alpha coefficient of 0.89 (Sklar & Turner, 1999). In the present study the Cronbach alpha was 0.90.

Religious Background and Behaviours (RBB; Connors et al., 1996). This is a 13-item self-report questionnaire that measures an individual's affiliation with religious practices and its associated behaviours (Connors et al., 1996). Example items include asking whether the respondent considers themselves spiritual, religious, atheist, agnostic or unsure. Also participants were asked to report how much time was spent in religious activities such as prayer or attending a worship service. The RBB has a good internal consistency with a Cronbach's alpha of 0.86 (Connors et al., 1996). In the present study the Cronbach alpha was 0.82. The RBB has been frequently used as a measure of religiosity with its most notable use as a measure of religious beliefs for project MATCH, a multi-site clinical trial of treatment centres for alcohol misuse (Project MATCH Research Group, 1993).

Non Drug Use Spirituality Index (NUSI; Sussman et al., 2005). Participants were provided a definition of spirituality at the beginning of this section. The statement was "Spirituality can be defined as personal beliefs and practices that lead to a sense of connection with the divine or energies in life" (Seidlitz et al., 2002). This NUSI is a 7-item questionnaire that aims to measure an individual's perceived level of spirituality, participation in spiritual groups, and engagement in spiritual practices (Sussman, Skara, De Calice, Hoffman, & Dent,

2005). The NUSI has satisfactory internal reliability with an alpha coefficient of 0.80 (Sussman, Skara, Rodriguez & Pokhrel, 2006). In the present study the Cronbach alpha was 0.86.

Spirituality in Treatment (SIT). A measure of the perceived helpfulness of spirituality was developed for the present study in order to determine the extent spirituality is utilised by individuals undergoing a spiritual-based treatment. Items 1, 2 and 3 were adapted from the Perceived Helpfulness of Spirituality scale (Arnold et al., 2002). The SIT involves 6 items that are rated on a 5 point scale ranging from 1 (Not at all) to 5 (Extremely). The items include questions regarding the helpfulness of spirituality and religious faith, in treatment, in increasing feelings of hopefulness, in coping with cravings, helping with recovery, finishing treatment and preventing relapse. A reliability analysis found a Cronbach alpha of 0.95 for the current study

Procedure

The research protocols received ethical review and approval from the University of Wollongong Human Ethics Committee and The Salvation Army. Participants were informed of the research by The Salvation Army staff in group meetings held at the treatment facility, two weeks preceding the data collection period and again in a routine morning meeting on the day of research data collection. These briefings included a discussion regarding the potential benefits the study offered in relation to improving treatment program components and delivery strategies. On all occasions the voluntary nature of participation was emphasised and participants were given the option of placing a blank survey in the envelopes provided if they did not wish to participate. This process, particularly letting potential participants know about the study 2 weeks prior to data collection, allowed ample time for participants to consider participation without undue pressure, ensured informed consent was obtained and that feelings of obligation to participate were minimised (Kleinig, 2004). All residents on site attended a large group meeting

for the purpose of this research. Research staff from the University of Wollongong (an experienced addictions clinician/researcher and an honours student) briefed the participants on the nature of the study and once again reinforced the voluntary nature of the research. The questionnaire was distributed to all of the participants. LMRSC staff and researchers were present while the questionnaire was completed to answer any questions by the participants. It took participants approximately 30 minutes to complete the questionnaire. All but three of the residents agreed to participate and completed the survey. An additional two participants' responses were not included as they were receiving treatment for gambling problems alone.

Results

The average time spent in the Lake Macquarie Recovery Service Centre (LMRSC) at the time of assessment was 114.03 days ($SD = 91.70$). For many of the residents this was not the first time they had accessed treatment for their problematic substance use with 64.9% acknowledging past attempts at treatment. Based on participants' self-report, the length of problematic substance use in an individual's lifetime ranged between 3 to 50 years with the average time being 18.15 years ($SD = 9.03$). It was also found that 82.2% of the participants were experiencing problematic substance use before the age of 21. The average age of problem onset was $M = 18.59$ years, ($SD = 9.35$; Median = 16 years). Most participants were poly-substance users with 77.9% reporting the use of more than one substance in the past 12 months and 58.4% receiving treatment for poly-substance misuse. Additional descriptive information about the participants' drug use, mental health history, religious affiliations and beliefs can be found in Table 1.

Insert Table 1

To examine individuals' attitudes towards the inclusion of spirituality and religious faith in treatment the measure of Spirituality in Treatment (SIT) was included. The frequencies displayed in Table 2 indicate that spirituality and religious faith were useful for over 75% of participants for various treatment foci. Spirituality and religious faith were perceived as the most useful for when the participants finish treatment.

Insert Table 2

Exploration of assumption violations for anticipated analyses found skewed data for a number of the variables that did not meet the normality assumption. Transformations were conducted on both craving scales (DAQ and OCDS) and the spirituality scale data (NUSI) (following the guidelines of Tabachnik & Fidell, 2007). The transformations included calculating the square root for the craving subscales DAQ and OCDS. For the NUSI spirituality scale it was necessary to reflect and square root the data. The transformations resulted in improved distributions that approximated normality. For ease of expression the original names of variables will be used. Pearson's bivariate correlations between the variables are displayed in Table 3.

A statistically significant inverse relationship was found between cravings and spirituality ($r = -.30$). There were positive correlations found between spirituality and self-efficacy ($r = .33$) and spirituality and religiosity ($r = .69$). Self-efficacy was negatively correlated with cravings ($r = -.42$).

Insert Table 3 about here

Based on the hypothesis that there will be a negative relationship between spiritual and religious beliefs and self-reported cravings a multivariate multiple regression analysis was conducted. The results indicate that spirituality has a significant influence on cravings ($\beta = -.33, p = 0.04$). However there was no significant effect for the influence of religiosity on cravings ($\beta = .05, p = 0.75$).

The R^2 suggests that spirituality and religion account for 8.9% of the variance in cravings. It was further hypothesised that self-efficacy will be negatively associated with cravings. It was found that self-efficacy had a significant influence on cravings ($\beta = -.34, p = .01$).

The Sobel test was used to examine the hypothesis that self-efficacy mediates the relationship between spirituality and craving (Sobel, 1982). Confirmation is based on all conditions being met for mediation and a significant result on the Sobel test (Baron & Kenny, 1986). An interactive program that calculated the Sobel statistic was accessed from Preacher and Leonardelli (2003). The mediator model is demonstrated in Figure 1. The values on each path are standardised coefficients (β) and the values in parentheses are standardised partial regression coefficients from multiple regression equations that include the other variable with a direct effect on the dependent variable (see Holmbeck, 2002)

Insert Figure 1

The effect of mediation can be established based on three criteria outlined by Baron and Kenny (1986). In the regression analyses (1) spirituality must affect self-efficacy, (2) spirituality must affect cravings and (3) self-efficacy must affect cravings. For perfect mediation spirituality should have no effect on cravings when controlled for self-efficacy.

For the first condition spirituality predicted self-efficacy ($\beta = .33, p = .01$). The R^2 indicated that 10.7% of the variance in self-efficacy was being explained by spirituality. For the second condition spirituality predicted cravings ($\beta = -.30, p = .01$). The R^2 resulted in 8.7% of the variance in cravings being explained by spirituality. Within a covariate analysis spirituality decreased in significance ($\beta = -.17, p = .14$) whilst a significant relationship was found between self-efficacy and cravings ($\beta = -.35, p = .00$). The inclusion of self-efficacy into the regression equation increased the explained variance to 19.3%. Results from the Sobel test confirmed the mediation model with a test

statistic of $-2.00, p = .05$. This indicates that self-efficacy is mediating the relationship between spirituality and cravings, where as spirituality and self-efficacy increase, cravings decrease.

Discussion

The current study explored the relationships between spirituality, religiosity, self efficacy and cravings. Spirituality and religion are often utilized and researched as the same construct but there is evidence to suggest while they may be related, they are also distinct constructs (Pardini et al., 2000; Seidlitz et al., 2002). The results from this study established an association between spirituality and religiosity. However, further analysis confirmed the suggestion that spirituality and religiosity are also distinct, based on their unique relationships with other constructs. Spirituality had significant associations with cravings and self-efficacy, whereas, these were not found to be significant for religiosity. Similarly, in prior studies, when spirituality and religiosity have been measured separately, different outcomes were found for each construct (Arnold et al., 2002; Galanter, 2006; Webb et al., 2006).

In the present study, spirituality is related to cravings such that as spirituality increases, cravings decrease. These findings extend those of Gordon et al. (2006) by not only including a multi-item measure of spirituality and a more diverse patient sample, but by also including religiosity in the analysis. The results suggest that religiosity was not related to cravings.

Research on the influence of self-efficacy in treatment has also found that increased self-efficacy is a significant predictor of drinking outcome (Long, Williams, Midgley & Hollin, 2000) and is negatively associated with cravings (Loeber, Croissant, Heinz, Mann & Flor, 2006; Gordon et al., 2006). In the current study the hypothesis that spirituality would be positively correlated with self-efficacy was confirmed. Spiritual well-being has also previously been significantly associated with abstinence self-efficacy (Piderman et al., 2007).

It was also hypothesised that self-efficacy would mediate the relationship between spirituality and cravings. This hypothesis was based on the evidence that higher spirituality was associated with lower cravings (Gordon et al., 2006) and higher self-efficacy was related to lower cravings (Walton et al., 2003). The results from the current study confirmed that self-efficacy mediates the relationship between spirituality and cravings. This suggests that spirituality leads to an increase in self-efficacy which in turn relates to a decrease in cravings. However, it should be noted that the increase of spirituality and self-efficacy and its association with cravings could be attributed to other personal characteristics, strengths or weaknesses that may affect the individual's ability to adapt to relevant components of their treatment. For example, affiliation with treatment assumptions, treatment readiness and expectations, resilience and attitudinal factors may affect the strength of this association.

Participants were also asked questions related to the usefulness of spirituality in treatment to help manage situations such as their recovery, cravings and relapse. More than 75% of participants considered spirituality useful in increasing feelings of hopefulness, and also helping to cope with cravings. Over 80% of participants also considered spirituality would be helpful in the maintenance of recovery, the completion of the treatment program and would also help to prevent relapse. The participants in this treatment centre appeared to consider the inclusion of spiritual and religious components as a useful aspect of substance abuse treatment.

Results from this study should be viewed cautiously due to several limitations. The most important limitation relates to the cross-sectional design of the study. Based on this limitation, causality can not be determined between the variables examined in this study. Additionally, the measures used within the study relied on self report. We do not have measures of the actual behaviours (eg. monitoring the number of chapel sessions attended) or measure cravings in the

presence of the individuals' drug of choice where we might capture more immediate cravings. Another potential limitation was that it was conducted within a faith-based treatment centre. Based on the exploratory nature of this study, this was deemed necessary in order to investigate the relations between spirituality and other variables that may be relevant to substance abuse treatment. It is also possible that individuals with strong spiritual beliefs may be more comfortable and accepted in faith-based programs compared to those who do not subscribe to such beliefs. This may be an additional moderating variable that in turn impacts on self-efficacy and expectations that the program will help their recovery. These additional intervening variables are likely to interact to impact on cravings and recovery. The implications of such considerations are that the more open a program is to a range of religious and spiritual beliefs, the more likely it will connect with a greater proportion of clients who seek help.

Future research on these variables may be enhanced with the inclusion of a control group that further looks at participants receiving treatment for substance misuse in a secular treatment facility. Also all participants in this study were male as the rehabilitation centre is a male only facility. Research examining gender differences for substance abuse has found no differences for males and females in relation to self-efficacy, coping and relapse rates (Walitzer & Dearing, 2006). However, further research may be required to determine if gender differences occur with regard to spirituality, self efficacy and the experience of cravings.

Given that cross-sectional research confirmed the hypothesised relationships, future research should now examine the longitudinal development of spirituality, self-efficacy and craving intensity. Better understanding of the sequential changes in these variables, and potentially the inclusion of other variables, during treatment will potentially guide the development of future substance abuse treatment programs.

References

- American Psychiatric Association (2000). *Diagnostic and statistical manual of mental disorders* (4th ed.). (Text Revision). Washington, DC: Author.
- Anton, R. F., Moak, D. H., & Latham, P. (1995). The Obsessive Compulsive Drinking Scale: A self-rated instrument for the quantification of thoughts about alcohol and drinking behavior. *Alcoholism: Clinical and Experimental Research*, *19*, 92-99.
- Arnold, R. M., Avants, S. K., Margolin, A., & Marcotte, D. (2002). Patient attitudes concerning the inclusion of spirituality into addiction treatment. *Journal of Substance Abuse Treatment*, *23*, 319-326.
- Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory*, New Jersey: Prentice Hall.
- Baron, R. M., & Kenny, D. A. (1986). The moderator-mediator variable distinction in social psychological research: Conceptual, strategic and statistical considerations. *Journal of Personality and Social Psychology*, *51*(6), 1173-1182.
- Bottlender, M., & Soyka, M. (2004). Impact of craving on alcohol relapse during, and 12 months following, outpatient treatment. *Alcohol & Alcoholism*, *39*, 357-361.
- Clark, D. (1994) Craving for alcohol. *Journal of Psychopharmacology*, *9*, 73.
- Connors, G. J., Tonigan, J. S., & Miller, W. R. (1996). A measure of religious background and behaviour for use in behaviour change research. *Journal of Addictive Behaviors*, *10*, 90-96.
- Daughters, S. B., Lejuez, C. W., Kahler, C. W., Strong, D. R., & Brown, R. A., (2005). Psychological distress tolerance and duration of most recent abstinence attempt among

- residential treatment-seeking substance abusers. *Psychology of Addictive Behaviours*, *19*(2), 208-211.
- Flannery, B. A., Roberts, A. J., Cooney, N., Swift, R. M., Anton, R. F., & Rohsenow, D. J. (2001). The role of craving in alcohol use, dependence, and treatment. *Alcoholism: Clinical and Experimental Research*, *25*(2), 299-308.
- Galanter, M. (2006). Spirituality and addiction: A research and clinical perspective. *American Journal of Addictions*, *15*, 286-292.
- Geppert, C., Bogenschutz, M. P., & Miller, W. R. (2007). Development of a bibliography on religion, spirituality and addictions. *Drug and Alcohol Review*, *26*, 389-395.
- Gordon, S. M., Sterling, R., Siatkowski, C., Raively, K., Weinstein, S., & Hill, P. C. (2006). Inpatient desire to drink as a predictor of relapse to alcohol use following treatment. *American Journal of Addictions*, *15*, 242-245.
- Greenfield, S. F., Hufford, M. R., Vagge, L. M., Muenz, L. R., Costello, M. E., & Weiss, R. D. (2000). The relationship of self-efficacy expectancies to relapse among alcohol dependent men and women: A prospective study. *Journal of Studies on Alcohol*, *61*, 345-351.
- Holmbeck, G. N. (2002). Post-hoc probing of significant moderational and mediational effects in studies of pediatric populations. *Journal of Pediatric Psychology*, *27*(1), 87-96.
- Ilgen, M., McKellar, J., & Tiet, Q., (2005). Abstinence self-efficacy and abstinence 1 year after substance use disorder treatment. *Journal of Consulting and Clinical Psychology*, *73*(6), 1175-1180.

- Kavanagh, D. J., May, J., Andrade, J. (2007). Tests of the elaborated intrusion theory of craving and desire: Intrusive thoughts, craving, imagery and negative mood during treatment for an alcohol disorder. *Submitted For Publication*.
- Kleinig, J. (2004). Ethical issues in substance use intervention. *Substance Use & Misuse, 39*, 369-398.
- Kozlowski, L. T., & Wilkinson, D. A. (1987). Use and misuse of the concept of craving by alcohol, tobacco, and drug researchers. *British Journal of Addiction, 82*, 31-36.
- Lawrinson, P., Copeland, J., & Indig, D. (2005). Development and validation of a brief instrument for routine outcome monitoring in opioid maintenance pharmacotherapy services: The brief treatment outcome measure (BTOM). *Drug and Alcohol Dependence, 80*, 125-133.
- Loeber, S., Croissant, B., Heinz, A., Mann, K., & Flor, H. (2006). Cue exposure in the treatment of alcohol dependence: Effects on drinking outcome, craving and self-efficacy. *British Journal of Social & Clinical Psychology, 45*(4), 515-529.
- Long, C. G., Williams, M., Midgley, M., & Hollin, C. R. (2000). Within-program factors as predictors of drinking outcome following cognitive behavioral treatment. *Addictive Behaviors, 25*(4), 573-578.
- Love, A., James, D., & Willner, P. (1998). A comparison of two alcohol craving questionnaires. *Addiction, 93*(7), 1091-1102.
- Moos, R. H. (2007). Theory-based processes that promote the remission of substance use disorders. *Clinical Psychology Review, 27*, 537-551.

- Pardini, D. A., Plante, T. G., Sherman, A., & Stump, J. E. (2000). Religious faith and spirituality in substance abuse recovery: Determining the mental health benefits. *Journal of Substance Abuse Treatment, 19*, 347-354.
- Piderman, K. M., Schneekloth, T. D., Pankratz, S., Maloney, S. D., & Altchuler, S. I. (2007). Spirituality in alcoholics during treatment. *The American Journal on Addictions, 16*, 231-237.
- Preacher, K. J., & Leonardelli, G. J. (2003). *Calculation for the Sobel test: An interactive calculation tool for mediation tests*. Retrieved July 3, 2007, from <http://www.psych.ku.edu/preacher/sobel/sobel.htm>
- Project MATCH Research Group (1993). Project MATCH: Rationale and methods for a multisite clinical trial matching patients to alcoholism treatment. *Alcoholism: Clinical and Experimental Research, 17*, 1130-1145.
- Seidlitz, L., Abernethy, A. D., Duberstein, P. R., Evinger, J. S., Chang, T. H. & Lewis, B. L. (2002). Development of the Spiritual Transcendence Index. *Journal for the Scientific Study of Religion, 41*, 439-453.
- Sklar, S. M., Annis, H. M., & Turner, N. E. (1999). Group comparisons of coping self-efficacy between alcohol and cocaine abusers seeking treatment. *Psychology of Addictive Behaviors, 13*(2), 123-133.
- Sklar, S. M., & Turner, N. E. (1999). A brief measure for the assessment of coping self-efficacy among alcohol and other drug users. *Addiction, 94*(5), 723-729.
- Sobel, M. E. (1982). Asymptotic intervals for indirect effects in structural equations models. In S. Leinhardt (Ed.), *Sociological methodology 1982* (pp.290-312). San Francisco: Jossey-Bass.

- Sussman, S., Nezami, E., & Mishra, S. (1997). On operationalizing spiritual experience for health research and practice. *Alternative Theories in Clinical Practice, 4*, 120-125.
- Sussman, S., Skara, S., de Calice, P., Hoffman, B., Dent, C. W. (2005). Spirituality as a 1-year prospective predictor of violence perpetration and drug use among youth at continuation high schools. *Journal of Applied Social Psychology, 35*(1), 80-99.
- Sussman, S., Skara, S., Rodriguez, Y., & Pokhrel, P. (2006). Non drug use- and drug use-specific spirituality as one-year predictors of drug use among high-risk youth. *Substance Use & Misuse, 41*, 1801-1816.
- Tabachnick, B. G., & Fidell, L. S. (2007). *Using multivariate statistics* (5th ed.). Allyn and Bacon: Boston.
- Walitzer, K. S., & Dearing, R. L. (2006). Gender differences in alcohol and substance use relapse. *Clinical Psychology Review, 26*, 128-148.
- Walton, M. A., Blow, F. C., Bingham, R., & Chermack, S. T. (2003). Individual and social/environmental predictors of alcohol and drug use 2 years following substance abuse treatment. *Addictive Behaviors, 28*(4), 627-642.
- Webb, J. R., Robinson, E. A., Brower, K. J., & Zucker, R. A., (2006). Forgiveness and alcohol problems among people entering substance abuse treatment, *Journal of Addictive Diseases, 25*(3), 55-66.

Table 1.

Demographic Information (N = 77)

Characteristics	<i>n</i> (%)	Characteristics	<i>n</i> (%)
Diagnosis *		Substances for Treatment *	
Depression	15 (19.5)	Alcohol	55 (71.4)
Bipolar Disorder	9 (11.7)	Cannabis	37 (48.1)
Schizophrenia	8 (10.4)	Amphetamines	35 (45.5)
Drug-Induced psychosis	7 (9.0)	Ecstasy	13 (16.9)
Personality Disorder	3 (3.9)	Cocaine	10 (13.0)
Other	2 (2.6)	Heroin	10 (13.0)
		Other	13 (16.9)
Religious Affiliation		Beliefs	
Christian	59 (76.6)	Spiritual	38 (49.4)
None	12 (15.6)	Religious	22 (28.6)
Other	6 (7.8)	Unsure	8 (10.4)
		Other	9 (11.7)

* Participants could provide more than one answer so totals may be greater than 100%

Table 2.

Frequency Scores for Spirituality in Treatment (SIT) Measure (n = 74)

Item	Mean	SD	n (%)*
Help with treatment completion	3.81	1.17	64 (86.5)
Helpfulness of spirituality and religion in treatment	3.72	1.26	61 (82.4)
Help with recovery	3.65	1.22	62 (83.8)
Help prevent relapse	3.65	1.30	60 (81.1)
Help with feelings of hopefulness	3.58	1.39	59 (79.7)
Help cope with your cravings	3.34	1.35	56 (75.7)

Note: Mean Scores are from 5-point scale with 1 = Not at all and 5 = Extremely

*Frequency calculated for scores rated from 3 = Moderately to 5 = Extremely

Table 3.

Pearson's correlations between cravings, self efficacy, religiosity and spirituality.

	1	2	3	4	5
1 Craving (DAQ) ^a	-				
2 Craving (OCDS)	.50**	-			
3 Self-Efficacy ^b	-.42**	-.51**	-		
4 Religiosity ^a	-.17	-.10	.21	-	
5 Spirituality ^c	-.30*	-.15	.33**	.69**	-

Note: ** Correlation is significant at $p < 0.01$ (2-tailed); * Correlation is significant at $p < 0.05$ (2-tailed). ^aN = 77; ^bN = 76; ^cN = 74

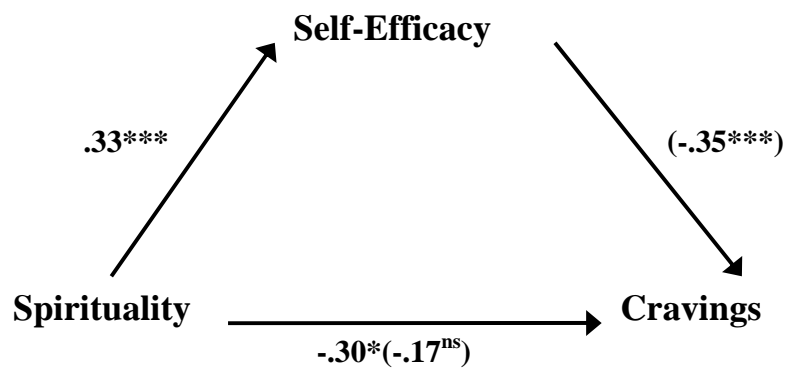


Figure 1: Mediation model for associations between spirituality and cravings as mediated by self-efficacy.

***= $p < 0.00$; **= $p < 0.01$; *= $p < 0.05$