Exploring Relationships between Adult Attachment, Spirituality and Personality Disorder Traits among Individuals in In-patient Treatment for Substance Use Disorders

E. Gail Horton (Corresponding Author)

School of Social Work, Florida Atlantic University

777 W. Glades Rd, SO303, Boca Raton, FL, 33431, United States

Tel: 1-561-297-3234 E-mail: ehorton2@fau.edu

Naelys Luna

School of Social Work, Florida Atlantic University

777 W. Glades Rd, SO303, Boca Raton, FL, 33431, United States

Tel: 1-561-297-3234 E-mail: ndiaz10@fau.edu

Tammy Malloy

Behavioral Health of the Palm Beaches, Inc.

631 US Hwy 1, Suite 304, N. Palm Beach, FL 33408, United States

Tel: 561-465-1040 E-mail: tmalloy@bhpalmbeach.com

Abstract

Both secure attachment style and higher levels of spirituality have been shown to be protective factors in the treatment of substance use disorders. However, very little is known about how either of these factors is related to personality disorder (PD) traits that are

commonly co-morbid with substance use disorders. The purpose of this study was to explore the relative importance of spirituality (existential purpose/meaning in life and religious well-being) and attachment dimensions (attachment avoidance and attachment anxiety) as predictors of personality disorder trait levels among individuals receiving treatment for substance use disorders. Results showed that existential purpose and meaning in life was the best predictor of clinical/subclinical levels of borderline and antisocial PD traits and that attachment anxiety was the best predictor of clinical/subclinical levels of avoidant and dependent PD traits. None of the other PD traits was significantly associated with either attachment dimensions or spirituality dimensions.

Keywords: Substance abuse, Personality disorder, Spirituality, Attachment

1. Introduction

According to the National Institute on Drug Abuse (2015), the cost of alcohol and drug abuse in the United States runs in excess of $410 billion per year through costs related to crime and crime prevention, losses in work productivity and health care. An additional $600 billion is spent on treatment. Therefore, it is important to identify and understand risk and protective factors associated with substance abuse so that these costs can be reduced and the lives of those affected by substance use disorders (SUD) can be improved. One risk factor that researchers have been exploring is the presence of co-occurring personality disorders. Research has shown high comorbidity rates between SUD and personality disorders (PD) (Ball, Nich, Rounsaville, Eagan, & Carroll, 2004; Cacciola, Alterman, McKay, & Rutherford, 2001; Grant et al., 2004; Marc, 2015; Zikos, Gill, & Chamey, 2010). In a large study that utilized a nationally representative sample of adults, almost 29% of those with alcohol disorder and 48% of those with a drug use disorder met criteria for a PD diagnosis (compared to only 14% of individuals in the general population) (Grant et al., 2004). In a comprehensive review of the literature on comorbid PD and SUD, Cacciola et al. (2001) reported a prevalence rate of between 25% and 75%, with higher rates being found among individuals with drug dependence compared with those with alcohol dependence and among inpatients compared with outpatients.

It is common for an individual to have symptoms of more than one PD, leading some researchers to suggest that there is an unidentified pathology common to all PDs related to general interpersonal dysfunction (Jahng et al., 2011). However, the most recent edition of the *Diagnostic and Statistical Manual of Mental Disorders* (DSM5; American Psychiatric Association [APA], 2013) contains the criteria used for diagnosing ten distinct PDs, often categorized into three clusters, A, B and C. Cluster A contains those disorders with odd or eccentric affects and behaviors, paranoid, schizoid and schizotypal; Cluster B contains those disorders with dramatic, emotional and/or erratic affects and behaviors, antisocial, borderline, histrionic and narcissistic; Cluster C contains those disorders with anxious/fearful affects and behaviors, avoidant, dependent and obsessive-compulsive. The great majority of studies on PD and substance use has not included all ten of the disorders in their focus or analysis (e.g., Grant, Stinson, Dawson, Chou, & Ruan, 2005; Grant et al., 2004; Moggi, Giovanoli, Buri, Moos, & Moos, 2010; Sonneborn & Bosma, 2011; Zikos et al., 2010) and most have focused on Cluster B (e.g., Bandelow, Schmahl, Falkai, & Wedekind, 2010; Gratz, Tull, Baruch,

Bornavalova, & Lejuez, 2008; Lee, Bagge, Montgomery, Schumacher, & Coffey, 2010; Sansone & Sansone, 2011; Strausner & Nemenzik, 2007; Walter et al., 2008). Thus, there is a gap in the literature concerning the risk and protective factors associated with individual PDs comorbid with SUD.

Research has, however, shown that PD symptoms among individuals in treatment for SUD tend to complicate treatment (Cacciola et al., 2001; Horton, Luna, & Malloy, 2015; Preti et al., 2015; Sonneborn & Bosma, 2011; Tull & Gratz, 2012; Zikos et al., 2010). Investigations have documented that individuals who entered substance abuse treatment with comorbid PD tended to have higher rates of depressive symptoms (Horton et al., 2015; Cacciola, 2001), and isolation and impulsivity (Cacciola et al., 2001). In addition, these individuals tended to have more severe drug, alcohol, psychiatric and legal problems after completion of treatment than individuals without PD and were less likely to stay in treatment for the recommended length of stay (Cacciola et al., 2001). Other researchers have found that a comorbid PD diagnosis was related to an increased likelihood of early treatment drop-out (Sonneborn & Bosma, 2011; Tull & Gratz, 2012).

Considering these negative clinical outcomes, it is important to understand protective factors that could be used to buffer the adverse effects of comorbid PDs and SUDs. Two protective factors that have been examined in the addiction literature include attachment style and spirituality. No studies to date, however, have examined these factors as they relate to PD in individuals in treatment for SUDs. The purpose of the current study, then, is to explore whether attachment style and spirituality are related to PD in this population. We will first provide a brief explanation of attachment theory and then discuss how dimensions of adult attachment are related to SUD and to PD. Then, we will discuss how dimensions of spirituality are related to SUD and to PD.

1.1 Attachment

In regard to attachment style, Mikulincer and Shaver (2007) stated that individuals develop a particular attachment style that, based on their unique history of experiences with their care takers during early childhood, they tend to carry with them into their interpersonal relationships in adulthood. Early research by Main and her associates (as cited in (as cited in Hughes, Turton, McGauley, & Fonagy, 2004) classified childhood attachment into four styles – secure, anxious, avoidant and disorganized/unresolved. Later researchers, recognizing the stability of attachment style from childhood to adulthood placed adult attachment styles into four categories: secure, preoccupied, dismissing, and fearful (corresponding to the secure, anxious, avoidant and disorganized/unresolved childhood styles, respectively) (Bartholomew & Horowitz, 1991). They found that children with consistently adequate emotional and physical care tended to develop a secure attachment style that they brought into adulthood (secure). Those with inconsistent emotional and/or physical care tended to develop one of the three insecure styles (preoccupied, dismissing, or fearful).

Brennan and Shaver (1998) conducted a factor analysis conceptualizing the four adult attachment styles into two major dimensions: attachment anxiety (relative fear of abandonment) and attachment avoidance (relative willingness to engage in intimate

relationships with others). Individuals with a secure attachment style tend to score relatively low on both attachment anxiety and attachment avoidance; those with a preoccupied style tend to score relatively high on attachment anxiety and relatively low on attachment avoidance; those with a dismissing style tend to score relatively low on attachment anxiety but relatively high on attachment avoidance; and those with a fearful style tend to score relatively high on attachment anxiety and relatively high on attachment avoidance.

1.2 Attachment and Substance Use Disorder

Research has shown that individuals with SUD were significantly more likely to report an insecure attachment style than those without substance use problems (Caspers, Yucuis, Troutman, & Spinks, 2006; Horton, Diaz, Weiner, & Malloy, 2012; Schindler, Thomasius, Petersen, & Sack, 2009). Horton et al. (2012) reported that only about 37% of their sample of individuals in residential treatment for substance use issues self-reported a secure style while the remaining 63% reported one of the insecure styles (fearful, 38.5%; preoccupied, 18.6% or dismissing, 5.4%). Negative emotions related to individuals' relational concern could lead to the development of depressive symptoms. For example, Shaver, Schachner, and Mikulincer, (2005) have related excessive reassurance seeking to depression primarily because of its strong relationship with attachment anxiety.

1.3 Attachment and Personality Disorder

Multiple studies have indicated that problematic relationships with primary caregivers during early childhood was associated with insecure attachment styles in adulthood as well as with PD traits (Riggs et al., 2007; Nakash-Eisikovits, Dutra, & Westen, 2002; Westen, Nakash, Thomas, & Bradley, 2006). Nakash-Eisikovits et al. (2002) asked 294 randomly selected psychiatrists and psychologists to provide data on a single adolescent client (age 14-18) concerning the client's attachment style, problem behaviors and personality pathology. They reported that a secure childhood attachment style was significantly negatively correlated with nine out of ten adult personality disorders and positively correlated with measures of healthy functioning. They also reported positive associations between each of the three insecure childhood attachment style and disorders contained in each of the three personality disorder clusters. The avoidant style was associated with all three Cluster A disorders (paranoid, schizoid and schizotypal) and obsessive-compulsive disorder in Cluster C. The anxious/ambivalent style was associated with Cluster A schizoid, Cluster B borderline and histrionic and Cluster C dependent. The disorganized/unresolved style was associated with all three Cluster A disorders (paranoid, schizoid and schizotypal), all three Cluster C disorders (avoidant, obsessive-compulsive and dependent) and two of the four Cluster B disorders (borderline and narcissistic) These findings would suggest that secure attachment during childhood protects against the development of personality disorder traits and symptoms and that the more insecure the childhood style (disorganized/unresolved), the wider the variety of PD symptoms.

Secure attachment also appears to reduce the severity of PD symptoms. Bender, Farber and Geller (2001) noted differential associations in their sample of 46 adult outpatient clients diagnosed with PD between attachment dimensions by PD cluster. Attachment dimensions

measured were: lack of use of the attachment figure; perceived unavailability/responsiveness of the attachment figure; fear of loss of the attachment figure; proximity seeking; and separation protest. They found secure attachment to be inversely related to severity of PD symptoms, particularly among the Cluster B disorders (antisocial, borderline, histrionic and narcissistic). They noted that individuals with more secure attachment to a current attachment figure were more likely to maintain an image of their significant others as being available in times of need and to feel less need to protest upon separation from them or to fear that they will lose their loved one. In contrast, individuals with a Cluster A disorder (schizoid, schizotypal and paranoid) tended not to use their attachment figure in times of stress while individuals with a Cluster C disorder (avoidant, dependent and compulsive) were fearful of loss of their attachment figure. They went on to point out that early attachment issues that persist into adulthood are likely to affect not only individuals' relationships with family or romantic partners but also with their therapist. Thus, secure attachment's protective value seems to be derived from the support that interpersonal relationships can provide both in treatment and in everyday life.

As the review of the literature above shows, there is research in the literature on attachment and SUD and on attachment and PD. However, there is a gap in the literature concerning relationships between attachment and PD in an SUD population. Based on the high comorbidity rates between these conditions and their negative effect they have on people's lives, it is crucial that research examines these factors.

1.4 Spirituality

Spirituality is another construct that has been described as a protective factor in the addiction literature. It is important to define spirituality clearly because a major drawback of the literature is that many studies purporting to explore spirituality actually measure religiosity and attachment to God (e.g. Eurelings-Bontekoe, Hekman-Van Steeg, & Verschuur, 2005; Granqvist, 2010; Granqvist, Mikulincer, Gewirtz, & Shaver, 2012; Koenig, 2008). Spirituality is a complex construct that some researchers suggest differs significantly from religion (Canda & Furman, 2010; Seidlitz et al., 2002). Koenig (2008) discussed the evolution of how spirituality has been conceptualized over the last 20 years. Originally, spirituality was related to faith practices of religious individuals; however, as research in health and mental health has examined this construct, its meaning has been expanded beyond religion to include values, positive character traits, and positive mental health states (i.e. meaning in life, peacefulness, well-being, harmony, and hope) (Koenig, 2008). Spirituality has been defined as a broader construct than religion because it involves an individual's personal relationship with a higher power (Dalmida, 2006). Hood, Hill and Spilka (2009) proposed that "religious experiences constitute a more restricted range than the diversity that characterizes spiritual experiences" (p. 289). However Seidlitz, et al. (2002) indicated considerable similarity between religion and spirituality in that both involve a search for the sacred (a divine being or of a sense of ultimate reality or truth). However, they distinguished these two aspects by pointing out that spirituality is concerned with an individual's personal search while religion is a group effort to direct and to provide approval of that search.

Contemporary definitions of spirituality tend to emphasize two distinct dimensions: (1) the effort to find or construct personal meaning and purpose in life; and (2) the effort to contact what is sacred or divine in self and/or a divine being or another conception of transcendent reality (Oman, 2014). In line with this conceptualization of spirituality, the current study utilizes the Spiritual Well-Being Scale (SWB; Ellison, 1983) to measure spirituality. One of the most widely used instruments to measure this construct, this scale assesses for existential well-being (purpose and meaning in life/life satisfaction) and religious well-being (perceptions of closeness to God).

1.5 Spirituality and Substance Use Disorder

Research that has explored the relationships between spirituality and addiction has found that a spiritual awakening, an important part of Alcoholics Anonymous (AA) philosophy, was associated with achievement of continuous abstinence at a three-year follow-up (Kaskutas, Turk, Bond & Weisner, 2003). Similarly, other researchers reported that one-year abstinence was associated with private spiritual practices and existential well-being (Piderman, Schneekloth, Pankratz, Stevens, & Altchuler, 2008). A recent study explored the relationships between two factors known to be protective against both depressive symptoms and SUD – spirituality and attachment style (Diaz, Horton & Malloy, 2014). Findings revealed that levels of both spirituality and attachment style were predictive of depressive symptomatology among their sample of individuals in residential treatment for substance use issues; higher levels of existential purpose and meaning and secure attachment style were predictive of lower levels of depressive symptomatology. However, existential purpose and meaning was found to be the stronger predictor, adding a full 24% to the amount of variance explained by attachment.

Multiple studies have documented the protective value of spirituality against depressive symptoms in different populations (Doolittle & Farrell, 2004; Hill, Paice, Cameron, & Schott, 2005; Nelson, Rosenfeld, Breitbart, & Galietta, 2002; Sorajjakool, Aja, Chilson, Ramirez-Johnson, & Earll, 2008). For instance, Sorajjakool et al. (2008) conducted a qualitative study examining spirituality among 15 participants diagnosed with severe depression. These authors found that depressed clients reported a lack of spiritual connection manifested through a disconnection with God, the community in general and oneself. Similarly, Doolittle and Farrell (2004) reported a negative relationship between depression and spirituality whereby those clients who scored higher on spiritual assessment had fewer depressive symptoms. More specifically, those clients who had a belief in a higher power, engaged in prayer and reported having a relationship with a higher power experienced lower levels of depression. Other research using a sample of individuals with SUD has also shown that spirituality is a key factor against depressive symptoms Diaz, Horton, McIlveen, Weiner, & Williams, 2011). These authors examined spirituality among 111 clients attending residential treatment. Results indicated that the existential dimension of spirituality (purpose and meaning in life) showed a strong and inverse relationship with depressive symptoms while the relatedness to God aspect showed a significant positive relationship with depressive symptoms.

1.6 Spirituality and Personality Disorder

There is a small amount of research concerning the relationship between spirituality and PD, and these investigations have shown mixed results concerning the possible protective value of spirituality. For example, in a review of the literature concerning PD and spirituality, Bennett, Shepard, and Janca (2013) reported that researchers had focused primarily on either the psychological well-being of individuals with schizotypal or borderline traits or on control issues among individuals with antisocial PD. While overall psychological well-being tended to be low among individuals with these PDs, their levels of spiritual well-being tended to be no lower than those of individuals without PD. However, Piedmont et al. (2007), in their exploration of relationships between religious/spiritual motivations and PDs, reported that there was an inverse relationship between spiritual transcendence (defined as an effort to create personal meaning in life) and paranoid, schizotypal, antisocial, borderline, and avoidant PDs. In contrast, obsessive-compulsive PD was positively related to spirituality while schizoid, histrionic, narcissistic, and dependent PD were non-significant. It should be noted, however, that none of these studies utilized a sample of individuals with SUD issues and so it is not known if spirituality and PD are related in any way among individuals with SUDs.

Similar to the literature concerning attachment, there has been research on spirituality and SUD and on spirituality and PD. However, there is no research in the literature examining the relationships between spirituality and PD in an SUD population. To address these gaps in the literature, the current study explored the relationships between attachment dimensions (attachment anxiety and attachment avoidance) and PD traits and symptoms, and between spirituality dimensions (existential purpose/meaning and connectedness to God) and PD traits, in a sample of individuals in residential treatment for SUD. In addition, this study examined which of the spirituality and attachment dimensions was the best predictor of PD symptomatology. This study is important given that PD is a barrier to treatment success for individuals with SUD (Cacciola et al., 2001; Sonneborn & Bosma, 2011; Tull & Gratz, 2012) and that no research has yet explored whether both variables, spirituality and attachment, might act as protective factors for individuals in treatment for SUD issues. Our findings may help clinicians gain a better understanding of the relative importance of spirituality and attachment among dually diagnosed clients so that their programs can adjust treatment planning to maximize effectiveness.

2. Method

2.1 Study Design and Participants

This study used a cross-sectional design to recruit a convenience sample of 252 clients who were receiving treatment voluntarily at a residential substance abuse treatment center located in south Florida. This center is a for-profit agency that serves self-pay and third-party pay clients. It provides detoxification, inpatient rehabilitation, residential, partial hospitalization, intensive outpatient and outpatient services. The mean age of the sample was 33.7 years. The great majority of participants in the study were White Non-Hispanic (89%) and male (62%). All patients were alcohol and/or drug dependent.

The University Institutional Review Board approved the study before the participants were recruited. The researchers explained the study procedures to staff members of the research team of the collaborating treatment center. These staff member were then responsible for the recruitment of potential participants. Eligibility criteria included clients who: 1) were 18 year old or older; and 2) had completed the detox phase and were deemed medical stable by the center medical staff to participate in the study. Part of the usual clinical procedure at the treatment center involves the staff member meeting with each client within 72 hours after completing detox. At that time, staff conducted the routine biopsychosocial assessment evaluation at the center to determine diagnosis and treatment. The evaluation included demographic information and self-report measures related to psychological functioning. Staff then informed the client about the study. After informed consent was obtained, clients were asked to complete the additional self-report surveys measuring attachment style and spiritual well-being provided by the study researchers. Informed consent authorized staff to access the information from the client's psychosocial and diagnostic instruments and the completed study surveys. Clients who refused participation were excluded from the study. Data on how many clients refused to participate, drug of choice, and years of drug use were not gathered by the agency. Participants did not receive monetary incentives for their participation in this study.

2.2 Measures

2.2.1 The Experiences in Close Relationships Scale-Revised (ECR-R).

The ECR-R (Fraley, Waller, & Brennen, 2000) is a 36 item self-report instrument that asks respondents how they feel in emotionally intimate relationships. It is comprised of two 18-item subscales that measure attachment anxiety (AX) and attachment avoidance (AV). The attachment anxiety dimension refers to respondents' relative concern about their partner's availability in times of need and about the possibility of abandonment (e.g. "I worry a lot about my relationships"). Attachment avoidance refers to respondents' relative willingness to engage in intimate relationships in which they will need to depend on their partner or have their partner depend upon them (e.g. "I find it difficult to allow myself to depend on romantic partners"). According to Mikulincer and Shaver (2007), individuals scoring relatively low on AX and relatively low on AV are considered to have secure attachment style. Those who score relatively high on AX and relatively low on AV are considered to have a preoccupied attachment style. Those with relatively low AX and relatively high AV are considered to have a dismissing attachment style. Those who score relatively high on AX and relatively high on AV are considered to have a fearful attachment style.

Each response is rated on a seven-point Likert-like scale ranging from 1 = *completely agree* to 7 = *completely disagree*. The scores on each subscale are summative whereby higher scores represents higher levels of anxiety or avoidance. The scales have been shown to be only minimally correlated ($r = .11$) with alpha coefficients above .90 (Riggs, et al., 2007). The scales have also been shown to have high internal consistency and test-retest reliability, as well as construct, predictive, and discriminant validity (Crowell, Fraley, & Shaver, 1999). Previous investigations have used the ECR-R to assess for the attachment dimensions in

clinical samples with different psychiatric disorders including addictions and personality disorders (Haggery, 2009; Scoot et al., 2013; Senormanci, Senormanci, Guclu, & Konka, 2014). For this sample, Cronbach alphas were .89 for the AX subscale and .90 for AV subscale.

2.2.2 The Spiritual Well Being Scale (SWB)

This study measured spirituality using Ellison's (1983) Spiritual Well-being Scale, a 20-item self-report instrument containing two subscales: 1) Existential Well-being (EWB) (e.g. "I don't know who I am, where I came from, or where I am going"); and 2) Religious Well-being (RWB) (e.g. "I have a personally meaningful relationship with God"). Responses are rated on a six-point Likert-type scale ranging from *1 = strongly agree, to 6 = strongly disagree*. Instructions for scoring indicate that nine of the 20 items should be reversed, resulting in lower scores indicating higher levels of spirituality. For greater ease in interpretation, after those items were reversed and subscales computed, scores for all variables were reversed so that lower scores would indicate lower levels of spirituality. The scores of this scale are summative. The SWB has been used to assess spiritual well-being among individuals with substance use disorders (Diaz, et al., 2014; Fernander, Wilson, Staton, & Leukfeld, 2004; Saunders, Lucas, & Kuras, 2007) and has demonstrated good psychometric properties with alpha coefficients of .97 and .90 and a test-retest coefficient of .93 and .80 for the RWB and EWB, respectively (Saunders, Lucas & Kuras, 2007). Fernander, et al. (2004) reported the reliability of the scale as .94 for the RWB and .82 for the EWB subscale, respectively, in a sample of 661 incarcerated African American and White males with previous history of drug use. Similarly, Diaz et al. (2014) reported Cronbach alphas of .91, .94, and .86 for the SWB, RWB, and EWB, respectively, in a sample of individuals attending a residential substance abuse treatment center. Cronbach's alphas for the current sample were .93 and .89 for the RWB, and EWB, respectively.

2.2.3 The Millon Multiaxial Clinical Inventory-III (MCMI-III)

The MCMI-III (Millon, Millon, Davis, & Grossman, 2009) is a 175-item self-report survey that measures mental health disorders contained in the DSM IV-TR (American Psychiatric Association [APA], 2000). This instrument has been used in several studies of individuals with substance use disorder (Calsyn, Wells, Flemings, & Saxon, 2000; Diaz, Horton, & Weiner, 2012; Teplin, O'Connell, Daiter, & Varenbut, 2004) and has demonstrated good psychometric properties (Craig & Olson, 2001; Millon, 1997). The MCMI-III consists of a total of 24 scales. Seven of the scales assess respondents' levels of pathology associated with DSM-IV-TR (APA, 2000) Axis I disorders, while three other scales contain modifying indexes and a validity measure. Of interest to the current study, the instrument contains 10 scales that assess for personality patterns associated with Axis II PDs.

In the MCMI-III (Millon et al., 2009), a score of 85 or higher indicates that the individual reports clinical levels of all the traits and symptoms for a given mental disorder; scores between 75 and 85 indicate the presence of sub-clinical levels of traits and symptoms associated with the disorder; scores falling below 75 indicate a lack of clinical significance. For this study, only the scales for the personality patterns currently contained in the DSM5

(APA, 2013) were utilized: paranoid, schizoid, schizotypal, antisocial, borderline, histrionic, narcissistic, avoidant, dependent, and compulsive. Similar to other research utilizing the MCMI-III in this population (Diaz, Horton, McIlveen, Weiner, & Nelson, 2009; Diaz et al., 2012), these scales were dichotomized into non-clinical (0=scores of 74 and below) and clinical/subclinical (1=scores of 75 and above) in order to determine whether individuals with clinically significant PD traits (clinical and subclinical levels) differed from those without these traits. For the purposes of this study, data were dichotomized into two groups: (0) those with scores below 75, indicating that there were no traits and symptoms associated with the PD present (No-trait), and (1) those with scores of 75 or higher, indicating the presence of either clinical or subclinical of the traits associated with the PD (Clinical/subclinical trait). It was decided to dichotomize the data rather than to utilize the continuous scores because it seems that the clinical/subclinical scores would be more relevant to clinicians who actually work with the problematic behaviors and moods associated with the symptoms. Other researcher exploring differences in clinical and non-clinical symptomatology among individuals with substance use disorders (Chen et al., 2009; Diaz et al., 2012; Galione & Zimmerman, 2010; Horton et al., 2015), have also dichotomized the MCMI-III scores in a similar way.

2.3 Data Analysis

Bivariate correlation analyses were conducted to determine relationships between the two attachment dimensions (AX and AV), the two spirituality dimensions (EWB and RWB), and the ten PD traits. The variance inflation factors (VIF) were examined to determine the multicollinearity between spirituality and attachment. The VIFs were less than 2.50 indicating that there was not a significant multicollinearity impacting predictors' scores. Independent samples t-tests were then conducted on the PD traits that were significantly correlated with the attachment and spirituality dimensions to determine if there were statistically significant differences between the means of the non-clinical and clinical/subclinical groups. Lastly, hierarchical multiple regressions were conducted with each PD trait that showed significant between-group difference in means to determine the relative predictive value of the attachment and spirituality dimensions. Logistic regressions were also conducted and very similar results were found. Interestingly, research studies have documented that statistical analyses from multiple and logistic regressions yield almost identical statistical findings when classifying individuals (Brown, Newman, & Fraas, 2004; Newman, Brown, & Fraas, 2004). The two attachment dimensions were entered into the first model. The second model consisted of both attachment dimensions and both spirituality dimensions. The attachment dimensions were entered first based on theoretical assumptions that attachment, which begins at birth, would precede the development of spirituality. R^2 changes were also calculated in an effort to determine the amount of variance in the PD traits accounted for by the attachment and spirituality variables.

3. Results

Preliminary analysis indicated that the percentages of respondents reporting clinical and subclinical levels of PD traits (i.e., MCMI scores of 75 and higher) varied widely by PD.

Table 1 contains the percentages and *n*s for each PD trait. The highest percentage of clinical/subclinical traits was antisocial, with 63.9% (*n*=161) of this group reporting these traits compared to only 36.1% (*n*=91) in the no-trait group. Dependent traits was the next highest percentage with just over half of the respondents (51.2%, *n*=129) reporting clinical/subclinical levels. Borderline and obsessive-compulsive showed clinical/subclinical levels of about 36% each (*n*=92 and *n*=91, respectively). Clinical/subclinical paranoid and schizoid traits were the most uncommon at 7.5% (*n*=19) and 2% (*n*=5), respectively.

Table 1. Percentages and ns for non- clinical and clinical/subclinical levels of PD trait variables

PD Trait	No Traits		Clinical/subclinical Traits	
	n	%	*n*	%
Paranoid	233	92.5	19	7.5
Schizoid	195	77.4	57	22.6
Schizotypal	247	98.0	5	2.0
Antisocial	91	36.1	161	63.9
Borderline	160	63.5	92	36.5
Histrionic	222	88.1	30	11.9
Narcissistic	193	76.6	59	23.4
Avoidant	195	77.4	57	22.6
Dependent	123	48.8	129	51.2
Compulsive	161	63.9	91	36.1

3.1 Correlations

Antisocial ($r = -.177$, $p<.01$), borderline ($r = -.206$, $p<.01$), and dependent ($r = -.208$, $p<.01$) PD traits were significantly negatively associated with the EWB dimension of spirituality while histrionic ($r=.186$, $p<.01$), narcissistic ($r = .166$, $p<.01$) and obsessive-compulsive ($r = .149$, $p<.001$) traits were significantly positively related to this dimension. Paranoid, schizoid, schizotypal and avoidant PD traits were not significantly associated with EWB. Only one PD trait, narcissism, was positively correlated with the RWB dimension of spirituality ($r=.130$, $p<.05$). None of the PD traits were significantly related to the AV attachment dimension. However, antisocial ($r=.151$, $p<.05$), borderline ($r=.171$, $p<.05$), avoidant ($r=.158$, $p<.01$), and dependent ($r=.331$, $p<.001$) traits were significantly positively related to the AX attachment dimension, and histrionic ($r=-.187$, $p<.01$) and narcissistic ($r=-.138$, $p<.05$) traits had a negative relationship with this dimension.

3.2 Independent Samples t-tests

Seven independent samples t-test analyses were conducted to compare the means of the non-clinical and clinical/subclinical groups for the seven PD traits shown to be significantly correlated with the spirituality and attachment variables. Results of these analyses can be seen

in Table 2. There were significant between-group differences for the RWB dimension of spirituality for only one PD trait, borderline. However for the EWB dimension, there were significant differences for five PD traits including antisocial, borderline, histrionic, narcissistic, and dependent. Concerning the attachment dimensions, there was a significant difference between the groups for the AV dimension for only one PD trait, borderline. For the AX dimension, however, there were significant differences in five PD traits including antisocial, borderline, histrionic, narcissistic and avoidant. There were no significant between group differences for obsessive-compulsive PD traits for any of the spirituality or attachment dimensions; therefore this trait was not included in the regression analyses discussed below.

3.3 Hierarchical multiple regressions.

Results of the six hierarchical multiple regression analyses are presented in Table 3. The first model showed that AX was a statistically significant predictor for both antisocial and borderline personality traits; however, once EWB was entered into the second model, AX was no longer significant. In the second model, EWB was the only statistically significant predictor of clinical/subclinical levels of antisocial and borderline personality traits. Interestingly, AX was also a statistically significant predictor of clinical/subclinical levels of avoidant and dependent personality traits in both models 1 and 2, respectively. Narcissistic and histrionic personality traits did not show any statistically significant differences. The amount of variance in the personality traits explained by the attachment dimensions ranged from 2.3% (for narcissistic traits) to 10.5% (for dependent traits). The amount of variance in the personality traits explained by the spirituality dimensions ranged from .01% (for histrionic traits) to 5.3% (for borderline traits). Total explained variance ranged from 3.4% (for narcissistic traits) to 13.0% (for borderline traits).

4. Discussion

Entering substance abuse treatment with a comorbid PD can be a barrier to the successful of their findings were similar to those in the current study while some were dissimilar. For example, the findings concerning schizotypal PD traits that reached the clinical/subclinical level were almost identical in the two studies. Likewise, findings concerning paranoid, histrionic, and avoidant traits were similar in the current and the Ball et al. studies (8% vs. 10%, 12% vs. 10% and 23% vs. 22%, respectively), while there were wider differences found in borderline, narcissistic and schizoid traits (37% vs. 30%, 23% vs. 33%, and 23& vs. 34%, respectively). The widest differences found in the two studies were for antisocial (64% v. 86%), dependent traits (51% vs. 26%, respectively) and compulsive traits (36% vs. 6%).

Reasons for the dissimilarities between the two studies may lie in the characteristics of the samples. The Ball et al. (2004) sample included only individuals attending an outpatient detoxification program and diagnosed by a physician with opioid dependence. In contrast, the sample for the current study included individuals attending a residential (post-detox) program that treats clients using a wide variety of substances including alcohol, stimulants, opiates, marijuana, hallucinogens and others as well as polysubstance use. In addition, their diagnosis was determined by a psychiatrist. Further research is needed to sort out how individual PD traits are associated with individual substances. However, both the Ball et al. and the current

study show that PD traits associated with Cluster A disorders are the least common among those in treatment for substance use disorder.

Table 2. Results of independent samples t-test mean comparisons for No Trait and Clinical/subclinical PD groups

Disorder:	No Traits			Clinical/sub-clinical traits			df	t	p
	N	M	SD	N	M	SD			
Antisocial: Existential	90	42.71	11.52	155	37.72	10.36	243	3.49	**
Religious	86	41.19	13.15	157	38.20	13.15	241	1.69	ns
Anxiety	86	59.16	24.58	153	65.71	22.85	237	-2.07	*
Avoidance	86	52.29	20.96	145	53.31	21.05	29	-.356	ns
Borderline: Existential	156	42.62	10.95	89	34.18	9.00	243	6.17	***
Religious	154	40.77	13.34	89	36.65	12.60	241	2.36	**
Anxiety	152	58.68	22.88	87	71.52	22.85	237	4.18	***
Avoidance	147	49.91	20.02	84	58.23	21.67	229	-2.95	**
Histrionic: Existential	215	38.78	10.71	30	45.10	11.94	243	-2.99	**
Religious	214	38.93	13.44	29	41.72	11.22	241	-1.07	ns
Anxiety	210	64.95	23.51	29	51.79	21.63	237	2.85	**
Avoidance	203	53.72	21.05	28	47.21	19.85	229	1.54	ns
Narcissistic: Existential	186	38.46	10.79	59	43.00	11.21	241	-2.79	**
Religious	187	38.60	13.00	56	41.46	13.73	241	-1.43	ns
Anxiety	182	65.19	23.31	57	57.51	23.13	237	2.16	*
Avoidance	178	53.91	21.14	53	49.66	20.27	229	1.30	ns
Avoidant: Existential	191	40.00	10.85	54	37.96	13.73	243	1.20	ns
Religious	189	39.24	13.73	54	39.31	11.29	241	-.035	ns
Anxiety	185	60.92	23.27	54	71.70	23.23	237	-3.00	**
Avoidance	176	52.40	20.82	55	54.64	21.58	229	-.690	ns
Dependent: Existential	122	41.95	11.22	123	37.17	-10.37	243	3.46	**
Religious	119	40.64	13.27	124	37.94	13.05	241	1.61	ns
Anxiety	121	56.68	22.15	118	70.20	23.26	237	-4.61	***
Avoidance	113	51.59	20.44	118	54.21	21.49	229	-.948	ns
Compulsive: Existential	236	39.40	10.70	9	43.44	18.46	243	-1.08	ns
Religious	235	39.12	13.19	8	43.25	13.74	241	-.869	ns
Anxiety	230	63.52	23.54	9	59.22	30.70	237	.534	ns
Avoidance	222	52.80	20.58	9	56.22	30.70	229	-.479	ns

Note. * $p<.05$. ** $p<.01$. *** $p<.001$.

Table 3. Multiple regression analyses of the spirituality variables and the meaning in life variables on each of the PD traits

Variable:	Model 1			Model 2			Att R^2	Spir R^2	Total R^2
	b	SE	β	b	SE	β			
Antisocial:									
Anxiety	.003*	0.002	0.165	0.002	0.002	0.108			
Avoidance	-0.001	-0.035	-0.035	-0.002	0.002	-0.108	0.024	0.028	0.053
Existential				-.008*	0.004	0.004			
Religious				-0.002	0.003	-0.05			
Borderline:									
Anxiety	.004**	0.001	0.207	0.002	0.002	0.115			
Avoidance	0.003	0.002	0.124	0.001	0.002	0.022	0.077	0.053	0.13
Existential				-.012**	0.004	-0.277			
Religious				0	0.003	-0.008			
Histrionic:									
Anxiety	-0.002	0.001	-0.155	-0.022	0.001	-0.121			
Avoidance	-0.001	0.001	-0.042	3.00E+05	0.001	0.002	0.031	0.01	0.041
Existential				0.033	0.003	0.105			
Religious				0.001	0.002	0.033			
Narcissistic:									
Anxiety	-0.002	0.001	-0.127	-0.022	0.001	-0.093			
Avoidance	-0.001	0.001	-0.051	0	0.002	-0.007	0.023	0.01	0.034
Existential				0.004	0.003	0.104			
Religious				0.001	0.002	0.033			
Avoidant:									
Anxiety	.004**	0.001	0.213	.004**	0.001	0.203			
Avoidance	0	0.001	-0.022	-0.001	0.002	-0.027	0.043	0.001	0.043
Existential				-0.001	0.003	-0.03			
Religious				0.001	0.002	0.024			
Dependent:									
Anxiety	.007***	0.001	0.338	.007***	0.002	0.309			
Avoidance	-0.001	0.002	-0.049	-0.002	0.002	-0.097	0.105	0.015	0.119
Existential				-0.004	0.004	-0.093			
Religious				-0.003	0.003	-0.073			

Note. * *p*<.05. ** *p*<.01. *** *p*<.001.

Results of the bivariate correlation analyses indicated that all of the PD traits except those

associated with paranoid, schizoid and schizotypal PD (Cluster A) were significantly correlated with one or several of the spirituality and attachment variables. It is possible that, congruent with research discussed in Bennett et al. (2013) and Piedmont et al. (2007), individuals entering substance abuse treatment with Cluster A traits and symptoms (i.e., eccentric affects and behaviors) are coming in with the same levels of the spirituality and attachment variables as those who show no PD traits. However, this finding is puzzling since all three of these PDs have the common characteristic of social and interpersonal deficits and avoidance of close relationship. It would be expected, then, that individuals with these traits would have elevated levels of the avoidance dimension of attachment. Therefore, we believe it more likely that since there were very few individuals reporting paranoid and schizotypal clinical/subclinical traits in our sample, comparisons may not have detected potential differences between the clinical/subclinical and non-clinical groups in their levels of spirituality and attachment dimensions.

Results of the independent samples t-tests conducted on the variables showing significant correlations with the spirituality and attachment dimensions (antisocial, borderline, histrionic, narcissistic, avoidant, dependent and obsessive-compulsive) indicated that there were significant between-group differences in the existential well-being dimension of spirituality for all of the PD traits analyzed except avoidant and obsessive-compulsive.

For antisocial, borderline and dependent traits, the clinical/sub-clinical group reported significantly less purpose/meaning in life than their non-clinical peers. For narcissistic and histrionic traits, however, the clinical/subclinical group reported higher levels of purpose/meaning, and for the compulsive traits the clinical/subclinical group was not significantly different from their non-clinical peers. These results for the histrionic, narcissistic and compulsive traits may be explained by the possibility that the MCMI-III histrionic, narcissistic scales and compulsive may be measuring healthy rather than pathological attitudes and behaviors (Craig, 2005). That is, Craig suggests that higher scores on these scales may indicate normal outgoing and sociable behavior, healthy ego functioning and healthy personal organization rather than pathology. Thus the higher scores reported by the clinical/non-clinical group for histrionic and narcissistic and the non-significant differences in group means for compulsive may not be valid. Interestingly, between-group means for religious well-being (connectedness to God) were not statistically significant for any PD trait except borderline. However, for this PD trait, the clinical/subclinical group scored lower than the non-clinical group.

Results of the t-tests for the attachment dimensions were remarkably similar to those of the spirituality dimensions. That is, between-group differences in the attachment anxiety were significant for all of the PD traits analyzed except for obsessive-compulsive. For antisocial, borderline, avoidant and dependent traits, the clinical/sub-clinical group reported significantly more attachment anxiety than their non-clinical peers while for narcissistic and histrionic traits, the clinical/subclinical group reported lower levels of anxiety. Individuals reporting clinical/subclinical compulsive traits, however, were not significantly different from their non-clinical peers. In contrast, between-group means for attachment avoidance were not statistically significant for any PD trait except borderline for which the clinical/subclinical

group scored higher than the non-clinical group. The probable reasons for the directional difference for histrionic and narcissistic traits are the same as for the results concerning spirituality above.

In an effort to determine which of the spirituality and attachment dimensions was the strongest predictor of individual PD trait levels, hierarchical multiple regressions were conducted on the six PD traits with significant t-test results – antisocial, borderline, histrionic, narcissistic, avoidant and dependent. Results of these analyses showed that neither religious well-being nor attachment avoidance was a significant predictor of the level of any of the PD traits. Furthermore, only two PD traits had sufficient amounts of variance explained by either attachment anxiety or existential purpose/meaning – borderline and dependent – to warrant discussion. Attachment anxiety was a significant predictor of the presence of symptoms associated with borderline, accounting for almost 8% of the variance in PD symptom level; that is, higher levels of anxiety related to fears of abandonment were associated with clinical/subclinical borderline PD symptoms. However, when the existential purpose/meaning dimension of spirituality was entered into the model, attachment anxiety lost its significance and purpose/meaning became the statistically significant predictor for the presence and level of PD symptoms, accounting for an added 5% of variance. In other words, lower levels of purpose and meaning in life were associated with clinical/subclinical symptoms. Together, attachment anxiety and existential purpose/meaning accounted for a total of 13% of the variance in the level of borderline symptomatology. In contrast, for dependent PD traits attachment anxiety accounted for almost 11% of the explained variance in symptom level while existential purpose/meaning added only a further 2% to the model. For this PD trait higher levels of attachment anxiety predicted clinical/subclinical levels of this PD even in the presence of spirituality. Thus, it appears that dependent PD may be related more to attachment and interpersonal relationship issues than to a lack of purpose and meaning in life.

There is no reason to assume that levels of either spirituality or attachment are causally connected to levels of any of the PD traits in our sample. Gabbard, Schmahl, Siever and Iskander (2014) have noted that the etiology of PD is highly complex, with its development attributed to a mix of environmental and genetic influences. Our results are interesting, however, in light of previous research that has suggested that spirituality is not a significant factor in levels of personality disorder while religiosity is (specifically, lack of connectedness to God and a religious community) (Piedmont et al., 2007). These researchers stated that "Spirituality does not seem to share much in common with characterological impairment" (p. 69) and since individuals with PDs generally have spiritual resources comparable to those of individuals without PDs, these resources could be accessed and utilized as a strength in the treatment setting. However, our means comparisons suggest instead that individuals entering treatment for substance use disorders with clinical/subclinical levels of three PD traits (antisocial, borderline and dependent) may have significantly lower levels of existential purpose and meaning than their non-clinical peers. In addition, the between-group means for levels of connectedness to God are significant only for borderline. Thus it may be that, at least for antisocial, borderline and dependent PD traits, preliminary assessment of level of existential purpose and meaning could uncover possible deficits, the strengthening of which

might be beneficial to treatment outcomes.

In regards to attachment, on the other hand, our results are somewhat more puzzling. Levy, Meehan, Weber, Reynoso, and Clarkin (2014) have argued convincingly that research in genetics, physiology, neurology, development and psychotherapy all provide empirical support for attachment theory's association with PD pathology. It is surprising, then, that our study, shows only modest relationships between attachment anxiety and some of the PD traits and no relationship between attachment avoidance and any of the PD traits. It is possible that a larger sample in which there was a greater representation of individuals with Cluster A disorders would have found a relationship between attachment avoidance and PD trait levels in that group. However, our results concerning borderline and dependent traits are in line with Mikulincer and Shaver's (2007) description of those personality traits in relation to attachment anxiety. They noted that "the major interpersonal difficulties of people suffering from dependent personality disorder are overreliance on others, self-devaluation, fear of being alone, lack of assertiveness, and incapacity for autonomous functioning without social support" (p. 399), characteristics that are hallmark behaviors for attachment anxiety. Therefore, clinicians may want to consider assessing for and addressing attachment issues in their clients entering with clinical and subclinical levels of dependent PD traits.

In contrast, although borderline PD is also associated with attachment anxiety (Mikulincer & Shaver, 2007), one of its hallmark features is feelings of emptiness and loneliness. Perhaps the reason that existential purpose and meaning was the better predictor of clinical/subclinical borderline traits in our study was that having purpose and meaning in life might alleviate that sense of emptiness and loneliness. Although literature concerning loneliness and purpose and meaning in life is extremely scant, one study in a sample of older individuals found that there was a strong link between spiritual health self-efficacy (which measured the individual's ability to use their sense of purpose and meaning to provide peace and harmony) and feelings of loneliness (Fry & Debats, 2002). Clinicians may, therefore, want to consider assessing for and addressing the existential well-being aspect of spirituality in the clients entering treatment with clinical/subclinical levels of borderline PD traits.

4.1 Summary of Clinical Implications

In exploring the relationship between attachment and spiritual dimensions in this sample of individuals in treatment for substance use disorders, it was our hope that our findings might assist clinicians to use these protective factors in their treatment of clients with clinical or subclinical PD traits and symptoms. Our results suggest that a clinical focus on increasing a sense of connectedness to God (i.e., religious well-being) may not be therapeutically necessary, at least beyond that which is offered to clients entering the program regardless of PD trait status. However, clients entering treatment with clinical/subclinical levels of borderline traits may benefit from a focus on increasing their levels of existential purpose and meaning in life in an effort to relieve their chronic feelings of emptiness and loneliness.

4.2 Limitations and Future Research

This study is the first to explore relationships between PD traits, spirituality, and attachment

dimensions in a sample of individuals in inpatient treatment for SUDs. It employed the MCMI-III as a measure of personality traits, a diagnostic tool used by the agency where the sample of this study was recruited. It is, however, an instrument that has been shown to have methodological concerns with four of the personality traits measured – antisocial, histrionic, narcissistic and obsessive-compulsive (Craig, 2005; Cooper, 1987). Future research should utilize a different instrument(s) that would provide a more valid measure of these traits such as the Personality Inventory for DSM-5—Brief Form (PID-5-BF) provided by the DSM5 authors as one of the "emerging measures for further research and clinical evaluation" (American Psychiatric Association, 2015.

Generalizability of our results is limited by several factors. First, the sample used is not indicative of the entire population of individuals in treatment for substance use issues. Furthermore, the treatment center where the sample was located is not indicative of the wide range of centers that exist nationally and internationally. Second, the treatment model utilized by the agency is a 12-step treatment program that emphasizes spirituality as a foundation of recovery. It is possible that clients who chose to enter the program self-selected because of this spiritual emphasis. Future researchers may want to consider exploring these same variables in different programs that do not utilize the 12-step approach.

A third limitation to generalizability is that our sample was almost exclusively White non-Hispanic and thus results cannot be generalized to other racial/ethnic groups. Future research should include a diverse sample to explore how PD traits, spirituality and attachment dimensions may differ for other racial/ethnic groups. For example, among Latinos, spirituality and religious experiences have been described as a fundamental part of their culture (Campesino & Schwartz, 2006). These aspects are often embedded in values concerning relationships with family and members of the community, which possibly includes involvement with the church (Campesino & Schwartz, 2006). Campesino and Schwartz (2006) describe personalismo and familismo as terms that embrace these values in Latinos. Hence, when assessing for spirituality among Latinos, future studies replicating our findings would need to include familismo and personalismo as they take into account matters of spirituality and faith as related to the individual's family or sense of well-being as derived from the family in this population.

Fourth, the agency in which data were gathered is a private, for-profit agency serving clients in a residential setting. These clients came from relatively high socioeconomic background and had access to insurance. Therefore, results cannot be generalized to individuals in other levels of care or to disadvantaged individuals. It is possible that individuals receiving treatment at lower levels of care such as outpatient or partial care would experience less symptom severity, and thus results may differ from our study. Lastly, future studies would benefit by examining other variables that may be related to PD traits including the use of multiple types of substances, the length of abuse, and times in treatment.

A final limitation of this study is that its cross-sectional design does not allow for inferences of causality. Future studies would benefit by having a longitudinal experimental design to determine causal inferences among these factors.

5. Conclusion

Both secure attachment style and higher levels of spirituality have been shown to be protective factors in the onset and treatment of substance use disorders (Caspers et al. 2006; Horton et al., 2012; Riggs et al., 2007; Schindler et al., 2009; Westen et al., 2006). In addition, these factors have been shown to have a protective quality among individuals who experience comorbid major depression and SUDs (Diaz, et al., 2014). However, very little is known about whether either of these factors is related to personality disorder traits, a common comorbid condition among individuals with substance use disorders (Cacciola et al., 2001; Sonneborn & Bosma, 2011; Tull & Gratz, 2012). The purpose of this study was to explore whether attachment and spirituality dimensions are significantly related to personality disorder traits and symptoms among individuals receiving treatment for SUDs. Our results showed that, existential purpose and meaning in life was the best predictor of clinical/subclinical levels of borderline and antisocial PD traits, and that attachment anxiety was the best predictor of clinical/subclinical levels of avoidant and dependent PD traits. None of the other PD traits was significantly associated with either attachment or spirituality levels. Therefore, it appears that no special emphasis needs to be placed on spiritual interventions to address most PD traits for individuals entering substance abuse treatment. Those clients entering with higher levels of borderline and antisocial traits, however, could be further assessed for possible deficits in their existential purpose and meaning in life and interventions provided to increase that spirituality dimension. Attachment anxiety, on the other hand, would be a natural focus of treatment for clients with avoidant or dependent traits to address the challenges that these individuals face with important interpersonal relationships in their lives.

References

American Psychiatric Association. (2000). *Diagnostic and statistical manual of mental disorders* (4th ed., text revised). Arlington, VA: American Psychiatric Publishing.

American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). Arlington, VA: American Psychiatric Publishing.

American Psychiatric Association. (2015). APA_DSM5_The-Personality-Inventory-For-DSM-5-Brief-Form-Adult.pdf. Available at: http://www.psychiatry.org/

Ball, S. A., Nich, C., Rounsaville, B. J., Eagan, D., & Carroll, K. M. (2004). Millon Clinical Multiaxial Inventory-III subtypes of opioid dependence: Validity and matching to behavioral therapies. *Journal of Consulting and Clinical Psychology, 72*(4), 698-711. http://dx.doi.org/10.1037/0022-006X.72.4.698

Bandelow, B., Schmahl, C., Falkai, P., & Wedekind, D. (2010). Borderline personality disorder: A dysregulation of the endogenous opioid system? *Psychological Review, 117*(2), 623-636. http://dx.doi.org/10.1037/a0018095

Bartholomew, K., & Horowitz, L. M. (1991). Attachment styles among young adults: A test of a four-category model. *Journal of Personality and Social Psychology, 61*(2), 226-244.

http://dx.doi.org/10.1037/0022-3514.61.2.226

Bender, D., Farber, B., & Geller, J. (2001). Cluster B personality traits and attachment. *Journal of the Academy of Psychoanalysis, 29*(4), 551-563. http://dx.doi.org/10.1521/jaap.29.4.551.21545

Bennett, K. Shepard, J., & Janca, A. (2013). Personality disorders and spirituality. *Current Opinions in Psychiatry, 26*, 79-83. http://dx.doi.org/10.1097/YCO.0b013e32835b2c17

Brennan, K. A., & Shaver, P. R. (1998). Attachment styles and personality disorders: Their connections to each other and to parental divorce, parental death and perceptions of parental caregiving. *Journal of Personality, 66*(5), 835-878. http://dx.doi.org/10.1111/1467-6494.00034

Brown, R., Newman, I., & Fraas, J. (2004). Accessing a model's ability to classify subjects: The importance of considering marginally accurate classifications. *Multiple Linear Regression Viewpoints, 30*(1), 1-7.

Cacciola, J. S., Alterman, A. I., McKay, J. R., & Rutherford, M. J. (2001). Psychiatric comorbidity in patients with substance use disorders: Do not forget Axis II disorders. *Psychiatric Annals, 31*(5), 321-331. http://dx.doi.org/10.3928/0048-5713-20010501-10

Calsyn, D. A., Wells, E. A., Fleming, C., & Saxon, A. J. (2000). Changes in Millon Clinical Multiaxial Inventory scores among opiate addicts as a function of retention in methadone maintenance treatment and recent drug use. *The American Journal of Drug and Alcohol Abuse, 26*(2), 297-309. http://dx.doi.org/10.1081/ADA-100100606

Campesino, M., & Schwartz, G. (2006). Spirituality among Latinas/os: Implications of culture in conceptualization and measurement. *Advances in Nursing Science*, *29*(1), 69-81. http://dx.doi.org/10.1097/00012272-200601000-00007

Canda, E. & Furman, L. (2010). *Spiritual diversity in social work: The heart of helping* (2nd ed.). New York: Oxford University Press.

Caspers, K. M., Yucuis, R., Troutman, B., & Spinks, R. (2006). Attachment as an organizer of behavior: Implications for substance abuse problems and willingness to seek treatment. *Substance Abuse Treatment, Prevention, and Policy, 1*(32). http://dx.doi.org/10.1186/1747-597X-1-32

Chen, E. Y., Brown, M. Z., Harned, M. S., & Linehan, M. M. (2009). A comparison of borderline personality disorder with and without eating disorders. *Psychiatry Research, 170*, 86-90. http://dx.doi.org/10.1016/j.psychres.2009.03.006

Cooper, A. M. (1987). Histrionic, narcissistic, and compulsive personality disorders. In G. L. Tischler (Ed.), *Diagnosis and classification in psychiatry: A critical appraisal of DSM-III*, (pp. 290-299). New York: Cambridge University Press.

Craig, R. J. (2005). Alternative interpretations for the Histrionic, Narcissistic, and Compulsive personality disorder scales of the MCMI-III. In R. J. Craig (Ed.), *New directions*

in interpreting the Millon Clinical Multiaxial Inventory-III (MCMI-III), (pp. 71-93). Hoboken, NJ: John Wiley and Sons Publishing.

Craig, R. J., & Olson, R. E. (2001). Adjective descriptions of personality disorders: A convergent validity study of the MCMI-III. *Journal of Personality Assessment, 77*(2), 259-271. http://dx.doi.org/10.1207/S15327752JPA7702_09

Crowell, J., Fraley, C., & Shaver, P. (1999). Measurement of individual differences in adolescent and adult attachment. In J. Cassidy, & P. Shaver (Eds.), *Handbook of attachment: theory, research, and clinical applications* (pp. 599-634). New York: Guilford Press.

Dalmida, S. G. (2006). Spirituality, mental health, physical health and health-related quality of life in women with HIV/AIDS: Integrating spirituality into mental health care. *Issues in Mental Health Nursing, 27*(2), 185-198. http://dx.doi.org/10.1080/01612840500436958

Diaz, N., Horton, E. G., & Malloy, T. (2014). Attachment style, spirituality and depressive symptoms among individuals in substance abuse treatment. *Journal of Social Service Research*, on line publication. http://dx.doi.org/10.1080/01488376.2014.896851

Diaz, N., Horton, E. G., McIlveen, J., Weiner, M., & Nelson, J. (2009). Dysthymia among substance abusers: An exploratory study of individuals and mental health factors. *International Journal of Mental Health and Addiction, 7*, 357-367. http://dx.doi.org/10.1007/s11469-008-9158-0

Diaz, N., Horton, E. G., McIlveen, J., Weiner, M., & Williams, L. B. (2011). Spirituality, religiosity, and depressive symptoms among individuals in substance abuse treatment. *Journal of Religion and Spirituality in Social Work: Social Thought, 30*, 71-87. http://dx.doi.org/10.1080/15426432.2011.542729

Diaz, N., Horton, E. G., & Weiner, M. (2012). Dysthymia, major depression, and double depression among individuals receiving substance abuse treatment. *Health, 4*(12), 1229-1237. http://dx.doi.org/10.4236/health.2012.412181

Doolittle, B. R., & Farrell, M. (2004). The association between spirituality and depression in an urban clinic. *Journal of Clinical Psychiatry, 6*(3), 114-118. http://dx.doi.org/10.4088/pcc.v06n0302

Ellison, C. W. (1983). Spiritual well-being: Conceptualization and measurement. *Journal of Psychology and Theology, 11*, 330-340.

Eurelings-Bontekoe, E., Hekman-Van Steeg, J., & Verschuur, M. (2005). The association between personality, attachment, psychological distress, church denomination and the God concept among a non-clinical sample. *Mental Health, Religion & Culture, 8*(2), 141-154. http://dx.doi.org/10.1080/13674670412331304320

Fernander, A., Wilson, J. F., Staton, M., Leukfeld, C. (2004). An exploratory examination of the Spiritual Well-being scale among incarcerated Black and White male drug users. *International Journal of Offender Therapy and Comparative Criminology, 48*(4), 403-414. http://dx.doi.org/10.1177/0306624X04263450

Fraley, R. C., Waller, N. G., & Brennan, K. A. (2000). An item-response theory analysis of self-report measures of adult attachment. *Journal of Personality and Social Psychology, 78*, 350-365. http://dx.doi.org/10.1037/0022-3514.78.2.350

Fry P. S., & Debats, D. L. (2002). Self-efficacy beliefs as predictors of loneliness and psychological distress in older adults. *International Journal on Aging and Human Development, 55*(3), 233-269. http://dx.doi.org/10.2190/KBVP-L2TE-2ERY-BH26

Gabbard, G. O., Schmahl, C., Siever, L. J., & Iskander, E. J. (2012). Personality disorders. In T. E. Schlaepfer, & C. X. B. Nemerof (Eds.), *Neurobiology of psychiatric disorders: Handbook of clinical neurology*, 3rd series, (pp. 463-475). Amsterdam, Netherlands: Elsevier Publishers.

Galione, J., & Zimmerman, M. (2010). A comparison of depressed patients with and without borderline personality disorder: Implications for interpreting studies of the validity of the bipolar spectrum. *Journal of Personality Disorders, 24*(6), 763-772. http://dx.doi.org/10.1521/pedi.2010.24.6.763

Granqvist, P. (2010). Religion as attachment. *Archives for the Psychology of Religion, 32*(1), 5-24. http://dx.doi.org/10.1163/157361210X487177

Granqvist, P., Mikulincer, M., Gewirtz, V., & Shaver, P. R. (2012). Experimental findings on God as an attachment figure: Normative processes and moderating effects of internal working models. *Journal of Personality and Social Psychology, 103*(5), 804-818. http://dx.doi.org/10.1037/a0029344

Grant, B. F., Stinson, F. S., Dawson, D., Chou, S. P., & Ruan, W. J. (2005). Co-occurrence of DSM-IV personality disorders in the United States: Results from the National Epidemiologic Survey on Alcohol and Related Conditions. *Comprehensive Psychiatry, 46*, 1-5. http://dx.doi.org/10.1016/j.comppsych.2004.07.019

Grant, B. F., Stinson, F. S., Dawson, D., Chou, S. P., Ruan, W. J., & Pickering, R. P. (2004). Co-occurrence of 12 month alcohol and drug disorders in the United States: Results from the national epidemiologic survey on alcohol and related conditions. *Archives of General Psychiatry, 61*, 361-368. http://dx.doi.org/10.1001/archpsyc.61.4.361

Gratz, K. L., Tull, M. T., Baruch, D. E., Bornavalova, M. A., & Lejuez, C. W. (2008). Factors associated with co-occurring borderline personality disorder among inner-city substance users: The role of childhood maltreatment, negative affect intensity/reactivity, and emotional dysregulation. *Comprehensive Psychiatry, 49*, 603-615. http://dx.doi.org/10.1016/j.comppsych.2008.04.005

Haggery, G. (2009). Attachment and interpersonal distress: Examining the relationship between attachment styles and interpersonal problems in a clinical population. *Clinical Psychology and Psychotherapy, 16*(1), 1-9. http://dx.doi.org/10.1002/cpp.596

Hill, J., Paice, J. A., Cameron, J. R., & Shott, S. (2005). Spirituality and distress in palliative care consultation. *Journal of Palliative Medicine, 8*(4), 782-788.

http://dx.doi.org/10.1089/jpm.2005.8.782

Horton, E. G., Diaz, N., Weiner, M., & Malloy, T. (2012). Adult attachment style, spirituality, and religiosity among individuals in treatment for substance use disorders. *Florida Public Health Review, 9*, 121-131.

Horton, E. G., Luna, N., & Malloy, T. (2015). Exploring the relationships between spirituality and personality disorder traits among a sample of in-patients in treatment for substance use disorder. *International Journal of Mental Health and Addiction,* Online First edition,

Hood, R. W., Jr., Hill, P. C., & Spilka, B. (2009). *The psychology of religion: An empirical approach* (4th ed.). New York: Guilford Press.

Hughes, P. Turton, P., Hopper, E., McGauley, G. A., & Fonagy, P. (2004). Factors associated with unresolved classification of the Adult Attachment Interview in women who have suffered stillbirth. *Development and Psychopathology, 16*, 215-230. http://dx.doi.org/10.1017/S0954579404044487

Jahng, S., Trull, T. J., Wood, P. K. Tragesser, S. L., Tomko, R., Grant, J. D., Bucholz, K. K., & Sher, K. J. (2011). Distinguishing general and specific personality disorder features and implications for substance dependence comorbidity. *Journal of Abnormal Psychology, 120*(3), 656-669. http://dx.doi.org/10.1037/a0023539

Kaskutas, L. A., Turk, N., Bond, J., & Weisner, C. (2003). The role of religion, spirituality, and Alcoholics Anonymous in sustained sobriety. *Alcoholism Treatment Quarterly, 21*, 1-6. http://dx.doi.org/10.1300/J020v21n01_01

Koenig, H. G. (2008). Concerns about measuring "spirituality" in research. *Journal of Nervous and Mental Disease, 196*(5), 349-355. http://dx.doi.org/10.1097/NMD.0b013e31816ff796

Lee, H-J, Bagge, C. L., Montgomery, J. V. G., Schumacher, J. A., & Coffey, S. F. (2010). Does co-morbid substance use disorder exacerbate borderline personality features? A comparison of borderline personality disorder individuals with vs. without current substance dependence. *Personality Disorders: theory, Research, and Treatment, 1*(4), 239-249. http://dx.doi.org/10.1037/a0017647

Levy, K. N., Meehan, K. B., Weber, M., Reynoso, J., & Clarkin, J. F. (2003). Attachment and borderline personality disorder: Implications for psychotherapy. *Psychopathology, 38*, 64-74. http://dx.doi.org/10.1159/000084813

Marc, W. (2015). Personality disorder and addiction. In G. Dom, & Moggi, F. (Eds.), *Co-occurring addictive and psychiatric disorders: A practice-based handbook from a European perspective,* (pp. 137-148). New York: Springer-Verlag Publishing.

Mikulincer, M., & Shaver, P. (2007). *Attachment in adulthood: Structure, dynamics, and change*. New York: Guilford Press.

Millon, T. (1997). *Millon Clinical Multiaxial Inventory-III Manual* (2nd ed.). Minneapolis,

MN: National Computer System.

Millon, T., Millon, C., Davis, R., & Grossman, S. (2009). *MCMI-III Manual* (4th ed.). Minneapolis, MN: Pearson Education, Inc.

Moggi, F., Giovanoli, A., Buri, C., Moos, B. S., & Moos, R. H. (2010). Patients with substance use and personality disorders: A comparison of patient characteristics, treatment process, and outcomes in Swiss and U.S. substance use disorder programs. *The American Journal of Drug and Alcohol Abuse, 36*, 66-72. http://dx.doi.org/10.3109/00952990903575806

Nakash-Eisikovits, O., Dutra, L., & Westen, D. (2002). Relationships between attachment patterns and personality pathology in adolescents. *Journal of the American Academy of Child and Adolescent Psychiatry, 41*(9), 1111-1123. http://dx.doi.org/10.1097/00004583-200209000-00012

National Institute on Drug Abuse (2015). Trends and statistics. Available at: http://www.drugabuse.gov/related-topics/trends-statistics

Nelson, C. J., Rosenfeld, B., Breitbart, W., & Galietta, M. (2002). Spirituality, religion, and depression in the terminally ill. *Psychosomatics, 43*(3), 213-220. http://dx.doi.org/10.1176/appi.psy.43.3.213

Newman, I., Brown, R., & Fraas, J. (2004). Comparison of logistic regression, linear probability, and third-degree polynomial models: Which should researchers use? *Multiple Linear Regression Viewpoints, 30*(1), 1-7.

Oman, D. (2014). Defining religion and spirituality. In R. F. Paloutzian, & C. L. Park (Eds.), Handbook of the psychology of religion and spirituality (2nd ed.) (pp. 23-47). New York: Guilford Press.

Piderman, K. M., Schneekloth, T. D., Pankratz, V. S., Stevens, S. R., & Altchuler, S. I. (2008). Spirituality during alcoholism treatment and continuous abstinence for one year. *Journal of Studies on Alcohol, 68*, 282-290. http://dx.doi.org/10.2190/pm.38.4.a

Piedmont, R. L., Hassinger, C. J., Rhorer, J., Sherman, E. F., Sherman, N. C., & Williams, J. E. G. (2007). Relations among spirituality and religiosity and Axis 2 functioning in two college samples. *Research in the Social Scientific Study of Religion, 18*, 53-73. http://dx.doi.org/10.1163/ej.9789004158511.i-301.24

Preti, E., Rottoli, C., Dainese, S., Di Pierro, R., Rancati, F., & Madeddu, F. (2015). Personality structure features associated with early drop out in patients with substance disorders and comorbid personality disorders. *International Journal of Mental Health and Addiction, 13*, 536-547. http://dx.doi.org/10.1007/s11469-015-9540-7

Riggs, S. A., Sahl, G., Greenwald, E., Atkinson, H., Paulson, A., & Ross, C. A. (2007). Family environment and adult attachment as predictors of psychopathology and personality dysfunction among inpatient abuse survivors. *Violence and Victims, 22*(5), 576-600. http://dx.doi.org/10.1891/088667007782312159

Sansone, R. A. & Sansone, L. A. (2011). Substance use disorders and borderline personality: Common bedfellows. *Innovations in Clinical Neuroscience, 8*(9), 10-13.

Saunders, S., Lucas, V., & Kuras, L. (2007). Measuring the discrepancy between current and ideal spiritual and religious functioning in problem drinkers. *Psychology of Addictive Behaviors, 21*(3), 404-408. http://dx.doi.org/10.1037/0893-164X.21.3.404

Schindler, A. Thomasius, R., Peterson, K., & Sack, P.-M. (2009). Heroin as an attachment substitute? Differences in attachment representations between opioid, ecstasy, and cannabis abusers. *Attachment and Human Development, 11*(3), 307-330. http://dx.doi.org/10.1080/14616730902815009

Scoot, L. N., Kim, Y., Nolf, K. A., Hallquist, M. N., Wright, A. G. C., Stepp, S. D., Morse, J. Q., & Pilkonis, P. A. (2013). Preoccupied attachment and emotional dysregulation: Specific aspects of borderline personality disorder or general dimensions of personality pathology? *Journal of Personality Disorders, 27*(4), 473-495. http://dx.doi.org/10.1521/pedi_2013_27_099

Seidlitz, L., Abernethy, A. D., Duberstein, P. R., Evinger, J. S., Chang, T. H., & Lewis, B. (2002). Development of the Spiritual Transcendence Index. *Journal of the Scientific Study of Religion, 41*, 439-453. http://dx.doi.org/10.1111/1468-5906.00129

Senormanci, O, Senormanci, G., Guclu, O., & Konka, R. (2014). Attachment and family functioning in patients with internet addiction. *General Hospital Psychiatry, 36* (2), 203-207. http://dx.doi.org/10.1016/j.genhosppsych.2013.10.012

Shaver, P. R., Schachner, D., Mikulincer, M. (2005). Attachment style, excessive reassurance seeking, relationship processes, and depression. *Personality and Social Psychology Bulletin, 31*(3), 343-359. http://dx.doi.org/10.1177/0146167204271709

Sonneborn, C., & Bosma, M. (2011). Comorbidity and outcome in dual diagnosis patients – characteristics of 228 inpatients. *Mental Health and Substance Use, 5*(1), 42-51. http://dx.doi.org/10.1080/17523281.2011.609654

Sorajjakool, S., Aja, V., Chilson, B., Ramirez-Johnson, J., & Earll, A. (2008). Disconnection, depression, and spirituality: A study of the role of spirituality and meaning in the lives of individuals with severe depression. *Pastoral Psychology, 56*, 521-532. http://dx.doi.org/10.1007/s11089-008-0125-2

Straussner, S. L. A., & Nemenzik, J. M. (2007). Co-occurring substance use and personality disorders: Current thinking on etiology, diagnosis, and treatment. *Journal on Social Work Practice in the Addictions, 7*(1/2), 5-23. http://dx.doi.org/10.1300/J160v07n01_02

Teplin, D., O'Connell, T., Daiter, J., & Varenbut, M. (2004). A psychometric study of the prevalence of DSM-IV personality disorders among office-based methadone maintenance patients. *The American Journal of Drug and Alcohol Abuse, 30*(3), 515-524. http://dx.doi.org/10.1081/ADA-200032270

Tull, M. T., & Gratz, K. L. (2012). The impact of borderline personality disorder on

residential substance abuse treatment dropout among men. *Drug and Alcohol Dependence, 121*, 97-102. http://dx.doi.org/10.1016/j.drugalcdep.2011.08.014

Walter, M., Gunderson, J. G., Zararini, M. C., Sanislow, C. A., Grilo, C. M., McGlashan, T. H., ... Skodol, A. E. (2008). *Addiction, 104*, 97-103. http://dx.doi.org/10.1111/j.1360-0443.2008.02413.x

Westen, D., Nakash, O., Thomas, C., & Bradley, R. (2006). Clinical assessment of attachment patterns and personality disorders in adolescents and adults. *Journal of Consulting and Clinical Psychology, 74*(6), 1065-1085. http://dx.doi.org/10.1037/0022-006X.74.6.1065

Zikos, E., Gill, K. J., & Charney, D. A. (2010). Personality disorders among alcoholic outpatients: Prevalence and course in treatment. *Canadian Journal of Psychiatry, 55*(2), 65-73.

Copyright Disclaimer