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The Relationship Between Spirituality, Religiosity, Attachment, and Substance Use/Substance Involvement Among Adult Attendees of Houses of Worship

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This is to certify that the doctoral dissertation by

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has been found to be complete and satisfactory in all respects,
and that any and all revisions required by
the review committee have been made.

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Walden University
2023

Abstract

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Jessica J. Hames

MA, Argosy University, 2010

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Dissertation Submitted in Partial Fulfillment

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Forensic Psychology

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Abstract

Individuals with increased substance involvement/substance are often categorized as having lowered religiosity, increased spirituality, and maladaptive attachment, and are provided spiritually based interventions. Religiosity and spiritualty are separate constructs but are often measured in concert as one concept, or only one construct (religiosity or spirituality) is assessed. Prior research has typically only measured attachment to humans but not attachment to God and does not include comprehensive assessment of all four attachment types. The purpose of this descriptive correlational study with a nonexperimental design was to examine the relationship between religiosity, spirituality, attachment (attachment in interpersonal relationships, attachment to God, and attachment to objects), and substance use in a sample of adult attendees of houses of worship in seven counties of northern Florida. The theoretical framework guide for this study was attachment theory. Data were collected via self-report surveys from adults who attend a house of worship service in seven northern Florida counties. Study results were developed through multiple linear regression analyses. The study findings identified protective aspects of religiosity, spirituality, and attachment on substance use, which may benefit individuals with substance use issues by incorporating these aspects into prevention and intervention efforts. This study may also have utility regarding existing research on substance use/involvement and religiosity, spirituality, and attachment, improve substance use prevention and treatment efforts, and to increase safety in communities.

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Dedication

This study is dedicated to my son Gage, who was the strongest warrior I have known but who ultimately lost his battle with Duchenne's muscular dystrophy on April 17, 2021. Fly high, my son, and never be afraid to spread your wings and soar!

This study is also dedicated to everyone affected by substance abuse and to those I have personally lost to this horrific battle. Anna, Chris, Jamie, Michael, and so many others who died way too soon. You are loved and missed. I would also like to dedicate this study to my husband, who has been sober for 11 years. I hope that my work helps even one person to know their worth, to continue to fight this disease, and to not be deterred by stigma.

To all of the survivors, I wish you continued sobriety and all the happiness you can hold in your heart. To all the families, I wish you strength to fight, patience to endure the fight, and forgiveness so that you may continue to love your loved ones during and after the ravages of this disease that often causes infamous destruction of the spirit of sufferers and the family unit.

Acknowledgments

I would like to acknowledge Dr. David Rentler for his patience and amazing wisdom. I was not the most flexible student at first, but his strength and knowledge helped me to be a better writer and student and to truly earn the status of PhD. I would also like to acknowledge Dr. Eric Hickey for his constant support and sage advice. He truly helped to keep me on the right path and to keep my eye on the prize. I am blessed and honored to have worked with Dr. Rentler and Dr. Hickey. You have both literally changed me and my life for the better! Thank you!

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Chapter 1: Introduction to the Study

In this study, I examined the relationship between attachment, spirituality, religiosity, and problematic substance use/substance involvement among a population of adult attendees of houses of worship in seven northeastern Florida counties. I produced meaningful contributions to the existing literature by measuring religiosity and spirituality as separate constructs, comprehensively assessing for all four types of interpersonal attachment style, attachment to God, and attachment to objects, and by systematically evaluating substance use/substance involvement. Through this study, I promoted positive social change by identifying protective impacts of religiosity, spirituality, and attachment on substance use. This information may be used to improve substance use prevention. By reducing substance use or providing more efficacious substance use treatments, community safety may also improve due to a lessening of substance-related crimes.

Chapter 1 includes the study's background information, problem statement, study purpose, and the study's research questions (RQs) and hypotheses. Chapter 1 also contains information regarding the theoretical framework used to guide the study, the nature of the study, operational definitions, assumptions, scope and delimitations, limitations, and significance of the study.

Background

In this study, I measured religiosity and spirituality as separate constructs and comprehensively assessed attachment styles to identify protective aspects of religiosity, spirituality, and attachment where they concern substance use/substance involvement. I

evaluated spirituality to identify its protective factors regarding substance use/involvement. Research has shown that attachment to symbolic objects such as God can have implications regarding substance use/substance involvement and may be beneficial to measure (Granqvist, 2014; Granqvist et al., 2012). Identifying and including individual risk and deterrent factors of religiosity, spirituality, and attachment in substance use/involvement prevention and treatment interventions can promote individualization to better meet specific treatment and prevention needs (Cihan et al., 2014; Diaz et al., 2014; Freeze & DiTommaso, 2014). Despite the utility of measuring religiosity, spirituality, and attachment in substance use/involvement prevention and treatment, few researchers have addressed religiosity and spirituality measured as discreet concepts or have conducted comprehensive assessments of attachment (evaluation of all four attachment types) where it concerns substance use/involvement.

Freeze and DiTommaso (2014) examined religiosity and spirituality and found that lower levels of religiosity and spirituality resulted in insecure attachment to God, which can cause increased emotional distress, including substance use. However, Freeze and DiTommaso did not examine for attachment to others. I addressed this gap by comprehensively assessing attachment regarding all four attachment archetypes: secure, dismissing (ambivalent), fearful (avoidant), and preoccupied (anxious), as measured by the Relationship Scales Questionnaire (RSQ; Griffin & Bartholomew, 1994).

Cihan et al. (2014) stated that substance abuse is caused by an underlying problem with attachment. Cihan et al. did not evaluate for religiosity and spirituality either

separately or in concert. I addressed this gap by measuring religiosity and spirituality as discreet constructs.

Gardner (2013) reported that the level and type of attachment to parent is equal to the level and type of religious attachment and that for individuals with insecure attachment, secure religious attachment is common due to compensatory attachment. Gardner did not assess for substance use/substance involvement. I addressed this gap by expansively evaluating substance use/substance involvement.

Diaz et al. (2014) reported that secure attachment, combined with increased spirituality levels, resulted in lower rates of mental health and substance abuse issues. Diaz et al. did not evaluate religiosity either in tandem with spirituality or discreetly. I addressed this gap by measuring religiosity and spirituality separately.

Desmond et al. (2013) studied religiosity, self-control, marijuana use, and alcohol use among adolescents and found that increased self-control and religiosity correlated with decreased marijuana and alcohol use. However, Desmond et al. did not evaluate spirituality in concert with or separately from religiosity, attachment, or substance use/involvement beyond marijuana and alcohol use and only included adolescents in their study. I addressed this gap by assessing religiosity and spirituality discreetly and by measuring use/involvement with tobacco, alcohol, cannabis, cocaine, inhalants, amphetamine-type stimulants (ATS), sedatives, hallucinogens, and opioids in participants 18 years of age and older.

Weber and Pargament (2014) examined religiosity, spirituality, quality of life, depression, anxiety, suicide risk, and substance abuse. Study results indicated that

increased religiosity, spirituality, and quality of life resulted in lowered reports of depression and anxiety and a decreased risk of suicide and substance use. Weber and Pargament assessed religiosity and spirituality as separate constructs but did not examine attachment. I addressed this gap by systematically assessing for all four attachment types.

Moscati and Mezuk (2014) studied the influence of religiosity on the use and misuse of illicit and licit substances. They posited that their research results demonstrated decreased illicit and licit substance use with increased religiosity. However, Moscati and Mezuk did not gauge spirituality or attachment in their study. I addressed this gap by measuring spirituality and all four attachment types.

Brown et al. (2013) studied spirituality and substance use. Their findings showed that increased spirituality was associated with amplified confidence to resist substance use. However, Brown et al. did not include the variables of religiosity and attachment. I addressed this gap by examining religiosity and all four attachment types.

Schoenthaler et al. (2015) reported that as spirituality decreases, the risk of relapse of substance abuse increases and as spirituality increases, the rate or likelihood of remission from substance abuse increases. Schoenthaler et al. did not assess for religiosity and attachment. I addressed this gap by examining religiosity and all four attachment types.

Thompson (2016) researched the effect of religiosity and attachment on substance use and found that increased religiosity resulted in greater secure attachment and lowered substance use. Thompson only focused on individuals ages 15 to 17 years and did not

examine for spirituality. I addressed this gap by measuring spirituality and by focusing on study participants ages 18 years and older.

In this study, I addressed the gap in research regarding the relationship between attachment, spirituality, religiosity, and substance use/substance involvement among religiously and spiritually diverse adults. I addressed this gap by focusing on a population of adult attendees of houses of worship, measuring religiosity and spirituality as separate constructs, by comprehensively assessing for all four types of interpersonal attachment style, attachment to God, and attachment to objects, and by broadly evaluating substance use. The study findings may benefit individuals with problematic substance use/involvement through improving treatment options.

Problem Statement

Roughly 8.5%, 2%, and 1.1% of American adults meet the diagnostic criteria for a drug use disorder, alcohol use disorder, or both, respectively, in the 5th edition of the *Diagnostic and Statistical Manual* (Fletcher et al., 2014). According to the National Institute on Drug Abuse (NIDA, 2023), in terms of health-related complications, crime, and lost work productivity, illicit drug and/or alcohol abuse costs the United States more than $700 billion annually. Alcohol is the fourth leading cause of preventable deaths in the United States, and illicit drug use and prescription drug misuse represent the eighth leading cause of preventable death in the United States (National Institute on Alcohol Abuse and Alcoholism [NIAAA], 2023; NIDA, 2023). However, literature on substance use suggests that religiosity, spirituality, and attachment are protective factors against

substance use (Itzvan et al., 2011; Lazarsfeld-Jensen & O'Meara, 2013; NIAAA, 2023; NIDA, 2023).

There is an assumption among some that religious service attendance equates to a high level of religiosity and spirituality and provides an elevated level of protection from substance use issues (Allen, 2009; Galanter et al., 2013; Green & Nguyen, 2012; Walton-Moss et al., 2013). Some research on the relationship between attachment, spirituality, religiosity, and substance use has not measured religiosity and spirituality as separate constructs. As such, it is unclear if religiosity and spirituality offer equal protection against substance use (Allen, 2009).

At present, research on the relationship between attachment, spirituality, religiosity, and substance use has shown that secure attachment is a protective factor against substance use, but this research has not included assessment of all four attachment styles. Not assessing all four styles has resulted in only a partial understanding of the relationship between religiosity, spirituality, and substance use and the protective nature of attachment. There is also a lack of clarity regarding current research on the relationship between attachment, spirituality, religiosity, and substance use among populations other than those housed in substance use treatment facilities or juveniles (Allen, 2009; Massey et al., 2014).

While often used interchangeably, the concepts of religiosity and spirituality are separate constructs. Some researchers recommend examining religiosity and spirituality as separate concepts and to consider religiosity as more than simply religious service attendance (Allen, 2009). Some researchers have also recommended that studies on the

relationship between attachment, spirituality, religiosity and substance use incorporate comprehensive assessment of religiosity and spirituality, including religious attachment, spiritual attachment, belief in God or a higher power, awareness of God, and an inclusive measurement for all four attachment styles (Allen, 2009). Horton et al. (2012) suggested that the relationship between attachment, spirituality, religiosity, and substance use be examined in religiously and spiritually diverse adult populations. In addition to the stated need for further research in this area, a review of the current literature showed a lack of peer-reviewed studies that included the examination of religiosity and spirituality as separate constructs or considered eclectic spiritual concepts such as belief in a higher power. I found no studies on these topics as they related to active adult attendees of houses of worship in seven counties of a Southeastern state.

The gap in the research that I addressed is the lack of clarity regarding the relationship between attachment, spirituality, religiosity, and substance use/substance involvement among religiously and spiritually diverse adults. I addressed this gap in the research by focusing on a population of adult attendees of houses of worship, measuring religiosity and spirituality as separate constructs, comprehensively assessing for all four types of interpersonal attachment style, attachment to God and attachment to objects, and by evaluating substance use. I quantitatively examined protective aspects of attachment, spirituality, and religiosity and the relationship of these factors to substance use. The study findings may benefit individuals with substance use issues through identifying protective aspects of religiosity, spirituality, and attachment regarding substance use.

Purpose of the Study

I used a descriptive correlational study with a nonexperimental design to examine the relationship between religiosity, spirituality, attachment (attachment in interpersonal relationships, to God, and to objects), and substance use in a sample of adult attendees of houses of worship in seven northeastern Florida counties. For this study, substance use encompassed use or involvement with tobacco, alcohol, cannabis, cocaine, ATS, inhalants, sedatives, hallucinogens, and opioids. The following instruments were used to assess these relationships: the Spiritual Assessment Inventory-Revised (SAI-R; Hall & Edwards, 2002), the RSQ (Griffin & Bartholomew, 1994); the Religious Background and Behaviors Questionnaire (RBBQ; Connors et al., 1996), Form O of the Bell Object Relations and Reality Testing Inventory (BORRTI; Bell, 1995), which measures object relations, the Attachment to God Inventory (AGI; Beck & McDonald, 2004), and the Alcohol, Smoking, and Substance Involvement Screening Test (ASSIST; World Health Organization [WHO], 2010).

I evaluated the dependent variables via measures of attachment (in interpersonal relationships, to God, and to objects), spirituality, and religiosity. I evaluated the independent variables by assessing substance use/substance involvement. I contributed to existing research by specifically focusing on adult attendees of houses of worship in seven northeastern Florida counties, measuring for secure attachment, dismissing (ambivalent) attachment, fearful (avoidant) attachment, and preoccupied (anxious) attachment and attachment to God and by examining religiosity and spirituality comprehensively and discretely.

Research Questions and Hypotheses

The RQs and hypotheses in this study were as follows:

RQ1: Is there an association between religiosity as measured by scores on the RBBQ; spirituality as measured by scores on the SAI-R; attachment as measured by scores on the AGI, RSQ, and Form O of the BORRTI; and tobacco involvement/use as measured by scores on the ASSIST?

Null hypothesis ($H_0$1): There is no association between religiosity as measured by scores on the RBBQ; spirituality as measured by scores on the SAI-R; attachment as measured by scores on the AGI, RSQ, and Form O of the BORRTI; and tobacco involvement/use as measured by scores on the ASSIST.

Alternative hypothesis ($H_1$1): There is an association between religiosity as measured by scores on the RBBQ; spirituality as measured by scores on the SAI-R; attachment as measured by scores on the AGI, RSQ, and Form O of the BORRTI; and tobacco involvement/use as measured by scores on the ASSIST.

RQ2: Is there an association between religiosity as measured by scores on the RBBQ; spirituality as measured by scores on the SAI-R; attachment as measured by scores on the AGI, RSQ, and Form O of the BORRTI; and alcohol involvement/use as measured by scores on the ASSIST?

$H_0$2: There is no association between religiosity as measured by scores on the RBBQ; spirituality as measured by scores on the SAI-R; attachment as measured by scores on the AGI, RSQ, and Form O of the BORRTI; and alcohol involvement/use as measured by scores on the ASSIST.

$H_1$2: There is an association between religiosity as measured by scores on the RBBQ; spirituality as measured by scores on the SAI-R; attachment as measured by scores on the AGI, RSQ, and Form O of the BORRTI; and alcohol involvement/use as measured by the ASSIST.

RQ3: Is there an association between religiosity as measured by scores on the RBBQ, spirituality as measured by scores on the SAI-R; attachment as measured by scores on the AGI, RSQ, and Form O of the BORRTI; and cannabis involvement/use as measured by scores on the ASSIST?

$H_0$3: There is no association between religiosity as measured by scores on the RBBQ; spirituality as measured by scores on the SAI-R; attachment as measured by scores on the AGI, RSQ, and Form O of the BORRTI; and cannabis involvement/use as measured by scores on the ASSIST.

$H_1$3: There is an association between religiosity as measured by scores on the RBBQ; spirituality as measured by scores on the SAI-R; attachment as measured by scores on the AGI, RSQ, and Form O of the BORRTI; and cannabis involvement/use as measured by scores on the ASSIST.

RQ4: Is there an association between religiosity as measured by scores on the RBBQ; spirituality as measured by scores on the SAI-R; attachment as measured by scores on the AGI, RSQ, and Form O of the BORRTI; and cocaine involvement/use as measured by scores on the ASSIST?

$H_0$4: There is no association between religiosity as measured by scores on the RBBQ; spirituality as measured by scores on the SAI-R; attachment as measured by

scores on the AGI, RSQ, and Form O of the BORRTI; and cocaine involvement/use as measured by the ASSIST.

$H_1$4: There is an association between religiosity as measured by scores on the RBBQ; spirituality as measured by scores on the SAI-R; attachment as measured by scores on the AGI, RSQ, and Form O of the BORRTI; and cocaine involvement/use as measured by scores on the ASSIST.

RQ5: Is there an association between religiosity as measured by scores on the RBBQ; spirituality as measured by scores on the SAI-R; attachment as measured by scores on the AGI, RSQ, and Form O of the BORRTI; and ATS involvement/use as measured by scores on the ASSIST?

$H_0$5: There is no association between religiosity as measured by scores on the RBBQ; spirituality as measured by scores on the SAI-R; attachment as measured by scores on the AGI, RSQ, and Form O of the BORRTI; and ATS involvement/use as measured by scores on the ASSIST.

$H_1$5: There is an association between religiosity as measured by scores on the RBBQ; spirituality as measured by scores on the SAI-R; attachment as measured by scores on the AGI, RSQ, and Form O of the BORRTI; and ATS involvement/use as measured by scores on the ASSIST.

RQ6: Is there an association between religiosity as measured by scores on the RBBQ; spirituality as measured by scores on the SAI-R; attachment as measured by scores on the AGI, RSQ, and Form O of the BORRTI; and inhalant involvement/use as measured by scores on the ASSIST?

$H_0$6: There is no association between religiosity as measured by scores on the RBBQ; spirituality as measured by scores on the SAI-R; attachment as measured by scores on the AGI, RSQ, and Form O of the BORRTI; and inhalant involvement/use as measured by scores on the ASSIST.

$H_1$6: There is an association between religiosity as measured by scores on the RBBQ; spirituality as measured by scores on the SAI-R; attachment as measured by scores on the AGI, RSQ, and Form O of the BORRTI; and inhalant involvement/use as measured by scores on the ASSIST.

RQ7: Is there an association between religiosity as measured by scores on the RBBQ; spirituality as measured by scores on the SAI-R; attachment as measured by scores on the AGI, RSQ, and Form O of the BORRTI; and sedative/sleeping pill involvement/use as measured by scores on the ASSIST?

$H_0$7: There is no association between religiosity as measured by scores on the RBBQ; spirituality as measured by scores on the SAI-R; attachment as measured by scores on the AGI, RSQ, and Form O of the BORRTI; and sedative/sleeping pill involvement/use as measured by scores on the ASSIST.

$H_1$7: There is an association between religiosity as measured by scores on the RBBQ; spirituality as measured by scores on the SAI-R; attachment as measured by scores on the AGI, RSQ, and Form O of the BORRTI; and sedative/sleeping pill involvement/use as measured by scores on the ASSIST.

RQ8: Is there an association between religiosity as measured by scores on the RBBQ; spirituality as measured by scores on the SAI-R; attachment as measured by

scores on the AGI, RSQ, and Form O of the BORRTI; and hallucinogen involvement/use as measured by scores on the ASSIST?

$H_0$8: There is no association between religiosity as measured by scores on the RBBQ; spirituality as measured by scores on the SAI-R; attachment as measured by scores on the AGI, RSQ, and Form O of the BORRTI; and hallucinogen involvement/use as measured by scores on the ASSIST.

$H_1$8: There is an association between religiosity as measured by scores on the RBBQ; spirituality as measured by scores on the SAI-R; attachment as measured by scores on the AGI, RSQ, and Form O of the BORRTI; and hallucinogen involvement/use as measured by scores on the ASSIST.

RQ9: Is there an association between religiosity as measured by scores on the RBBQ; spirituality as measured by scores on the SAI-R; attachment as measured by scores on the AGI, RSQ, and Form O of the BORRTI; and opioid involvement/use as measured by scores on the ASSIST?

$H_0$9: There is no association between religiosity as measured by scores on the RBBQ; spirituality as measured by scores on the SAI-R; attachment as measured by scores on the AGI, RSQ, and Form O of the BORRTI; and opioid involvement/use as measured by scores on the ASSIST.

$H_1$9: There is an association between religiosity as measured by scores on the RBBQ; spirituality as measured by scores on the SAI-R; attachment as measured by scores on the AGI, RSQ, and Form O of the BORRTI; and opioid involvement/use as measured by scores on the ASSIST.

Theoretical Framework for the Study

Attachment theory was the theoretical framework for this study. Attachment theory is used to understand the attachment or connectedness of individuals with others, which begins in infancy with the bonds between infant and mother (Ainsworth & Bell, 1970; Bowlby, 1969, Chapter 11). The concept of attachment is primarily rooted in perceptions of safety and security (Bretherton, 1985). When secure attachment is not attained in infancy, maladaptive behaviors that can mimic attention-deficit/hyperactivity disorder, oppositional defiant disorder, intermittent/explosive disorder, mood disorders, and anxiety disorders are common in childhood, adolescence, and adulthood (Follan & McNamara, 2013; Vasquez & Stensland, 2015; Woolgar & Baldock, 2015). When left untreated, undiagnosed, or misdiagnosed, the negative symptoms of insecure attachment may become more pronounced or result in more serious mental health concerns such as substance abuse (Follan & McNamara, 2013; B. Klein et al., 2014; Vasquez & Stensland, 2015).

Attachment theory also includes discourse on a subtype of attachment known as object relations attachment and its implications for substance abuse, religiosity, and spirituality. Specifically, in insecurely attached individuals, substances used and/or God may become substitute attachment figures in a compensatory manner. Or, a corresponding insecure attachment to God may occur, resulting in using substances as a symbolic attachment figure. Since attachment theory includes discussion regarding the manifestations of insecure attachment extending into adulthood, this theory has been widely researched in the context of substance abuse, substance abuse interventions,

religiosity, and spirituality (Ainsworth & Bell, 1970; Bretherton, 1992; Brown et al., 2013; Cavaiola et al., 2015; Diaz et al., 2014; Fletcher et al., 2014; Schoenthaler et al., 2015). Attachment theory promotes an understanding of how attachment develops and the maladies associated with poorly developed attachments (Cavaiola et al., 2015; thus, it provided a relevant and solid framework for the present study.

Nature of the Study

This study was a descriptive correlational study with a nonexperimental design. Descriptive correlational research focuses on determining relationships between variables by providing statistical answers to RQs pertaining to naturally occurring variables (Creswell, 2014; Frankfort-Nachmias et al., 2015, Chapter 6). Since the present study did not include manipulation of variables, and I sought to identify relationships and strengths of relationships between variables to address a gap in the literature, this design was most appropriate. My goal was to address the gap in the literature regarding the statistical relationship between religiosity, spirituality, attachment style (attachment in interpersonal relationships and attachment to God), and substance use in a specific population of adult attendees of houses of worship. Conducting a descriptive correlational study incorporating statistical analysis facilitated addressing this gap.

The independent or predictor variables in this study were spirituality (awareness of God and quality of relationship with God), religiosity (assessment of religious practices and behaviors), and attachment style (attachment in interpersonal relationships and attachment to God). The dependent variable was substance involvement/substance use. Variables are operationally defined to promote measurability and testability, which,

in turn, provides vision regarding the relationships between the variables. The construct of spirituality was measured by the SAI-R, and religiosity was measured by the RBBQ. Attachment style in interpersonal relationships was measured via the RSQ, attachment to God was assessed with the AGI, and object relations attachment was evaluated with the BORRTI. The dependent variable of substance use/substance involvement was assessed with the ASSIST.

Specific assessment instruments were used to measure the variables and to provide responses to the study RQs. The SAI-R is a 47-item assessment instrument that measures five factors of spirituality: awareness of a higher power or God, disappointment with a higher power or God, grandiosity (excessive self-importance), realistic acceptance of a higher power or God, and stability/instability of one's relationship with a higher power or God (Hall & Edwards, 2002). The RBBQ is a brief assessment instrument that measures levels of religiosity, religious experiences, and religious behaviors (Connors et al., 1996). The AGI is a 28-item instrument that evaluates attachment by measuring anxiety about abandonment and avoidance of intimacy in one's relationship with God (Conners et al., 1996). The BORRTI is a 45-item assessment instrument that measures feelings of alienation in relationships, insecure attachment in relationships, egocentric view of others, and social incompetence (Bell, 1995). The RSQ is a 30-item assessment that measures secure attachment, dismissing (ambivalent) attachment, fearful (avoidant) attachment, and preoccupied (anxious) attachment (Nygren et al., 2012). Tobacco, alcohol, cannabis, cocaine, ATS, inhalants, sedatives, hallucinogens, and opioids use

across the lifespan with a special focus on use during the last 3 months was measured by the eight-item ASSIST (WHO, 2010).

Definition of Terms

There were terms associated with this study that could have various definitions based on context or interpretation. They were as defined as follows in this study.

Adult attendee: An individual age 18 years or over who attends services at a house of worship (Brunn et al., 2011).

Alcohol: Defined via the ASSIST as beer, wine, and spirits such as gin, vodka, and rum (WHO, 2010).

Amphetamine-type stimulant (ATS): Defined by the ASSIST as methamphetamine, amphetamines, ecstasy, "uppers," and speed (WHO, 2010).

Attachment styles: Attachment styles reflect the seminal work of John Bowlby and Mary Ainsworth and continuing research on attachment behaviors. There are four attachment styles: secure, anxious, avoidant, and disorganized. Anxious attachment style is also known as preoccupied attachment or anxious-ambivalent attachment. Avoidant attachment is also known as dismissive attachment or anxious-avoidant attachment. Disorganized attachment is also known as fearful-avoidant attachment (Cleveland Clinic, 2022). In the present study, attachment styles reflected the terminology used in the RSQ: secure, dismissing (ambivalent), fearful (avoidant), and preoccupied (anxious) attachment.

Bible Belt: A specific area, primarily in the southern United States, in which religion takes a more prominent role. These areas include predominantly southern states

such as Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, and Utah (World Population Review, 2019).

Cannabis: Defined by the ASSIST as marijuana and hashish (WHO, 2010).

Cocaine: Defined by the ASSIST as powder and crack cocaine (WHO, 2010).

Hallucinogen: Defined by the ASSIST as LSD, phencyclidine (PCP), psilocybin or psychedelic mushrooms, mescaline or peyote cactus, datura, and ketamine (WHO, 2010).

House of worship: A formal place of worship such as a church, mosque, synagogue, or temple (Brunn et al., 2011).

Inhalant: Defined via the ASSIST as gases such as nitrous oxide, glue, paint thinner, gasoline, nitrites or "poppers" such as cyclohexyl nitrite, volatile solvents such as paint thinner, and aerosols such as computer keyboard cleaner (WHO, 2010).

Opioids: Defined via the ASSIST as heroin, fentanyl, methadone, buprenorphine, codeine, morphine, and all other opium-based substances (WHO, 2010).

Religiously and spiritual diverse: Individuals with various religious and spiritual beliefs (Bakken et al., 2013).

Sedative: Defined by the ASSIST as diazepam, alprazolam, flunitrazepam, midazolam, and 11 other benzodiazepine-based substances (WHO, 2010).

Substance abuse/problematic substance use: Substance use that has resulted in impairments in social, interpersonal, vocational, or academic functioning (Fletcher et al., 2014).

Substance involvement: The level (low, moderate, or high) of problematic substance use as indicated by scores on the ASSIST (WHO, 2010).

Substance use disorder: A formally diagnosed disorder in which a number of the following criteria are met:

1. Substance is often taken in larger amounts and/or over a longer period than the patient intended.
2. Persistent attempts or one or more unsuccessful efforts are made to cut down or control substance use.
3. A great deal of time is spent in activities necessary to obtain the substance, use the substance, or recover from effects.
4. There are cravings or a strong desire or urge to use the substance.
5. Recurrent substance use results in a failure to fulfill major role obligations at work, school, or home.
6. There is continued substance use despite having persistent or recurrent social or interpersonal problem caused or exacerbated by the effects of the substance,.
7. Important social, occupational or recreational activities are given up or reduced because of substance use,
8. There is recurrent substance use in situations in which it is physically hazardous.

9. Substance use is continued despite knowledge of having a persistent or recurrent physical or psychological problem that is likely to have been caused or exacerbated by the substance.
10. Tolerance exists, as defined by markedly increased amounts of the substance in order to achieve intoxication or desired effect or markedly diminished effect with continued use of the same amount.
11. Withdrawal occurs, as manifested by characteristic withdrawal syndromes for the substance or the same (or a closely related) substance is taken to relieve or avoid withdrawal symptoms (APA, 2013).

The number of criteria met indicate the specifier or level of severity of the disorder, as follows: (a) mild: two or three criteria out of the 11 are met, (b) moderate: four or five criteria out of 11are met, and (c) severe: six or more criteria out of the 11 are met (APA, 2013).

Tobacco: Defined via the ASSIST as cigarettes, cigars, and chewing tobacco (WHO, 2010).

Assumptions

Because I used self-report surveys in this study, the major assumption was that the answers study recipients provided would be accurate and honest. This assumption was necessary because the surveys had to be completed by the study recipients, not by me. It should be noted that all assessment instruments, with the exception of the ASSIST, included scales to detect inconsistencies concerning responses.

Scope and Delimitations

The sole data source for this study was adult attendees at houses of worship. Data were collected from said attendees from diverse and numerous houses of worship via an online survey for which a link was provided to all houses of worship involved. The houses of worship provided this link to their congregants. The types of data collected were the results gleaned from the various instruments used to assess spirituality, religiosity, attachment style, and substance use.

While the Relationships Questionnaire has previously been used to measure attachment style, I used the RSQ to measure the independent variable of attachment because it assesses all four attachment styles (Horton et al., 2012; Nygren et al., 2012). I used the AGI to measure attachment to God, thus enhancing the concept of attachment beyond its typical scope of solely interpersonal relationships (Okozi, 2012). I used the SAI-R to measure the independent variable of spirituality. While Allen and Lo (2015) and Giordano et al. (2015) recommended using the Spiritual Well-Being Scale (SWBS) to measure multidimensional aspects of spirituality, the SWBS does not include a comprehensive assessment of the five dimensions of spirituality. Because of this, I used the RBBQ to measure the independent variable of religiosity, which included religious attachment. Diaz et al. (2014), Galbraith and Connor (2015), and Green and Nguyen (2012) also used the RBBQ to measure religiosity. Based on the existing research, I chose the RBBQ to measure religiosity.

I used Form O from the BORRTI to assess the independent variable of attachment from the lens of object relations attachment. According to Hall and Edwards (2012), the

SAI-R and BORRTI have a conceptual relationship based on the attachment theory elements of compensatory and corresponding attachment. Keefer et al. (2012) stated that insecurely attached individuals may become attached to objects such as religious beings (i.e., God) or illicit/legal substances to compensate for poor attachments. Keefer at al. also contended that "people tend to attach to objects when they are unsure or untrusting of their connections with others" (p. 917).

I used the ASSIST to measure the dependent variable of substance involvement/use. Nelson et al. (2013) used the Brief Addiction Monitor to measure substance use, but the ASSIST specifically evaluates use of tobacco, alcohol, cannabis, cocaine, ATS, inhalants, sedatives, hallucinogens, and opioids across the lifespan with a special focus on use during the last 3 months. I wished to examine use of these specific substances in this study.

Limitations

There were several limitations associated with this study. The first limitation involved the nature of the data collected. Specifically, because the data collection process included self-report surveys, results may have been skewed due to self-report bias. This issue may have been further complicated as the data regarding substance use were collected from adult attendees of houses of worship. The reason for this additional complexity is that it is possible that some study participants may have been fearful of excommunication from their house of worship due to being candid regarding their substance involvement/use.

Another study limitation concerned using convenience sampling. Convenience sampling permits obtaining voluntary study participants but limits the generalizability of study results (Frankfort-Nachmias et al., 2015, Chapter 6). Specifically, the sample acquired via convenience sampling may not have included all aspects of the population; thus, the sample may not have been truly representative of the target population. The limitations associated with this study are addressed in further detail in Chapter 5.

Significance

I addressed the gap in the literature by examining how spirituality, religiosity, attachment to God, attachment to objects, and interpersonal attachment style influence substance use. I examined spirituality and religiosity as individual constructs, which may improve understanding regarding the strength of the relationship of these variables with substance involvement/use. Studying attachment provided insights regarding the level of influence that attachment can have on substance involvement/use. Understanding the strength of the relationships between these variables may help to inform, expand, and improve current substance abuse prevention and treatment efforts.

Developing a more comprehensive understanding of the relationship between spirituality, religiosity, and substance use among active attendees of houses of worship may offer insights on individuals for whom incorporating religiosity and/or spirituality in substance abuse prevention and treatment could prove beneficial. Findings from investigating the relationship between attachment and substance use may help to inform the efficacy of involving family members, friends, and/or other loved ones in substance abuse treatment efforts. As a result of this newfound knowledge, it is possible that current

substance abuse prevention and treatment efforts may be expanded and improved, thus offering an increased potential for decreased substance use rates and more meaningful recoveries. In turn, decreased substance abuse rates via stronger prevention and better treatment efforts may promote positive societal change by improving physical health, decreasing stress, and reducing drug-related criminal behaviors.

Summary

Chapter 1 was an introduction to this study and details on the background, problem statement, purpose, RQs and hypotheses, and theoretical framework. I also discussed the nature of the study, provided a list of definitions for terms used in this study, and presented a detailed discussion on the assumptions, scope and delimitations, limitations, and significance associated with the study. In Chapter 2, I review the literature regarding attachment, spirituality, religiosity and problematic substance use/substance involvement that informed this study.

Chapter 2: Literature Review

This literature review reflects the foundation for continued research regarding attachment (attachment to others, God, and objects) religiosity spirituality, and problematic substance use. While studies examining spirituality, religiosity, attachment, and problematic substance use discretely are plentiful, there are few studies in which these variables were examined collectively and in terms of adult attendees of houses of worship. Results from recent studies have shown that spirituality and religiosity are distinct concepts and can play a significant role in problematic substance use. Contemporary research results have also shown that maladaptive attachment not only impacts problematic substance involvement/use later in life but also the development of spirituality and/or religiosity.

This descriptive correlational study with a nonexperimental design was an examination of the relationship between religiosity, spirituality, attachment (attachment in interpersonal relationships, attachment to God, and attachment to objects), and problematic substance use via substance involvement scores in a sample of adult attendees of houses of worship in seven northeastern Florida counties. I evaluated the variables via measures of attachment (attachment in interpersonal relationships, attachment to God, and attachment to others), spirituality, religiosity, and problematic substance use. In conducting this study, I contributed to existing research by specifically focusing on adult attendees of houses of worship in seven northeastern Florida counties and measuring for secure, dismissing (ambivalent), fearful (avoidant), and preoccupied

(anxious) attachment, attachment to God, and attachment to objects and by examining religiosity and spirituality comprehensively and discretely.

The theoretical framework for this dissertation was attachment theory. The key tenets of this theory are the connections or attachments human beings have with others, which take root early in life with the bond between infant and mother (Bowlby, 1988). Another related principle of attachment theory is the concept that failure to attain secure attachment has implications for specific behavioral and emotional responses including spirituality, religiosity, and substance involvement/use across the lifespan (Bowlby, 1988)..

In this chapter, I review research on attachment, religiosity, spirituality, and substance involvement via substance use. I specifically focus on the infant–mother bond as it relates to developing secure or insecure attachment, religiosity (including compensatory or corresponding religious attachment via object relations attachment), spirituality (including compensatory or corresponding spiritual behaviors via object relations attachment), and substance involvement via substance use or lack thereof. Research on religiosity and spirituality as separate constructs is also included. To ensure the objectivity of the discussion, I also included research with opposing views. I conclude the chapter by discussing how historical research influenced my approach in this study.

Literature Search Strategy

I conducted a search of scholarly and peer-reviewed literature from 2013 through the first part of 2023 using electronic psychological, criminal justice, medical, theological, and sociological databases in the Walden University online library such as

PsycINFO, PsycArticles, SAGE Journals, BioMed Central, ProQuest Central, PubMed, and MEDLINE. I also searched Google Scholar and conducted a general internet search for 1900 to 2023 to secure seminal research regarding attachment theory. I also reviewed books available through local public libraries and online, which complemented the other sources by providing more diverse overviews of attachment theory, religiosity, spirituality, and substance involvement/use. The list of search terms used to conduct the literature search included the search terms *attachment, attachment theory, spirituality, religiosity, substance involvement,* and *substance use.*

Attachment Theory

The need and ability to form bonds or attachments to others is an essential part of being human (Bowlby, 1988). Beginning at birth, infants bond or form attachments by way of touch, verbal communication, and nurturing acts such as feeding, diapering, and soothing. However, before the advent of attachment theory, many theorists contended that the bond between infant and mother developed merely as a means to satisfy the infant's specific needs (i.e., food) via primarily psychoanalytical concepts such as dependency, orality, and regression (Biringen, 1994, p. 404). John Bowlby is considered the father of attachment theory. His contributions were significant because they distinguished attachment an inherent trait and as separate and distinct from other instincts such as eating and sex. Bowlby (1988) aligned attachment as more than a means to attain satiety and as instinctually related to survival and safety.

According to Ainsworth and Bell (1970), attachment is an inherent trait because it involves the instinctual exhibition of behaviors to attain secure attachment to the mother

to ensure survival. The evolutionary aspect of attachment behaviors involves exhibiting behaviors designed to safeguard survival by ensuring secure attachment to the mother. Attachment's ultimate goal is to attain proximity to one's mother through physical closeness (Ainsworth & Bell, 1970). Attachment behaviors can include contact-seeking or attention-seeking behaviors, and contextual circumstances determine the level of attachment behaviors exhibited (Ainsworth & Bell, 1970). Attachment behaviors increase in response to negative stimuli (e.g., pain, hunger, exhaustion, fear, and separation) and decrease in secure contexts (Bowlby, 1988).

Attachment theorists consider the bond between infant and mother primarily from an ethological and evolutionary perspective, where behavioral responses are evolutionary-based adaptations explicitly designed to achieve specific goals (Ainsworth & Bell, 1970). Because attachment theory provides an explanation of the developmental changes that occur between infancy and adulthood, which are perpetuated via mother–infant relational interactions, attachment theorists have posited that there is an intricate partnership between internal and external behavioral systems and the attachment system, where the latter provides firm direction to the former (Ainsworth, 1989). Under attachment theory, attachment is viewed as an innate and evolutionarily adaptive trait that is part of the human survival mechanism (Collins & Feeney, 2000). Thus, an insecure attachment between mother and child is likely to result in a significantly distressed child.

Modern theorists posit that attachment reflects the following components (Fitton, 2012):

1. Affective: Affectionate gestures that reflect positivity regarding one's environment (e.g., a smile).
2. Behavioral: Specific actions to ensure proximity with the mother that signal the need for interaction (e.g., crying).
3. Cognitive: Communication to build confidence to promote exploration (e.g., reassuring words and tone from mother to infant/child).
4. Kinesthetic/tactile: Physical actions (e.g., touch and eye contact).
5. Psychic: Consistent presentation of mother as readily available both physically and mentally to the infant/child (generalized).
6. Physical: Mother is physically available and dependable in a specific location (specific, thus not generalized).

The basic tenets of attachment theory focus on the mother–infant bond, which can be significantly impaired by way of a maternal absence, neglect, or abuse (Bretherton, 1985). Graham and Unterschute (2014) contributed to contemporary perspectives of attachment theory by adding the concepts of worldview, view of self, and view of others. Specifically, Graham and Unterschute contended that early attachment experiences form worldview schemas, self-schemas, and view of others schemas in infants and young children, which set the stage for expectations regarding relationships with others later in the lifespan. According to Ainsworth (1989), the initial bond between mother and child ultimately creates the schema through which one views self, others, and the world.

Attachment theory began with a collaboration between John Bowlby and his secure base concept and Mary Ainsworth's and her Strange Situation research. The

theory's development also involved the concept of imprinting from the ethological perspective (Ainsworth et al., 1978; Bowlby, 1988, Bretherton, 1985; Stevenson-Hinde, 2007). The secure base concept refers to the need for safe haven, where infants are secure in knowing that they will be nurtured, welcomed, comforted, reassured, and kept safe from threats by consistently and continually trusting mothers, which in the ethological world is referred to as imprinting (Bowlby, 1988; Stevenson-Hinde, 2007).

Prior to the 1950s, Bowlby primarily focused his studies on the development of personality via mother–child interaction. Bowlby's approach involved a combination of object relation, ethological, evolutionary, cognitive, and system theories. His focus was significant for the times since family issues, and especially family conflicts, were considered private matters. Thus, not surprisingly, Bowlby's methods met significant controversy (Ainsworth & Bowlby, 1991).

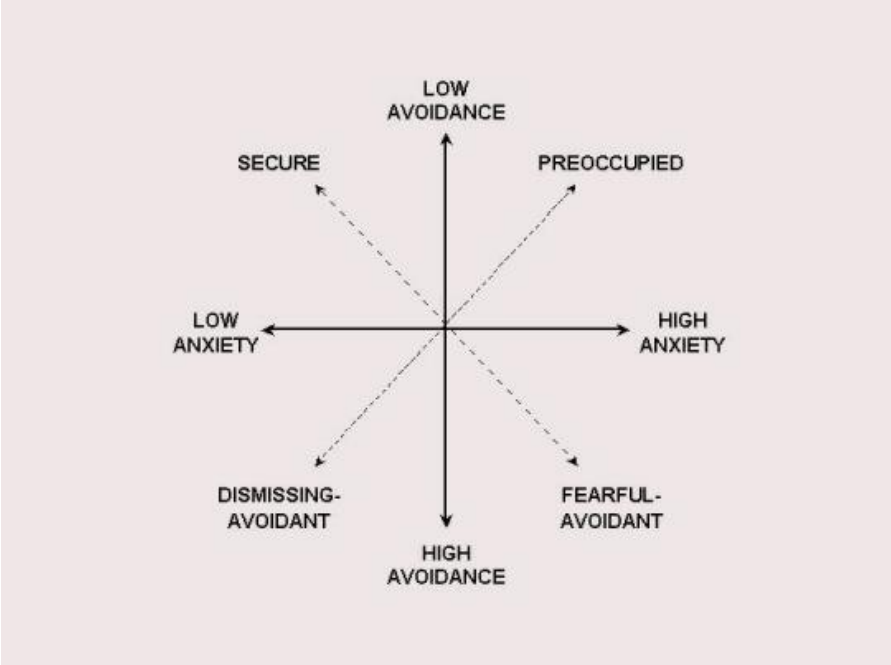
The negativity associated with Bowlby's work abruptly transformed after the beginning of World War II in 1939. Many children lost a parent or parents during the war and exhibited significant distress as a result (Ainsworth & Bell, 1970). Talk of this strife was pervasive among survivors and resulted in a public outcry to develop a deeper understanding of the effects of deprivation, separation, and loss on infants and children (Ainsworth & Bell, 1970; Fitton, 2012). This demand for understanding resulted in the beginning of Bowlby's work on attachment and the creation of his initial attachment theory. In the early 1950s, Mary Ainsworth's Strange Situation research and views from the ethological, evolutionary, object relation, cognitive, and system perspectives joined with Bowlby's, which resulted in the creation of attachment theory.

Before his collaboration with Ainsworth, Bowlby had identified two attachment types: secure and insecure. With the addition of Ainsworth's research, the attachment types were expanded to three, which were classified via an alphabetical taxonomy system: (a) secure, (b) avoidant, and (c) resistant. More recently, a new attachment taxonomy was added: disorganized (Main & Solomon, 1986). Contemporary attachment theorists have expanded attachment research even further to include several additional specifiers for the core attachment archetypes. These additional specifiers are as follows (Fraley, 2018; see Figure 1):

1. Preoccupied/anxious attachment: This new attachment type falls under the foundational insecure disorganized/disoriented attachment type and is exhibited via high anxiety and low avoidance in infant–mother interactions and attachment.
2. Fearful/avoidant attachment: This attachment type is categorized juxtaposed to the base of avoidant and ambivalent/avoidant attachment types and is characterized by both high anxiety and high avoidance in infant–mother interactions and attachment.
3. Dismissing/ambivalent attachment: This attachment type is associated with the original insecure avoidant attachment type and is exemplified by way of low anxiety and high avoidance in infant–mother interactions and attachment.

Figure 1

Contemporary Additions to the Attachment Archetype



Note. Adapted from "Adult Attachment Theory and Research: A Brief Overview" by R. C. Fraley, 2018, (http://labs.psychology.illinois.edu/~rcfraley/attachment.htm). Copyright 2018 by R. Chris Fraley.

Under attachment theory, infants and children with secure attachment seek out the mother during times of distress, are easily soothed by the mother, and view the mother as securely attached to others, available, appropriately responsive, and helpful (Bowlby & World Health Organization, 1951; Crowell & Treboux, 1995). Infants and children with avoidant attachment function independently of the mother both from a physical and psychological perspective, tend to not seek out the mother when distressed, and view the mother as avoidant in her attachment with others, insensitive to their needs, unavailable,

and unhelpful (Ainsworth, 1964; Crowell & Treboux, 1995). Infants and children classified as resistant demonstrate clingy and dependent behaviors toward the mother but also reject the mother at times, fail to exhibit appropriate natural exploratory behaviors, are unable to be soothed by the mother with any consistency, and view the mother as ambivalent or resistant to attachments with others and the mother's interactions in response to their needs as inconsistent (Ainsworth, 1964). Infants and children with disorganized attachment exhibit confused or contradictory behaviors toward the mother such as freezing or looking dazedly at the mother and view the mother as both protective and a source of fear; hence the contradiction (Main & Solomon, 1986).

While attachment theory has many proponents, it is not without opponents. Waters and Beauchaine (2003), for example, stated that the categories associated with attachment theory are too general and that attachment is not discrete. Lee (2003) contended that attachment theory has many limitations such as the assumption that "good" parents will produce "good" kids (nurture is only one aspect of the nature versus nurture debate), focuses on attachment behaviors that occur exclusively during times of distress, only considers the relationship between infant and child and not amid infant and others, and fails to recognize that the attachments an infant has with others may appear differently across the spectrum. In another contrasting argument, Fleming (2008) posited that by nature, attachment theory solely and erroneously places blame on the mother.

Cowan and Cowan (2007) argued that attachment theory does not contain enough taxonomies with respect to the differences across individuals and suggested using a multidimensional system to understand and explain attachment. Schneider (1991)

asserted that attachment theory minimizes resiliency by focusing explicitly on early adverse experiences and failing to recognize genetic factors that may influence development. Bolen (2000) stressed that some weaknesses of attachment theory are that the theory assumes universality, biological/physiological base, predictiveness, and stability throughout the course of the lifespan.

Despite the opposing arguments, attachment theorists continue to maintain the strength of attachment theory. Specifically, Schneider (1991) stated that the early relational experiences between infant and mother create an internal model of expectations regarding relationships with others that endure into and throughout adulthood. In support of the persistent nature of attachment, Main and Solomon (1996) contended that attachment is such a strong instinctual trait designed to ensure survival that efforts to identify readily available, stable, and older attachment figures during times of distress continue even in adulthood. In addition, Sable (1992) posited that adverse attachment in childhood directly correlates with the manifestation of psychological disorders in adolescence and adulthood. Lastly, Berry and Drake (2010) discussed at length research results indicating that a large number of adolescents and adults with mental health issues, including substance involvement as evidenced by substance use disorders, also have insecure attachment.

Conceptually, from both historical and contemporary perspectives, research regarding attachment has been extended to include discussion regarding the implications of an insecure attachment style into adulthood in the specific contexts of religiosity, spirituality, and substance involvement via substance use (Ainsworth & Bell, 1970; Beck

& McDonald, 2004; Bretherton, 1992; Brown et al., 2013; Cavaiola et al., 2015; Diaz et al., 2014; Fletcher et al., 2014; Granqvist, 2014; Granqvist et al., 2010; Keefer at al., 2012; Kirkpatrick, 2012; Kirkpatrick & Shaver, 1990; M. Klein, 1952; Krystal, 1978; Krystal & Raskin, 1970; Morgenstern & Leeds, 1993; Schoenthaler et al., 2015). These dialogues emerged by way of object relations attachment, which is a subcategory of attachment theory. Specifically, under the object relations construct of attachment theory, individuals with insecure attachment form compensatory attachment with religious objects (including God) and objects such as illicit and legal substances to compensate for maladaptive attachment (Azadi et al., 2014; Granqvist, 2014; M. Klein, 1952; Ogden, 2002).

Where it concerns religiosity, according to Granqvist (2014) and Granqvist et al. (2012), adults with an insecure attachment style may embrace a symbolic religious being or object such as God as a substitute attachment figure (compensatory) or experience difficulty bonding deeply with God (corresponding). Cavaiola et al. (2015) stated that with spirituality partially operationally defined by spiritual attachment to God, adults with any of the insecure attachment types may exhibit compensatory or corresponding spirituality. Insecure attachment may also result in more serious mental health concerns such as substance use disorders where substances are the object that serves as a symbolic attachment figure (Follan & McNamara, 2013; Granqvist, 2014; Granqvist et al., 2010, 2012; Keefer et al., 2012; B. Klein et al., 2014; M. Klein, 1952; Vasquez & Stensland, 2015).

In the present study, attachment was also considered via the corresponding and compensation hypotheses, which are vital components of the subcategorical aspect of attachment theory known as object relations attachment. The theoretical element of corresponding attachment assumes that one's attachment style in interpersonal relationships will correspond with one's attachment to religious objects, including God, and attachment to objects. The theoretical element of compensation assumes that one's attachment style in interpersonal relationships will be replicated in one's attachment to religious objects such as God and attachment to objects.

Attachment was operationally defined as attachment in interpersonal relationships, attachment to God, and attachment to objects as measured by the RSQ, the AGI, and the BORRTI. The RSQ measures attachment using the four-level interpersonal relationship attachment classification system described by Ainsworth, Bowlby, Main, Solomon, and Fraley. Attachment to God was operationally defined as avoiding a close relationship with God, and fear of abandonment by God as measured by AGI's two scales. Attachment to objects was operationally defined as feelings of alienation (difficulty developing close bonds with others), insecure attachment (fear of rejection by others), egocentricity (view of others as dishonest), and social incompetence (ability to make friends) as measured by the BORRTI.

Religiosity was operationally defined as an individual's religious practices and behaviors as measured by the RBBQ. Spirituality was operationally defined as awareness of God and quality of relationship with God as measured by the SAI-R. The dependent variable of problematic substance involvement/use was operationally defined via

substance involvement scores regarding tobacco, alcohol, cannabis, cocaine, ATS, inhalants, sedatives, hallucinogens, opioids, and other drug use (write-in space provided for participants) across the lifespan with a special focus on use during the past 3 months.

Attachment theory was related to the study because research has indicated a relationship between attachment style and spirituality, attachment style and religiosity, attachment style and substance involvement, and between all three variables in limited contexts (Ainsworth & Bell, 1970; Bretherton, 1992; Brown et al., 2013; Cavaiola et al., 2015; Diaz et al., 2014; Fletcher et al., 2014; Schoenthaler et al., 2015). Specifically, some studies have shown a correlation, either compensatory or corresponding, between one's attachment style and one's spiritual and/or religious attachment and attachment (so to speak) with illicit and legal substances. From a conceptual perspective, because these variables may have a relationship, collecting additional data regarding adult attachment may increase insights on the level or depth of one's spiritual relationships, religious relationships, and one's relationship with objects such as illicit/legal substances, which in turn could have implications regarding using spiritual and/or religious interventions in treating individuals with substance use disorders.

Attachment theory also related to the data collection sites, since one of the components indicating religiosity and spirituality is religious attachment via religious service attendance and behaviors signifying spiritual attachment such as the formal practice of spiritual worship. Since attachment theory promotes a comprehensive understanding of how attachments develop and the maladies associated with poorly developed attachments, it provided a relevant and solid framework for the present study

Religiosity and Attachment

Religiosity

This study focused on adult attendees at houses of worship in seven northeastern Florida counties. Stavrova et al. (2013) and Reutter and Bigatti (2014) asserted that American culture is highly religious and that the more embedded religion is in the day-to-day culture of a geographical region (such as that in the current study), the greater the likelihood of religion-based tension. Religious tension occurs, in part, due to the overt and covert expression of religious beliefs and practices that are in contrast to the majority in the area (Stavrova et al., 2013), meaning that having religious beliefs that do not conform to the majority religious beliefs in an area can result in significant social repercussions.

Turner (2018) posited that religiosity is a social construct that allows others to express, share, and expand a shared spirituality. Eid and El-Gohary (2015) and François Dengah (2017) stated that religiosity is a deeply cultural construct, with Eid and El-Gohary stating that it is "one of the most important cultural factors that influence behaviors" (p. 482). Research has indicated that the greater the behavioral structures associated with a religious group, the greater the commitment of the religious group members (Wellman & Corcoran, 2013). However, what is uncertain is if the member commitment is to the group itself (sense of belongingness, acceptance by majority religious group), the religion, or some variation of both.

Reutter and Bigatti (2014) defined religiosity as the combination of two separate yet interlinked constructs of subjective spirituality and observed religiosity. Subjective

spirituality is characterized by individuals' daily religious experiences whereas observed religiosity is exemplified by individuals' levels of attachment to their religious practices and beliefs (Reutter & Bigatti, 2014). According to François Dengah (2017), religious belongingness includes the concepts of religious consensus and religious consonance where being securely attached via agreement and harmony with the majority religious group promotes salutogenesis for some. Stavrova et al. (2013) maintained that the need for belongingness may result in false religiosity to prevent an individual from being a social outcast.

Religiosity is typically measured by assessing one's level of engagement in religious services made accessible by houses of worship. However, contemporary religiosity theorists have contended that religiosity is a complex construct, which includes efforts to obtain and maintain proximity to God. As such, for this study, religiosity was defined as an individual's current religious beliefs (i.e., one's level of belief in God) and both current and historic engagement in specific religious behaviors such as religious service attendance, prayer, meditation, and reading of religious materials as measured by the three-item RBBQ (Reutter & Bigatti, 2014). The RBBQ was an appropriate measure for the present study as it assesses all components of the definition of religiosity that were used in this study.

Religiosity and Attachment

The word religion comes from the Latin word *religare*, which means to restrain or tie back (Merriam-Webster, n.d.). Attachment also refers to connection or bonds with others. Attachment theory is useful in understanding the "relational, representational, and

distress-regulating" aspects of religion (Granqvist & Kirkpatrick, 2013, p. 150). As such, discourse regarding religiosity from an attachment perspective appears appropriate due to research results indicating that one's relationship with God strongly correlates with one's relational bonds with others (Anderson-Mooney et al., 2015).

Secure attachment between mother and child extends to attachment to God and symbolic attachments in adulthood (Cassibba et al., 2013). Specifically, one's attachment with God corresponds with one's attachment in interpersonal relationships, or God may serve as a compensatory attachment figure (Lang, 2016). Reinert and Edwards (2014) contended that corresponding attachment between an individual, others, and God is more strongly correlated among males than females.

In times of emotional turmoil, insecurely attached individuals may adopt a strong attachment to a perceived religious deity where the religious deity provides psychological salvation from the negative parent-rooted attachment schema (Sandage & Moe, 2013). Seeking proximity to this new and positively perceived attachment figure occurs via religious service attendance, taking part in religiously sponsored activities, and engaging in the practice of religion (i.e., praying, reading scripture or other religious writings; Sandage & Moe, 2013). Securely attached individuals tend to present with corresponding attachment to religious figures in a consistent manner. Insecurely attached individuals typically have an initial corresponding attachment to religious figures but are more likely to have a sudden conversion to compensatory attachment during times of significant stress (Sandage & Moe, 2013).

Insecure attachment, regardless of the specific type, is associated with an increased propensity toward sudden religious conversions (Granqvist & Kirkpatrick, 2004). Individuals with an avoidant attachment style in their interpersonal life are more likely to identify religiously as agnostic or atheist whereas individuals with an anxious or ambivalent attachment are more liable to identify as highly religious (Granqvist et al., 2012; Pereira et al., 2014). Individuals with a disorganized/disoriented attachment style are more likely to believe in a New Age religion or mysticism (Granqvist & Kirkpatrick, 2013). Individuals with a secure attachment style are more likely to display socialized correspondence or one's ability to conform to the practices and standards of one's religion (Granqvist & Kirkpatrick, 2004).

Attachment in one's interpersonal life is predictive of religious attachment via the concepts of corresponding and compensatory attachment (Badr et al., 2014). Corresponding attachment implies that the attachment style one has with regard to interpersonal relationships will be replicated in one's attachment to God. Compensatory attachment refers to individuals having a strong attachment to God to compensate for lacking attachment figures in their interpersonal life. For example, individuals with anxious or avoidant attachment are more likely to have sudden and dramatic religious conversions to attain a string attachment to God, which compensates for lacking attachment early in life (Wesselmann et al., 2016). With God as a compensatory attachment figure, individuals with an anxious or avoidant attachment style develop what Granqvist et al. (2010) termed as "earned security" (p. 53).

In compensatory attachment, the divine being is considered in the same regard as human attachment figures (Bonab, 2013). The divine being personified via religious expression serves as the secure base from which one elicits strength to safely explore the world and life's challenges (Bonab, 2013; Granqvist, 2014; Reizer et al., 2013). Individuals with a strong attachment to God view God as omnipotent and omniscient and will go to great lengths to secure and maintain proximity to God to avoid a "dark night of the soul" (Granqvist & Kirkpatrick, 2013, p. 142).

Because of the basic human need to belong, insecure attachment often results in psychological distress (Pereira et al., 2014). Increased levels of emotional distress, lacking natural supports, and negative or unstable human attachment figures dictate the degree of one's religiosity (Granqvist, 2014). Specifically, for some, religiosity serves as a healing mechanism and attenuates grief from trauma experiences early in life, including maladaptive attachment (Granqvist, 2014; Santoro et al., 2016). In support of this contention, Granqvist (2014) asserted that reports of experiencing increased stress, perceived or actual loss of primary attachment figures, and perceived or actual decreased social supports often precede increased religiosity and attachment to God. Additional support for this contention came in a study involving elders. Study findings indicated that the elders who reported loss of their primary attachment figure also reported an increase in religiosity after the loss (Granqvist & Kirkpatrick, 2013).

Increased religiosity and a strong attachment to God can compensate for lacking attachment (Pereira et al., 2014). Religious symbols and engaging in daily prayer serve as diurnal reminders and offer partakers propinquity to God, similar to human-to-human

proximity. The reminders permit developing a secure base and safe haven (Granqvist & Kirkpatrick, 2013). APA Handbook, 2013). According to Granqvist (2014), the strength of religiosity and attachment to God is best exemplified by sudden religious conversions in individuals faced with stressors such as illness, injury, fatigue, separation or threat of separation, or frightening environmental factors (e.g., prisoners suddenly "born again" to cope with stressors associated with prison life).

For the present study, I used the AGI to assess attachment to God. The AGI is a 28-item scale that measures avoidance of intimacy with God, as evidenced by increased self-reliance, view of God as undependable, and an unwillingness to open up to God; and anxiety over abandonment by God, characterized by a fear of rejection by God, jealousy related to God's perceived intimacy with others, ruminations regarding relationship with God, and anxiety about being unlovable to God (Beck & McDonald, 2004). Using this assessment was appropriate because it focuses on and specifically measures attachment to God, not attachment in general interpersonal relationships.

Spirituality and Attachment

Spirituality

This study focused on adult attendees at houses of worship in seven northeastern Florida counties. One of the study distinctions was that the constructs of religiosity and spirituality were measured distinctly. This was advantageous because Reutter and Bigatti (2014) defined religiosity as individuals' levels of attachment to their religious practices and beliefs. Sutton et al. (2014) defined spirituality as one's personal spiritual experiences and sense of relationship or spiritual attachment with a divine being.

Ammerman (2013) also argued that religiosity and spirituality are distinct because it possible for an individual to identify as spiritual but not religious or to not identify as being affiliated with a specific religious denomination. Based on these differences, separate measurement of religiosity and spirituality is recommended.

Spirituality is often exemplified by consistent explorations for life meaning and increased levels of faith, compassion, connectedness, and universality (Jordan et al., 2014). Reed and Neville (2014) asserted that the term spirituality refers to one's personal daily experiences with the practice of one's chosen religion, self-awareness, awareness of others, awareness of the world, self-acceptance, and meaning-making. Anye et al. (2013) stated that spirituality is an abstract concept often used to describe an individual's meaning and purpose in life.

For some, spirituality provides direction and meaning to physical, social, emotional, intellectual, occupational, and environmental health (Anye et al., 2013). According to Reed and Neville (2014) and Anye et al. (2013), increased spirituality is correlated with high levels of psychological well-being. Balboni et al. (2014) introduced a biospiritual model that considers spirituality from a whole health perspective. Under this model, individuals embracing spirituality enjoy physical, psychological, and spiritual benefits by seeking and expressing connectedness to self, others, and the sacred (Jordan et al., 2014).

The term spirituality comes from the Latin word *spiritus*, which means breath (Saslow et al., 2013). Similar to the individualizing of breathing or taking breaths, spirituality is personal. Ammerman (2013) claimed that spirituality is not always

exemplified in typical formalized religious structures and practices. Lazarsfeld-Jensen and O'Meara (2013) and Moreira-Almeida et al. (2014) asserted that unlike religiosity, spirituality focuses on religion-based concepts beyond the formal house of worship structure, Instead, according to these authors, spirituality focuses on the private and personal connections one has with a divine being and spiritual others.

For the present study, I used the first scale of the SAI-R to measure spirituality. This is the Awareness of God scale, which examines one's personal spiritual experiences (Hall & Edwards, 2012). This instrument was appropriate for the present study because it measures spiritualty distinctly from religiosity and assesses one's personal spiritual experiences.

Spirituality and Attachment

Saslow et al. (2013) posited that in addition to personal spiritual experiences, the general topic of spirituality includes a focus on spiritual attachment or connectedness one has with a divine sacred being. In other words, unlike religiosity, which often involves public displays of a religious nature (i.e., attendance at a house of worship, prayers, and rituals), spirituality concentrates in part on one's personal and private spiritual attachment with a divine being (Salas-Wright et al., 2013). In support of the personal nature of spirituality from the spiritual attachment perspective, Reed and Neville (2014) stated that spirituality includes a focus on the connectedness one has with a divine being and spiritual others. Horton et al. (2016) and Paine and Sandage (2017) also contended that spirituality includes an attachment component known as spiritual attachment, which focuses on one's personal connectedness with the divine.

Spiritual attachment can be seen as both a "recourse to securely based attachments and as an attempt to explore the ultimate unknown and the mystery of one's own mortality" (Loetz et al., 2013, p. 5). Spiritual attachment is a broad concept consisting of four themes: relationship with self, relationship with others, relationship with nature, and relationship with God (Loetz et al., 2013). Individuals with insecure attachment may develop increased attachment to an "anthropomorphized objects of attachment" such as a divine being to seek a safe haven and secure base for life exploration (Counted, 2018, p. 150). Counted (2018, p. 150) expanded this concept to include "circle of place spirituality," which places significant meaning and value to experiences associated with devotion to a secure divine being.

According to Augustyn et al. (2017), attachment in interpersonal relationships predicts spiritual attachment across Christian faiths, Buddhism, Judaism, and Islam. Hiebler-Ragger et al. (2016) found that insecure attachment in interpersonal relationships correlated with low spirituality, including spiritual attachment. Freeze and DiTommaso (2014) and Rieben et al. (2014) also claimed that insecure attachment is associated with low spirituality and spirituality as well as a lowered sense of well-being across all Christian faiths.

For the present study, I measured the spiritual attachment aspect of spirituality with the second scale in the SAI-R. This is a 25-question scale that assesses the connectedness or quality of one's relationship with a divine being, including one's realistic acceptance of God, grandiosity in relationship with God, instability in relationship with God, and disappointment in relationship with God (Hall & Edwards,

2012). This instrument was appropriate for the current study because it measures the personal connectedness or spiritual attachment one has with a divine being and spiritual others, which is a vital aspect of the spirituality variable.

Problematic Substance Involvement/Use

Problematic substance use is a significant issue in contemporary American society. According to the Centers for Disease Control and Prevention, 72,000 Americans died as a result of drug overdoses in 2017, a 7% increase from 2016 (Rossen et al., 2018). In addition, in the United States, approximately 62,000 men and 26,000 women die annually due to alcohol-related illness (NIAAA, 2023). Lastly, disease directly related to tobacco use is the first leading cause of preventable death in the United States (American Lung Association, 2023).

In the current study, problematic substance use was operationally defined via substance involvement scores regarding tobacco, alcohol, cannabis, cocaine, ATS, inhalants, sedatives, hallucinogens, and opioids. In line with this operational definition, I used the ASSIST (WHO, 2010) to assess substance involvement/use among the sample population. The ASSIST includes eight queries regarding tobacco, alcohol, cannabis, cocaine, ATS, inhalants, sedatives, hallucinogens, opioids, and other drug use across the lifespan, with a special focus on use in the past 3 months (WHO, 2010). I did not include the ASSIST item coded as “other substance” to prevent erroneously duplicating substances already included in the named categories.

Problematic Substance Involvement/Use and Attachment

Drawing from the work of attachment theorists, the concept of corresponding and compensatory attachment has recently evolved to include a subaspect of attachment theory referred to as object relations. Under the object relations facet of attachment theory, attachment to an attachment object (not a person or figure) reflects the need to remedy psychological pain rooted in childhood (M. Klein, 1952). Object relations theorists assert that the object attachment occurs as a result of internal working models of relationships developed in infancy and childhood, which are then generalized to adult relationships with people and objects, including licit and illicit substances and alcohol (Anderson-Mooney et al., 2015, p. 95).

Based on the notion of compensatory attachment, individuals with insecure attachment may demonstrate object relations attachment to substances in a compensatory manner, or "attachment of the craving self to the tantalizing object" (Ogden, 2002, p. 769). Krystal and Raskin (1970) and Krystal (1978) also asserted that any object, including illicit substances, licit substances, and alcohol, can become an attachment figure for some individuals with maladaptive attachment. These individuals will make significant efforts to obtain and maintain proximity to the substitute attachment figure (object) to attain absent feelings of safety and security (Krystal & Raskin, 1970). For some individuals who use substances problematically and present with an insecure attachment style, the substances used may serve as their sole attachment objects (Fletcher et al., 2014). In support of these contentions, Krystal stated that being able to find

temporary comfort in objects may provide valuable psychological benefits to those with ill-formed attachments.

Where it concerns compensatory attachment to objects, some theorists claim that the inability to appropriately identify and express emotions is the underlying culprit of object attachment. Specifically, Morgenstern and Leeds (1993) contended that individuals with insecure attachment have significant affectual disturbances that often result in pervasive alexithymia. Pervasive alexithymia is a constant state that prevents an insecurely attached individual from understanding or verbalizing both negative and positive affectual experiences (Morgenstern & Leeds, 1993). As a result, an insecurely attached individual may gravitate toward an object such as licit or illicit substances and/or alcohol to serve not only as a salve for attachment-based wounds in infancy and childhood but also as a means of providing for self and satisfying self-needs (Morgenstern & Leeds, 1993).

Unterrainer et al. (2017) examined the relationship between attachment, affect, religiosity/spirituality, and substance use in a sample of 59 men, 19 who presented with current polysubstance substance use, 20 who presented with current use of one substance, and 20 who presented with no current or past substance use. The researchers used the Adult Attachment Scale to assess attachment and a short version of the Affective Neuroscience Personality Scales to examine affect (i.e., concepts of seeking, sadness, fear, anger, care, and play). They used the Multidimensional Inventory for Religious/Spiritual Well-Being to evaluate religiosity/spirituality as adjoined constructs.

Unterrainer et al. (2017) employed one-way analyses of variance (ANOVA) to analyze the data for group comparisons. Pearson's correlation statistics and post hoc comparisons (Tukey's HSD) were also used. One-sample *t* tests were also employed to compare the data with normative data. Since the sample size was very small, alpha was set to $p < 0.05$ (Unterrainer et al., 2017).

Results indicated that study participants with polysubstance use had higher levels of maladaptive attachment than the other groups (Unterrainer et al., 2017). Study participants with negative affect as demonstrated by anger, anxiety, depression, frustration, and boredom had the highest rates of substance use relapse than any other group. There were no correlations found regarding religiosity/spirituality (Unterrainer et al., 2017).

Unterrainer et al. (2017) noted several limitations in their study. First, they used a time-limited substance use assessment and not a lifetime substance use measure. Second, the sample size was small; thus, generalizability was limited. Lastly, the study was very explorative in nature; thus, the results should be confirmed via future research (Unterrainer et al., 2017).

Unterrainer et al.'s (2017) study related to the present study because the researchers focused on attachment, religiosity/spirituality, and substance use. However, they focused solely on adult males and did not separate spirituality and religiosity into two distinct constructs. To address these limitations, I focused on adult females and males and examined spirituality and religiosity as separate constructs.

For the present study, I used Form O of the BORRTI (Bell, 1995) to measure object relations. This form consists of 45 items on four scales:

1. Alienation: Difficulty or lack thereof of getting close to physical others.
2. Insecure attachment: Fear or lack thereof of rejection by physical others.
3. Egocentricity: Beliefs or lack thereof that physical others are dishonest.
4. Social incompetence: Abilities or lack thereof to make friends with physical others.

The rationale for using only Form O was because the form specifically focuses on object relations. This instrument was appropriate for using in the present study because it specifically addresses specific aspects of maladaptive attachment as they pertain to compensatory attachment, including attachment to a divine being or object, via an object attachment lens

Problematic Substance Involvement/Use and Religiosity

The variables of religiosity and problematic substance use have been widely researched. Where it concerns religiosity, 95% of Americans have reported high levels of religiosity as indicated by identifying as a specific religion and having regular attendance at religious services and events (Moscati & Mezuk, 2014). Van der Meer Sanchez et al. (2008) found that 81% of individuals reporting no substance use consistently practiced a religion. Yet, individuals with substance use issues are part of many church congregations (Gilliam, 2014). A 2001 report by The National Center on Addiction and Substance Abuse at Columbia University (CASA) stated that about 94% of clergy across religions have cited substance use as a major issue among congregations.

Jones et al. (2018) examined the relationship between religiosity and substance use among 318 women involved with the criminal justice system. The convenience sample was recruited from municipal courts in St. Louis, Missouri. Participants had to be female, at least 18 years of age, physically present in the municipal drug court or engaged in community release via probation or parole, and residing in the St. Louis, Missouri, area for 12 months after study completion.

Jones et al. (2018) used an informal assessment process to determine drug use in the past 30 days. Specifically, study participants were asked how often they used crack/cocaine, stimulants, opioids, marijuana in any way in the last 30 days. Analysis showed that study participants used only marijuana, crack/cocaine, or marijuana and crack/cocaine together. Study covariates were as follows:

1. Number of arrests greater than the 25th percentile (four or more lifetime arrests versus fewer than four lifetime arrests).
2. Past family disruption (separated 6+ months from parents versus never separated 6+ months from parents).
3. Social support (defined as having someone to could talk to and ask for favors versus none).
4. Age (18–29 years of age versus 30+).
5. Race (Black versus non-Black).
6. Education (high school diploma versus no high school diploma).
7. Unstable housing (living on the streets, with others, halfway house versus living in own house or apartment).

According to Jones et al., these covariates were included because they have been traditionally studied in conjunction with substance use, with results indicating a correlational significance.

Jones et al. (2018) operationally defined religiosity by three components to ensure a more holistic definition as opposed to the common definitions, which typically use the single indicator of religious service attendance or relationship with higher power. Specifically, to assess religiosity, study participants were not subjected to a formal assessment instrument but instead were asked three questions: "In the past 12 months, have you sought the help or advice of a priest, rabbi, or other member of the religious community?" "How important is religion/spirituality to you?" and "In the past 12 months, how often have you attended religious services at a church, mosque, temple, shrine, or synagogue?" Participants were categorized as religious if they sought advice from a member of a religious community member in the past 12 months, reported that religion/spirituality was very important to them, and sometimes or often attended religious services in the past 12 months.

Jones et al. (2018) used chi-square analyses and multinomial logistic regression analysis to analyze their data. The results indicated that religiosity was associated with lower substance use among the sample participants even after controlling via the covariates. Specifically, religiosity was associated with the most substantial decrease in co-occurring use of crack/cocaine and marijuana and cocaine use alone but not marijuana use alone.

Despite the robust nature of this study, Jones et al. (2018) identified several limitations. Specifically, the measure of religiosity may not have fully quantified the multidimensional aspect of this variable. Also, the population sample was not chosen randomly, which may have limited generalizability. Finally, directional causal inferences may have been lessened due to the cross-sectional design and use of self-report measures (Jones et al., 2018).

Jones et al. (2018) related to the current study for its focus on substance use and religiosity in an adult population. I similarly focused on substance use and religiosity in an adult population but also included the additional variables of spirituality and attachment style to address a gap in the existing research. A notable difference between the studies is that Jones et al. focused solely on females involved with the criminal justice system in St. Louis, Missouri. I included male and female participants from a variety of houses of worship in seven northeastern Florida counties.

Unlike in the current study, Jones et al. (2018) did not use formal assessment instruments to evaluate substance use and religiosity. To address this methodological issue, I used formal assessment instruments with readily available psychometrics to assess substance use, religiosity, spirituality, and attachment style. Lastly, Jones et al. did not separate religiosity and spirituality into two distinct constructs, as recommended by other researchers. To address this methodological issue, I evaluated religiosity and spirituality as two separate constructs.

Where it specifically concerns alcohol use, El Arisari et al. (2014) examined associations between symptoms of depression and four alcohol consumption factors: (a)

high frequency of drinking, (b) frequency of heavy episodic drinking, (c) problem drinking, and (d) alcohol dependence. El Arisari et al. also examined whether religiosity and healthy lifestyle were modifiers of any of these correlations. Study participants were recruited from seven universities in Great Britain: the University of Gloucestershire, Bath Spa University, Oxford Brookes University, the University of Chester, Plymouth University, Swansea University, and the University of Ulster. There was a total of 3,706 participants, with some disparities regarding the participants' college years duly noted.

El Arisari et al. (2014) assessed the following:

1. Frequency of drinking: Study participants were asked how often they drank alcohol (such as beer) over the past 3 months. Response options were never, once a week or less, once a week, a few times each week, every day, and a few times each day.
2. Heavy episodic drinking: Study participants were asked to think back over the last 2 weeks and determine how many times, if any, they had five or more alcoholic drinks at a sitting.
3. Problem drinking: Study participants were given the Cut-Annoy-Guilty-Eye (CAGE) assessment, which consists of four questions: Have you ever felt you should cut down on your drinking? Have people annoyed you by criticizing your drinking? Have you ever felt bad or guilty about your drinking? And Have you ever had a drink in the morning to get rid of a hangover?
4. Alcohol dependence: Also assessed with the CAGE test.

Responses to the frequency of drinking questions were categorized as low frequency = drinking once a week or less and high frequency = drinking a few times or more each week. Heavy episodic drinking was dichotomized as nonepisodic drinkers = never and heavy episodic drinkers = all other responses. Problem drinking responses were categorized as problem drinking = two or more affirmative answers and nonproblem drinking = less than two affirmative responses. Alcohol dependence responses were dichotomized as possible alcohol dependence = three or more positive responses and alcohol dependence not possible = less than three positive responses (El Arisari et al., 2014).

El Arisari et al. (2014) also assessed sociodemographic variables. Gender, study year, accommodation type, and intimate partner data were collected via self-reports. Responses regarding accommodation type were categorized as either "I live with my parents" or "I do not live with my parents" whereas intimate partner status was dichotomized as either "Yes, I have an intimate partner" or "No, I do not have an intimate partner." Healthy lifestyle was assessed via three physical activity questions and one questions related to sleep. Participants were asked the following:

- Physical activity: In the past 7 days, did they participate in vigorous exercise for at least 20 min, participate in moderate exercise for at least 30 min, or exercise to strengthen or tone their muscles such as push-ups, sit-ups, or weight lifting?"
- Sleep: Participants were asked if they got enough sleep so that they felt rested when they woke up in the morning.

The healthy lifestyle score was obtained by totaling all responses.

El Arisari et al. (2014) assessed depression symptoms with the Modified Beck Depression Inventory. This inventory requires computing a score by tallying participant responses to all scale items. Religiosity was assessed by asking respondents to respond via level of agreement (1 = *strongly agree*, 2 = *somewhat agree*, 3 = *neither agree nor disagree*, 4 = *somewhat agree*, and 5 = *strongly disagree*) to the question "My religion is very important for my life."

El Arisari et al. (2014) gathered data separately for each university and analyzed differences in frequencies via chi-square tests and ANOVA. They analyzed associations between symptoms of depression, religiosity, and healthy lifestyle against all of the drinking factors with multivariate logistic regression models by gender. All of the logistic regression models were adjusted by university location, age, intimate partner status, and accommodation type with odds ratios as the results report type and a 95% confidence interval.

Study results indicated that depression symptoms were positively correlated with problem drinking and possible alcohol across genders (El Arisari et al., 2014). High religiosity was inversely associated with frequency of drinking and heavy drinking across genders, and healthy lifestyle had no statistically significant relationship with any of the four alcohol factors (El Arisari et al., 2014). The results also indicated that religiosity and healthy lifestyle did not modify the relationships between depression symptoms and any of the four alcohol factors.

In support of El Arisari et al.'s (2014) results, DeWall et al. (2014) stated that high frequency of daily prayer predicts lower alcohol use over the lifespan and that religiosity may lower substance use by promoting self-control. Self-control then results in prosocial behavior such as not using substances (DeWall et al., 2014). P. E. Kelly et al. (2015) found that religiosity, as measured by religious service attendance, participation in religious activities, and perceived importance of religion, was negatively associated with illicit and licit drug use. Kidwai et al. (2014) stated that increased religiosity promotes increased coping skills regarding life stressors, which results in decreased substance use.

El Arisari et al. (2014) focused on alcohol use only, religiosity, depression symptoms, and healthy lifestyle among university students in Great Britain. In contrast, I focused on religiosity but not on alcohol use only or on depression symptoms or healthy lifestyle. Instead, I focused on numerous types of substance abuse, including tobacco, alcohol, marijuana, cocaine, crack cocaine, club drugs such as MDMA (Molly), heroin, inhalants, methamphetamine, amphetamines, prescribed painkillers such as vicodin, stimulants such as Adderall, and sedatives or tranquilizers such as valium.

El Arisari et al. (2014) identified several limitations in their study. First, due to reliance on self-report measures, the possibility of recall bias and social desirability/sociability was increased. Second, since the study participants were recruited at universities, it was possible that students were absent or simply not present during recruitment days and thus may not have the opportunity to participate. Third, since the study included a healthy lifestyle variable, it was possible that students not interested in healthy lifestyle may not have participated, which may have resulted in

underrepresentation. Lastly, since El Arisari et al. only focused on a population of university students in Great Britain, generalizability may be problematic.

El Arisari et al. (2014) only recruited study participants from seven universities in Great Britain. To address this methodological issue and gap in the research, I recruited study participants from a variety of houses of worship in seven northeastern Florida counties. While Ansari et al. did use the CAGE to assess two of the four alcohol factors, two of the alcohol factors and religiosity in totality were not measured via a formal assessment tool. To address this methodological issue, I used a formal assessment with associated psychometrics (the ASSIST) to assess all facets of substance use.

Research regarding religiosity and problematic substance use has been extended to include adolescents. Jang et al. (2018) found that religious adolescents were less likely to use licit or illicit drugs and alcohol than nonreligious adolescents. In Desmond et al. (2013), religiosity among adolescents was inversely related to substance use, school truancy, and criminal behavior. Among adolescents, participation in religious groups, beliefs, and rituals are protective factors against substance use (Kub & Solari-Twadell, 2013).

The results of Badr et al.'s 2014 study of adolescents across multiple religious denominations showed that adolescents identifying as Muslim had significantly lower rates of substance use than adolescents identifying as Christian, Buddhist, or Jewish. Badr et al. used a correlational cross-sectional design to assess the predictive relationship between several factors and substance abuse among Middle Eastern adolescents residing in Los Angeles, California, and Beirut, Lebanon. A convenience sample of study

participants 13–18 years of age was recruited from mosques and churches using snowball sampling. In Beirut, Lebanon, study participants were recruited in schools. The study sample totaled 68 participants (Badr et al., 2014).

Badr et al. (2014) used a questionnaire translated into Arabic to measure religiosity. The instrument consisted of 121 questions that assessed variables including parental education, age, gender, attachment to God, time spent outside the home, knowledge of friends who use drugs and/or alcohol, feeling sad/lonely, parental attachment, and alcohol and substance abuse. The researchers also used a measure of acculturation to evaluate the Los Angeles study participants. The substance abuse section of the assessment measured the rate and frequency of alcohol and substance use on three levels—use in the last week, use in the last month, and use in the last year—with substances referring to alcohol (wine, beer and distilled spirits) and illegal drugs (stimulants, opiates, crack, ecstasy and cannabis).

Badr et al. (2014) used a series of *t* tests to determine the sample's descriptive statistics and to examine for any differences between the Los Angeles, California, and Beirut, Lebanon, participants. Normality of distributions were analyzed with the Kolmogorov-Smirnov test. The data were then analyzed using correlations and odds ratios with confidence intervals and *z* tests.

Study findings indicated no correlation between age and substance abuse or between fathers' education and substance abuse, with the exception of the Christian subgroup from the Los Angeles, California group (Badr et al., 2014). The results also indicated higher use of alcohol and illicit substances among Christians in both Los

Angeles, California, and Beirut, Lebanon. Badr et al. (2014) also found that attachment to God was a protective factor for both alcohol and substance abuse. Adolescents with peers who used substances or who spent large amounts of time away from home had higher rates of substance us in both the Muslim and Christian groups in both study locations.

Badr et al. (2014) related to the current study in that the researchers focused on the relationship between substance use and religiosity. However, unlike the current study, Badr et al. focused on adolescents and did not use a formal assessment instrument to examine religiosity and substance use. Also, unlike the current study, Badr et al. focused on adolescents in Beirut, Lebanon, and Los Angeles, California; thus, generalizability was a limitation. To address this limitation along with the noted gaps, I focused on adults living in seven northeastern Florida counties and used only formal assessment instruments to measure variables in order to extend the research parameters and increase generalizability.

Concerning religious denominations, Gmel et al. (2013) found that religiosity was inversely associated with substance use but not identifying as Roman Catholic, Protestant, Christian Catholic, Christian Orthodox, Jewish, or Muslim lowered this benefit. In contrast, Galbraith and Connor (2015) contended that while religiosity is a protective factor concerning illegal drug use, it does not decrease alcohol use due to social and religious acceptance of alcohol use across the major U.S. religions. However, according to Loewenthal (2014), drug and/or alcohol abuse is highly stigmatized in the Jewish faith, which may result in denial of substance use or abuse and erroneously lower levels of substance use.

Concerning race, Cheney et al. (2014) stated that belief in a caring and loving God and a high level of religiosity is a strong deterrent of crack cocaine use among African Americans. Religiosity as a protective factor against alcohol use is greater among African Americans and Hispanics than Whites (Meyers et al., 2017). In a study of Brazilian university students, results indicated that nonfrequent attendees of religious services had increased rates of alcohol, marijuana, tobacco, and illicit drug use (Gomes et al., 2013).

Wilkinson and Velten (2016) stated that religiosity serves as a form of social control and thus deters substance use. Burdette et al. (2018) contended that religiosity may deter substance use due to internalized values resulting in conformance to social norms. Religious practice promotes a moral code, which discourages association with deviance (Jang et al., 2018). Formal religious structures appear to provide social support and a platform for integration, which decreases deviant behaviors, including substance use (Turner, 2018).

Research results have shown associations between religiosity and substance use. Specifically, religiosity is a protective factor against substance use. However, research results have also indicated significant substance use issues among congregations in houses of worship among the major U.S. religions. Thus, while there is a plethora of research regarding religiosity and substance use in general, most of this research focused on either adult males or females or adolescents, and formal assessment instruments were not used to measure religiosity and/or substance use. In addition, congregation members are assumed to have high levels of religiosity, but in sharp contrast to the protective

nature of religiosity, these populations present with substance use issues. Furthermore, only about 12.5% of clergy across religions have reported receiving any training regarding substance use (Gilliam, 2014). Without further research and training, the ability of church leaders to provide meaningful assistance to congregation members with substance use issues is limited at best (Gilliam, 2014). I addressed gaps in the knowledge in these areas by focusing on both male and female attendees of houses of worship and used formal assessment instruments to measure religiosity and substance use among other variables included in this study.

As previously stated, I defined religiosity for this study as an individual's current religious beliefs (i.e., one's level of belief in God) and both current and historic engagement in specific religious behaviors such as religious service attendance, prayer, meditation, and reading of religious materials, as measured by the three-item RBBQ (Reutter & Bigatti, 2014). Also as previously stated, I defined problematic substance involvement/use for this study by substance involvement scores regarding tobacco, alcohol, cannabis, cocaine, ATS, inhalants, sedatives, hallucinogens, and opioids. Substance involvement scores were generated by administering the ASSIST.

Problematic Substance Involvement/Use and Spirituality

Similar to religiosity, there is a significant amount of contemporary research on the relationship between spirituality and problematic substance use. For example, Debnam et al. (2016) conducted a cross-sectional study to investigate the relationship between stress, spirituality, and substance use among adolescents. This study consisted of 5,217 sixth- and eighth-grade students at parochial schools in an metropolitan area in

Maryland. Debnam et al used a voluntary convenience sampling strategy to recruit study participants; specifically, the researchers sent home recruitment letters with each student actively enrolled in the schools included in the study.

Debnam et al. (2016) assessed substance use via the Youth Risk Behavior Surveillance System. They assessed spirituality with two questions/statements: (a) How important (if at all) is your faith to you? and (b) I turn to my spiritual beliefs when I have personal problems or problems at school. They measured stress with the following four questions:

1. During the past 30 days, how often did you have trouble falling asleep?
2. During the past 30 days, how often did you feel that you did not get enough sleep or rest?
3. During the past 30 days, how often did you feel stressed?
4. During the past 30 days, how often did you feel that your difficulties were piling up so high that you could not overcome them? (Debnam et al., 2016).

Debnam et al. (2016) used multilevel structural equation models to examine the relationship between stress, spirituality, and substance use. The results indicated that higher stress levels were significantly correlated with increased alcohol, tobacco, and other drug use among study participants. The results also showed that lower spiritual belief levels were related to increased substance use among study participants. As such, study results showed that spirituality did not have a moderating effect on the correlation between stress and substance use among study participants. This finding was significant because of implications regarding adaptive coping for school-related stressors.

Debnam et al.'s (2016) study was relevant to the present study because it focused on one of the same independent variables (i.e., spirituality) and the same dependent variable (i.e., substance use). While I did not examine stress as an independent variable, the plethora of data collected and subsequent results in Debnam et al. were relevant to my study. Specifically, Debnam et al.'s results indicated a strong negative correlation between spirituality and substance use, which was pertinent to the present study.

Debnam et al. (2016) noted several limitations in their study. First, they used a single-item tool to assess spirituality. Since spirituality is a multidimensional construct, it is possible that a single-item assessment failed to capture this. Second, using self-report measures may have skewed the data due to self-bias. Third, the study's cross-sectional design may have inhibited causal inferences, Lastly, Debnam et al. focused solely on sixth- to eighth-grade students; thus, generalizability may be limited.

Bakken et al. (2013) examined the relationship between spirituality and desistance from substance use during reentry among 920 reentering offenders in cities and counties in Chicago, Illinois, Cleveland, Ohio, and Houston, Texas. Bakken et al. used voluntary sampling—specifically, sign-up sheets—for participant recruitment. They assessed spirituality using an instrument they created and via categorizing substance use as either nondesistance or desistance. The instrument consisted of two questions and four statements:

1. How often do you pray or meditate?
2. How often do you read the Bible or religious literature?
3. I find strength in my spirituality.

4. I feel guided by God in the midst of daily activities.
5. My faith helps me know right from wrong.
6. My spiritual beliefs help define the goals I set for myself.

Bakken et al. (2013) used logistic regression to analyze their data. Analysis showed that 491 reentering offenders desisted from alcohol use during reentry, 307 desisted from marijuana use during reentry, and 270 desisted from cocaine use during reentry. Based on these results, Bakken et al. concluded that spirituality was a statistically significant predictor of desistance from use of alcohol and cocaine. However, the results also indicated that spiritualty was not as statistically significant regarding prediction of desistance from marijuana use (Bakken et al., 2013).

Bakken et al. (2013) was relevant to the present study because the researchers examined the relationship between the independent variable of spirituality in the present study and the dependent variable of substance use in the present study. However, a notable difference between my study and Bakken et al. is that I did not focus on reentering offenders. It was possible that the population for the present study may have included reentering offenders, but this population was not the sole focus as it was in Bakken et al.

Bakken et al. (2013) also had several limitations regarding methodology. First the study was time limited; thus, results did not include longitudinal considerations. Second, the sample population was small, which could compromise generalizability regarding study results. Lastly, using a voluntary sampling strategy introduced the potential for self-selection bias (Bakken et al., 2013).

According to some researchers, increased spirituality promotes decreased substance use by encouraging more prosocial behaviors across child, adolescent, and adult populations (Bakken et al., 2013). In support of this contention, Charakova et al. (2017) found that lowered spirituality was associated with increased alcohol use across all populations, but especially among younger adults, in a sample of 320 adults in Ukraine. Krentzman et al. (2017) found that nonalcohol users had higher rates of engagement in daily spiritual activities and spiritual coping. Loetz et al. (2013) stated that it is essential to assess and consider an individual's spirituality, including spiritual attachment, across all aspects of physical and mental health care and health education, including substance use intervention, due to the implications of spirituality on behavior and ultimately, health outcomes.

Research has shown that there is a relationship between spirituality and substance use. Specifically, spirituality has been shown to increase the likelihood of desistance from cocaine and alcohol use, but not necessarily marijuana use. However, while there is extensive research regarding the relationship between spirituality and substance use, the bulk of this research focused on populations outside of adult attendees of house of worship. This research has also not focused on examining spirituality and religiosity as distinct concepts. As such, I filled these gaps in the research by focusing on adult attendees of houses of worship in seven northeastern Florida counties and by assessing both spirituality and religiosity as separate constructs in addition to evaluating the other variables included in the study.

Attachment, Religiosity, Spirituality, and Problematic Substance Involvement/Use

The relationship between attachment and problematic substance use, spirituality and problematic substance use, and religiosity and problematic substance use has been supported in numerous studies. For example, Cavaiola et al. (2015) found that individuals with substance use issues typically presented with anxious, fearful, or avoidant attachment styles. In Bakken et al. (2013), strong spirituality served as a deterrent for alcohol and cocaine use among reentering offenders. Cheney et al. (2014) found that high religiosity promoted a decrease in or desistance from cocaine use among the African American population in the southern United States. However, there has been little research on the relationship between attachment, spirituality, religiosity, and substance use collectively.

While there is limited research regarding the specific independent variables and dependent variable included in the present study, there has been some. Diaz et al. (2014) examined how insecure and secure attachment styles and spirituality related to depressive symptoms among individuals receiving inpatient substance use treatment. The researchers used a cross-sectional design and recruited 77 study participants via convenience sampling from an inpatient substance use treatment facility in Miami, Florida.

Diaz et al. (2014) used the SWBS to assess spirituality, the Relationships Questionnaire to study attachment, and the Center for Epidemiologic Studies Depression Scale to evaluate depressive symptoms. They used hierarchical multiple regression to analyze their data. The results indicated that secure attachment, combined with high

spirituality, resulted in a lower number of depressive symptoms. Results also showed that any typology of insecure attachment, combined with low spirituality, led to a high number of depressive symptoms (Diaz et al., 2014).

Diaz et al.'s (2014) study related to the present study because the researchers examined the relationship between attachment and spirituality, among other variables. However, Diaz et al. focused on individuals receiving inpatient substance use treatment whereas I assessed substance use among a general population of adult attendees of various houses of worship in the present study. In addition, Diaz et al. included an examination of depressive symptoms but not religiosity.

While relevant to the present study, Diaz et al. (2014) was not without limitations. For example, since Diaz et al. recruited all participants from one substance use treatment center with a population primarily consisting of upper-middle-class Whites, generalizability of the study results may be limited. Also, there were very low numbers of individuals identified with the dismissing type of insecure attachment, which could also compromise the generalizability of the results. Lastly, Diaz et al. employed a cross-sectional design, which can inhibit causal inferences.

Horton et al. (2012) examined the relationship between attachment style, religiosity, and spirituality among individuals in inpatient treatment for substance use. They used a cross-sectional design and recruited a convenience sample of 77 study participants from an inpatient substance abuse treatment facility in southeastern Florida. Horton et al. used the SWBS to assess spirituality, the Relationship Questionnaire to examine attachment, the Loving and Controlling God Scales to investigate spirituality,

and the Religious Background and Behavior Questionnaire to evaluate significant relationship between religiosity and attachment. Results indicated a statistically significant relationship between spirituality and attachment.

Horton et al.'s (2012) study was relevant to the present study because of its focus on the variables of attachment, spirituality, and religiosity. While Horton et al. did focus on substance use in the sense that the study sample comprised individuals receiving inpatient substance abuse treatment, substance use was not included as a measured variable. In contrast, substance use was the dependent variable in the present study and was measured in a sample of adult attendees of diverse houses of worship.

There are several notable limitations in Horton et al. (2012). First, since the sample was recruited from one location, combined with a significant racial/ethnic disparity in the sample, generalizability of the research results may be limited. Second, there was a categorical structure issue in this study because the Relationship Questionnaire does not fully examine all attachment dimensions. Lastly, Horton et al. used a cross-sectional design, which inhibited causal inferences.

Horton et al. (2016) explored if spirituality and attachment style were predictors of personality disorder traits. The researchers employed a cross-sectional design and recruited a convenience sample of 252 individuals receiving substance use treatment in an inpatient facility located in south Florida. Horton et al. used the 36-item Experiences in Close Relationships Scale-Revised to assess attachment, the 20-item SWBS to measure spirituality, and the Millon Multiaxial Clinical Inventory-III to evaluate for symptoms of all personality disorder typologies. They evaluated their data first via bivariate correlation

analysis, second by way of independent samples *t* tests, and finally through hierarchical multiple regressions.

Study results indicated that higher levels of spirituality were related to borderline and antisocial personality disorder traits (Horton et al., 2016). Horton et al. (2016) also found that anxious attachment was indicative of avoidant and dependent personality disorder traits. However, the results did not demonstrate a relationship between attachment, spirituality, and personality disorders traits beyond those previously reported.

Horton et al. (2016) was relevant to the current study because the researchers included an examination of spirituality and attachment. However, in contrast to the sample I used, Horton et al.'s sample solely comprised individuals with known substance use issues. Also, Horton et al. did not include an evaluation of religiosity.

Noted limitations in Horton et al. (2016) were that the cross-sectional design prohibited causal inferences. Another limitation was that the sample acquisition location employed a 12-step program, which is firmly rooted in spirituality. As such, self-selection bias may have occurred. In addition, due to lacking racial and ethnic diversity in the study sample, generalizability may be limited.

The results from studies on attachment style, religiosity, spirituality, and substance use have shown a relationship between all four variables. Specifically, research results have indicated that spirituality lessens substance use by increasing treatment attrition for some individuals receiving inpatient substance use treatment (Horton et al., 2012). Research results have also shown that secure attachment can increase religiosity and spirituality, which may improve treatment attrition for some individuals receiving

inpatient substance use treatment (Diaz et al., 2014). However, while research on attachment, spirituality, religiosity, and substance use has been copious, most of this research has focused on individuals with known substance use issues and receiving inpatient substance treatment.

Research results also reflect a common assumption that house of worship attendees are securely attached to others and God, highly spiritual, extremely religious, and thus devoid of substance use issues (CASA, 2001). However, roughly 94% of U.S. clergy has reported substance use as a significant issue among house of worship congregations (CASA, 2001). I addressed these concerns, among others, in the present study by assessing attachment, religiosity, spirituality, and problematic substance use via substance involvement scores amongst adult attendees of houses of worship in seven northeastern Florida counties.

Implications of Past Research for Present Research

Attachment theory has been researched extensively and in numerous contexts in the general psychology, developmental psychology, neurobiology, and forensic fields. Attachment or the human need to bond with others can result in compensatory attachment to God or a higher power, displayed in part via increased religiosity. Insecure attachment may also cause mental health disorders including substance use disorders where substances serve as a symbolic attachment figure (Follan & McNamara, 2013; Granqvist, 2014; Granqvist et al., 2010, 2012; Keefer et al., 2012; B. Klein et al., 2014; M. Klein, 1952; Vasquez & Stensland, 2015). The effects of maladaptive attachment in childhood extend into adulthood by resulting in adults who are seeking a secure base.

To better understand attachment, Bowlby and Ainsworth combined their respective secure base and Strange Situation research with the ethological concept of imprinting. From this, Bowlby's original two attachment types—secure and insecure—were extended to three attachment styles: secure, avoidant, and resistant. Contemporary attachment research has extended the attachment taxonomy system to include a fourth type: disorganized (Main & Solomon, 1986). At present, because of the addition of specifiers for the core attachment archetypes, more research is needed that includes in-depth examinations of the contemporary attachment styles.

Attachment also appears to affect both religiosity and spirituality. According to Granqvist (2014) and Granqvist et al. (2012), adults with an insecure attachment style may engage in more religious activities, including house of worship attendance, and display heightened levels of spirituality, including spiritual attachment to God, to compensate for maladaptive attachment. Insecure attachment may also result in more serious mental health concerns such as substance use disorders where substances serves as a symbolic attachment figure (Follan & McNamara, 2013; Granqvist, 2014; Granqvist et al., 2010, 2012; Keefer et al., 2012; B. Klein et al., 2014; M. Klein, 1952; Vasquez & Stensland, 2015).

Attachment theory provides a base from which to better understand the complexities of human relationships. Since attachment is a foundational and instinctual human process, it has significant implications on both behavioral and emotional responses, including spirituality, religiosity, and substance use. Knowing more about

these intricate relationships will facilitate a better understanding of the dynamics of substance use.

Literature Related to Opposing Theories and Methodologies

Opposing Theories

While the present study reflected attachment theory, there are several other theoretical frameworks used to study substance involvement via substance use. These frameworks reflect include neuroscientific theories, biological theories, psychological theories, and contextual theories. Each theory provides a distinctive perspective regarding the etiology of substance use. I discuss each next.

Neuroscientific Theories

Neuroscientific theories of substance use focus on specific effects of substances on the central nervous system and neurotransmitters via the dopamine reward system and the endogenous opioid system (Stevens & Smith, 2018). The dopamine reward system is associated with behavioral rewards such as thrill and urgency (Stevens & Smith, 2018). The endogenous opioid system involves the satisfaction of a reward obtained by way of a feeling of euphoria or sedation.

Neuroscientifically rooted explanations of substance use focus on the intricate exchanges between substances used and neurotransmitters such as gamma-aminobutyric acid (GABA), serotonin, norepinephrine, dopamine, monoamine, glutamate, and acetylcholine; reflecting the neurochemical perspective that substances interact with a specific neurotransmitter or neurotransmitters (Stevens & Smith, 2018). Specifically,

Stevens and Smith (2018) reported the following relationships between substances used and neurotransmitters:

1. Alcohol inhibits GABA, decreases glutamate, and increases serotonin. Alcohol is also a dopamine receptor agonist.
2. Nicotine increases acetylcholine, norepinephrine, dopamine, serotonin, glutamate, and endorphins. Nicotine is also a nicotine receptor agonist.
3. Tetrahydrocannabinol, the active ingredient of marijuana, prohibits the appropriate uptake of dopamine, serotonin, GABA, and norepinephrine. Tetrahydrocannabinol is also a cannabinoid receptor agonist.
4. Opiates such as heroin, hydrocodone, and oxycodone are agonists of the major opioid receptors, which are mu, delta, and kappa. Mu reinforces the effects of opiate use, delta reinforces the behaviors associated with opiate use, and kappa controls the withdrawal symptoms experienced when opiate use ceases.
5. Stimulants such as cocaine, methamphetamine, and amphetamines increase dopamine and monoamine release and metabolism.
6. Benzodiazepines such as diazepam and alprazolam are positive allosteric modulators of GABA and increase dopamine transmission, resulting in an overall sedative effect.

In addition, substances such as alcohol, nicotine, marijuana, opiates, stimulants, and benzodiazepines activate dopamine overproduction. All result in heightened rewards and positive sensations that reinforce substance use (Stevens & Smith, 2018). As such, from a neuroscientific perspective, substances change how neurotransmitters work in the

central nervous system and result in chemically fueled physical and psychological feelings of pleasure or reward.

Biological Theories

There are two major types of biological theories regarding substance use: genetic and neuroadaption. Genetic theorists have maintained that substance use is associated with an intergenerational transmission aspect. Specifically, in families with substance use issues, there is an increased propensity of substance use across generations (Alvarez-Monjaras et al., 2018; Lopez et al., 2018; Stevens & Smith, 2018).

Neuroadaptation describes evolutionary changes to the brain that occur due to repeated substance use (Stevens & Smith, 2018). Under this concept, when an individual uses substances repeatedly, the brain reaches a state of homeostasis (Alvarez-Monjaras et al., 2018; Stevens & Smith, 2018). Continued substance use represents efforts to maintain homeostasis.

Psychological Theories

There are four major types of psychological theories: behavioral, cognitive, personality, and rational choice. From the behavioral theory perspective, the euphoric effects of substances reinforce self-administered substance use (J. F. Kelly & Claire Greene, 2018; Stevens & Smith, 2018). As such, repeated substance use occurs due to classical conditioning.

Cognitive theory involves efforts to attain self-regulation (Stevens & Smith, 2018; Stokes et al., 2018). Cognitive theorists contend that individuals think, plan, prepare, and act to achieve specific goals (Stevens & Smith, 2018; Stokes et al., 2018). Dependence

occurs due to a maladaptive dependence on external loci, which include substances, to achieve goals,

In personality theory, substance use occurs to compensate for poorly adaptive personality traits (Alvarez-Monjaras et al., 2018; Stevens & Smith, 2018). There are three major personality dimensions included under personality theory: psychoticism, neuroticism, and extraversion (Stevens & Smith, 2018). In Lopez et al. (2018), higher scores on measures of neuroticism and psychoticism were associated with increased alcohol, marijuana, and cocaine use.

Under rational choice theory, individuals have two rational choices—to use or not use substances. Because of poor impulse control, the individual rationally selects to use substances (Stevens & Smith, 2018). This choice is shrouded in the need for immediate gratification, which becomes paramount.

Contextual Theories

There are also contextual theories of substance abuse. Factors in these theories that play a pivotal role in substance use (Lopez et al., 2018) include the following:

1. Conduct disorder diagnosis or the presence of conduct disorder behaviors.
2. Association with delinquent peers (including delinquent peers who do and do not use substances).
3. Modeling of substance use by parents/guardians/caregivers.
4. Presence of family discord or dysfunction.
5. Inconsistent parental/guardian/caregiver discipline.
6. Lower socioeconomic status.

7. Lower level of education.
8. Residing in a high-crime/high-drug area.

These factors, collectively or individually, are often reported by adolescents and adults who use substances (Lander et al., 2018; Lopez et al., 2018). However, Lander et al. (2018) and Lopez et al. (2018) also stated that more research regarding these contextual factors is needed to understand the specifics of the associated effect pathways.

Neuroscientific theories provide a distinctive explanation of substance use involving the complex neurochemical pathways in the central nervous system. Biological theories offer an inimitable elucidation of substance use via a genetically inherited propensity to substance use and/or neuroadaptation to substance use across the lifespan. Psychological theories supply an exclusive account of substance use as part and parcel of maladaptions in one's personality trait profile. Contextual theories give an exceptional reasoning of substance use by way of facilitating or causative contextual factors. While all the opposing theories offer unique and interesting perspectives regarding substance use, none of the theories consider bonding experiences in early life and their effects on future attachments.

Ainsworth and Bell (1970) contended that attachment is an ethological and inherent trait that directs all relationships with others and even objects in later life. This includes one's relationship with God or higher power and substances. Because I examined the relationship between attachment, religiosity, spirituality, and problematic substance use via substance involvement scores among adult attendees of houses of worship in seven northeastern Florida counties, grounding this research in a theory

regarding attachment to others, including spiritual or religious beings such as God and objects, was vital. As such, attachment theory, including the subtheory of object relations theory, which considers relationships with others, God or higher powers, and substances, was the most appropriate theoretical orientation for this study.

Opposing Methodologies

From a methodological perspective, most of the existing studies on attachment, religiosity, spirituality, and substance involvement via substance use were conducted using cross-sectional designs with the specific goal of examining relationships between these variables. For example, Diaz et al. (2014) and Horton et al. (2012, 2016) conducted studies on attachment, religiosity, spirituality and substance use, albeit with additional variables included in some of these studies, which have included a cross-sectional design. Despite the prevalence of cross-sectional designed studies on attachment, religiosity, spirituality and substance use, there have been some prominent studies that used other designs.

Bakken et al. (2013) investigated spirituality and desistance from substance use among reentering offenders. This was a longitudinal study with a 12-month follow-up. While Bakken et al. stated that their study added to the existing field of knowledge, they also noted numerous limitations. Specifically, there was a limited response rate to the follow-up, self-selection bias, and challenges regarding causal inferences. Bakken et al. recommended that future research efforts include an expansion of the follow-up time, intervals in the follow-up schedule, and studies to inspect for correlations among the spirituality and substance use variables.

Cheney et al. (2014) examined the religious and spiritual dimensions of reducing and restricting cocaine use among African Americans in the southern United States using a mixed methods design. The qualitative portion included semistructured surveys to identify themes in the responses. The quantitative portion included structured surveys to examine for relationships between religiosity, spirituality, and decreasing/desisting cocaine use (Cheney et al., 2014).

Cheney et al. (2014) stated that their study added to the existing literature but was not without limitations. A major limitation was the presence of socially desirable responses. The researchers recommended that future research be conducted on these variables, including long-term study of continuous sobriety from cocaine use and more intensive focus on correlations between the variables among diverse populations.

Cross-sectional research designs have several advantages and disadvantages. Advantages include being a timely method, inexpensive, not requiring any follow-up, being effective for investigating associations between variables, permitting assessment of multiple variables at one time, and providing prevalence estimates (Levin, 2014; Sedwick, 2014). Disadvantages are the increased likelihood of nonresponse bias, Neyman bias, provision of only a snap-shot of a specific time, generalizability issues, and the inability to make causal inferences concerning the research results (Levin, 2014; Sedwick, 2014).

The current study's purpose was to examine for relationships between attachment, religiosity, spirituality, and substance involvement via substance use among a sample of adult attendees of houses of worship in seven northeast Florida counties. Because of the

nature of the RQs, a cross-sectional design was most appropriate. Timeliness, difficulties associated with follow-up, and expense associated with other research designs were other critical elements considered regarding study design. Since cross-sectional design negates these issues, using this design appeared most appropriate for this study. Lastly, Bakken et al. (2013), Cheney et al. (2014), Horton et al. (2012, 2016), and Diaz et al. (2014) stated the need for future research on the relationships between attachment, religiosity, spirituality, and substance use in diverse populations and naturalistic settings, which provided additional justification for using a cross-sectional design in this study.

In addition to differences in study design, there are many differences in the existing literature regarding processes for assessing attachment, religiosity, and spirituality. Diaz et al. (2014) and Horton et al. (2012) used the Relationships Questionnaire to assessment attachment. However, researchers in both studies stated that this questionnaire is not a comprehensive attachment assessment since it does not measure for all four attachment types. Also, Diaz et al. and Horton et al. (2016) conducted studies in which they measured spirituality but not religiosity. Conversely, Reutter and Bigatti (2014) contended that religiosity is a construct that includes both subjective spirituality and observed religiosity; thus, both dimensions must be measured.

Another area of methodological differences concerns the substance involvement via substance use variable. Specifically, Horton et al. (2012, 2016) and Diaz et al. (2014) examined substance use, among other variables, using study participants from substance abuse treatment facilities. In these studies, substance use was not formally measured because it was part of the standard admission practices to the involved substance use

treatment facilities. However, the researchers stated that due to the individualization associated with substance use, comprehensive assessment of substance use outside of the assessments conducted via a treatment facility was strongly recommended for future research to reduce the risk of bias. Specifically, Neyman (prevalence-incidence) bias occurs when behaviors associated with undesirable outcomes (i.e., health complications from substance use, death from substance use overdose, criminal repercussions due to substance use) are underrepresented during an assessment that is part of treatment (Levin, 2014).

Much of the existing research on attachment, religiosity, spirituality, and problematic substance use did not include a distinct assessment of religiosity and spirituality. Reutter and Bigatti (2014) stated that future research focused on religiosity must include measurement of both subjective spirituality and observed religiosity. To address the lack of distinct assessment of religiosity and spirituality and to effectively answer the current study's RQs focused on religiosity and spirituality as distinct constructs, I measured religiosity via the RBBQ and spirituality by way of the SAI-R.

While there has been a plethora of research on attachment, religiosity, spirituality, and problematic substance use, this research has not included a comprehensive assessment of attachment, assessed religiosity and spirituality as discreet constructs, assessed for individual substance use, or included sampling from houses of worship in seven northeastern Florida counties. As such, the current study filled the gap in existing literature by specifically focusing on adult attendees of houses of worship in seven northeastern Florida counties, by examining religiosity and spirituality comprehensively

and discretely, and via seeking answers to the overarching RQs regarding the association between religiosity, spirituality, attachment, and substance involvement.

Summary

This literature review reflected the foundation for continued research regarding attachment (attachment to others, God, and objects) religiosity spirituality, and problematic substance use. While there are many studies on spirituality, religiosity, attachment, and problematic substance use, the review showed that there are few studies in which these variables were examined collectively and in terms of adult attendees of houses of worship. Results from recent studies have shown that spirituality and religiosity are distinct concepts and can play a significant role in problematic substance use. Contemporary research results have also shown that maladaptive attachment not only impacts problematic substance involvement/use later in life but also the development of spirituality and/or religiosity.

I discuss the methodology used to conduct this study in Chapter 3. Included in this discussion are details on the research design and rationale, methodology, population, sampling and sampling procedures, data collection, operationalization and instrumentation, and data analysis. Also discussed are ethical procedures in this study.

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Chapter 3: Research Method

The purpose of this quantitative study was to examine the relationship between religiosity, spirituality, attachment (attachment in interpersonal relationships, attachment to God, and attachment to objects), and problematic substance use/substance involvement scores among a sample of adult attendees of houses of worship in seven northeastern Florida counties. I evaluated the study variables via measures of attachment (attachment in interpersonal relationships, attachment to God, and attachment to objects), spirituality, religiosity, and problematic substance use. While there has been a plethora of research on attachment, religiosity, spirituality, and problematic substance use, this research has not included a comprehensive assessment of attachment, focused on religiosity and spirituality as discreet constructs, assessed for individual substance use, or included sampling from houses of worship in northeastern Florida. Specifically, I contributed to and filled the gap in existing literature by focusing on adult attendees of houses of worship in northeastern Florida by examining religiosity and spirituality comprehensively and discretely, and via seeking answers to the overarching RQs regarding the association between religiosity, spirituality, attachment and substance involvement.

The key sections of this chapter are the research design and rationale, methodology including population, sampling and sampling procedures, data collection, operationalization and instrumentation, and data analysis. Chapter 3 also includes a discussion of threats to validity. Ethical procedures followed during this study are also presented.

Research Design and Rationale

For this quantitative descriptive correlational study, I used a nonexperimental design to examine the relationship between attachment, religiosity, spirituality, and problematic substance in adult attendees of houses of worship in northeastern Florida. Problematic substance involvement/use was defined by the ASSIST via substance involvement scores regarding tobacco, alcohol, cannabis, cocaine, ATS, inhalants, sedatives, hallucinogens, and opioids use over the lifespan, with a special focus on use within the past 3 months. By conducting this study, I addressed gaps in the literature by exploring the relationship between attachment, spirituality, religiosity and problematic substance use/substance involvement among religiously and spiritually diverse adult attendees of houses of worship in northeastern Florida.

A quantitative descriptive correlational study with a nonexperimental design was most appropriate for the present study for numerous reasons. First, researchers use quantitative methodology to test theories by examining relationships across variables in order to generalize findings (Creswell, 2014; Frankfort-Nachmias et al., 2015, Chapter 6). Second, researchers use quantitative methodology to find meaning regarding a phenomenon by using narrow hypotheses for which collected data either confirm or refute (Creswell, 2014). Since my goal in this study was to seek statistical answers to RQs pertaining to the relationship between attachment, religiosity spirituality, and substance involvement/use among adult attendees of houses of worship in northeastern Florida, a quantitative design was appropriate.

Nonexperimental designs typically include surveys and assessments to obtain data regarding attitudes, opinions, and trends of a population by studying a sample of the population of interest. As such, because I sought to examine the relationship between attachment, religiosity spirituality, and substance involvement via substance use among adult attendees of houses of worship in northeastern Florida, a nonexperimental design was appropriate. Lastly, the study did not include manipulation of variables, and I sought to identify relationships and strengths of relationships between variables, as described in Creswell (2014) and Frankfort-Nachmias et al. (2015, Chapter 6), to address gaps in the literature, which made this research design the most appropriate for this study.

Methodology

Population

The population for this study was adults who attend house of worship services in northeastern Florida, which consists of the following counties: Baker, Clay, Duval, Flagler, Nassau, Putnam, and St. Johns. The target population consisted of adults who attended a house of worship service across all Christian denominations. Table 1 shows statistics related to the target population size, weekly religious service attendance, and target populations per county. All population numbers are for January 2019 from the Florida State Legislature's Office of Economic & Demographic Research (2019). Weekly religious service attendance figures are from the Pew Research Center (2014). While an exact target population figure was unknown, estimates of maximum target populations for each county were extrapolated from these figures.

Table 1

Population, Weekly Religious Service Attendance, and Estimates of Maximum Target Populations, by County

County	Population	Percentage of weekly religious service attendance	Estimate of maximum target population
Baker	28,243	14.1	3,988
Clay	212,230	14.4	30,561
Duval	937,934	20.3	190, 401
Flagler	110,510	15.0	16,577
Nassau	82,721	17.1	14,145
Putnam	73,464	15.6	11,460
St. Johns	243,812	18.4	44,861

Sampling and Sampling Procedures

The sample for this study was adult attendees of houses of worship in seven counties in northeastern Florida. Specifically, the criteria for study participant inclusion were being age 18 years or older and attendance at a house of worship in northeastern Florida. To recruit study participants, partner organizations provided links to potential study participants to an online survey hosted on SurveyMonkey. The partner organizations also distributed an electronic announcement in flyer format to their congregants, which directed interested study participants to the online survey. After accessing the survey on SurveyMonkey, study participants provided implied consent by completing the survey.

I used nonprobability convenience sampling in this study. The rationale for using this sampling strategy was that there are no publicly available data regarding house of

worship attendance, religiosity, spirituality, attachment, and substance involvement; thus, probability sampling was not possible. Using nonprobability sampling allowed collecting and analyzing data to answer the RQs that served as the impetus for this study. Convenience sampling, as described in Laerd Dissertation (n.d.), was the most effective sampling strategy for this study as it facilitated collecting data voluntarily given the sanctity of the relationship between the congregate and their chosen house of worship. Convenience sampling also allowed me to collect data from numerous houses of worship representing various denominations in northeastern Florida, which was an instrumental part of this study.

Sample Size and G* Power

In a research study, power (β) represents the probability of rejecting the null hypothesis of a research question with appropriateness (Banarjee et al., 2009). A Type I error occurs when a null hypothesis is rejected inappropriately, and a Type II error occurs when a null hypothesis is not rejected appropriately. To decrease the likelihood of a Type I error, alpha is typically set at .05. To lessen the likelihood of a Type II error, power is typically set at 80% or 0.80 (Banarjee et al., 2009). It should be noted that assuring the correct sample size is also a deterrent of Type I and II errors (Banarjee et al., 2009).

Effect is also a vital part of a contributory and meaningful study. Effect allows researchers to select the level of associations they are seeking in a study, but determining the appropriate effect size prior to conducting a study can be challenging (Banarjee et al., 2009). As such, where it concerns behavioral science-related studies such as my study, a medium effect size is accepted as the norm. To determine the appropriate sample size for

this study with the established parameters of an alpha of .05, 0.80 power, and 0.15 (medium) effect, I conducted an a priori G* Power analysis (see Faul et al., 2009). The results of the G* Power analysis indicated that with alpha at .05, .80 power, a 0.15 effect size, and with using multiple linear regression for all statistical analyses, a sample size of 77 was required for this study.

Procedures for Recruitment, Participation, and Data Collection

To recruit study participants, partner organizations provided access to the online survey via a link to the SurveyMonkey survey. The partner organizations also distributed the link via an announcement in flyer format to their congregants. The link directed interested study participants to the online survey on SurveyMonkey.

On SurveyMonkey, study participants provided implied consent by completing the survey. The survey began by asking questions regarding demographic information such as age, gender, race, ethnicity, religious denomination, socioeconomic status, vocational status, and highest educational level. Study participants were then asked to continue the remainder of the survey, which consisted of the questions from the various self-report measures included in this study (see the Instrumentation section).

Data Collection Methods

Operationalization of Variables

The independent variables in this study were operationalized as follows:

- Attachment: Attachment was operationally defined for this study by the RSQ as the measurable level of attachment or closeness in relationships one has

with people. Attachment to objects was operationally defined for this study by the BORRTI as the measurable level of attachment one has with objects.

- Religiosity. Religiosity was operationally defined for this study by the RBBQ and AGI as one's level of religiosity, religious experiences, religious behaviors, and attachment to God.
- Spirituality. Spirituality was operationally defined for this study by the SAI-R as one's level of awareness of higher power or God, disappointment with higher power or God, grandiosity (excessive self-importance, realistic acceptance of higher power or God, and stability/instability of one's relationship with higher power or God.

The dependent variable in this study was problematic substance involvement/use. This variable was operationally defined by the ASSIST via substance involvement scores concerning use of tobacco, alcohol, cannabis, cocaine, ATS, inhalants, sedatives, hallucinogens, and opioids, across the lifespan with a special focus on use during the last 3 months.

Instrumentation

The following instruments were used in this study. All are included as appendices. All but the BORRTI are in the public domain. Permission to use the BORRTI was received as part of purchasing this instrument.

Relationship Scales Questionnaire

Bartholomew and Horowitz (1991) developed the RSQ to measure adult attachment by way of a four-level system of classification, as follows (Çuhadaroglu-Çetin et al., 2013; Scharfe, 2015):

1. Secure attachment: Positive self-worth; positive view of others; views others as available and responsible.
2. Dismissing/ambivalent attachment: Positive self-worth; an expectation of untrustworthiness of others and rejection from others.
3. Preoccupied/anxious attachment: Negative self-worth; views others as positive and worthy.
4. Fearful/avoidant attachment: Negative self-worth; an expectation of untrustworthiness of others and rejection from others.

The RSQ consists of 30 questions to which respondents answer on a 5-point Likert scale (1 = *not at all like me*, 2 = *rarely like me*, 3 = s*omewhat like me*, 4 = *often like me*, and 5 = *very like me*). The four RSQ scales are scored as follows:

1. The Secure scale is scored by averaging the answers to Questions 3, 9 (reverse scored), 10, 15, and 28 (reverse scored).
2. The Fearful scale is scored by averaging the answers to Questions 1, 5, 12, and 24.
3. The Preoccupied scale is scored by averaging the answers to Questions 6 (reverse scored), 8, 16, and 25.

4. The Dismissing scale is scored by averaging the answers to Questions 2, 6, 19, 22, and 26.

Average scores of 1–2 are interpreted as strong attachment with the ability to successfully build and maintain interpersonal relationships. Average scores of 3 are interpreted as moderate attachment with the ability to form successful relationships in some aspects but may indicate likely difficulties with intimate interpersonal relationships. Average scores of 4–5 are interpreted as maladaptive attachment with a significant likelihood of challenges in forming and maintaining successful relationships in all aspects of life.

The rationale for using the RSQ in the present study was that this measure assesses all four attachment styles, which researchers have asserted is required for attaining a comprehensive study of adult attachment (Blanchard & Lyons, 2016; Chen et al., 2015; Çuhadaroglu-Çetin et al., 2013; Diamond et al., 2018; Otani et al., 2014; Scharfe, 2015). Additionally, psychometrics regarding the RSQ provide further justification for use of this measure. Scharfe (2015) stated that the RSQ has good internal consistency, moderate to high test–retest reliability, and good construct validity. Galatzer-Levy and Bonanno (2013) stated that the RSQ has good 1-week test–retest reliability. Blanchard and Lyons (2016) asserted that the RSQ has good internal reliability across genders. Chen et al. (2015) also found that the RSQ has strong test–retest reliability, construct validity, predictive validity, and discriminant validity with a Cronbach's alpha of between .53 and .66 on the subscales. The RSQ can be used for research and educational purposes without permission and does not require any special

training prior to use (Bartholomew & Horowitz, 1991). The RSQ is shown in Appendix A.

Form O of the Bell Object Relations and Reality Testing Inventory

Bell developed the BORRTI in 1995. It assesses two domains—object relations and reality testing—but I only used Form O in the present study because it focuses specifically on the object relations aspect of attachment. Form O is a 45-item assessment instrument that measures feelings of alienation in relationships (ALN), insecure attachment in relationships (IA), egocentric view of others (EGC), and social incompetence (SI). Items are answered with True (T) or False (F). The BORRTI, including Form O, contains several validity checks, including an inconsistent responding scale. Scores are interpreted by examining the number of True responses to identify a clinical theme where it concerns the ALN, IA, EGC, and SI profiles. Higher scores on the various profiles indicate maladaptions in these clinical areas.

Test–retest reliability scores for the four Form O scales are ALN = .88, IA = .73, EGC = .90, and SI = .58 (Bell, 1995). The internal consistency (alpha) scores for the scales are ALN = .90, IA = .82, EGC = .78, and SI = .79 (Bell, 1995). Bell (1995) also assessed internal consistency for the four scales via Spearman split-half reliability, which indicated similar reliability scores as the Cronbach's alpha (scores ranging from .77–.90).

The rationale for using the four Form O scales from the BORRTI in the current study reflects Hall and Edwards's (2002) finding that the SAI-R and BORRTI have a conceptual relationship based on the attachment theory elements of compensatory and corresponding attachment. I also used the SAI-R in the present study. Keefer et al. (2012)

stated that insecurely attached individuals may become attached to objects such as religious beings (i.e., God) or illicit/legal substances to compensate for poor attachments. Keefer et al. also contended that "people tend to attach to objects when they are unsure or untrusting of their connections with others" (p. 917). The BORRTI requires permission prior to use by way of an online purchase of the testing kit and training via online purchase of the BORRTI manual (Bell, 1995). This instrument is shown in Appendix B.

Religious Background and Behaviors Questionnaire

The RBBQ is a brief assessment instrument developed in 1996 by Connors et al. It consists of three questions to measure level of religiosity, religious experiences, and religious behaviors. For the first question, respondents select the appropriate description of their current religious beliefs from five options: atheist ("I do not believe in God"), agnostic ("I believe we can't really know about God"), unsure ("I don't know what to believe about God"), spiritual ("I believe in God, but I'm not religious"), and religious ("I believe in God and practice religion"). Answers to this question are coded as 1 for atheist, 2 for agnostic, 3 for unsure, 4 for spiritual, and 5 for religious.

Question 2 is one question (For the past year, how often have you done the following?) regarding six specific activities (thought about God, prayed, meditated, attended worship service, read or studied scriptures or holy writings, and had direct experiences of God) for which responses are collected via an 8-point Likert scale as follows: 1 = *Never*, 2 = *Rarely*, 3 = *Once a month*, 4 = *Twice a month*, 5 = *Once a week*, 6 = *Twice a week*, 7 = *Almost daily*, 8 = *More than once a day*. Question 3 (Have you ever in your life?) requires responses regarding six specific experiences (believed in God,

prayed, meditated, attended worship services regularly, read scriptures or holy writings regularly, or had direct experiences of God). Higher scores indicate higher levels of religiosity.

Tonigan et al. (2013) stated that the RBBQ has excellent test–retest reliability (r = .94 and .96), strong construct and predictive validity, and high internal item consistency (α = .76 and = α .81). The rationale for using the RBBQ in the present study reflects its utility in any research dedicated to examining substance involvement due to the implications religiosity may have on substance use recovery (Tonigan et al., 2013). Diaz et al. (2014) and Green and Nguyen (2012) both effectively used the RBBQ to measure religiosity. Gailbraith and Connor (2015) asserted that it is imperative to comprehensively investigate the multiple aspects of religiosity, which are appropriately included in the RBBQ. The RBBQ can be used for educational and research purposes without permission or special training (Connors et al., 1996). This instrument is shown in Appendix C.

Attachment to God Inventory

The AGI was developed in 2004 by Beck and MacDonald to evaluate attachment via measurement of anxiety about abandonment and avoidance of intimacy in one's relationship with God. The instrument consists of 28 questions to which respondents reply using a 7-point Likert scale ranging from 1 = *disagree strongly,* 4 = *neutral/mixed*, to 7 = *agree strongly*. Scores are interpreted via a baseline of 4 being average; thus, the farther from 4 the score is, the more pronounced the result. It should be noted that the AGI calculates avoidance by summing the even-numbered items and calculates anxiety

by totaling the odd-numbered items. Items 4, 8, 13, 18, 22, 26, and 28 are reverse scored (Beck & McDonald, 2004).

The AGI has good factor structure, internal consistency, and predictive and construct validity (Beck & McDonald, 2004). According to Jankowski and Sandage (2014), the AGI has demonstrated construct validity and internal consistency and moderate positive correlation, which indicates discriminant validity. Jankowski and Sandage also stated that the AGI is associated with Cronbach's alphas of .92 for the Avoidance subscale and .80 for the Anxiety subscale. The rationale for using the AGI in the present study was to measure attachment to God, thus enhancing the concept of attachment beyond its typical scope of solely interpersonal relationships (Okozi, 2012). The AGI does not require permission for educational and research purpose or any specialized training prior to use (Beck & MacDonald, 2004). This instrument is shown in Appendix D.

Spiritual Assessment Inventory-Revised

The SAI-R, developed by Hall and Edwards (2002), is a 47–item assessment instrument with a 5-point Likert scale (1 = *not at all true*, 2 = *slightly true*, 3 = *moderately true*, 4 = *substantially true*, and 5 = *very true*). The SAI–R measures five spirituality traits: (a) awareness of higher power or God (19 items), (b) disappointment in relationship with higher power or God (seven items), (c) grandiosity (excessive self-importance) in relationship with God (seven items), (d) realistic acceptance of higher power or God (five items), and (e) stability/instability of one's relationship with a higher power or God (nine items). The SAI–R also contains a three-item validity check scale.

The scores for each scale are calculated by averaging the answered items. However, scoring of the Realistic Acceptance of Higher Power or God scale (consisting of all two-part answers) depends on the respondent's answers to the first part of the questions. In other words, if the respondent answers "not at all true" on the first part of the question, then the answer to the second part of the question is not included in scoring this scale.

The internal consistency (alpha) coefficients for the five SAI-R subscales range from 0.70–0.83 (Hall & Edwards, 2002). Brown et al. (2007) reported that the SAI-R had strong test–retest reliability and internal consistency across settings and populations. The rationale for using the SAI–R in the present study was that while Allen and Lo (2015) and Giordano et al. (2015) recommended using the SWBS to measure multidimensional aspects of spirituality, this scale does not include a comprehensive assessment of the five dimensions or traits of spirituality. The SAI-R may be used without permission for educational or research purposes and does not require any formal training prior to use (Hall & Edwards, 2002). This instrument is shown in Appendix E.

Alcohol, Smoking, and Substance Involvement Screening Test

The eight-item ASSIST, with six multipart questions, was developed in 2008 by Humeniuk et al. to measure problematic substance by calculating substance involvement scores regarding use of tobacco, alcohol, cannabis, cocaine, ATS, inhalants, sedatives, hallucinogens, opioids, and other substances across the lifespan with a special focus on use during the last 3 months. While the ASSIST includes an additional substance item coded as "other substance," I did not include this item in any of the ASSIST questions in the present study to prevent erroneously duplicating substances already included in

named categories. Question 1 of the ASSIST requires a yes/no answer, with responses coded 1 for yes and 2 for no. Questions 2 through 7 are asked for each of the nine substances named and are as follows:

1. How often have you used [substance]?
2. During the past 3 months, how often have you had a strong desire or urge to use?
3. During the past 3 months, how often has your use of [substance] led to health, social, legal or financial problems?
4. During the past 3 months, how often have you failed to do what was normally expected of you because of your use of?
5. Has a friend or relative or anyone else ever expressed concern about your use of?
6. Have you ever tried to cut down on using [name of substance] but failed?

Questions 2, 3, 4, and 5 require answers on a Likert scale scored as 0 (*never*), 2 (*once or twice*), 3 (*monthly*), 4 (*weekly*), and 6 (*daily or almost daily*). Questions 6 and 7 require answers on a Likert scale scored as 0 (*no, never*), 3 (*yes, in the past 3 months*), 4 for monthly, and 5 for yes, but not in the past 3 months.

ASSIST scores are totaled based on the coding previously detailed. Scores of 0–3 for all substances except alcohol (scores of 0–10 for alcohol) are considered as low problematic substance use/substance involvement. Scores of 4–26 for all substances except alcohol (scores of 11–26 for alcohol) show moderate problematic substance use/substance involvement and may require intervention. Scores of 27 or higher for all

substances, including alcohol, are indicative of high problematic substance use/substance involvement and likely require more intensive intervention.

McNeely et al. (2014) stated that the ASSIST has acceptable test–retest reliability, 93% of substance classifications scores were consistent between Time 1 and Time 2 assessments, kappa coefficients indicated strong agreement in the results of the Time 1 and Time 2 assessments, and intraclass correlation coefficients for the ASSIST substance scales were high and ranged from 0.900 (tobacco) to 0.969 (overall drug score). Although Nelson et al. (2013) used the Brief Addiction Monitor to measure problematic substance involvement/use, the rationale for using the ASSIST in the present study was that it evaluates for multiple substances over the course of the lifetime, with a special focus on use within the past 3 months. Historical data are valuable; however, I sought information regarding recent use such as within the past 3 months. The ASSIST may be used for education or research purposes without permission and does not require special training prior to use (Humeniuk et al., 2008). This instrument is shown in Appendix F.

Demographic Information

Demographic data were collected early in the survey and included the following components:

- age
- gender (e.g., female, male, transgender (male to female, female to male)
- race (e.g., Black, White, Latino/Latina, Asian, Pacific Islander, Native American)

- ethnicity (e.g., Jamaican American, Italian American, Chinese American, Mexican American)
- religious denomination (e.g., Catholic, Buddhist, Jewish, Muslim)
- socioeconomic status
- vocational status (e.g., employed, unemployed, retired, disabled, student)
- highest educational level attained

Data Analysis Plan

I conducted analyses to address the following RQs and hypotheses:

RQ1: Is there an association between religiosity as measured by scores on the RBBQ; spirituality as measured by scores on the SAI-R; attachment as measured by scores on the AGI, RSQ, and Form O of the BORRTI; and tobacco involvement/use as measured by scores on the ASSIST?

$H_0$1: There is no association between religiosity as measured by scores on the RBBQ; spirituality as measured by scores on the SAI-R; attachment as measured by scores on the AGI, RSQ, and Form O of the BORRTI; and tobacco involvement/use as measured by scores on the ASSIST.

$H_1$1: There is an association between religiosity as measured by scores on the RBBQ; spirituality as measured by scores on the SAI-R; attachment as measured by scores on the AGI, RSQ, and Form O of the BORRTI; and tobacco involvement/use as measured by scores on the ASSIST.

RQ2: Is there an association between religiosity as measured by scores on the RBBQ; spirituality as measured by scores on the SAI-R; attachment as measured by

scores on the AGI, RSQ, and Form O of the BORRTI; and alcohol involvement/use as measured by scores on the ASSIST?

$H_0$2: There is no association between religiosity as measured by scores on the RBBQ; spirituality as measured by scores on the SAI-R; attachment as measured by scores on the AGI, RSQ, and Form O of the BORRTI; and alcohol involvement/use as measured by scores on the ASSIST.

$H_1$2: There is an association between religiosity as measured by scores on the RBBQ; spirituality as measured by scores on the SAI-R; attachment as measured by scores on the AGI, RSQ, and Form O of the BORRTI; and alcohol involvement/use as measured by the ASSIST.

RQ3: Is there an association between religiosity as measured by scores on the RBBQ, spirituality as measured by scores on the SAI-R; attachment as measured by scores on the AGI, RSQ, and Form O of the BORRTI; and cannabis involvement/use as measured by scores on the ASSIST?

$H_0$3: There is no association between religiosity as measured by scores on the RBBQ; spirituality as measured by scores on the SAI-R; attachment as measured by scores on the AGI, RSQ, and Form O of the BORRTI; and cannabis involvement/use as measured by scores on the ASSIST.

$H_1$3: There is an association between religiosity as measured by scores on the RBBQ; spirituality as measured by scores on the SAI-R; attachment as measured by scores on the AGI, RSQ, and Form O of the BORRTI; and cannabis involvement/use as measured by scores on the ASSIST.

RQ4: Is there an association between religiosity as measured by scores on the RBBQ; spirituality as measured by scores on the SAI-R; attachment as measured by scores on the AGI, RSQ, and Form O of the BORRTI; and cocaine involvement/use as measured by scores on the ASSIST?

$H_0$4: There is no association between religiosity as measured by scores on the RBBQ; spirituality as measured by scores on the SAI-R; attachment as measured by scores on the AGI, RSQ, and Form O of the BORRTI; and cocaine involvement/use as measured by the ASSIST.

$H_1$4: There is an association between religiosity as measured by scores on the RBBQ; spirituality as measured by scores on the SAI-R; attachment as measured by scores on the AGI, RSQ, and Form O of the BORRTI; and cocaine involvement/use as measured by scores on the ASSIST.

RQ5: Is there an association between religiosity as measured by scores on the RBBQ; spirituality as measured by scores on the SAI-R; attachment as measured by scores on the AGI, RSQ, and Form O of the BORRTI; and ATS involvement/use as measured by scores on the ASSIST?

$H_0$5: There is no association between religiosity as measured by scores on the RBBQ; spirituality as measured by scores on the SAI-R; attachment as measured by scores on the AGI, RSQ, and Form O of the BORRTI; and ATS involvement/use as measured by scores on the ASSIST.

$H_1$5: There is an association between religiosity as measured by scores on the RBBQ; spirituality as measured by scores on the SAI-R; attachment as measured by

scores on the AGI, RSQ, and Form O of the BORRTI; and ATS involvement/use as measured by scores on the ASSIST.

RQ6: Is there an association between religiosity as measured by scores on the RBBQ; spirituality as measured by scores on the SAI-R; attachment as measured by scores on the AGI, RSQ, and Form O of the BORRTI; and inhalant involvement/use as measured by scores on the ASSIST?

$H_0$6: There is no association between religiosity as measured by scores on the RBBQ; spirituality as measured by scores on the SAI-R; attachment as measured by scores on the AGI, RSQ, and Form O of the BORRTI; and inhalant involvement/use as measured by scores on the ASSIST.

$H_1$6: There is an association between religiosity as measured by scores on the RBBQ; spirituality as measured by scores on the SAI-R; attachment as measured by scores on the AGI, RSQ, and Form O of the BORRTI; and inhalant involvement/use as measured by scores on the ASSIST.

RQ7: Is there an association between religiosity as measured by scores on the RBBQ; spirituality as measured by scores on the SAI-R; attachment as measured by scores on the AGI, RSQ, and Form O of the BORRTI; and sedative/sleeping pill involvement/use as measured by scores on the ASSIST?

$H_0$7: There is no association between religiosity as measured by scores on the RBBQ; spirituality as measured by scores on the SAI-R; attachment as measured by scores on the AGI, RSQ, and Form O of the BORRTI; and sedative/sleeping pill involvement/use as measured by scores on the ASSIST.

$H_1$7: There is an association between religiosity as measured by scores on the RBBQ; spirituality as measured by scores on the SAI-R; attachment as measured by scores on the AGI, RSQ, and Form O of the BORRTI; and sedative/sleeping pill involvement/use as measured by scores on the ASSIST.

RQ8: Is there an association between religiosity as measured by scores on the RBBQ; spirituality as measured by scores on the SAI-R; attachment as measured by scores on the AGI, RSQ, and Form O of the BORRTI; and hallucinogen involvement/use as measured by scores on the ASSIST?

$H_0$8: There is no association between religiosity as measured by scores on the RBBQ; spirituality as measured by scores on the SAI-R; attachment as measured by scores on the AGI, RSQ, and Form O of the BORRTI; and hallucinogen involvement/use as measured by scores on the ASSIST.

$H_1$8: There is an association between religiosity as measured by scores on the RBBQ; spirituality as measured by scores on the SAI-R; attachment as measured by scores on the AGI, RSQ, and Form O of the BORRTI; and hallucinogen involvement/use as measured by scores on the ASSIST.

RQ9: Is there an association between religiosity as measured by scores on the RBBQ; spirituality as measured by scores on the SAI-R; attachment as measured by scores on the AGI, RSQ, and Form O of the BORRTI; and opioid involvement/use as measured by scores on the ASSIST?

$H_0$9: There is no association between religiosity as measured by scores on the RBBQ; spirituality as measured by scores on the SAI-R; attachment as measured by

scores on the AGI, RSQ, and Form O of the BORRTI; and opioid involvement/use as measured by scores on the ASSIST.

$H_1$9: There is an association between religiosity as measured by scores on the RBBQ; spirituality as measured by scores on the SAI-R; attachment as measured by scores on the AGI, RSQ, and Form O of the BORRTI; and opioid involvement/use as measured by scores on the ASSIST.

I used SPSS v.25 to clean and analyze the data and used multiple linear regression analysis to test the study hypotheses. The purpose of multiple linear regression is to assess the relationship between one continuous variable and two or more independent (predictor) variables (Field, 2013a, 2013b; Laerd Statistics, n.d.). Using multiple linear regression allowed examining how the three independent (predictor) variables were related to problematic substance use/substance involvement variable. The forced entry (enter) method of multiple linear regression is applicable when previous research has already demonstrated the predictive ability of the independent variables on the dependent variable (Field, 2013a, 2013b; Laerd Statistics, n.d.), as was the case regarding the independent variables included in this study. The descriptive statistics were mean, median, mode, variance, standard deviation, minimum (range), maximum (range), skewness, and kurtosis.

Threats to Validity

This study included several possible threats regarding internal validity. The first threat to internal validity was confounding. Confounding is including an unknown, which affects the independent variable (Creswell & Creswell, 2018; Ohlund & Yu, n.d.). The

second threat to this study's internal validity was the presence of extraneous variables or an unknown variable that affects the dependent variable (Creswell & Creswell, 2018; Ohlund & Yu, n.d.).

Social desirability was another threat to this study's internal validity. Specifically, study participants, who were members of houses of worship, may have provided answers that were less than accurate to avoid judgment, exclusion from, or other undesirable responses from the church (see Creswell & Creswell, 2018, and Ohlund & Yu, n.d., for more on social desirability and other threats to internal validity). Stability (test–retest), internal consistency, and equivalence regarding the numerous assessment instruments used in this study were also threats to this study's internal validity. However, since this was a nonexperimental study with a one-time data collection design, there were no experimental mortality, history, maturation, or regression issues associated with it.

There were also various possible external threats to validity in this study. The major threat to the external validity involved generalizability (Creswell & Creswell, 2018). First, population validity may have be threatened because the sample size was fairly small ($N = 77$) and was not drawn randomly; thus, parts of the population may have been underrepresented or overrepresented. Second, self-selection bias may have occurred because some adult attendees of houses of worship may have chosen to not take part in the study to avoid identification of problematic substance use/substance involvement. Third, ecological validity may have been threatened, since data were collected across multiple, houses of worship and various religious denominations. However, there were no identifiable temporal validity or treatment validity issues associated with this study.

Ethical Procedures

I obtained approval from the Walden University institutional review board (approval # 07-14-20-0157993) before commending this study. I provided all participants information regarding the study purpose, processes, and protocols and the risks and benefits of this study on the first pages of the online survey. This information was provided before the actual start of the survey questions. Furthermore, since this study included the possible identification of moderate or high problematic substance involvement/use, each participant was provided substance use resources in each northeastern Florida county included in the study during the informed consent process to offer immediate assistance (see Appendix G). Lastly, study participants provided implied consent by completing the online survey

In this study, data were collected from attendees of houses of worship in northeastern Florida. Given the special sanctity of the relationship between worshipers and houses of worship, participant privacy and confidentiality were protected in several ways. Specifically, study participants were not required to sign any documents, not requesting study participants to provide their name via printing or typing, and no participants were assigned identification numbers or other identifying information.

Collected electronic data via the survey hosted on SurveyMonkey were stored on an encrypted flash drive. The encrypted flash drive was additionally secured in a locked filing cabinet in a locked room to which only I have access. All data files and documents associated with this study will be stored for a minimum of 7 years and then destroyed.

Where it concerns conflicts of interest, it is possible that a former or present client or an individual known personally or professionally to me attempted to be a study participant. If this occurred with my knowledge, the study participant candidate would have been excluded from participation in this study. This effort helped to prevent researcher bias or an ethical violation via dual relationship.

Summary

Chapter 3 was a description of the research design and study rationale, research methodology, population, and sampling procedures. Threats to validity and ethical procedures were also discussed. Ethical procedures followed during this study are also presented. Chapter 4 is a discussion of the results from statistical analyses of the collected data.

Chapter 4: Results

My purpose in this quantitative study was to examine the relationship between religiosity, spirituality, attachment (attachment in interpersonal relationships, attachment to God, and attachment to objects), and substance involvement/use in a sample of adult attendees of houses of worship in northeastern Florida. Nine RQS were designed to examine these relationships. I used multiple linear regression to examine each of these variables. In Chapter 4, I provide extensive details regarding data collection, data analysis, and analysis results.

Data Collection

To ascertain the appropriate sample size, I conducted a priori G*Power assessment with the established parameters of an alpha of .05, 0.80 power, and 0.15 (medium) effect, a priori G* (see Faul et al., 2009). The results of the G* power analysis indicated that with alpha at .05, .80 power, a 0.15 effect size, and with using multiple linear regression for all statistical analyses, a sample size of 77 was required for this study. Data collection began via the SurveyMonkey on July 11, 2020. Data collection ceased on May 14, 2021, since the required 77 responses were obtained on this date.

Exclusion criteria for this study included people under the age 18 and individuals outside of the geographical area used for this study. I created the survey questions by taking all of the questions from the AGI (attachment to God), the SAI-R (spirituality), the RBBQ (religiosity), Form O of the BORRTI (object attachment), the RSQ (interpersonal attachment), and the ASSIST (substance involvement/use/use) and numbering the questions from 1 to 234 on SurveyMonkey. All study participants answered the survey

questions on SurveyMonkey. No surveys were completed in person or via paper and pencil.

There were unexpected challenges with the data collection process because of the COVID-19 pandemic. Specifically, it took significantly longer than expected to obtain the 77 responses needed because houses of worship were not open consistently or fully due to the pandemic. This was problematic because it made the flyers and other written material regarding the study that were displayed at the houses of worship much less visible to potential participants. However, no additional protocols were required and there were no deviations from the research plan provided in Chapter 3. Lastly, no surveys were completed in person or by way of paper and pencil.

Data Cleaning Procedures

The collected data were cleaned and analyzed using SPSS v.28. Prior to analysis, I examined the data for identifying information, of which there was none. The collected data were then coded via the instructions provided the various assessment instruments used to collect the data. Specifically, the assessments I used to collect the data and the accompanying data cleaning instructions were as follows:

1. RSQ. The RSQ was used to measure the secure, fearful, preoccupied, and dismissing attachment styles. The Secure scale is the sum of Questions 3, 10, and 15. Questions 9 and 28 are reverse coded. The Fearful scale is the sum of Questions 1, 5, 12, and 24. The Preoccupied scale is the sum of Questions 8, 16, and 25. Question 6 is reverse coded. The Dismissing scale is the sum of Questions 2, 6, 19, 22, and 26.

2. Scale O of the BORRTI. Each answer on Scale O of the BORRTI is assigned a weight. The weighted scores from each scale are totaled to create a sum score for that scale.
3. RBBQ. All scores are assigned a number value on a Likert scale and then totaled.
4. AGI. The AGI measures anxiety over abandonment by God (all odd number questions) and avoidance of intimacy with God (all even number questions), which are collected in two separate columns. Questions 1, 2, 3, 4, 5, 6, and 7 are reverse coded. The totals are then summed.
5. SAI–R. Questions are answered using a Likert scale. All scores are summed.
6. ASSIST. The ASSIST measures use of/involvement with tobacco, alcohol, cannabis, ATS, cocaine, hallucinogens, inhalants, opioids, and sedatives and sleeping pills. All scores are totaled.

Descriptive Statistics

Demographics

There were 77 participants in this study. As shown in Table 2, it was a diverse sample. A brief recap of the demographics showed the following:

- There was an even balance between genders, with 39 females and 38 males.
- The predominant age range was 36 to 45 years (n = 17).
- Most participants (n = 54) had no military affiliation. This result appears to not align with the geographical area included in the study, which includes four military bases.

- Most participants (*n* = 19) had some college. Eighteen identified as having a high school education; 16 identified as having a 4-year college education.
- Most were employed full time (*n* = 25) or were retired (*n* = 21).
- Income level for most were $26,000–$50,999 (*n* = 20) and $51,000–$75,999 (*n* = 24).
- The most common family size was two (*n* = 25).
- There was at least one participation from all religious affiliations included in this study Those with the highest representation were Catholic (*n* = 10), Baptist (*n* = 9), and other (*n* = 8).
- The most dominant race was White or Caucasian (*n* = 24), followed by Black or African American (*n* = 17) and multiracial (*n* = 14).

Table 2

Participant Demographics

Characteristic	*n*	%
Gender		
Male	38	49.4
Female	39	50.6
Age range (in years)		
18–25	9	11.7
26–35	13	16.9
36–45	17	22.1
46–55	15	19.5
56–65	8	10.4
66–75	11	14.3
76–85	4	5.2
Military affiliation		
None	54	70.1
Active duty	6	7.8
Veteran	17	22.1
Education level		
Middle/junior high school	7	9.1
GED	4	5.2
High school	16	20.8
Some college	19	24.7
4-year college	18	23.4
Graduate school	13	16.9
Employment		
Full time	25	32.5
Part time	10	13.0
Self-employed	10	13.0
Unemployed	10	13.0
Retired	21	27.3
Student	1	1.3
Income (in dollars)		
0–10,999	8	10.4
11,000–25,999	7	9.1
26,000–50,999	20	26.0
51,00075,999	24	31.2

Characteristic	*n*	%
76,000–100,999	9	11.7
> 101,000	9	11.7
Family size		
1	14	18.2
2	25	32.5
3	12	15.6
4	11	14.3
5	10	13.0
6	4	5.2
7	1	1.3
Religious affiliation		
Baptist	9	11.7
Jewish or Judaism	7	9.1
Catholic	10	13.0
Pentecostal	1	1.3
Seventh Day Adventist	1	1.3
Presbyterian	7	9.1
Lutheran	6	7.8
Taoism	1	1.3
Episcopalian	7	9.1
Mormon	2	2.6
Hinduism	3	3.9
Jehovah's Witness	3	3.9
Islam	4	5.2
Methodist	4	5.2
Atheism	1	1.3
Agnosticism	2	2.6
Buddhist	1	1.3
Other	8	10.4
Race		
Black or African American	17	22.1
White or Caucasian	24	31.2
Multiracial	14	18.2
Native Hawaiian or Other Pacific Islander	4	5.2
Hispanic or Latino/Latina	9	11.7
Asian or Asian American	3	3.9
Native American or Alaska Native	6	7.8

Dependent Variable

Table 3 shows the sample's descriptive statistics for the dependent variable problematic substance use/substance involvement (alcohol use/involvement, ATS involvement/use, cannabis involvement/use, cocaine involvement/use, hallucinogen involvement/use, inhalant involvement/use, opioid involvement/use, sedative and sleeping pill involvement/use, and tobacco involvement/use), which was measured with the ASSIST. All scores reflect responses to items in the ASSIST assessment.

Table 3

Descriptive Statistics, Dependent Variable

Problematic substance use/substance involvement category	*M*	*Mdn*	Mode	*SD*	Min.	Max.
Alcohol	17.4675	18.00	20.00[a]	3.92892	7	24
Amphetamine-type stimulant	18.06	18.00	21.00	2.647	13	22
Cannabis	18.62	21.00	21.00	3.228	9	22
Cocaine	19.81	20.00	21.00	1.857	14	22
Hallucinogen	19.95	20.00	20.00	.809	16	22
Inhalant	19.95	20.00	20.00	.426	17	21
Opioid	18.56	20.00	20.00	3.189	6	20
Sedative and sleeping pill	18.75	20.00	20.00	2.647	8	22
Tobacco	18.06	18.00	21.00	2.647	13	22

Note. [a]Multiple modes existed. The smallest value is shown.

Independent Variables

Table 4 shows the descriptive statistics for the three independent variables: attachment, religiosity, and spirituality.

Table 4

Descriptive Statistics, Independent Variables

Variable	*M*	*Mdn*	Mode	*SD*	Average score	Min.	Max.
Attachment							
To God	103.2987	104.0000	94.00	25.74780	104.00	42.00	161.00
Interpersonal	52.5974	51.0000	49.00	7.03611	51.00	38.00	72.00
Object	44.0519	47.0000	10.00[a]	27.66382	47.00	.00	94.00
Religiosity	43.4156	43.000	43.00	8.39698	43.00	19.00	63.00
Spirituality[b]	129.4267	132.0000	109.00[a]	31.20472	132.00	53.00	220.00

Note. [a]Multiple modes existed. The smallest value is shown. [b]Only 75 participants provided complete responses to the instrument used to measure spirituality. All other responses reflect total study sample of 77 participants.

Evaluation of Statistical Assumptions

There are eight statistical assumptions associated with using multiple linear regression: continuous dependent variable, continuous independent variables, independence of observations, linearity, homoscedasticity, multicollinearity, outliers, and multivariate normality (Laerd Statistics, n.d.). Tests of these assumptions were conducted for each of the nine RQs in the present study. The results were as follows.

Research Question 1

The assumptions for RQ1 (Is there an association between religiosity as measured by scores on the RBBQ; spirituality as measured by scores on the SAI-R; attachment as measured by scores on the AGI, RSQ, and Form O of the BORRTI; and tobacco involvement/use as measured by scores on the ASSIST?) were as follows:

1. Assumption 1: Continuous dependent variable. This assumption was met because the dependent variable was tobacco involvement/use, which was measured at the continuous level via scores on the ASSIST.
2. Assumption 2: Continuous independent variables. This assumption was met because the independent variables of religiosity, spirituality, and attachment were measured at the continuous level by scores on the AGI, the RSQ, Form O of the BORRTI, the RBBQ, and the SAI-R.
3. Assumption 3: Independence of observations. The calculation for the Durbin-Watson value was 1.810. This statistic was within the range of 0–4; there was no autocorrelation (CFI Education, 2022).
4. Assumption 4: Linearity. The residuals form a horizontal band, as shown in Figure 2. There was a linear relationship between the dependent variable and the independent variables.
5. Assumption 5: Homoscedasticity. As shown in Figure 3, there is a decreasing funnel shape where it concerns the plot of the studentized residuals versus unstandardized predicted values; thus, the assumption of homoscedasticity was met.
6. Assumption 6: Multicollinearity. None of the values on the Pearson correlation table were above 0.7, as shown in Table 5. In addition, no tolerance values were less than 0.1 (VIF of greater than 10), as shown in Table 6. As such, the assumption that the data must not show multicollinearity was met.

7. Assumption 7: Outliers. The data collection methodology solely used instruments with Likert-scale measures; outliers were not possible (Xu et al., 2017).
8. Assumption 8: Multivariate normality. The standardized residuals were normally distributed, as shown in Figures 3 and 4.

Figure 2

Scatterplot, Tobacco Use/Involvement

Figure 3

Histogram, Tobacco Involvement/Use

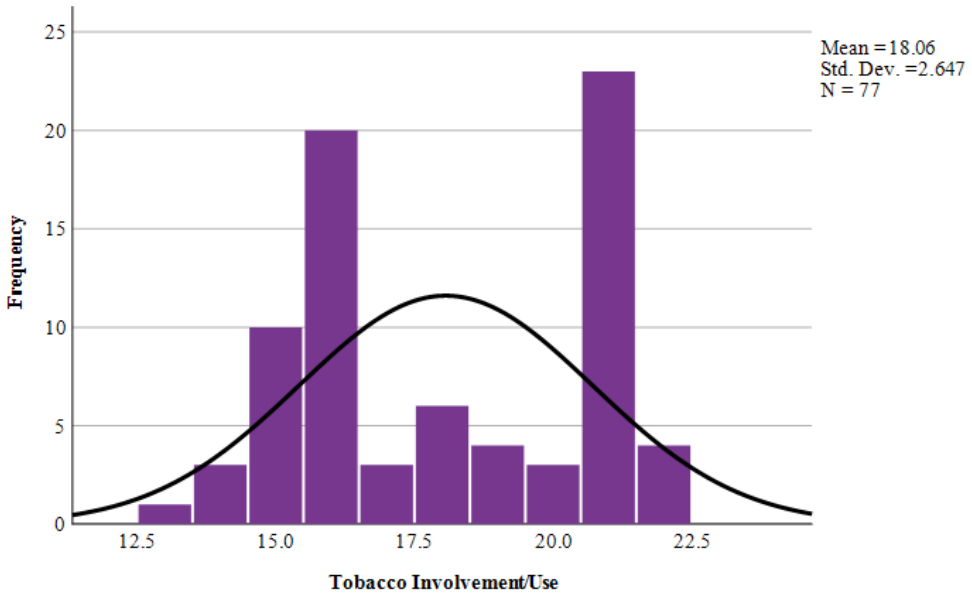


Table 5

Summary of the Correlations Between Independent and Dependent Variables

Measure	Religiosity	Spirituality	Interpersonal attachment	Attachment to God	Object attachment
Tobacco	.001	–.198*	.013	–.483***	–.455***
Alcohol	–.137	–.036	.194	.045*	.189
Cannabis	–.072	.016	–.059	–.317**	–.413***
Cocaine	–.150	–.265*	–.069	–.404***	–.434***
Amphetamine	–.014	–.259*	–.085	–.306**	–.333**
Inhalant	–.166	–.266**	.054	–.088	–.145
Sedative	–.013	–.039	–.031**	.292	–.087
Hallucinogen	–.050	–.023	.069	.021	–.061
Opioid	.137	–.260*	.165	–.307**	–.261*

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

Table 6

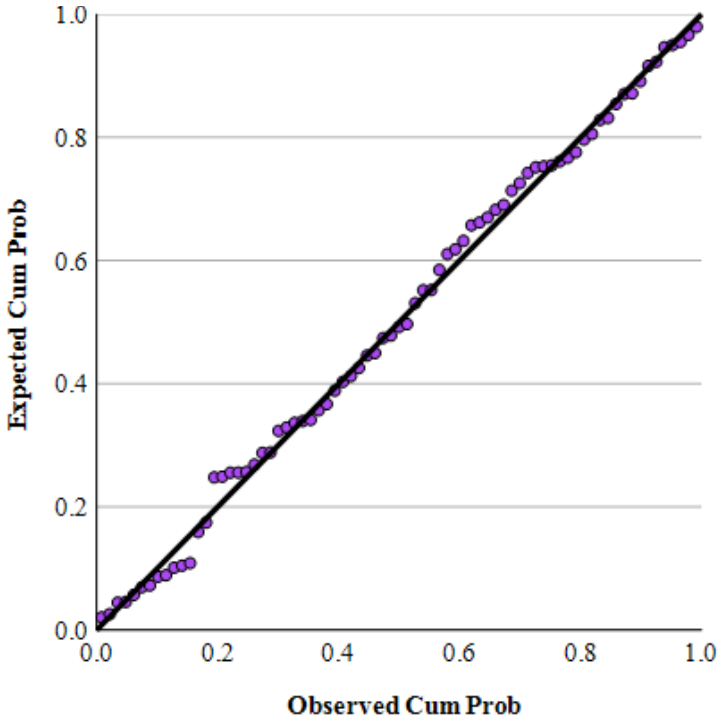
Collinearity, Tobacco Involvement/Use

Variable	Unstandardized coefficients		Standardized coefficients	*t*	Correlations			Collinearity	
	β	*SE*	*Beta*		*r*	*pr*	*sr*	T	VIF
Constant	20.337	3.134		6.502					
Religiosity	.000	.043	–.001	–.010	.001	.001	–.001	.522	1.916
Spirituality level	–0.13	.011	–.153	–1.182	–.198	–.141	–.116	.569	1.758
Interpersonal attachment	.084	.042	.218	1.998	.013	.234	.196	.803	1.246
Attachment to God	–0.36	.014	–.348	–2.602	–.483	–.299	–.255	.537	1.862
Object attachment	–.029	.013	–.302	–2.188	–.455	–.255	–.214	.502	1.994

Note. The statistics *r, pr, and sr* are zero-order, partial, and semipartial correlations, respectively. T = tolerance and VIF = variance inflation factor; both are collinearity statistics.

Figure 4

Normal P–P Plot of Regression Standardized Residuals, Tobacco Involvement/Use



Research Question 2

The assumptions for RQ2 (Is there an association between religiosity as measured by scores on the RBBQ; spirituality as measured by scores on the SAI-R; attachment as measured by scores on the AGI, RSQ, and Form O of the BORRTI; and alcohol involvement/use as measured by scores on the ASSIST?) were as follows:

1. Assumption 1: Continuous dependent variable. This assumption was met because the dependent variable was alcohol involvement/use, which was measured at the continuous level via scores on the ASSIST.

2. Assumption 2: Continuous independent variables. This assumption was met because the independent variables of religiosity, spirituality, and attachment were measured at the continuous level by scores on the AGI, the RSQ, Form O of the BORRTI, the RBBQ, and the SAI-R.
3. Assumption 3: Independence of observations. The calculation for the Durbin-Watson value was 1.502. This statistic was within the range of 0–4; there was no autocorrelation
4. Assumption 4: Linearity. The residuals form a horizontal band, as shown in Figure 5. There was a linear relationship between the dependent variable and the independent variables.
5. Assumption 5: Homoscedasticity. As shown in Figure 6, there is a decreasing funnel shape where it concerns the plot of the studentized residuals versus unstandardized predicted values; thus, the assumption of homoscedasticity was met.
6. Assumption 6: Multicollinearity. None of the values on the Pearson correlation table were above 0.7, as shown in Table 5. In addition, no tolerance values were less than 0.1 (VIF of greater than 10), as shown in Table 7. As such, the assumption that the data must not show multicollinearity was met.
7. Assumption 7: Outliers. The data collection methodology solely used instruments with a Likert-scale measure; outliers were not possible.

8. Assumption 8: Multivariate normality. The standardized residuals were normally distributed, as shown in Figures 6 and 7.

Figure 5

Scatterplot, Alcohol Involvement/Use

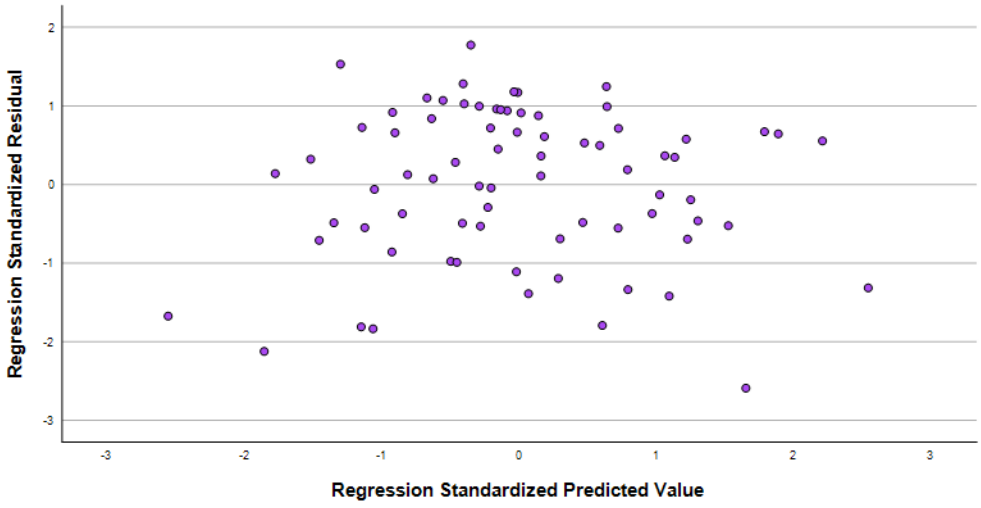


Table 7

Collinearity, Alcohol Involvement/Use

Variable	Unstandardized coefficients		Standardized coefficients	*t*	Correlations			Collinearity	
	β	*SE*	*Beta*		*r*	*pr*	*sr*	T	VIF
Constant	17.589	5/402		3.203					
Religiosity	–.070	.076	–.148	–.927	–.137	–.111	–.107	.522	1.916
Spirituality level	.005	.019	–.043	.282	–.036	.034	.033	.569	1.758
Interpersonal attachment	.067	.073	.118	.916	.194	.110	.106	.803	1.246
Attachment to God	–.027	.024	–.178	–1.127	.045	–.134	–.130	.537	1.862
Object attachment	.032	.023	.228	1.393	.189	–.165	.161	.502	1.994

Note. The statistics *r, pr, and sr* are zero-order, partial, and semipartial correlations, respectively. T = tolerance and VIF = variance inflation factor; both are collinearity statistics.

Figure 6

Histogram, Alcohol Involvement/Use

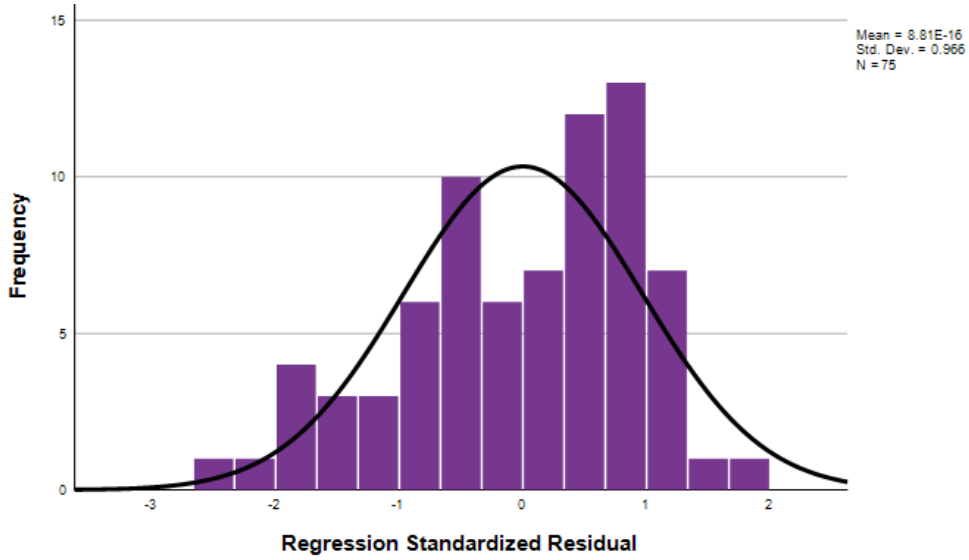
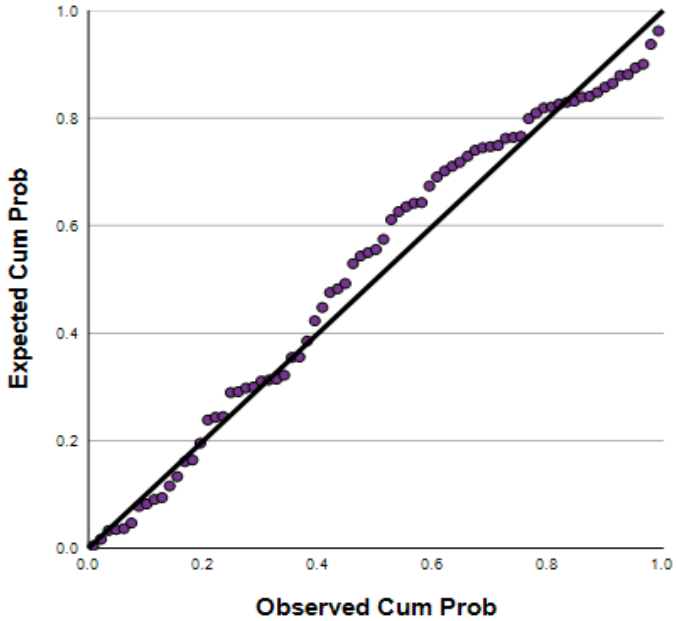


Figure 7

Normal P–P Plot of Regression Standardized Residuals, Alcohol Involvement/Use



Research Question 3

The assumptions for RQ3 (Is there an association between religiosity as measured by scores on the RBBQ; spirituality as measured by scores on the SAI-R; attachment as measured by scores on the AGI, RSQ, and Form O of the BORRTI; and cannabis involvement/use as measured by scores on the ASSIST?) were as follows:

1. Assumption 1: Continuous dependent variable. This assumption was met because the dependent variable was cannabis involvement/use, which was measured at the continuous level via scores on the ASSIST.
2. Assumption 2: Continuous independent variables. This assumption was met because the independent variables of religiosity, spirituality, and attachment were measured at the continuous level by scores on the AGI, the RSQ, Form O of the BORRTI, the RBBQ, and the SAI-R.
3. Assumption 3: Independence of observations. The calculation for the Durbin-Watson value was 2.074. This statistic was within the range of 0–4; there was no autocorrelation.
4. Assumption 4: Linearity. The residuals form a horizontal band, as shown in Figure 8. There was a linear relationship between the dependent variable and the independent variables.
5. Assumption 5: Homoscedasticity. As shown in Figure 9, there is a decreasing funnel shape where it concern the plot of the studentized residuals versus unstandardized predicted values; thus, the assumption of homoscedasticity was met.

6. Assumption 6: Multicollinearity. None of the Pearson correlation values were above 0.7, as shown in Tables 5 and 8. In addition, no tolerance values were less than 0.1 (VIF of greater than 10), as shown in Table 9. As such, the assumption that the data must not show multicollinearity was met.
7. Assumption 7: Outliers. The data collection methodology solely used instruments with Likert-scale measures, outliers were not possible.
8. Assumption 8: Multivariate normality. The standardized residuals were normally distributed, as shown in Figures 9 and 10.

Figure 8

Scatterplot, Cannabis Involvement/Use

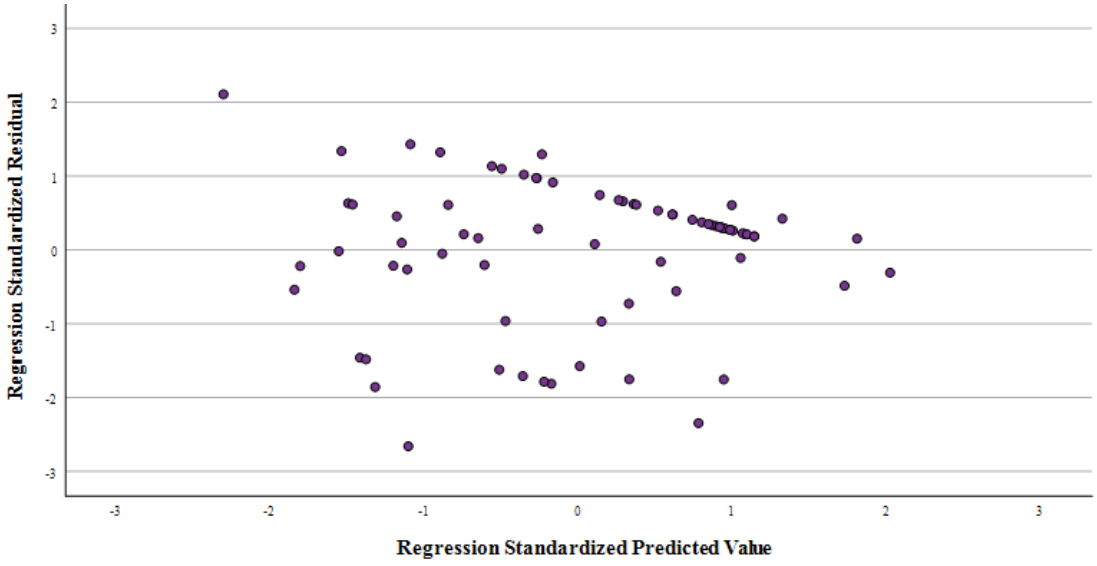


Table 8

Regression Coefficients, Cannabis Involvement/Use

Variable	Unstandardized coefficients		Standardized coefficients	*t*	Sig.	95% confidence interval for *β*	
	β	*SE*	*Beta*			*LB*	*UB*
Constant	22.213	4.083		5.441	.000	14.068	30.357
Religiosity	–.130	.056	–.331	–2.296	.271	–.242	–.017
Spirituality level	.028	.014	.271	1.960	.447	–.001	.057
Interpersonal attachment	.050	.054	.107	.918	.309	–.059	.159
Attachment to God	–.019	.018	–.152	–1.068	.003	–.055	.017
Object attachment	–.051	.017	–.438	–2.977	.000	–.086	–.017

Table 9

Correlations and Collinearity Statistics, Cannabis Involvement/Use

Variable	Correlations			Collinearity	
	Zero order	Partial	Semipartial	T	VIF
Religiosity	–.072	–.266	–.239	.522	1.916
Spirituality level	.016	.230	.204	.569	1.758
Attachment to God	–.059	.110	.096	.803	1.246
Interpersonal attachment	–.317	–.128	–.111	.537	1.862
Object attachment	–.413	–.337	–.310	.502	1.994

Note. T = tolerance and VIF = variance inflation factor; both are collinearity statistics.

Figure 9

Histogram, Cannabis Involvement/Use

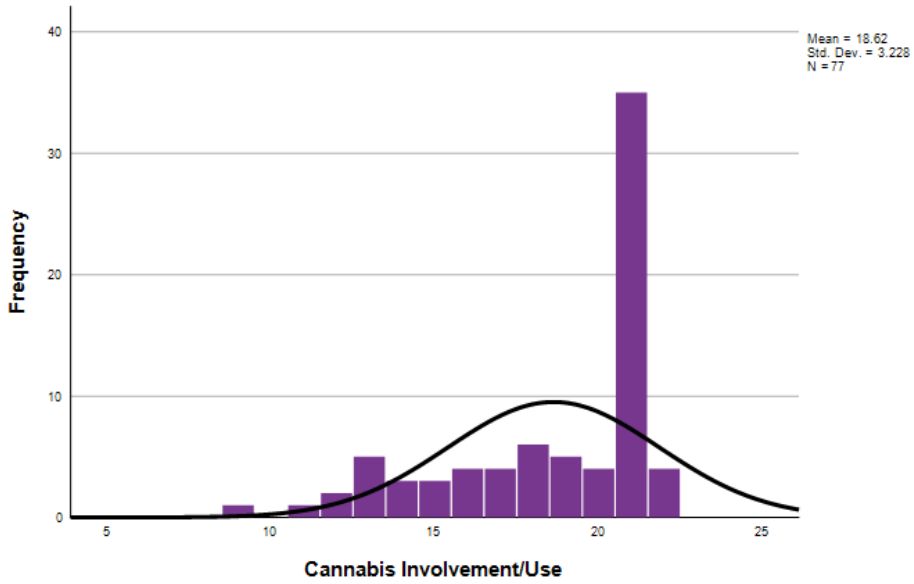
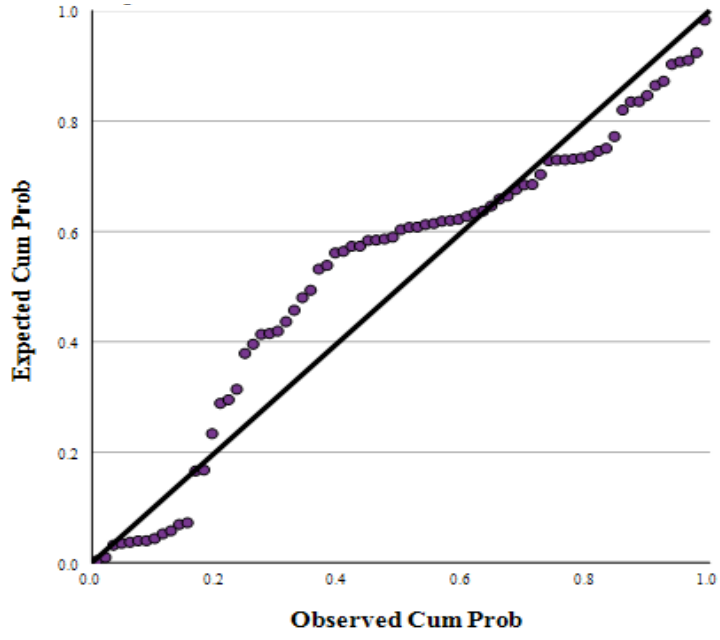


Figure 10

Normal P–P Plot of Regression Standardized Residuals, Cannabis Involvement/Use



Research Question 4

The assumptions for RQ4 (Is there an association between religiosity as measured by scores on the RBBQ; spirituality as measured by scores on the SAI-R; attachment as measured by scores on the AGI, RSQ, and Form O of the BORRTI; and cocaine involvement/use as measured by scores on the ASSIST?) were as follows:

1. Assumption 1: Continuous dependent variable. This assumption was met because the dependent variable was cocaine involvement/use, which was measured at the continuous level via scores on the ASSIST.
2. Assumption 2: Continuous independent variables. This assumption was met because the independent variables of religiosity, spirituality, and attachment were measured at the continuous level by scores on the AGI, the RSQ, Form O of the BORRTI, the RBBQ, and the SAI-R.
3. Assumption 3: Independence of observations. The calculation for the Durbin-Watson value was 1.920. This statistic was within the range of 0–4; there was no autocorrelation.
4. Assumption 4: Linearity. The residuals form a horizontal band, as shown in Figure 11. There was a linear relationship between the dependent variable and the independent variables.
5. Assumption 5: Homoscedasticity. As shown in Figure 12, there is a decreasing funnel shape where it concerns the plot of the studentized residuals versus unstandardized predicted values; thus, the assumption of homoscedasticity was met.

6. Assumption 6: Multicollinearity. None of the Pearson correlation values were above 0.7, as shown in Tables 5 and 10. In addition, no tolerance values were less than 0.1 (VIF of greater than 10), as shown in Table 11. As such, the assumption that the data must not show multicollinearity was met.
7. Assumption 7: Outliers. The data collection methodology solely used instruments with a Likert-scale measure; outliers were not possible.
8. Assumption 8: Multivariate normality. The standardized residuals were normally distributed, as shown in Figures 12 and 13.

Figure 11

Scatterplot, Cocaine Involvement/Use

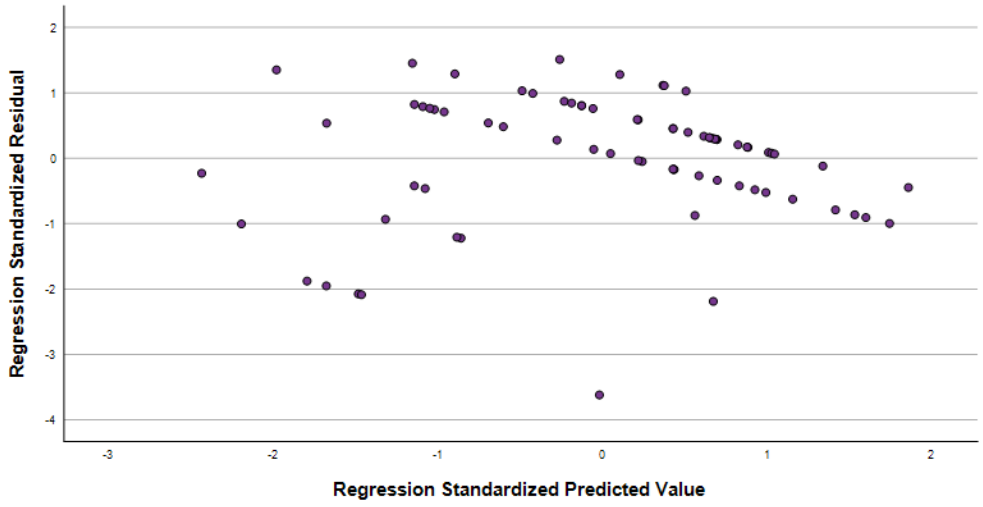


Table 10

Regression Coefficients, Cocaine Involvement/Use

Variable	Unstandardized coefficients		Standardized coefficients	*t*	Sig.	95% confidence interval for *β*	
	β	*SE*	*Beta*			*LB*	*UB*
Constant	24.491	2.240		10.934	.000	20.023	28.960
Religiosity	–.043	.031	–.193	–1.381	.172	–.105	.019
Spirituality level	–.007	.008	–.113	–.845	.401	–.023	.009
Interpersonal attachment	.020	.030	.077	.682	.497	–.039	.080
Attachment to God	–.020	.010	–.285	–2.071	.042	–.040	–.001
Object attachment	–.020	.009	–.300	–2.109	.039	–.039	–.001

Table 11

Correlations and Collinearity Statistics, Cocaine Involvement/Use

Variable	Correlations			Collinearity	
	Zero order	Partial	Semipartial	T	VIF
Religiosity	–.105	–.164	–.139	.522	1.916
Spirituality level	–.265	–.101	–.085	.569	1.758
Interpersonal attachment	–.069	.082	.069	.803	1.246
Attachment to God	–.404	–.242	–.209	.537	1.862
Object attachment	–.434	–.246	–.213	.502	1.994

Note. T = tolerance and VIF = variance inflation factor; both are collinearity statistics.

Figure 12

Histogram, Cocaine Involvement/Use

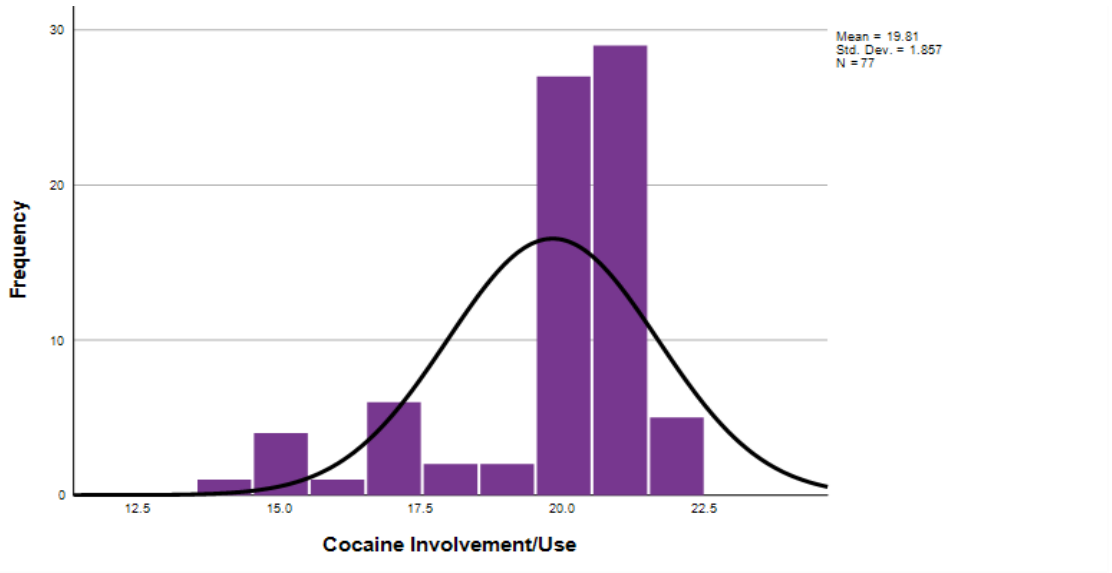
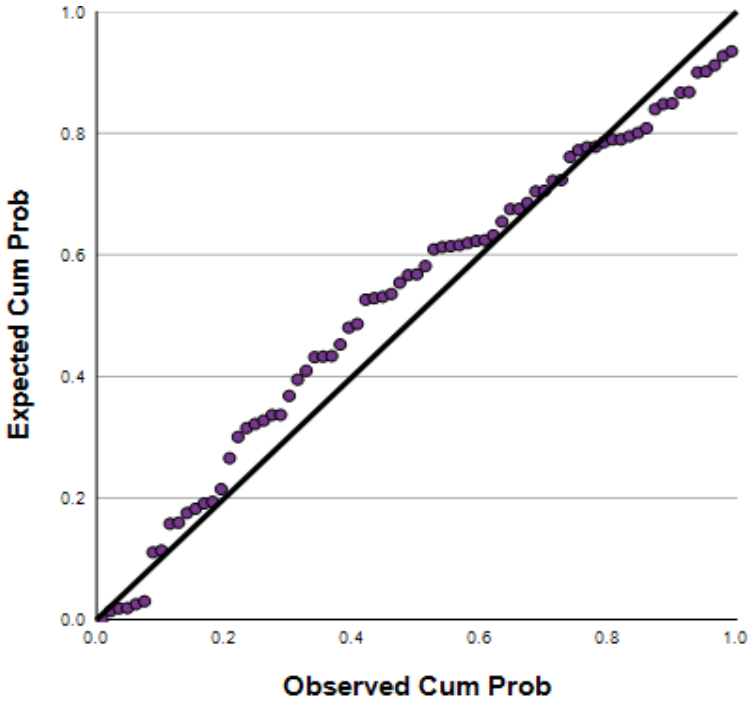


Figure 13

Normal P–P Plot of Regression Standardized Residuals, Cocaine Involvement/Use



Research Question 5

The assumptions for RQ5 (Is there an association between religiosity as measured by scores on the RBBQ; spirituality as measured by scores on the SAI-R; attachment as measured by scores on the AGI, RSQ, and Form O of the BORRTI; and ATS involvement/use as measured by scores on the ASSIST?) were as follows:

1. Assumption 1: Continuous dependent variable. This assumption was met because the dependent variable was ATS involvement/use, which was measured at the continuous level via scores on the ASSIST.
2. Assumption 2: Continuous independent variables. This assumption was met because the independent variables of religiosity, spirituality, and attachment were measured at the continuous level by scores on the AGI, the RSQ, Form O of the BORRTI, the RBBQ, and the SAI-R.
3. Assumption 3: Independence of observations. The calculation for the Durbin-Watson value was 2.087. This statistic was within the range of 0–4; there was no autocorrelation.
4. Assumption 4: Linearity. The residuals form a horizontal band, as shown in Figure 14. There was a linear relationship between the dependent variable and the independent variables.
5. Assumption 5: Homoscedasticity. As shown in Figure 15, there is a decreasing funnel shape where it concerns the plot of the studentized residuals versus unstandardized predicted values; thus, the assumption of homoscedasticity was met.

6. Assumption 6: Multicollinearity. None of the Pearson correlation values were above 0.7, as shown in Tables 5 and 12. In addition, no tolerance values were less than 0.1 (VIF of greater than 10), as shown in Table 13. As such, the assumption that the data must not show multicollinearity was met.
7. Assumption 7: Outliers. The data collection methodology solely used instruments with a Likert-scale measure; outliers were not possible.
8. Assumption 8: Multivariate normality. The standardized residuals were normally distributed, as shown in Figures 15 and 16.

Figure 14

Scatterplot, Amphetamine-Type Stimulant Involvement/Use

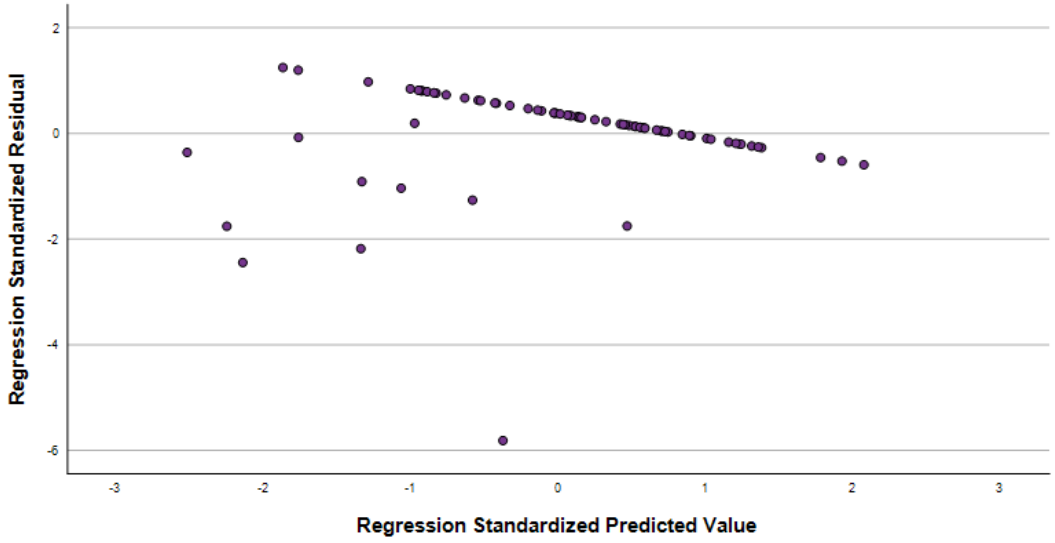


Table 12

Regression Coefficients, Amphetamine-Type Stimulant Involvement/Use

Variable	Unstandardized coefficients		Standardized coefficients	*t*	Sig.	95% confidence interval for *β*	
	β	*SE*	*Beta*			*LB*	*UB*
Constant	21.730	2.190		9.921		17.361	26.100
Religiosity	.021	.	.030	.708		–.039	.082
Spirituality level	–.016	.	.008	–2.123		–.032	–.001
Interpersonal attachment	.009	.	.029	.319		–.049	.068
Attachment to God	–.010	.	.010	–1.090		–.030	.009
Object attachment	–.012	.	.009	–1.286		–.030	.007

Table 13

Correlations and Collinearity Statistics, Amphetamine-Type Stimulant Involvement/Use

Variable	Correlations			Collinearity	
	Zero order	Partial	Semipartial	T	VIF
Religiosity	–.014	.085	.077	.522	1.916
Spirituality level	–.259	–.248	–.230	.569	1.758
Interpersonal attachment	–.085	.038	.035	.803	1.246
Attachment to God	–.306	–.130	–.118	.537	1.862
Object attachment	–.333	–.153	–.139	.502	1.994

Note. T = tolerance and VIF = variance inflation factor; both are collinearity statistics.

Figure 15

Histogram, Amphetamine-Type Stimulant Involvement/Use

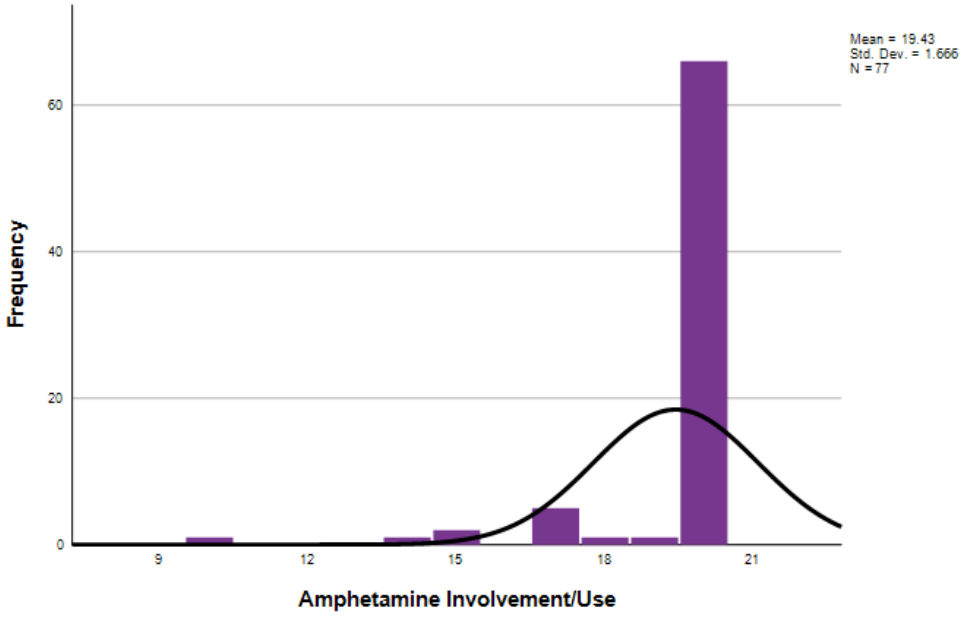
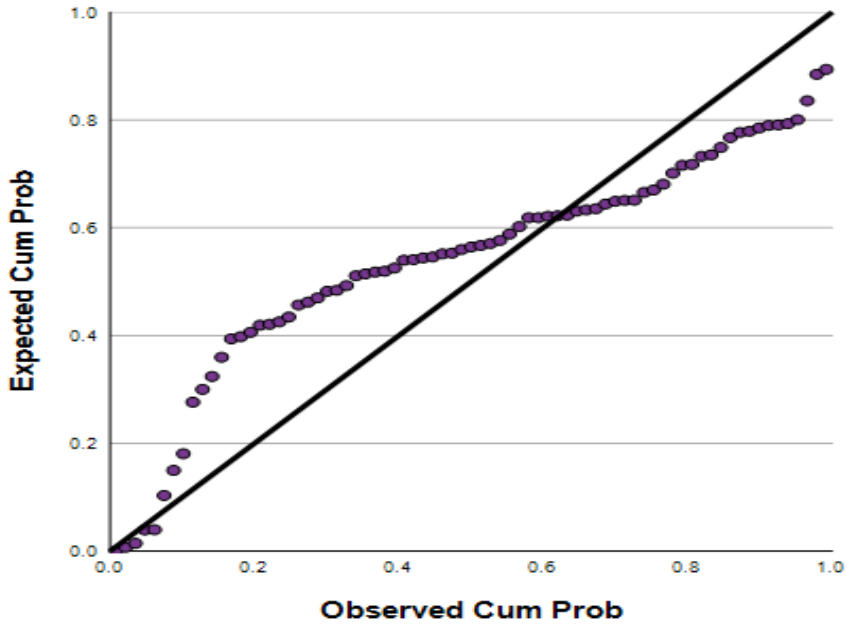


Figure 16

Normal P–P Plot of Regression Standardized Residuals, Amphetamine-Type Stimulant Involvement/Use



Research Question 6

The assumptions for RQ6 (Is there an association between religiosity as measured by scores on the RBBQ; spirituality as measured by scores on the SAI-R; attachment as measured by scores on the AGI, RSQ, and Form O of the BORRTI; and inhalant involvement/use as measured by scores on the ASSIST?) were as follows:

1. Assumption 1: Continuous dependent variable. This assumption was met because the dependent variable was inhalant involvement/use, which was measured at the continuous level via scores on the ASSIST.
2. Assumption 2: Continuous independent variables. This assumption was met because the independent variables of religiosity, spirituality, and attachment

were measured at the continuous level by scores on the AGI, the RSQ, Form O of the BORRTI, the RBBQ, and the SAI-R.

3. Assumption 3: Independence of observations. The calculation for the Durbin-Watson value was 1.965. This statistic was within the range of 0–4; there was no autocorrelation
4. Assumption 4: Linearity. The residuals form a horizontal band, as shown in Figure 17. There was a linear relationship between the dependent variable and the independent variables.
5. Assumption 5: Homoscedasticity. As shown in Figure 18, there is a decreasing funnel shape where it concerns the plot of the studentized residuals versus unstandardized predicted values; thus, the assumption of homoscedasticity was met.
6. Assumption 6: Multicollinearity. None of the Pearson correlation values were above 0.7, as shown in Tables 5 and 14. In addition, no tolerance values were less than 0.1 (VIF of greater than 10), as shown in Table 15. As such, the assumption that the data must not show multicollinearity was met.
7. Assumption 7: Outliers. The data collection methodology solely used instruments with a Likert-scale measure; outliers were not possible.
8. Assumption 8: Multivariate normality. The standardized residuals were normally distributed, as shown in Figures 18 and 19.

Figure 17

Scatterplot, Inhalant Involvement/Use

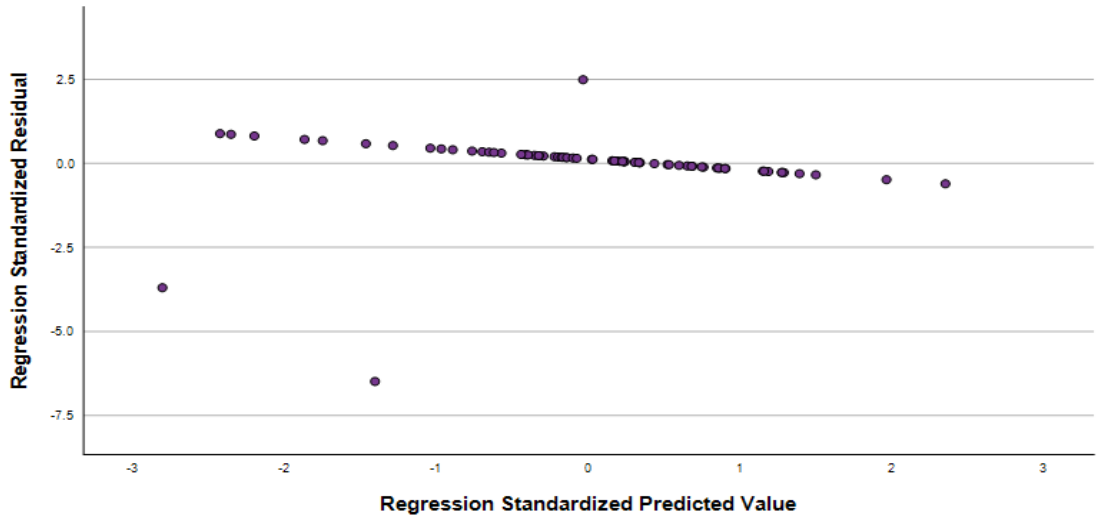


Table 14

Regression Coefficients, Inhalant Involvement/Use

Variable	Unstandardized coefficients		Standardized coefficients	*t*	Sig.	95% confidence interval for *β*	
	β	*SE*	*Beta*			*LB*	*UB*
Constant	20.277	.593		34.205	.000	19.094	21.459
Religiosity	–.002	.008	–.042	–.266	.791	–.019	.014
Spirituality level	–.003	.002	–.218	–1.434	.156	–.007	.001
Interpersonal attachment	.006	.008	.095	.743	.460	–.010	.022
Attachment to God	.000	.003	–.030	–.191	.849	–.006	.005
Object attachment	–.002	.003	–.150	–.930	.355	–.007	.003

Table 15

Correlations and Collinearity Statistics, Inhalant Involvement/Use

Variable	Correlations			Collinearity	
	Zero order	Partial	Semipartial	T	VIF
Religiosity	–.166	–.032	–.030	.522	1.916
Spirituality level	–.266	–.170	–.164	.569	1.758
Interpersonal attachment	.054	.089	.085	.803	1.246
Attachment to God	–.088	–.023	–.022	.537	1.862
Object attachment	–.145	–.111	–.107	.502	1.994

Note. T = tolerance and VIF = variance inflation factor; both are collinearity statistics.

Figure 18

Histogram, Inhalant Involvement/Use

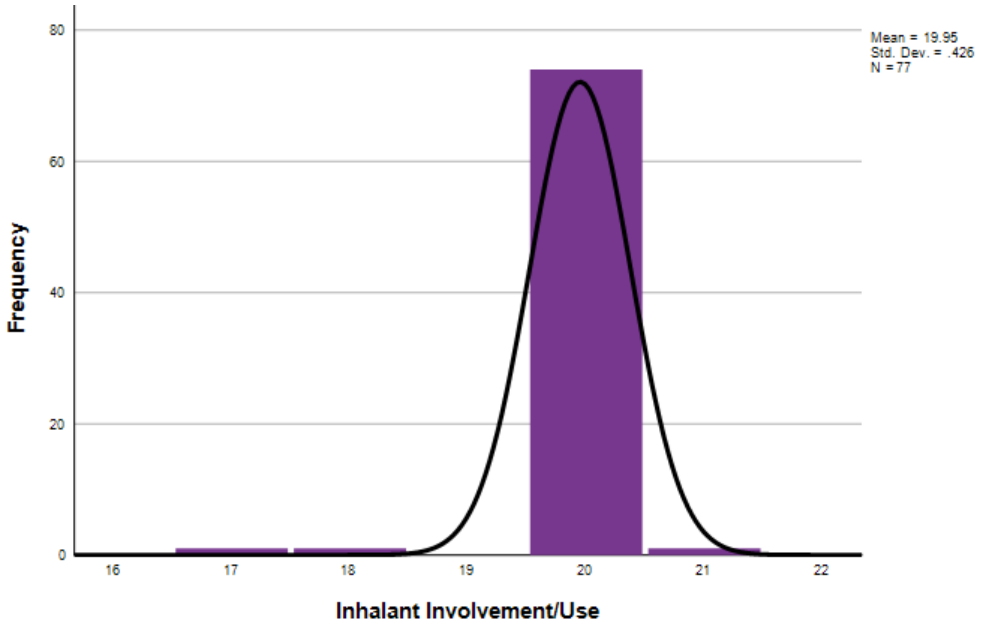
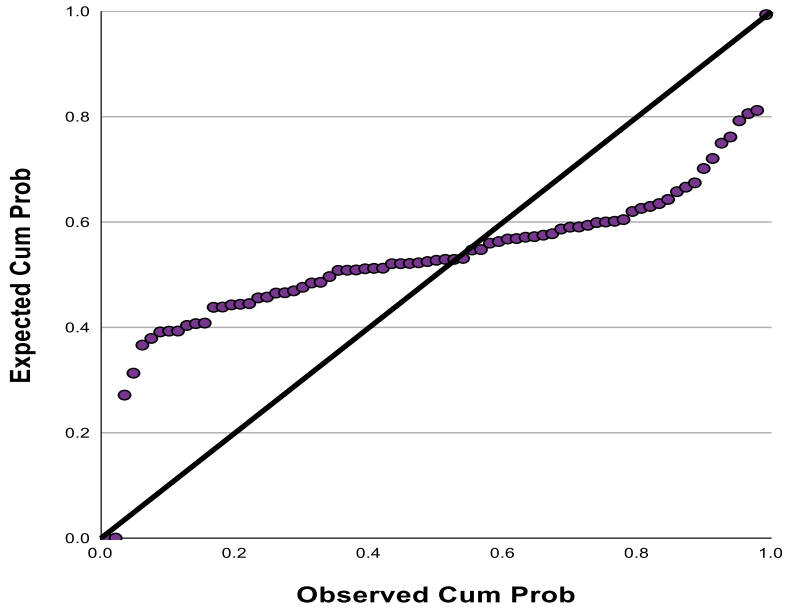


Figure 19

Normal P–P Plot of Regression Standardized Residuals, Inhalant Involvement/Use



Research Question 7

The assumptions for RQ7 (Is there an association between religiosity as measured by scores on the RBBQ; spirituality as measured by scores on the SAI-R; attachment as measured by scores on the AGI, RSQ, and Form O of the BORRTI; and sedative and sleeping pill involvement/use, as measured by scores on the ASSIST?) were as follows:

1. Assumption 1: Continuous dependent variable. This assumption was met because the dependent variable was sedative and sleeping pill involvement/use, which was measured at the continuous level via scores on the ASSIST.
2. Assumption 2: Continuous independent variables. This assumption was met because the independent variables of religiosity, spirituality, and attachment were measured at the continuous level by scores on the AGI, the RSQ, Form O of the BORRTI, the RBBQ, and the SAI-R.
3. Assumption 3: Independence of observations. The calculation for the Durbin-Watson value was 2.343. This statistic was within the range of 0–4; there was no autocorrelation
4. Assumption 4: Linearity. The residuals form a horizontal band, as shown in Figure 20. There was a linear relationship between the dependent variable and the independent variables.
5. Assumption 5: Homoscedasticity. As shown in Figure 21, there is a decreasing funnel shape where it concerns the plot of the studentized residuals

versus unstandardized predicted values; thus, the assumption of homoscedasticity was met.

6. Assumption 6: Multicollinearity. None of the Pearson correlation values were above 0.7, as shown in Tables 5 and 16. In addition, no tolerance values were less than 0.1 (VIF of greater than 10), as shown in Table 17. As such, the assumption that the data must not show multicollinearity was met.
7. Assumption 7: Outliers. The data collection methodology solely used instruments with a Likert-scale measure; outliers were not possible.
8. Assumption 8: Multivariate normality. The standardized residuals were normally distributed, as shown in Figures 21 and 22.

Figure 20

Scatterplot, Sedative and Sleeping Pill Involvement/Use

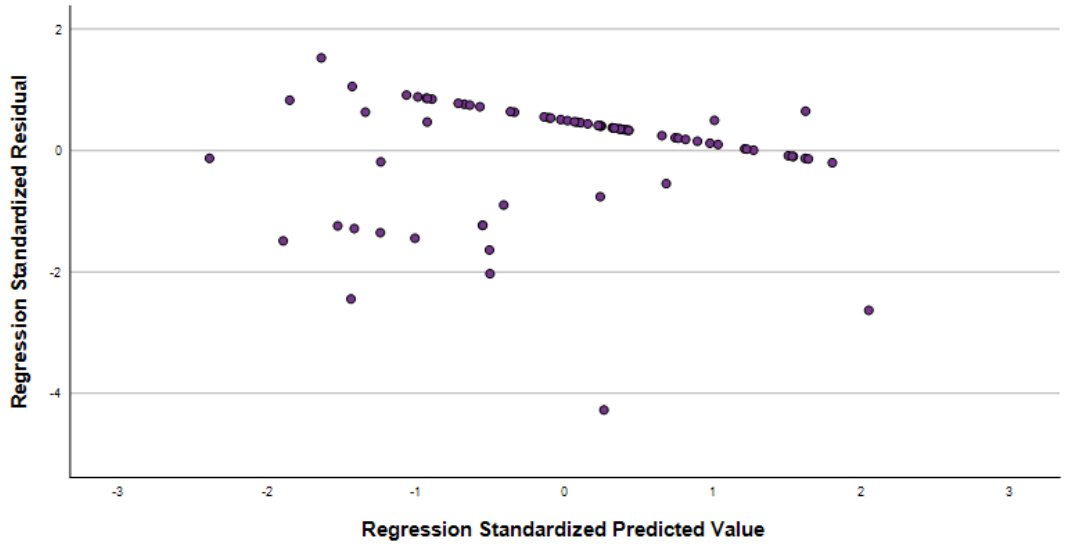


Table 16

Regression Coefficients, Sedative and Sleeping Pill Involvement/Use

Variable	Unstandardized coefficients		Standardized coefficients	*t*	Sig.	95% confidence interval for *β*	
	β	*SE*	*Beta*			*LB*	*UB*
Constant	10.475	3.580		2.926	.005	3.332	17.617
Religiosity	.020	.050	.062	.399	.691	–.079	.119
Spirituality level	–.001	.013	–.106	–.105	.916	–.027	.024
Attachment to God	.006	.016	.055	.361	.719	–.026	.037
Interpersonal attachment	.154	.048	.402	3.229	.002	.059	.250
Object attachment	–.026	.015	–.275	–1.743	–.086	–.057	.004

Table 17

Correlations and Collinearity Statistics, Sedative and Sleeping Pill Involvement/Use

Variable	Correlations			Collinearity	
	Zero order	Partial	Semipartial	T	VIF
Religiosity	–.013	.048	.045	.522	1.916
Spirituality level	–.039	–.013	–.012	.569	1.758
Attachment to God	–.031	.043	.040	.537	1.862
Interpersonal attachment	.292	.362	.361	.802	1.246
Object attachment	–.087	–.205	–.195	.502	1.994

Note. T = tolerance and VIF = variance inflation factor; both are collinearity statistics.

Figure 21

Histogram, Sedative and Sleeping Pill Involvement/Use

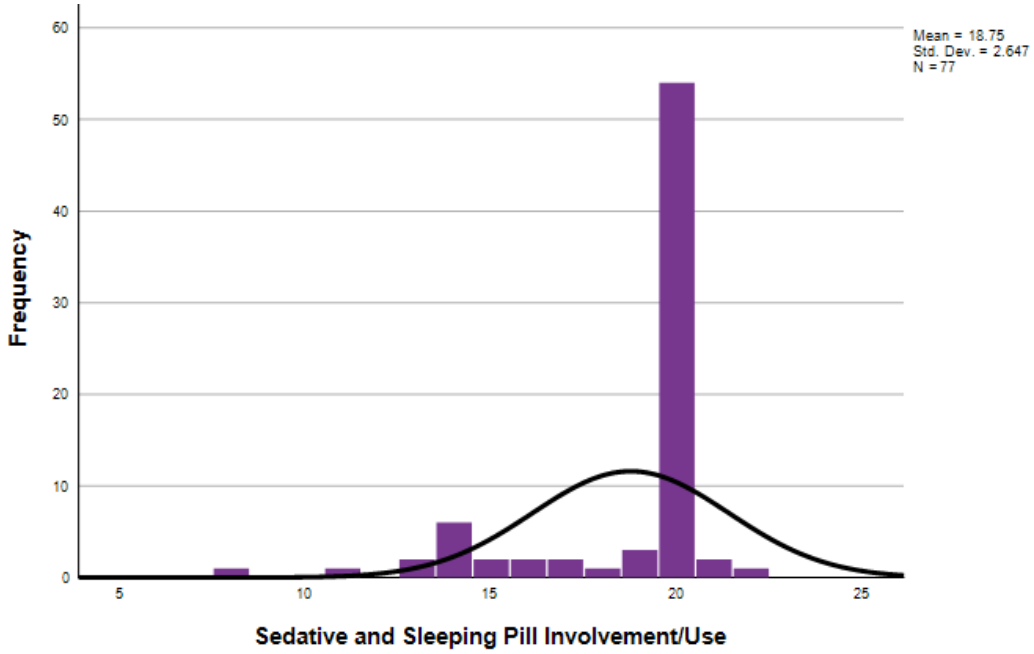
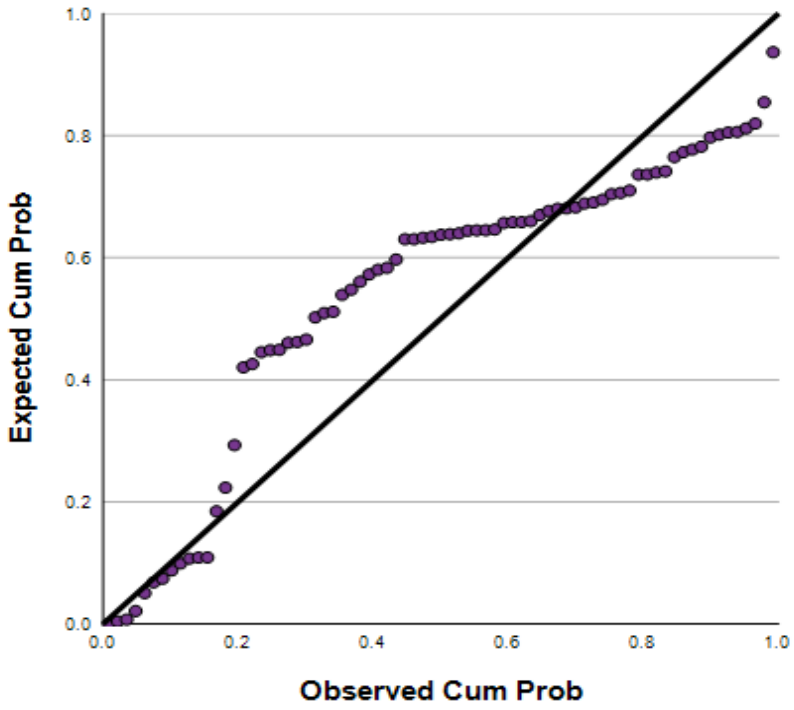


Figure 22

Normal P–P Plot of Regression Standardized Residuals, Sedative and Sleeping Pill Involvement/Use



Research Question 8

The assumptions for RQ8 (Is there an association between religiosity as measured by scores on the RBBQ; spirituality as measured by scores on the SAI-R; attachment as measured by scores on the AGI, RSQ, and Form O of the BORRTI; and hallucinogen involvement/use as measured by scores on the ASSIST?) were as follows:

1. Assumption 1: Continuous dependent variable. This assumption was met because the dependent variable was hallucinogen involvement/use, which was measured at the continuous level via scores on the ASSIST.

2. Assumption 2: Continuous independent variables. This assumption was met because the independent variables of religiosity, spirituality, and attachment were measured at the continuous level by scores on the AGI, the RSQ, Form O of the BORRTI, the RBBQ, and the SAI-R.
3. Assumption 3: Independence of observations. The calculation for the Durbin-Watson value was 1.933. This statistic was within the range of 0–4; there was no autocorrelation.
4. Assumption 4: Linearity. The residuals form a horizontal band, as shown in Figure 23. There was a linear relationship between the dependent variable and the independent variables.
5. Assumption 5: Homoscedasticity. As shown in Figure 24, there is a decreasing funnel shape where it concerns the plot of the studentized residuals versus unstandardized predicted values. The assumption of homoscedasticity was met.
6. Assumption 6: Multicollinearity. None of the Pearson correlation values were above 0.7, as shown in Tables 5 and 18. In addition, no tolerance values were less than 0.1 (VIF of greater than 10), as shown in Table 19. As such, the assumption that the data must not show multicollinearity was met.
7. Assumption 7: Outliers. The data collection methodology solely used instruments with a Likert-scale measure; outliers were not possible.
8. Assumption 8: Multivariate normality. The standardized residuals were normally distributed, as shown in Figures 24 and 25.

Figure 23

Scatterplot, Hallucinogen Involvement/Use

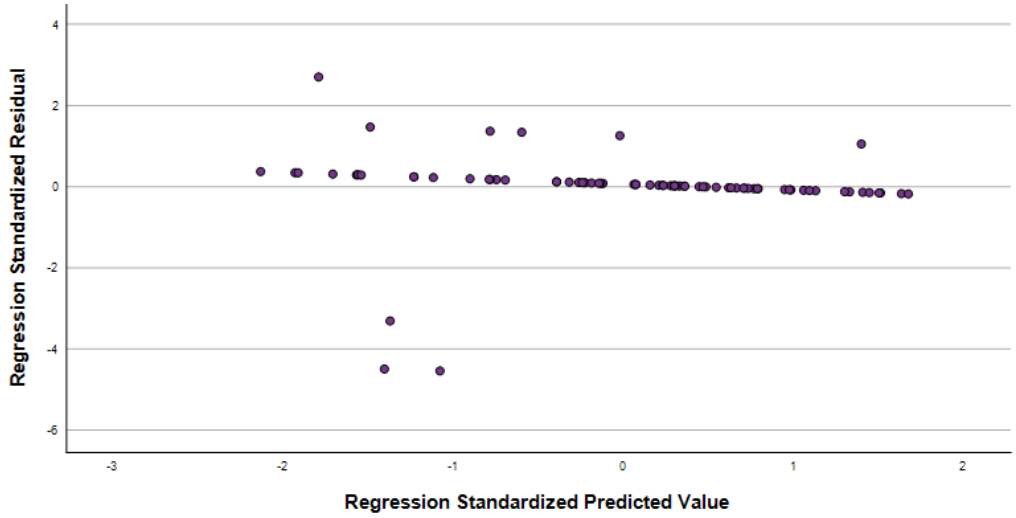


Table 18

Regression Coefficients, Hallucinogen Involvement/Use

Variable	Unstandardized coefficients		Standardized coefficients	*t*	Sig.	95% confidence interval for *β*	
	β	*SE*	*Beta*			*LB*	*UB*
Constant	19.302	1.171		16.486	.000	16.966	21.638
Religiosity	–.005	.016	–.049	–.299	.766	–.038	.027
Spirituality level	.001	.004	.035	.221	.826	–.007	.009
Interpersonal attachment	.013	.016	.107	.803	.425	–.019	.044
Attachment to God	.003	.005	.094	.580	.564	–.007	.013
Object attachment	–.005	.005	–.178	–1.059	.293	–.015	.005

Table 19

Correlations and Collinearity Statistics, Hallucinogen Involvement/Use

Variable	Correlations			Collinearity	
	Zero order	Partial	Semipartial	T	VIF
Religiosity	–.050	–.036	–.036	.522	1.916
Spirituality level	–.023	.027	.026	.569	1.758
Interpersonal attachment	.069	.096	.096	.803	1.246
Attachment to God	.021	.070	.069	.537	1.862
Object attachment	–.061	–.126	–.126	.502	1.994

Note. T = tolerance and *VIF* = variance inflation factor; both are collinearity statistics.

Figure 24

Histogram, Hallucinogen Involvement/Use

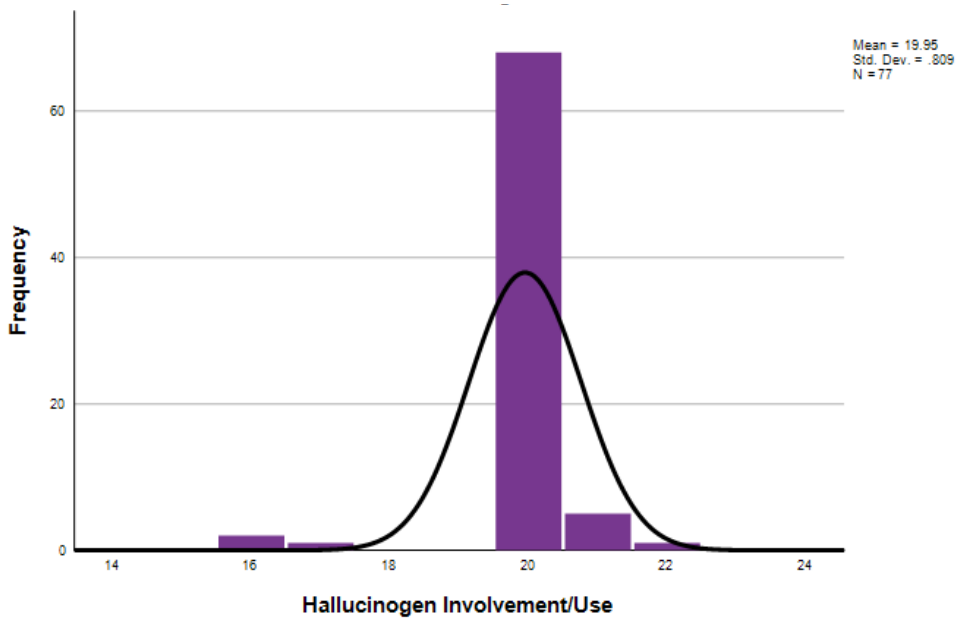
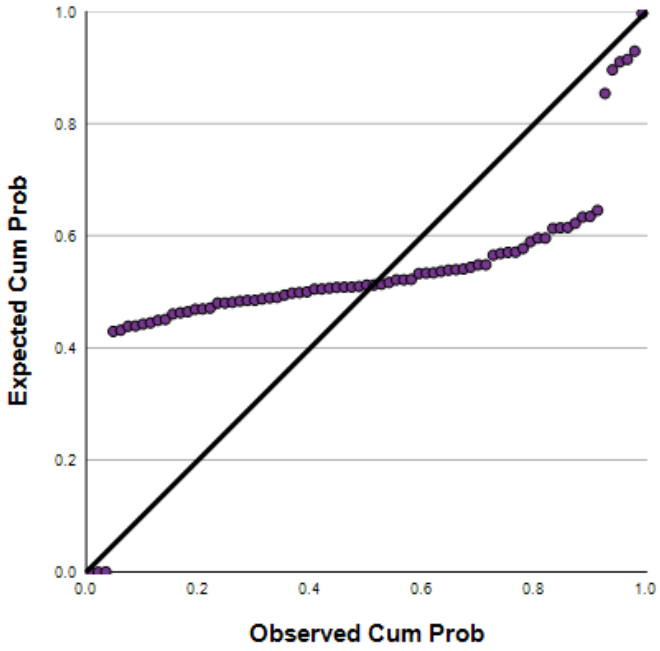


Figure 25

Normal P–P Plot of Regression Standardized Residuals, Hallucinogen Involvement/Use



Research Question 9

The assumptions for RQ9 (Is there an association between religiosity as measured by scores on the RBBQ; spirituality as measured by scores on the SAI-R; attachment as measured by scores on the AGI, RSQ, and Form O of the BORRTI; and opioid involvement/use as measured by scores on the ASSIST?) were as follows:

1. Assumption 1: Continuous dependent variable. This assumption was met because the dependent variable was opioid involvement/use, which was measured at the continuous level via scores on the ASSIST.
2. Assumption 2: Continuous independent variables. This assumption was met because the independent variables of religiosity, spirituality, and attachment

were measured at the continuous level by scores on the AGI, the RSQ, Form O of the BORRTI, the RBBQ, and the SAI-R.

3. Assumption 3: Independence of observations. The calculation for the Durbin-Watson value was 2.540. This statistic was within the range of 0–4; there was no autocorrelation.
4. Assumption 4: Linearity. The residuals form a horizontal band, as shown in Figure 26. There was a linear relationship between the dependent variable and the independent variables.
5. Assumption 5: Homoscedasticity. As shown in Figure 27, there is a decreasing funnel shape where it concerns the plot of the studentized residuals versus unstandardized predicted values. The assumption of homoscedasticity was met.
6. Assumption 6: Multicollinearity. None of the Pearson values were above 0.7, as shown in Tables 5 and 20. In addition, no tolerance values were less than 0.1 (VIF of greater than 10), as shown in Table 21. As such, the assumption that the data must not show multicollinearity was met.
7. Assumption 7: Outliers. The data collection methodology solely used instruments with Likert-scale measures; outliers were not possible.
8. Assumption 8: Multivariate normality. The standardized residuals were normally distributed, as shown in Figures 27 and 28.

Figure 26

Scatterplot, Opioid Involvement/Use

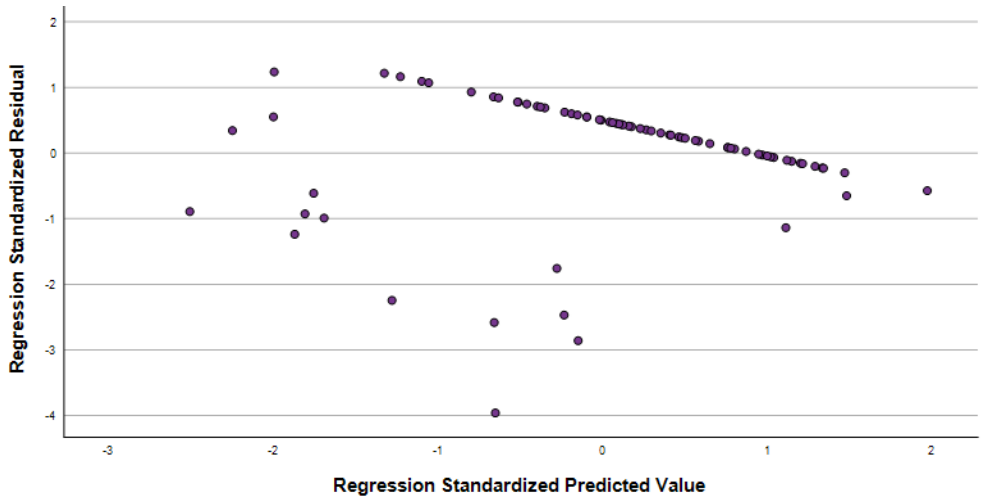


Table 20

Regression Coefficients, Opioid Involvement/Use

Variable	Unstandardized coefficients		Standardized coefficients	*t*	Sig.	95% confidence interval for *β*	
	β	*SE*	*Beta*			*LB*	*UB*
Constant	19.770	4.055		4.875	.000	11.680	27.859
Religiosity	–.029	.056	–.074	–.510	.612	–.140	.083
Spirituality level	–.018	.014	–.174	–1.251	.215	–.047	.011
Interpersonal attachment	.133	.054	.288	2.457	.017	.025	.241
Attachment to God	–.036	.018	–.287	–2.006	.049	–.071	.000
Object attachment	–.022	.017	–.187	–1.261	.211	–.056	.013

Table 21

Correlations and Collinearity Statistics, Opioid Involvement/Use

Variable	Correlations			Collinearity	
	Zero order	Partial	Semipartial	T	VIF
Religiosity	–.137	–.061	–.053	.522	1.916
Spirituality level	–.260	–.149	–.131	.569	1.758
Interpersonal attachment	.165	.284	.258	.803	1.246
Attachment to God	–.307	–.235	–.211	.537	1.862
Object attachment	–.261	–.150	–.132	.502	1.994

Note. T = tolerance and VIF = variance inflation factor; both are collinearity statistics.

Figure 27

Histogram, Opioid Involvement/Use

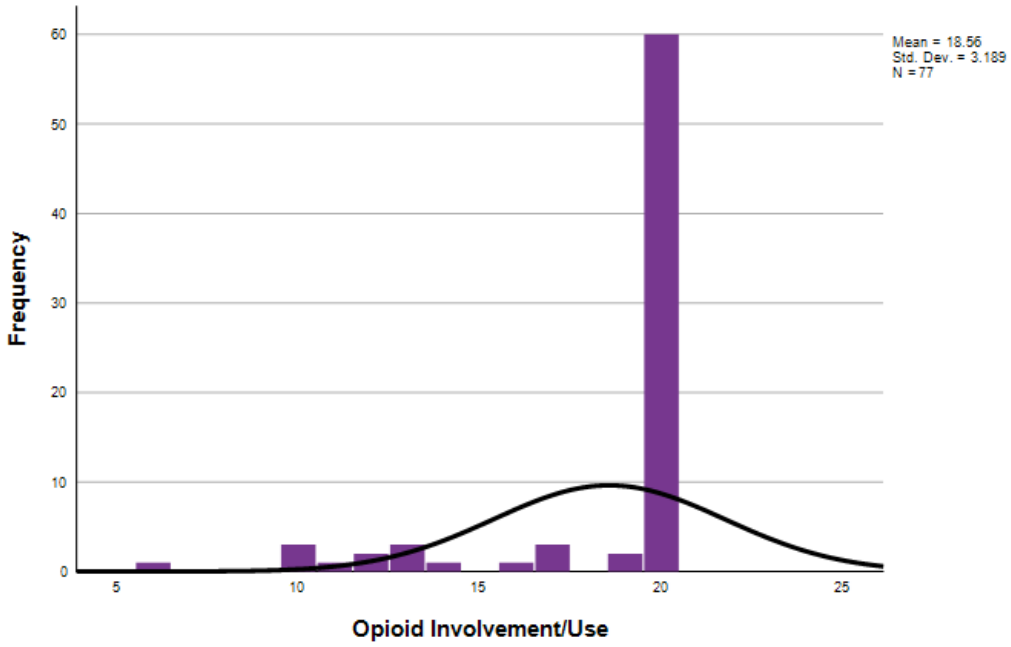
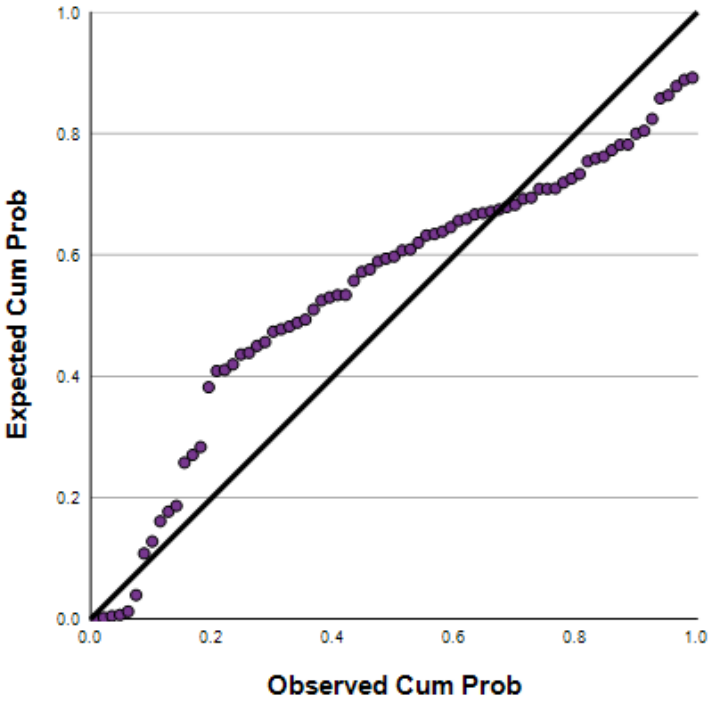


Figure 28

Normal P–P Plot of Regression Standardized Residuals, Opioid Involvement/Use



Results

Research Question 1

RQ1 was, Is there an association between religiosity as measured by scores on the RBBQ; spirituality as measured by scores on the SAI-R; attachment as measured by scores on the AGI, RSQ, and Form O of the BORRTI; and tobacco involvement/use as measured by scores on the ASSIST? The hypotheses were:

$H_0$1: There is no association between religiosity as measured by scores on the RBBQ; spirituality as measured by scores on the SAI-R; attachment as measured by

scores on the AGI, RSQ, and Form O of the BORRTI; and tobacco involvement/use as measured by scores on the ASSIST.

$H_1$1: There is an association between religiosity as measured by scores on the RBBQ; spirituality as measured by scores on the SAI-R; attachment as measured by scores on the AGI, RSQ, and Form O of the BORRTI; and tobacco involvement/use as measured by scores on the ASSIST.

Multiple regression analysis was used to test if religiosity, spirituality, and attachment significantly predicted tobacco involvement/use. Two predictors and one borderline predictor (a predictor that is within 1 point of the threshold for statistical significance) explained 33.9% of the variance, $R^2 = .34$, $F(5, 69) = 7.06$, $p <$ or $= .05$. Object attachment significantly predicted tobacco involvement/use ($\beta = –.03$, $p < .01$), attachment to God significantly predicted tobacco involvement/use ($\beta = –.04$, $p < .01$), and interpersonal attachment was a borderline predictor of tobacco involvement/use ($\beta = .08$, $p = .05$). The null hypothesis was rejected.

Research Question 2

RQ2 was, Is there an association between religiosity as measured by scores on the RBBQ; spirituality as measured by scores on the SAI-R; attachment as measured by scores on the AGI, RSQ, and Form O of the BORRTI; and alcohol involvement/use as measured by scores on the ASSIST? The hypotheses were:

$H_0$2: There is no association between religiosity as measured by scores on the RBBQ; spirituality as measured by scores on the SAI-R; attachment as measured by

scores on the AGI, RSQ, and Form O of the BORRTI; and alcohol involvement/use as measured by scores on the ASSIST.

$H_1$2: There is an association between religiosity as measured by scores on the RBBQ; spirituality as measured by scores on the SAI-R; attachment as measured by scores on the AGI, RSQ, and Form O of the BORRTI; and alcohol involvement/use as measured by the ASSIST.

Multiple regression analysis was used to test if religiosity, spirituality, and attachment significantly predicted alcohol involvement/use. No predictors explained the variance, $R^2 = .08$, $F(5, 69) = 1.14$, $p > .05$, and none of the variables significantly predicted alcohol involvement/use ($p > .05$). The null hypothesis was retained.

Research Question 3

RQ3 was, Is there an association between religiosity as measured by scores on the RBBQ, spirituality as measured by scores on the SAI-R; attachment as measured by scores on the AGI, RSQ, and Form O of the BORRTI; and cannabis involvement/use as measured by scores on the ASSIST? The hypotheses were:

$H_0$3: There is no association between religiosity as measured by scores on the RBBQ; spirituality as measured by scores on the SAI-R; attachment as measured by scores on the AGI, RSQ, and Form O of the BORRTI; and cannabis involvement/use as measured by scores on the ASSIST.

$H_1$3: There is an association between religiosity as measured by scores on the RBBQ; spirituality as measured by scores on the SAI-R; attachment as measured by

scores on the AGI, RSQ, and Form O of the BORRTI; and cannabis involvement/use as measured by scores on the ASSIST.

Multiple regression analysis was used to test if religiosity, spirituality, and attachment significantly predicted cannabis involvement/use. Two predictors and one borderline predictor explained 25% of the variance, $R^2 = .25$, $F(5, 69) = 4.61$, $p < .01$. Religiosity significantly predicted cannabis involvement/use ($\beta = –.13$, $p < .05$), object attachment significantly predicted cannabis involvement/use ($\beta = –.05$, $p < .01$), and spirituality was a borderline predictor of cannabis involvement/use ($\beta = .03$, $p = .05$). The null hypothesis was rejected.

Research Question 4

RQ4 was, Is there an association between religiosity as measured by scores on the RBBQ; spirituality as measured by scores on the SAI-R; attachment as measured by scores on the AGI, RSQ, and Form O of the BORRTI; and cocaine involvement/use as measured by scores on the ASSIST? The hypotheses were:

$H_0$4: There is no association between religiosity as measured by scores on the RBBQ; spirituality as measured by scores on the SAI-R; attachment as measured by scores on the AGI, RSQ, and Form O of the BORRTI; and cocaine involvement/use as measured by the ASSIST.

$H_1$4: There is an association between religiosity as measured by scores on the RBBQ; spirituality as measured by scores on the SAI-R; attachment as measured by scores on the AGI, RSQ, and Form O of the BORRTI; and cocaine involvement/use as measured by scores on the ASSIST.

Multiple regression analysis was used to test if religiosity, spirituality, and attachment significantly predicted cocaine involvement/use. Two predictors explained 30% of the variance, $R^2 = .30$, $F(5, 69) = 5.87$, $p < .01$. Attachment to God significantly predicted cocaine involvement/use ($\beta = –.02$, $p < .05$), and object attachment significantly predicted cocaine involvement/use ($\beta = –.02$, $p < .01$). The null hypothesis was rejected.

Research Question 5

RQ5 was, Is there an association between religiosity as measured by scores on the RBBQ; spirituality as measured by scores on the SAI-R; attachment as measured by scores on the AGI, RSQ, and Form O of the BORRTI; and ATS involvement/use as measured by scores on the ASSIST? The hypotheses were:

$H_0$5: There is no association between religiosity as measured by scores on the RBBQ; spirituality as measured by scores on the SAI-R; attachment as measured by scores on the AGI, RSQ, and Form O of the BORRTI; and ATS involvement/use as measured by scores on the ASSIST.

$H_1$5: There is an association between religiosity as measured by scores on the RBBQ; spirituality as measured by scores on the SAI-R; attachment as measured by scores on the AGI, RSQ, and Form O of the BORRTI; and ATS involvement/use as measured by scores on the ASSIST.

Multiple regression analysis was used to test if religiosity, spirituality, and attachment significantly predicted ATS involvement/use. One predictor explained 19% of the variance, $R^2 = .19$, $F(5, 69) = 3.22$, $p = .01$. Spirituality significantly predicted ATS involvement/use ($\beta = –.02$, $p < .05$). The null hypothesis was rejected.

Research Question 6

RQ6 was, Is there an association between religiosity as measured by scores on the RBBQ; spirituality as measured by scores on the SAI-R; attachment as measured by scores on the AGI, RSQ, and Form O of the BORRTI; and inhalant involvement/use as measured by scores on the ASSIST? The hypotheses were:

$H_0$6: There is no association between religiosity as measured by scores on the RBBQ; spirituality as measured by scores on the SAI-R; attachment as measured by scores on the AGI, RSQ, and Form O of the BORRTI; and inhalant involvement/use as measured by scores on the ASSIST.

$H_1$6: There is an association between religiosity as measured by scores on the RBBQ; spirituality as measured by scores on the SAI-R; attachment as measured by scores on the AGI, RSQ, and Form O of the BORRTI; and inhalant involvement/use as measured by scores on the ASSIST.

Multiple regression analysis was used to test if religiosity, spirituality, and attachment significantly predicted inhalant involvement/use. No predictors explained the variance, $R^2 = .09$, $F(5, 69) = 1.44$, $p > .05$, and none of the variables significantly predicted inhalant involvement/use ($p > .05$). The null hypothesis was retained.

Research Question 7

RQ7 was, Is there an association between religiosity as measured by scores on the RBBQ; spirituality as measured by scores on the SAI-R; attachment as measured by scores on the AGI, RSQ, and Form O of the BORRTI; and sedative/sleeping pill involvement/use as measured by scores on the ASSIST? The hypotheses were:

$H_0$7: There is no association between religiosity as measured by scores on the RBBQ; spirituality as measured by scores on the SAI-R; attachment as measured by scores on the AGI, RSQ, and Form O of the BORRTI; and sedative/sleeping pill involvement/use as measured by scores on the ASSIST.

$H_1$7: There is an association between religiosity as measured by scores on the RBBQ; spirituality as measured by scores on the SAI-R; attachment as measured by scores on the AGI, RSQ, and Form O of the BORRTI; and sedative/sleeping pill involvement/use as measured by scores on the ASSIST.

Multiple regression analysis was used to test if religiosity, spirituality, and attachment significantly predicted sedative/sleeping pill involvement/use. One predictor explained 14% of the variance, $R^2 = .14$, $F(5, 69) = 2.24$, $p < .05$. Interpersonal attachment significantly predicted sedative/sleeping pill involvement/use ($\beta = .15$, $p < .01$). The null hypothesis was rejected.

Research Question 8

RQ8 was, Is there an association between religiosity as measured by scores on the RBBQ; spirituality as measured by scores on the SAI-R; attachment as measured by scores on the AGI, RSQ, and Form O of the BORRTI; and hallucinogen involvement/use as measured by scores on the ASSIST? The hypotheses were:

$H_0$8: There is no association between religiosity as measured by scores on the RBBQ; spirituality as measured by scores on the SAI-R; attachment as measured by scores on the AGI, RSQ, and Form O of the BORRTI; and hallucinogen involvement/use as measured by scores on the ASSIST.

$H_1$8: There is an association between religiosity as measured by scores on the RBBQ; spirituality as measured by scores on the SAI-R; attachment as measured by scores on the AGI, RSQ, and Form O of the BORRTI; and hallucinogen involvement/use as measured by scores on the ASSIST.

Multiple regression analysis was used to test if religiosity, spirituality, and attachment significantly predicted hallucinogen involvement/use. No predictors explained the variance, $R^2 = .02$, $F(5, 69) = 0.31$, $p > .05$, and none of the variables significantly predicted hallucinogen involvement/use ($p > .05$). The null hypothesis was retained.

Research Question 9

RQ9 was, Is there an association between religiosity as measured by scores on the RBBQ; spirituality as measured by scores on the SAI-R; attachment as measured by scores on the AGI, RSQ, and Form O of the BORRTI; and opioid involvement/use as measured by scores on the ASSIST? The hypotheses were:

$H_0$9: There is no association between religiosity as measured by scores on the RBBQ; spirituality as measured by scores on the SAI-R; attachment as measured by scores on the AGI, RSQ, and Form O of the BORRTI; and opioid involvement/use as measured by scores on the ASSIST.

$H_1$9: There is an association between religiosity as measured by scores on the RBBQ; spirituality as measured by scores on the SAI-R; attachment as measured by scores on the AGI, RSQ, and Form O of the BORRTI; and opioid involvement/use as measured by scores on the ASSIST.

Multiple regression analysis was used to test if religiosity, spirituality, and attachment significantly predicted opioid involvement/use. Two predictors explained 24% of the variance, $R^2 = .24$, $F(5, 69) = 4.36$, $p < .01$. Interpersonal attachment significantly predicted opioid involvement/use ($\beta = .13$, $p < .05$) and attachment to God significantly predicted opioid involvement/use ($\beta = –.04$, $p = .05$). The null hypothesis was rejected.

Summary

My purpose in this quantitative study was to examine the relationship between religiosity, spirituality, attachment (attachment in interpersonal relationships, attachment to God, and attachment to objects), and substance involvement/use/use scores among a sample of adult attendees of houses of worship in northeastern Florida. Nine RQs were used to examine these relationships. The results indicated the following:

- RQ1: Object attachment, attachment to God, and interpersonal attachment (borderline) were positive predictors of tobacco use/involvement.
- RQ2: None of the independent variables were predictors of alcohol use/involvement.
- RQ3: Religiosity, object attachment, and spirituality (borderline) were positive predictors of cannabis use/involvement.
- RQ4: Attachment to God and object attachment were positive predictors of cocaine use/involvement.
- RQ5: Spirituality was the only predictor of ATS use/involvement.

- RQ6: None of the independent variables were predictors of inhalant use/involvement.
- RQ7: Interpersonal attachment was a positive predictor of sedative and sleeping pill use/involvement
- RQ8: None of the independent variables were predictors of hallucinogen use/involvement.
- RQ9: Interpersonal attachment and attachment to God were positive predictors and opioid use/involvement.

In Chapter 5, I provide a discussion of the study limitations, areas for future research, a brief summary of the study, and the significance of the study across multiple contexts.

Chapter 5: Discussion, Conclusions, and Recommendations

The purpose of this quantitative study was to examine the relationship between religiosity, spirituality, attachment (attachment in interpersonal relationships, attachment to God, and attachment to objects), and substance involvement/use/use scores in a sample of adult attendees of houses of worship in northeastern Florida. I specifically designed the nine RQs in this study to examine these relationships. The RQs addressed if statistically significant relationships existed between religiosity, spirituality, attachment, and substance use/substance involvement/use. Each of these variables was examined using multiple linear regression.

Analysis results indicated that object attachment, attachment to od, and interpersonal attachment (borderline) were statistically significant predictors of tobacco use/involvement and that none of the independent variables were statistically significant predictors of alcohol use/involvement. Religiosity, object attachment, and spirituality (borderline) were positive predictors of cannabis use/involvement, and attachment to God and object attachment were positive predictors of cocaine use/involvement. Spirituality was the only predictor of ATS use/involvement, and none of the independent variables were predictors of inhalant use/involvement. Interpersonal attachment was a positive predictor of sedative and sleeping pill use/involvement, and none of the independent variables were predictors of hallucinogen use/involvement. Finally, interpersonal attachment and attachment to God were positive predictors of opioid use/involvement.

Interpretation of the Findings

Analysis and Interpretation of RQ1

RQ1 was, Is there an association between religiosity as measured by scores on the RBBQ; spirituality as measured by scores on the SAI-R; attachment as measured by scores on the AGI, RSQ, and Form O of the BORRTI; and tobacco involvement/use as measured by scores on the ASSIST? The results indicated that object attachment significantly predicted tobacco involvement/use ($\beta = -.03$, $p < .01$), attachment to God significantly predicted tobacco involvement/use ($\beta = -.04$, $p < .01$), and interpersonal attachment was a borderline predictor of tobacco involvement/use ($\beta = .08$, $p = .05$). Specifically, for every 1-point increase in tobacco involvement/use, there was a .03 decrease in object attachment, a .04 decrease in attachment to God, and a .08 increase in interpersonal attachment.

The results supported findings from studies that focused on the relationship between object attachment, interpersonal attachment, religiosity, spirituality, and substance involvement/use (Berry et al., 2022; Seto, 2021). Many researchers have studied substance use with different populations and other independent variables and used different assessment tools from those included in the present study. As an example, Berry et al. (2022) focused on assessing the relationship between coping style, attachment style, and substance misuse in 70 participants with known substance misuse and psychotic disorder symptoms or diagnosis. The researchers assessed attachment with the Psychosis Attachment Measure and substance use patterns (past 30 days) with the Timeline Follow-Back Interview. They used the Structured Clinical Interview: Substance

Use Disorders Module to differentiate between substance misuse and dependence. Results indicated that avoidant attachment was not associated with substance involvement/use but that anxious attachment (one type of insecure attachment) was associated with increased substance involvement/use as compared to secure attachment (M = 1.32 and 0.88, respectively; t = 2.37, p = .021; Berry et al., 2022).

Berry et al. (2022) studied individuals with known substance misuse and psychotic symptoms/diagnosis, measured interpersonal attachment in the context of psychotic symptoms or diagnosis and not in and of itself, did not focus solely on the substances included in my study, and did not assess religiosity or spirituality. The results in Berry et al. sharply contrasted mine where they concern interpersonal attachment and tobacco involvement/use. Specifically, my results showed that interpersonal attachment was only a borderline predictor of tobacco involvement/use (β = .08, p = .05).

The differences regarding the results across my study and Berry et al. (2022) may be due in part to the focus on different populations (i.e., adults with known substance misuse and psychotic symptoms/diagnosis versus active adult attendees of houses of worship). Specifically, all participants in Berry et al. had higher scores concerning substance use, which may have skewed the results regarding the other independent variables where a relationship has been established by previous research.

Berry et al. (2022) also included psychotic symptoms/diagnosis as an independent variable but did not include religiosity or spirituality variables. This could explain why Berry et al.'s results differed from mine. The rationale for this difference is that, according to Oman and Lukoff (2018), it is sometimes difficult to differentiate religiosity

and spirituality from psychotic symptoms (e.g., delusions or hallucinations). Thus, it is possible that what in actuality is religiosity and spirituality could be erroneously assessed as psychotic symptoms.

Lastly, Berry et al. (2022) did not measure attachment via an assessment tool focused on general interpersonal attachment. According to Gaweda et al. (2018), psychotic symptoms can be expressed as what appears to be insecure attachment. As such, it is possible that another explanation for the differences between Berry et al.'s results and mine is that psychotic symptoms may have been misconstrued and evaluated as insecure interpersonal attachment or vice versa in Berry et al.'s study

Seto (2021) focused on the relationship between delinquency (including but not solely tobacco, cannabis, and alcohol involvement/use), spirituality, and religiosity among youth 16–20 years of age using data from the National Study of Youth and Religion. Seto obtained an analytic sample of 2,530 and used chained regression equations to compute 25 data sets in which estimates were averaged across the data sets. The independent variables included spiritual but not religious (SBNR) classification (i.e., engaging in spiritual behaviors and holding spiritual beliefs) and delinquency (i.e., fighting, alcohol use, cannabis use, smoking tobacco use, and theft). The not religious designation was determined by assessing religious attendance and closeness to God where study participants with high spirituality and low religiosity were ultimately classified as SBNR (Seto, 2021).

Results indicated that study participants categorized as "not at all SBNR" had lower rates of marijuana use (*OR* = 1.59, CI = 1.25, 2.02), alcohol use (*OR* = 1.36, CI =

1.09, 1.70), and smoking tobacco use (*OR* = 1.32, CI = 1.05, 1.66) as compared to those labeled as "very SBNR" (Seto, 2021). Specifically, study participants categorized as very SNBR had higher rates of marijuana use (*OR* = 1.94, CI = 1.37, 2.74), alcohol use (*OR* = 1.56, CI = 1.11, 2.18), and smoking tobacco use (*OR* = 1.92, CI = 1.36, 1.71).

The current study's results indicated that attachment to God significantly predicted tobacco involvement/use ($\beta = -.04$, $p < .01$) and that interpersonal attachment was a borderline predictor of tobacco involvement/use ($\beta = .08$, $p = .05$), which partly supported Seto's (2021) results. While these results and Seto's align concerning attachment or closeness to God and smoking tobacco use, they contrast sharply regarding the relationship between interpersonal attachment and smoking tobacco use. In addition, Y. W. Mak et al. (2019) found that tobacco involvement/use was less common among youth with secure attachment in their study. This finding also contrasts my results.

Research has shown a strong correlation between insecure attachment and later tobacco use (Fairbairn et al., 2018). Fairbairn et al. (2018) contended that a possible explanation for this correlation was that individuals typically engage in tobacco use in direct response to a negative effect such as interpersonal attachment, which is exactly what tobacco has been designed to target. In essence, tobacco use serves in a compensatory attachment manner for some (Fairbairn et al., 2018).

According to Cherniak et al. (2021), religiosity and spirituality can also serve in a compensatory attachment manner. As such, a possible explanation for the differences between Seto's (2021) study and mine concerning tobacco involvement/use and interpersonal attachment is because I measured religiosity, spirituality, and, specifically,

attachment to God. Thus, it could be that religiosity and/or spirituality served as a moderator of sorts.

Seto (2021) focused on youth ages 16–20 years and used the National Study of Youth and Religion survey, which included questions regarding religious service attendance, closeness to God, spiritual behaviors and beliefs, and lifetime use of smoking tobacco. Seto did not assess interpersonal attachment. I focused on an adult population and evaluated interpersonal attachment. Y. W. Mak et al. (2019) found a strong correlation between tobacco involvement/use in youth, insecure attachment, and peer use of tobacco. Fairbairn et al. (2018) stated that research results have shown a relationship between interpersonal attachment and tobacco involvement/use, but this does not include the peer use of tobacco aspect. As such, a possible explanation regarding the differences between Seto's findings and mine might reflect dissimilarities between the populations studied. Specifically, more youth in Seto may have reported tobacco/involvement use due to the peer use of tobacco aspect as compared to the adults in my study.

Seto (2021) also only focused on smoking tobacco. In contemporary society, smokeless tobacco such as chewing tobacco and vapes is common (American Lung Association, 2023). Not assessing smokeless tobacco vaping may have resulted in study participants presenting as having no tobacco involvement/use, which may be an explanation for the variances between Seto's results and mine. Lastly, it should be noted that Seto only used one survey, which I could not access to determine the nature of the questions. Thus, there may be further explanations for the differences between Seto's results and mine that cannot be explored or evaluated.

Analysis and Interpretation of RQ2

RQ2 was, Is there an association between religiosity as measured by scores on the RBBQ; spirituality as measured by scores on the SAI-R; attachment as measured by scores on the AGI, RSQ, and Form O of the BORRTI; and alcohol involvement/use as measured by scores on the ASSIST? The results indicated that no predictors explained the variance concerning alcohol involvement/use, $R^2 = .08$, $F(5, 69) = 1.14$, $p > .05$. The results also showed that none of the variables significantly predicted alcohol involvement/use ($p > .05$). Many researchers have studied the relationship between religiosity and risky behaviors such as the misuse of specific substances, spirituality, and specific substance use; religiosity and substance use; and interpersonal attachment, attachment to God, and substance misuse.

According to Roman et al. (2022), religiosity associates negatively with risky behaviors such as alcohol misuse. Roman et al. studied 1,302 Romanian respondents ages 15–29 years, focusing on the independent variables of smoking tobacco, alcohol, and drug use (general drug use, no specific substances). Analysis showed that higher religiosity was associated with lower rates of alcohol and drug use but not tobacco use.

A possible explanation for the difference between Roman et al.'s (2022) study and the current study is that parental religiosity and lower parental use of alcohol can be contributing factors in alcohol involvement/use among youth, as noted in Y. W. Mak et al. (2019). As such, the differences in findings could reflect Roman et al. including adolescents in their study sample, who may have reported tobacco involvement/use, as compared to only including adults in my study. Specifically, Roman et al. focused on

Romanian respondents in the general population who were ages 15–29 years while I focused on U.S. adults 18 years of age and older who were active attendees of houses of worship. The different demographics may have contributed to variances between Roman et al. and my study.

Various cultures have differing religious and spiritual beliefs and vary where it concerns attachment, which may also have resulted in dissimilarities concerning study results. Specifically, according to de Vries at al. (2019), religiosity, spirituality, ethnicity, and culture influence the life decisions people make, including whether or not to use licit and illicit substances, the type of interpersonal attachment they embrace, and the way in which they form attachments to others. As such, differences in religiosity, spirituality, interpersonal attachment, and substance use are likely and should be considered. These differences could offer an explanation regarding the dissimilarities between research results in Roman et al. (2021) and my study.

Roman et al. (2021) used an instrument they created to assess their study variables, which included questions pertaining to tobacco use within the past 90 days, alcohol use during the past 90 days, drug use (in general) during the past 90 days, internal religiosity (i.e., belief in God, relationship with God), and external religiosity (i.e., engagement in prayer/meditation, attendance at a house of worship, and reading of religious materials). In contrast, I used separate assessment instruments created by other researchers to evaluate alcohol use during the past 30 days and throughout the lifetime, religious beliefs and behaviors (religiosity), object attachment, attachment to God, and interpersonal attachment. Lastly, I used multilinear regression to measure relationships

between religiosity, spirituality, attachment, and alcohol involvement/use, which differed from Roman et al.'s analysis. As such, it is likely that different results would occur due to differences in statistical analysis methods.

Turan et al. (2021) stated that there is a relationship between religiosity and substance involvement/use. Specifically, in Turan et al., 103 voluntary adult participants from an alcohol treatment center were administered the God Attachment Inventory, the Addiction Profile, the Nondrug Treatment Questionnaire, and the Structured Clinical Interview for *DSM-IV*. The results showed that 24.3% of the study participants reported using religion (i.e., praying, meditation, attendance at a house of worship service) to lower alcohol use. However, the study results also indicated that there was no correlation between attachment to God and the frequency of using religion to decrease alcohol use (Turan et al., 2021).

Turan et al.'s (2021) findings varied from the present study's results, which showed no correlation between religiosity, attachment to God, and alcohol involvement/use. Some explanations for these differences are that Turan et al. focused on individuals with known alcohol misuse, which likely skewed the alcohol use numbers to very high as compared to the present study. In addition, Turan et al. used different assessments instruments. This too could produce varied results because the assessment instruments in Turan et al. measured some of the same items as in the present study but also included some items not considered in this study. Thus, not including some elements and including other elements not included in this study likely produced different results.

According to Munir and Malik (2020), the more securely attached an individual is to others and to God, the less likely the individual is to engage in delinquency, including problematic substance use. Munir and Malik studied 706 participants in Pakistan ages 15–19 years to examine relationships between attachment to parents and peers, religious orientation (intrinsic religiosity and extrinsic religiosity), and delinquency (engagement in illegal behaviors and activities, arrests, and drug and alcohol use). Munir and Malik defined intrinsic religiosity as internal beliefs in God and relationship with God while extrinsic religiosity was defined as engagement in prayer or meditation and religious activities such as attendance at a house of worship.

Based on responses to the Self-Report Delinquency Scale, the Inventory of Parent and Peer Attachment-Revised, the Religious Orientation Scale, and the Moral Character Scale, Munir and Malik's (2020) study results showed the following: (a) a positive correlation between parent attachment and intrinsic religiosity, (b) a positive correlation between extrinsic religiosity and delinquency, (c) a negative correlation between moral character and delinquency, and (d) a positive correlation between peer attachment and intrinsic religiosity. As such, Munir and Malik's results were in sharp contrast to the present study's results, which showed no correlation between interpersonal attachment, attachment to God, religiosity, and alcohol involvement/use. This may indicate that the relationships between these variables are significantly more complicated than anticipated.

Differences in results between Munir and Malik (2020) and the present study may be due to the population examined, the assessment instruments used, and the geographical location of the study. Specifically, in Munir and Malik, all participants were

ages 15–19 years, drawn from the general population, and lived in Pakistan. According to de Vries et al. (2019), ethnicity, culture, and age can influence religiosity, spirituality, interpersonal attachment, and substance use. Since I focused solely on adults ages 18 years and older in the United States, it is likely that my results would differ from Munir and Malik's. In addition, different assessment instruments focused on similar but not the same aspects would likely result in variances regarding the results; similar to saying that because an apple and orange are both fruit, they are the same.

Analysis and Interpretation of RQ3

RQ3 was, Is there an association between religiosity as measured by scores on the RBBQ, spirituality as measured by scores on the SAI-R; attachment as measured by scores on the AGI, RSQ, and Form O of the BORRTI; and cannabis involvement/use as measured by scores on the ASSIST? The results indicated that religiosity significantly predicted cannabis involvement/use ($\beta = -.13$, $p < .05$), object attachment significantly predicted cannabis involvement/use ($\beta = -.05$, $p < .01$), and spirituality was a borderline predictor of cannabis involvement/use ($\beta = .03$, $p = .05$). Specifically, for every 1-point increase in cannabis involvement/use, there was a .13 decrease in religiosity, a .05 decrease in object attachment, and a .03 increase in spirituality.

In a narrative review, Kao at al. (2020) asserted that spirituality is related to mental health in that it serves as both a protective and healing factor. Specifically, Kao et al. stated that the current body of knowledge supports the contention that higher spirituality typically results in decreased mental issues, which includes substance abuse disorders and substance misuse. The present study's results indicated that spirituality was

only a borderline predictor of cannabis involvement/use. While it is impossible to identify specific reasons for this discrepancy with any degree of certainty, what is known is that age, ethnicity, and culture are correlated with life decisions regarding religiosity, spirituality, interpersonal attachment, and substance use (de Vries at al., 2019). In addition, different assessment instruments may measure for the same aspect but they may not include the same specific questions. These differences may offer some explanation concerning dissimilar findings in Kao et al. and the current study.

H. W. Mak (2020) examined the relationship between substance use and religiosity using data sets obtained via Waves 1, 3, and 4 of the National Longitudinal Study of Adolescent to Adult Health. The study sample was restricted to individuals ages 18–25 years who reported using cigarette, alcohol, marijuana, or illicit drug use during Wave 3. H. W. Mak used logistic regression and propensity score matching methods to statistically analyze the data.

The results indicated that church attendance was significantly and positively correlated with no substance use during the past 30 days while religiosity itself was only correlate to no alcohol use during the past 30 days (H. W. Mak, 2020). In addition, when H. W. Mak (2020) controlled for observables and confounding bias in the propensity score matching models, the results weakened but were still statistically significant. These results are in alignment with the current study's results, which showed that religiosity was a statistically significant predictor of cannabis involvement/use.

Rübig et al. (2021) examined the relationship between substance use and interpersonal attachment in 68 participants living in Germany: 34 adult patients in a

substance use disorder treatment facility, 34 age–gender–education-adjusted controls. Study participants were administered the Adult Attachment Scale, the Inventory of Personality Organization, and the Brief Symptom Inventory. Results indicated that for the 34 study participants who were patients in a substance use disorder facility, secure attachment was virtually inexistent. However, the results also showed that for remaining 34 study participants, secure attachment scores were extremely high (Rübig et al., 2021).

While the results in many studies on attachment and substance use show insecure attachment being highly correlated with increased substance use, Rübig et al.'s (2021) results do not support those in the current study. Specifically, the current study's results showed only that object attachment was correlated with cannabis involvement/use. Some possible explanations for the differences between this study and Rübig et al.'s findings are that Rübig et al. was conducted in Germany with German participants, used a different assessment tool to evaluate interpersonal attachment (the Adult Attachment Scale), and drew some of the study participants from a substance use treatment facility. The participants also had known substance use disorders.

de Vries et al. (2019) cautioned that since ethnicity, culture, and age are related to religiosity, spirituality, interpersonal attachment, and substance use choices, they too should be considered were comparing research results. Lastly, the use of study participants from a substance use treatment facility in Rübig et al. (2021) was especially problematic because all study participants will present with higher substance use rates (University of Florida Health, 2023). This higher representation of participants engaging

in substance use is one very likely cause of the differences between Rübig et al.'s results and mine.

Analysis and Interpretation of RQ4

RQ4 was, Is there an association between religiosity as measured by scores on the RBBQ; spirituality as measured by scores on the SAI-R; attachment as measured by scores on the AGI, RSQ, and Form O of the BORRTI; and cocaine involvement/use as measured by scores on the ASSIST? The results indicated that attachment to God significantly predicted cocaine involvement/use ($\beta = -.02$, $p < .05$). The results also showed that object attachment significantly predicted cocaine involvement/use ($\beta = -.02$, $p < .01$). Specifically, for every 1-point increase in cocaine involvement/use, there was a .02 decrease in both object attachment and attachment to God.

Harden et al. (2022) conducted a conceptual study on pregnant and postpartum women addicted to opioids that reflected three theories: (a) intersectionality, (b) attachment, and (c) strengths based. Their goal was to develop a practice framework for treating pregnant and postpartum women with opioid addiction. Harden at al. posited that increased maladaptive interpersonal attachment often resulted in a heightened risk of substance involvement use while attachment to God and object attachment typically result in decreased substance involvement/use. These results aligned with the current study's results.

Halstensen et al. (2022) studied 57 patients admitted to an integrative treatment facility in Norway that treats patients with identified mental issues combined with self-identified existential and religious challenges. The RQs focused on whether attachment to

God changes before, during, and after therapeutic interventions and whether the level of and change in attachment to God can predict the level of and change in depressive symptoms over the course of the therapeutic interventions (Halstensen et al., 2022). Halstensen et al.'s results indicated that increased attachment to God via object attachment (compensatory attachment) resulted in a decrease in depressive symptoms, which resulted in lowered substance involvement/use as a coping mechanism to combat negative emotions. Halstensen et al.'s results appear to mirror those in the current study, which showed that attachment to God and object attachment significantly predicted cocaine involvement/use.

Analysis and Interpretation of RQ5

RQ5 was, Is there an association between religiosity as measured by scores on the RBBQ; spirituality as measured by scores on the SAI-R; attachment as measured by scores on the AGI, RSQ, and Form O of the BORRTI; and ATS involvement/use as measured by scores on the ASSIST? The results indicated that spirituality significantly predicted ATS involvement/use ($\beta = -.02$, $p < .05$). Specifically, for every 1-point increase in ATS involvement/use, there was a .02 decrease in spirituality. This result appears to align with other research results and the current body of knowledge.

Dubbini et al. (2020) conducted a study on the role of spirituality, faith, and mystical experiences in the treatment of substance abuse, which involved a review of existing research and literature and an interview of the president and founder of the Takiwasi Center, a therapeutic community founded in 1992 in Peru and recognized by the Peruvian Ministry of Health as an integrative medicine center. The results indicated a

strong correlation between spirituality and substance use, including ATS involvement use (Dubbini et al., 2020). Dubbini et al.'s results align with the current study's, which showed that spirituality significantly predicted ATS involvement/use.

Galanter at al. (2023) conducted a literature review concerning the psychological, biological, and cultural aspects of spirituality related to substance abuse. Their results indicated that as spirituality increased, substance use, including ATS involvement/use, decreased. Galanter et al. also found that spiritual awakening played a pivotal role in abstinence and that spirituality played a significant role in the recovery from substance use disorders. These results aligned with those in the current study indicating that spirituality significantly predicted ATS involvement/use.

Analysis and Interpretation of RQ6

RQ6 was, Is there an association between religiosity as measured by scores on the RBBQ; spirituality as measured by scores on the SAI-R; attachment as measured by scores on the AGI, RSQ, and Form O of the BORRTI; and inhalant involvement/use as measured by scores on the ASSIST? Analysis showed that no predictors explained the variance in results, $R^2 = .09$, $F(5, 69) = 1.44$, $p > .05$. The results also showed that none of the variables significantly predicted inhalant involvement/use ($p > .05$). This result was in sharp contrast to the current body of knowledge.

Nawi et al. (2021) reviewed 425 articles focused on substance use, religiosity, and attachment in adolescents. They selected 22 quantitative articles and one qualitative article for a systematic review of the literature. Their results showed that impulsivity, alexithymia, insecure attachment, decreased religiosity and spirituality, having peers who

use illicit substances, substance use in the family origin, and tobacco use were all risk factors for substance misuse. Nawi et al.'s results also indicated that having an optimistic outlook, mindfulness, social phobia, secure attachment, a healthy lifestyle, community connectedness, and having strong religious and spiritual beliefs are resiliency factors where it concerns substance misuse.

The results of the Nawi et al.'s (2021) systematic review sharply contrasted with the present study's results, which showed that neither interpersonal attachment, religiosity, nor spirituality significantly predicted inhalant involvement/use. Nawi et al.'s study included an evaluation of research via a literature review; thus, there are several possible explanations for the differences between the study findings. One is that it is unclear if Nawi et al. measured inhalant involvement/use. In addition, according to H. W. Mak (2020), inhalant involvement/use is primarily an issue among adolescents. Since the present study focused solely on adults, this is a likely cause for some of the differences between it and Nawi et al.

Kerlin (2020) studied 118 female patients at the Recovery Center at Shalom House Ministries, an inpatient addiction treatment facility. All study participants completed the Drug Abuse Screening Test-10, the Experiences in Close Relationships questionnaire, and the Patient-Reported Outcome Measurement Information Systems online survey. The results indicated that participants who reported higher levels of religiosity, attachment to God, and secure attachment in interpersonal relationships had more favorable treatment outcomes (Kerlin, 2020). The results also showed that for patients who avoided intimacy with God, embraced revenge-seeking ideologies, and had

insecure attachments in interpersonal relationships, treatment outcomes were more likely to be negative (Kerlin, 2020).

Kerlin's (2020) results do not align with the current study's, which indicated that interpersonal attachment, religiosity, or spirituality were not statistically significant predictors of inhalant involvement/use. One explanation for the differences in findings may be that all study participants in Kerlin were receiving substance abuse treatment, but it is unclear how many of those participants had inhalant involvement/use. As such, individuals engaging in inhalant involvement/use may have been underrepresented in Kerlin as compared to the current study. Another explanation for the differences in findings is that Kerlin focused solely on females. The sample in the current study included male, female, and transgender participants. McHugh et al. (2018) asserted that there are differences regarding substance abuse among males and females and that these differences remain understudied. As such, while which factors contribute to these differences and how exactly they contribute cannot be known, it is enough to know that they do contribute. This is another likely explanation for the differences between Kerlin's results and the current study's.

Analysis and Interpretation of RQ7

RQ7 was, Is there an association between religiosity as measured by scores on the RBBQ; spirituality as measured by scores on the SAI-R; attachment as measured by scores on the AGI, RSQ, and Form O of the BORRTI; and sedative/sleeping pill involvement/use as measured by scores on the ASSIST? The results indicated that interpersonal attachment significantly predicted sedative and sleeping pill

involvement/use ($\beta = .15$, $p < .01$). Specifically, for every 1-point increase in sedative and sleeping pill involvement/use, there was a .15 increase in interpersonal attachment.

Ruiz et al. (2022) conducted a cross-sectional study of 369 Spanish patients from a hospital unit in a substance abuse treatment facility. Using attachment theory as a foundation, Ruiz et al. examined insecure attachment as it related to comorbid substance abuse and gambling disorder in the study sample, which consisted of 26.29% of participants with co-occurring substance use disorder and gambling disorder. Ruiz et al. used the Questionnaire of Adult Attachment, the Brief Questionnaire of Pathological Gambling, the Symptoms Checklist 90-R, and the Toronto Alexithymia Scale-20 (Spanish version) to assess attachment, gambling, mental health disorder symptoms, and alexithymia, respectively.

Results from multivariate logistic regressions indicated that insecure attachment was more prevalent in participants with comorbid gambling and in participants with high levels of alexithymia (Ruiz et al., 2022). As such, Ruiz et al. (2022) concluded that insecure attachment was associated with a higher risk of substance abuse and the combination of gambling disorder and substance use disorders was associated with insecure attachment. These results align well with the current study's, which showed that interpersonal attachment significantly predicted sedative and sleeping pill involvement/use.

Berry et al. (2022) studied 70 patients from the Motivational Interventions for Drug and Alcohol Misuse in Schizophrenia randomized controlled trial who were diagnosed with comorbid substance use disorder and psychotic disorder. Substance use

was assessed via the Timeline Follow-Back Interview and the Reasons for Substance Use Scale, coping mechanisms were measured via the Coping Orientation to Problems Experienced Inventory, attachment was examined via the Psychosis Attachment Measure, and psychotic symptoms were evaluated by way of the Positive and Negative Syndrome Scale. ANOVA and *t* tests were used to statistically analyze the collected data (Berry et al., 2022). Results indicated that while there was no relationship between insecure-avoidant attachment and substance abuse, there was a statistically significant relationship between insecure-anxious attachment and substance abuse (Berry et al., 2022). The present study's results, which showed that interpersonal attachment significantly predicted sedative and sleeping pill involvement/use, appear to support Berry et al.'s findings.

Analysis and Interpretation of RQ8

RQ8 was, Is there an association between religiosity as measured by scores on the RBBQ; spirituality as measured by scores on the SAI-R; attachment as measured by scores on the AGI, RSQ, and Form O of the BORRTI; and hallucinogen involvement/use as measured by scores on the ASSIST? Analysis showed that no predictors explained the variance in results, $R^2 = .02$, $F(5, 69) = 0.31$, $p > .05$, and none of the variables significantly predicted hallucinogen involvement/use ($p > .05$). These results appear to oppose the current body of knowledge. Falade et al. (2022) conducted a comparative cross-sectional study to examine the relationship between religiosity, spirituality, and substance misuse in 770 adolescent patients (ages 14–19 years) in a drug rehabilitation unit and an outpatient department in a Nigerian hospital. Half of the 770 patients were

classified as having a substance use disorder; the other half were categorized as nonsubstance abusers. Falade et al. used the Daily Spiritual Experience Scale to measure spirituality and the Centrality of Religiosity Scale to assess religiosity. Substance use was examined via data collected during the admissions process. Results indicated that as spirituality decreased, substance use increased among both study participant groups (Falade et al., 2022). The results also showed that as religiosity increased, substance use decreased among both study groups.

Falade et al. (2022) focused on adolescents in Nigeria. H. W. Mak et al. (2019) stated that peer use of illicit substances and insecure attachment are strongly correlated with adolescent substance abuse. As such, the focus on adolescents in Falade et al. and on adults in the current study is a possible explanation for the differences in results between the two studies. Another possible explanation for the differences between the two studies reflects diversity in culture and ethnicity, as discussed in de Vries et al. (2019). Specifically, Falade et al. studied a population in Nigeria. I studied a U.S. population. Culture and ethnicity have been shown to influence life choices regarding religiosity, spirituality, interpersonal attachment, and substance use (de Vries et al., 2019). As such, it is likely that ethnicity and culture played a role in the differences between Falade et al.'s findings and mine.

Analysis and Interpretation of RQ9

RQ9 was, Is there an association between religiosity as measured by scores on the RBBQ; spirituality as measured by scores on the SAI-R; attachment as measured by scores on the AGI, RSQ, and Form O of the BORRTI; and opioid involvement/use as

measured by scores on the ASSIST? The results indicated that interpersonal attachment significantly predicted opioid involvement/use ($\beta = .13$, $p < .05$). The results also showed that attachment to God significantly predicted opioid involvement/use ($\beta = –.04$, $p = .05$). Specifically, for every 1-point increase in opioid involvement/use, there was a .13 increase in interpersonal attachment and a .04 decrease in attachment to God. These results both contradicted and supported the current body of knowledge.

In a 2021 article, Coffman and Swank examined the relationship between attachment (marital attachment and attachment in childhood) and substance misuse. In their review, Coffman and Swank noted that decreased marital attachment was associated with increase substance misuse and divorce, and divorce resulted in even greater increases in substance misuse. Coffman and Swank also stated that insecure attachment from childhood is predictive of an increased risk of substance misuse. The current study's results, which indicated that interpersonal attachment and attachment to God significantly predicted opioid involvement/use, are similar to the conclusions Coffman and Swank reached in their article.

Attachment Theory

Attachment theory concentrates on the attachment or connectedness with others, which begins in infancy with the bonds between infant and mother (Ainsworth & Bell, 1970; Bowlby, 1969, Chapter 11). The concept of attachment is rooted primarily in perceptions of safety and security (Bretherton, 1985). When secure attachment is not attained in infancy, maladaptive behaviors that virtually mimic attention-deficit/hyperactivity disorder, oppositional defiant disorder, intermittent-explosive

disorder, mood disorders, and anxiety disorders are common in childhood, adolescence, and adulthood (Follan & McNamara, 2013; Vasquez & Stensland, 2015; Woolgar & Baldock, 2015). When left untreated, undiagnosed, or misdiagnosed, the negative symptoms of insecure attachment may become more pronounced or result in more serious mental health concerns such as substance abuse (Follan & McNamara, 2013; B. Klein et al., 2014; Vasquez & Stensland, 2015).

Attachment theory also includes discourse on a subtype of attachment known as object relations and its implications on substance abuse, religiosity, and spirituality. Specifically, in insecurely attached individuals, substances used and/or God may become a substitute attachment figure in a compensatory manner or a corresponding insecure attachment to God may occur resulting in use of substances as a symbolic attachment figure. Since attachment theory includes discussion regarding the manifestations of insecure attachment extending into adulthood, this theory has been widely researched in the context of substance abuse, substance abuse interventions, religiosity, and spirituality (Ainsworth & Bell, 1970; Azadi et al., 2014; Bretherton, 1992; Brown et al., 2013; Cavaiola et al., 2015; Diaz et al., 2014; Fletcher et al., 2014; Schoenthaler et al., 2015).

I selected attachment theory for the current study because it promotes an understanding of how attachment develops and the maladies associated with poorly developed attachments (Cavaiola et al., 2015). Substance use has been positively correlated with maladaptive attachment in several current studies. Specifically, according to Harden et al. (2022), Ruiz et al. (2022), Berry et al. (2022), Efrati et al. (2022), and Coffman and Swank (2021), maladaptive attachment has been correlated with an increase

of substance misuse and other risky behaviors such as gambling, binge eating, and association with delinquent peers. In addition, Halstensen et al. (2022) claimed that research results have demonstrated a relationship between attachment, religiosity, and spirituality.

Attachment theory related to the current study because most of the current research on substance misuse cites a correlation between insecure attachment and substance abuse issues. Specifically, Efrati at al. (2022) and Coffman and Swank (2021) stated that insecure attachment in children is associated with the development of codependency and addictive personality traits. In turn, codependency and addictive traits can result in a dependent or addictive attachment to an object such as illicit substances to compensate for the maladaptive attachment (Coffman & Swank, 2021; Efrati et al., 2022). Bringing in the religiosity and spirituality variables, Efrati et al. and Coffman and Swank asserted that compensatory attachment can also include the development of a dependent or addictive attachment to God or other religious or spiritual object/being.

Limitations of the Study

This study included several possible threats regarding internal validity. The first was confounding, or including an unknown that can affect the independent variable (Creswell & Creswell, 2018; Ohlund & Yu, n.d.). Confounding could have occurred in this study by way of an unknown variable such as being under the influence of an illicit or licit substance while completing the assessments associated with this study. This confounding could have unknowingly skewed the study results via including data from a

substance-impaired participant, which may have been different had the participant not been under the influence.

The second threat to this study's internal validity was the possible presence of extraneous variables or an unknown variable that affected the dependent variable (Creswell & Creswell, 2018; Ohlund & Yu, n.d.). This threat could have impacted the study by not including an illicit or licit substance a participant used that was also not included as one of the substances assessed in this study. In other words, a study participant could have answered a question or question included in the study for a specific type of substance based on their experience with a substance not included in the study. It is also possible that a participant responded in the negative to all questions regarding substance abuse because the substance they used was not included in the questions.

Social desirability was another threat to this study's internal validity. Specifically, since the participants were from houses of worship, to avoid judgment, exclusion from, or other undesirable responses from the church, respondents may have provided answers that were less than accurate, even though participation and responses were anonymous. Specifically, a participant may have answered in the negative to questions that should have had a positive answer to avoid perceived judgment or stigma, as noted in Creswell and Creswell (2018) and Ohlund and Yu (n.d.). In contrast, to fulfill an internal need, a participant may have answered in the affirmative to a question or questions that should have had a negative response.

Stability (test–retest) and internal consistency regarding the numerous instruments used for this study can also be threats to internal validity (Creswell & Creswell, 2018; Ohlund & Yu, n.d.) and were possible in this study. For this study, several assessment instruments were combined into one online survey. Since there was no opportunity to test and retest the survey after the instruments were combined, it is possible that there were issues regarding test–retest associated with this study.

While it is not possible to demonstrate absolute internal consistency, this study included assessment instruments with questions specifically designed to expose issues with internal consistency. Equivalence was not an issue for this study, since only one assessment was used to measure the independent variables and dependent variable. Lastly, since this was a nonexperimental study with a one-time data collection design, there were no experimental mortality, history, maturation, or regression threats associated with it.

There were also various possible external threats to validity in this study. The major threat to the external validity involved generalizability, as discussed in Creswell and Creswell (2018). First, population validity may have been threatened, since the sample was small ($N = 77$) and was not drawn randomly. Thus, parts of the population may have been underrepresented or overrepresented. Second, self-selection bias may have occurred because some adult attendees of houses of worship may have chosen not to participate to avoid identification of problematic substance use/involvement. The individuals who chose to participate may have had similar traits or ideologies, which may have resulted in bias concerning those with opposing beliefs and views. Third, because

the data were collected from participants across multiple houses of worship and various religious denominations and not from real-life settings, ecological validity may have been threatened in this study. Ecological validity is a specific type of external validity that reflects whether research results can be generalized to real-life contexts (Creswell & Creswell, 2018). However, there were no identifiable temporal validity or treatment validity issues associated with this study.

Recommendations for Future Research

The study results provided information regarding several potential areas for future research. The first recommended area for future research is to change the study population to individuals in a general community or geographical area. Since this study focused solely on attendees of houses of worship, future studies may benefit from focusing on different populations. This approach would be beneficial because it would lessen the need for generalizations by providing results from data collected across multiple real-life contexts, which may result in better prevention and treatment outcomes.

The second recommended area for future research is to conduct the same study with a focus on juveniles. This focus could be beneficial from a prevention standpoint in that findings would provide information to individualize prevention and intervention efforts specifically geared toward youth. While this population is protected, and obtaining approval to conduct the study may be arduous, the results of such a study may be beneficial for informing prevention and intervention strategies.

A third recommended area for future research is to use different assessments of interpersonal attachment to ascertain if dissimilar results would result from administering

diverse attachment evaluation tools. For example, the Adult Attachment Interview (AAI) may prove beneficial since it includes evaluation of the autonomous, dismissing, preoccupied, and unresolved/disorganized attachment styles, which were not all assessed in this study. Specifically, the AAI includes assessment of attachment styles not included in this study such as the autonomous and unresolved/disorganized styles, which differ from the attachment assessment used in this study. As such, using the AAI in future studies may offer additional and relevant results to add to the current body of knowledge.

Implications for Social Change

This study's findings added to the current knowledge regarding the relationship between substance use, attachment (interpersonal attachment, object attachment, and attachment to God), religiosity, and spirituality. The implications for positive social change are rooted in the understanding that the relationship between substance use, attachment, religiosity, and spirituality is complicated and individualized; thus, prevention and intervention efforts for substance abuse should be just as comprehensive and personalized. While faith-based interventions such as Alcoholics Anonymous and Narcotics Anonymous may be appropriate for some, they may not be appropriate for all.

Specifically, the results showed that religiosity and spirituality did not predict tobacco involvement/use, alcohol involvement/use, cocaine involvement/use, inhalant involvement/use, sedative involvement/use, hallucinogen involvement/use, or opioid involvement/use. Thus, there was no relationship between religiosity, spirituality, and seven of the nine substances assessed in this study. The results also indicated that attachment to God was only predictive of tobacco involvement/use and cocaine

involvement/use. Since the study results showed that religiosity, spirituality, and attachment to God did not preclude an individual from engaging in all substance misuse, these results were in sharp contrast to the current body of knowledge, which includes a plethora of research results indicating that religiosity and spirituality are protective factors against substance misuse.

While taking time to assess an individual's religiosity and spirituality may prove beneficial for some, this assessment should not solely determine the intervention or prevention efforts to be used for that individual. Other factors should also be considered. For example, the study results indicated a relationship between interpersonal attachment and tobacco involvement/use, sedative involvement/use, and opioid involvement/use. The results also showed a relationship between object attachment and tobacco involvement/use, cannabis involvement/use, and cocaine involvement/use. As such, inclusive assessment of an individual's interpersonal attachment and object attachment, combined with evaluation of spirituality and religiosity, could better frame substance abuse prevention and intervention efforts.

The study results also have implications for positive social change, not only concerning substance misuse treatment but also for developing substance abuse prevention programs. As previously stated, the results showed that spirituality and religiosity were not associated with substance misuse or deterrence from all illicit and licit substances or for all individuals. However, the results also indicated that lowered interpersonal attachment was associated with substance misuse where it concerns tobacco involvement/use, sedative involvement/use, and opioid involvement/use.

The United States has an opioid epidemic, the effects of which have seemingly been compounded by also facing a pandemic. Specifically, preventable deaths due to opioid overdose increased by 41% in 2020. In 2021; opioid overdose deaths increased by an additional 59% (National Safety Council, 2023). Opioid overdose deaths seem to affect individuals 35–45 years of age the most, as evidenced by a 20% increase from 2020 and a 73% increase since 2019. In addition, 71% of preventable opioid deaths occur among individuals ages 25–54 years, with growth also seen in the number of opioid overdose deaths among individuals ages 55 years and older (National Safety Council, 2023). Few opioid deaths occur among those ages 15 years and younger (National Safety Council, 2023).

Based on the opioid epidemic plaguing the United States and the present study's results, which indicated a relationship between interpersonal attachment and opioid involvement/use, it may prove beneficial if the developers of substance abuse prevention programs consider assessment of attachment (including interpersonal and object attachment and attachment to God) in conjunction with spirituality and religiosity to individualize the framing of prevention efforts for individuals 15–55 years of age and older, who represent those most affected by opioid misuse (National Safety Council, 2023). These efforts may also result in more favorable prevention efforts by including efforts geared toward substances beyond opioids. Some additional positive social changes may be safer communities due to a decrease in drug-related crimes, reduced stigma concerning substance abuse, and improved health outcomes via a lessening of drug overdoses and other drug-related health concerns.

Conclusions

There have been numerous studies on the relationship between attachment (interpersonal attachment and attachment to God), religiosity, spirituality, and substance use. Most of these studies have been associated with results indicating a strong correlation between attachment (interpersonal attachment, object attachment, and attachment to God), religiosity, spirituality, and substance use. The current study's results moderately confirmed the relationship between interpersonal attachment and substance use but only provided limited support for the relationship between religiosity, spirituality, object attachment, and attachment to God and substance use. The results are significant in that they added to the current body of knowledge regarding the fact that the relationships between these variables are complicated. However, the current study's results do not generalize as expected, which supports the need for further research.

In 2021, 70,601 overdose deaths were reported in the United States due to fentanyl, an ultra-potent opioid that is considered the drug at the root of the current opioid epidemic (NIDA, 2023). The current study's results indicated a relationship between interpersonal attachment and opioid involvement/use, which provided new information to better frame substance abuse prevention programs. Specifically, while religiosity, spirituality, attachment to God, and object attachment were predictive of substance misuse for some substances and for some individuals, interpersonal attachment was found to correlate with opioid involvement/use and some other substances. As such, by including assessment of interpersonal attachment in conjunction with object attachment, attachment to God, religiosity, and spirituality to individualize substance abuse

prevention efforts, with a sharp but not sole focus on opioid misuse, may also result in lowered opioid use and opioid-related deaths in the United States. These efforts may even expand to include other substances beyond opioids.

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Appendix A: Relationship Scales Questionnaire

The RSQ can either be worded in terms of general orientations to close relationships, romantic relationships, or orientations to a specific relationship. It can also be reworded in the third person and used to rate others' attachment patterns (See Bartholomew & Horowitz, 1991 or Scharfe & Bartholomew).

Please read each of the following statements and rate the extent to which you believe each statement best describes your feelings about close relationships. (you may wish to
use a 5– to 9-point scale from *not at all like me* to *very much like me*)

1. I find it difficult to depend on other people.

2. It is very important to me to feel independent.

3. I find it easy to get emotionally close to others.

4. I want to merge completely with another person.

5. I worry that I will be hurt if I allows myself to become too close to others.

6. I am comfortable without close emotional relationships.

7. I am not sure that I can always depend on others to be there when I need them.

8. I want to be completely emotionally intimate with others.

9. I worry about being alone.

10. I am comfortable depending on other people.

11. I often worry that romantic partners don't really love me.

12. I find it difficult to trust others completely.

13. I worry about others getting too close to me.

14. I want emotionally close relationships.

15. I am comfortable having other people depend on me.

16. I worry that others don't value me as much as I value them.

17. People are never there when you need them.

18. My desire to merge completely sometimes scares people away.

19. It is very important to me to feel self-sufficient.

20. I am nervous when anyone gets too close to me.

21. I often worry that romantic partners won't want to stay with me.

22. I prefer not to have other people depend on me.

23. I worry about being abandoned.

24. I am somewhat uncomfortable being close to others.

25. I find that others are reluctant to get as close as I would like.

26. I prefer not to depend on others.

27. I know that others will be there when I need them.

28. I worry about having others not accept me.

29. People often want me to be closer than I feel comfortable being.

30. I find it relatively easy to get close to others.

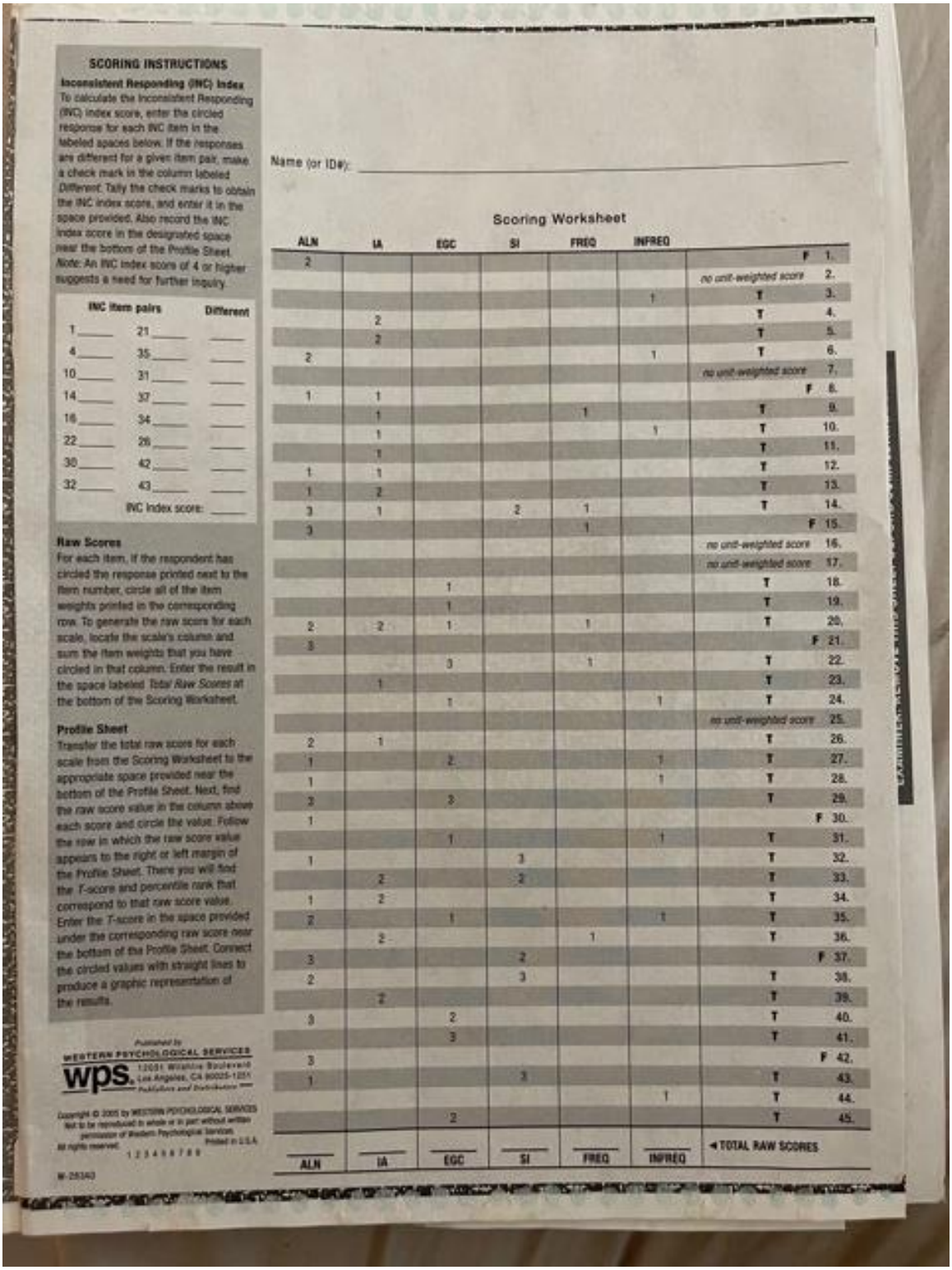
SCORING THE RSQ

Secure scale is the average of 3, 9(Reverse),10, 15, 28(Reverse).
Fearful scale is the average of 1, 5, 12, 24.
Preoccupied scale is the average of 6(Reverse), 8, 16, 25.
Dismissing scale is the average of 2, 6, 19, 22, 26

The remaining items correspond to measures developed by Hazan and Shaver (1987) and Collins and Read (1990). As with the RQ you can calculated the underlying attachment

dimensions can be derived using the following equations: Self Model = (secure + dismissing) MINUS (fearful + preoccupied)]. Other Model = (secure + preoccupied)

Appendix B: Bell Object Relations and Reality Testing Inventory



SCORING INSTRUCTIONS

Inconsistent Responding (INC) Index

To calculate the Inconsistent Responding (INC) index score, enter the circled response for each INC item in the labeled spaces below. If the responses are different for a given item pair, make a check mark in the column labeled *Different*. Tally the check marks to obtain the INC index score, and enter it in the space provided. Also record the INC index score in the designated space near the bottom of the Profile Sheet. *Note:* An INC index score of 4 or higher suggests a need for further inquiry.

INC item pairs		Different
1_____	21_____	_____
4_____	35_____	_____
10_____	31_____	_____
14_____	37_____	_____
16_____	34_____	_____
22_____	28_____	_____
30_____	42_____	_____
32_____	43_____	_____

INC index score: _____

Raw Scores

For each item, if the respondent has circled the response printed next to the item number, circle all of the item weights printed in the corresponding row. To generate the raw score for each scale, locate the scale's column and sum the item weights that you have circled in that column. Enter the result in the space labeled *Total Raw Scores* at the bottom of the Scoring Worksheet.

Profile Sheet

Transfer the total raw score for each scale from the Scoring Worksheet to the appropriate space provided near the bottom of the Profile Sheet. Next, find the raw score value in the column above each score and circle the value. Follow the row in which the raw score value appears to the right or left margin of the Profile Sheet. There you will find the *T*-score and percentile rank that correspond to that raw score value. Enter the *T*-score in the space provided under the corresponding raw score near the bottom of the Profile Sheet. Connect the circled values with straight lines to produce a graphic representation of the results.

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1 2 3 4 5 6 7 8 9
W-25343

Name (or ID#): _____

Scoring Worksheet

ALN	IA	EGC	SI	FREQ	INFREQ		
2						F	1.
						no unit-weighted score	2.
					1	T	3.
	2					T	4.
	2					T	5.
2					1	T	6.
						no unit-weighted score	7.
1	1					F	8.
	1			1		T	9.
	1				1	T	10.
	1					T	11.
1	1					T	12.
1	2					T	13.
3	1		2	1		T	14.
3				1		F	15.
						no unit-weighted score	16.
						no unit-weighted score	17.
		1				T	18.
		1				T	19.
2	2	1		1		T	20.
3						F	21.
		3		1		T	22.
	1					T	23.
		1			1	T	24.
						no unit-weighted score	25.
2	1					T	26.
1		2			1	T	27.
1					1	T	28.
3		3				T	29.
1						F	30.
		1			1	T	31.
1			3			T	32.
	2		2			T	33.
1	2					T	34.
2		1			1	T	35.
	2			1		T	36.
3			2			F	37.
2			3			T	38.
	2					T	39.
3		2				T	40.
		3				T	41.
3						F	42.
1			3			T	43.
					1	T	44.
		2				T	45.
ALN	IA	EGC	SI	FREQ	INFREQ	◄ TOTAL RAW SCORES	

Appendix C: Religious Background and Behaviors Questionnaire

PsycTESTS

Religious Background and Behaviors Questionnaire
Version Attached: Full Test

PsycTESTS Citation:
Connors, G. J., Tonigan, J. S., & Miller, W. R. (1996). Religious Background and Behaviors Questionnaire [Database record]. Retrieved from PsycTESTS. doi: http://dx.doi.org/10.1037/t02531-000

Instrument Type:
Inventory/Questionnaire

Test Format:
On the first item, respondents indicate the descriptor that best describes them: atheist, agnostic, unsure, spiritual, or religious. On the next 6 items, respondents are asked to indicate, on an 8-point Likert scale, the frequency with which they had engaged in certain behaviors during the past year. The last 6 items tap these domains in terms of lifetime occurrence on a 3-point ordinal scale.

Source:
Connors, Gerard J., Tonigan, J. Scott, & Miller, William R. (1996). A measure of religious background and behavior for use in behavior change research. Psychology of Addictive Behaviors, Vol 10(2), 90-96. doi: 10.1037/0893-164X.10.2.90

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doi: 10.1037/t02531-000

Religious Background and Behaviors Questionnaire
RBB

Items

1. Which of the following best describes you at the present time? (Check one)
   - _____Atheist • I do not believe in God.
   - _____Agnostic • I believe we can't really know about God.
   - _____Unsure • I don't know what to believe about God.
   - _____Spiritual • I believe in God, but I'm not religious.
   - _____Religious • I believe in God and practice religion.

2. For the past year, how often have you done the following? (Circle one number for each line.)

	Never	Rarely	Once a month	Twice a month	Once a week	Twice a week	Almost daily	More than once a day
a. Thought about God	1	2	3	4	5	6	7	8
b. Prayed	1	2	3	4	5	6	7	8
c. Meditated	1	2	3	4	5	6	7	8
d. Attended worship service	1	2	3	4	5	6	7	8
e. Read–studied scriptures, holy writings	1	2	3	4	5	6	7	8
f. Had direct experiences of God	1	2	3	4	5	6	7	8

3. Have you ever in your life:

	Never	Yes, in the past but not now	Yes, and I still do
a. Believed in God?	1	2	3
b. Prayed?	1	2	3
c. Meditated?	1	2	3
d. Attended worship services regularly?	1	2	3
e. Read scriptures or holy writings regularly?	1	2	3
f. Had direct experiences of God?	1	2	3

Appendix D: Attachment to God Inventory

Attachment to God Inventory (AGI) Scoring Sheet: Transfer each item rating to the appropriate box. Reverse score those with an R (1=7, 2=6, 3=5, 4=4, 5=3, 6=2, & 7=1). Add up the sum for each column. Then compute the column average by dividing by 14.

Question/Item	Anxiety Over Abandon-ment (Odd Items)	Avoidance of Intimacy with God (Even Items)
1. I worry a lot about my relationship with God.		
2. I just don't feel a deep need to be close to God.		
3. If I can't see God working in my life, I get upset or angry.		
4. I am totally dependent upon God for everything in my life.		R
5. I am jealous at how God seems to care more for others than for me.		
6. It is uncommon for me to cry when sharing with God.		
7. Sometimes I feel that God loves others more than me.		
8. My experiences with God are very intimate and emotional.		R
9. I am jealous at how close some people are to God.		
10. I prefer not to depend too much on God.		
11. I often worry about whether God is pleased with me.		
12. I am uncomfortable being emotional in my communication with God.		
13. Even if I fail, I never question that God is pleased with me.	R	
14. My prayers to God are often matter-of-fact and not very personal.		
15. Almost daily I feel that my relationship with God goes back and forth from ~~"h~~ot" to ~~"c~~old."		
16. I am uncomfortable with emotional displays of affection to God.		
17. I fear God does not accept me when I do wrong.		
18. Without God I couldn't function at all.		R
19. I often feel angry with God for not responding to me when I want.		
20. I believe people should not depend on God for things they should do for themselves.		
21. I crave reassurance from God that God loves me.		
22. Daily I discuss all of my problems and concerns with God.		R
23. I am jealous when others feel God's presence when I cannot.		
24. I am uncomfortable allowing God to control every aspect of my life.		
25. I worry a lot about damaging my relationship with God.		
26. My prayers to God are very emotional.		R
27. I get upset when I feel God helps out others, but forgets about me.		
28. I let God make most of the decisions in my life.		R
SUM FOR EACH COLUMN	**/ 14**	**/ 14**
AVERAGE FOR EACH COLUMN (Divide Column Sum by 14)		

Attachment to God Inventory (AGI; Beck & McDonald, 2004) Interpretation Sheet

Purpose: This inventory is meant to measure a person's global attachment tendencies in relationship with God (i.e., their attachment style with God).

The Client's Scores: Attachment Anxiety: _____ Attachment Avoidance: _____

Low = below 4 (4 is the average, so the further away from 4, the more pronounced)
High = above 4 (4 is the average, so the further away from 4, the more pronounced)

High Avoidance of Intimacy with God = Avoidant Attachment to God: Beck and McDonald (2004), the creators of the AGI, offered the following descriptions of the themes that characterize the attachment tendencies of persons with a highly avoidant attachment to God: "Avoidance of Intimacy with God involves themes such as a need for self-reliance, a difficulty with depending upon God, and unwillingness to be emotionally intimate with God" (p. 94).

High Anxiety over Abandonment = Anxious Attachment to God: In comparison, they offered the following descriptions of the themes that characterize the attachment tendencies of persons with a highly anxious attachment to God: "Anxiety over Abandonment involves themes such as the fear of potential abandonment by God, angry protest (resentment or frustration at God's lack of perceived affection), jealousy over God's seemingly differential intimacy with others, anxiety over one's lovability in God's eyes, and, finally, preoccupation with or worry concerning one's relationship with God" (Beck & McDonald, 2004, p. 94).

Low Avoidance, Low Anxiety = Secure Attachment to God: Persons with both low attachment avoidance and low attachment anxiety in their relationship with God tend to feel comfortable relying on God, trusting God, and seeking intimacy with God. They also tend to exhibit an overall adequate capacity for emotional tolerance, such being able to effectively cope with and tolerate the times when God feels distant or unaffectionate. Persons with a secure attachment to God do not tend to get jealous of the relationship that God has with other people. They tend to feel lovable in God's eyes and do not tend to exhibit excessive preoccupation with or worry concerning their relationship with God.

God Adjective Checklist (GAC) Scoring Sheet: For each trait-adjective, transfer the Column A and Column B ratings. Calculate the ~~-h~~ead/heart discrepancy| by subtracting the Column B rating from the Column A rating. For each scale, sum all the discrepancies, divide that sum by the number of items in the scale, and record the average head/heart discrepancy.

Adjective	Column A (Head Knowledge)	Column B (Heart Knowledge)	Head/Heart Discrepancy (A-B)	Sum Head/Heart Discrepancy	÷ the # of Items	Average Head/Heart Discrepancy
Severe				Negative – General	÷ 3	
Unfair						
Unkind						
Close				Positive – Intimate	÷ 4	
Loving						
Warm						
Intimate						
Forgetful				Negative – Unreliable	÷ 4	
Inconsistent						
Silent						
Unreliable						
Understanding				Positive – Supportive	÷ 4	
Caring						
Patient						
Comforting						
Weak				Negative – Theological	÷ 3	
Absent						
Ignorant						
Compassionate				Positive – General	÷ 3	
Fair						
Kind						
Cold				Negative – Distant	÷ 4	
Distant						
Unapproachable						
Indifferent						
Dependable				Positive – Reliable	÷ 4	
Faithful						
Reliable						
Trustworthy						
Critical				Negative – Rejecting	÷ 4	
Harsh						
Unsympathetic						
Unforgiving						
All-knowing				Positive – Theological	÷ 3	
All-powerful						
All-present						

Appendix E: Spiritual Assessment Inventory-Revised

PsycTESTS®

Spiritual Assessment Inventory--Revised
Version Attached: Full Test

Note: Test name created by PsycTESTS

PsycTESTS Citation:
Hall, T. W., & Edwards, K. J. (2002). Spiritual Assessment Inventory--Revised [Database record]. Retrieved from PsycTESTS. doi: http://dx.doi.org/10.1037/t06791-000

Instrument Type:
Inventory/Questionnaire

Test Format:
All the items on the Spiritual Assessment Inventory–Revised are rated on a 5-point scale anchored on each end by the phrases "Not true at all" and "Very true." A high score on each scale represents the presence of the trait named.

Source:
Supplied by author.

Spiritual Assessment Inventory

Todd W. Hall, Ph.D.
Keith J. Edwards, Ph.D.

Instructions:

1. Please respond to each statement below by writing the number that best represents your experience in the empty box to the right of the statement.
2. It is best to answer according to what really reflects your experience rather than what you think your experience should be.
3. Give the answer that comes to mind first. Don't spend too much time thinking about an item.
4. Give the best possible response to each statement even if it does not provide all the information you would like.
5. Try your best to respond to all statements. Your answers will be completely confidential.
6. Some of the statements consist of two parts as shown here:

2.1	There are times when I feel disappointed with God.	
2.2	When this happens, I still want our relationship to continue.	

Your response to the second statement (2.2) tells how true this second statement (2.2) is for you when you have the experience (e.g. feeling disappointed with God) described in the first statement (2.1).

1 Not At All True	2 Slightly True	3 Moderately True	4 Substantially True	5 Very True

1	I have a sense of how God is working in my life.		13	God recognizes that I am more spiritual than most people.	
2.1	There are times when I feel disappointed with God.		14	I always seek God's guidance for every decision I make.	
2.2	When this happens, I still want our relationship to continue.		15	I am aware of God's presence in my interactions with other people.	
3	God's presence feels very real to me.		16	There are times when I feel that God is punishing me.	
4	I am afraid that God will give up on me.		17	I am aware of God responding to me in a variety of ways.	
5	I seem to have a unique ability to influence God through my prayers.		18.1	There are times when I feel angry at God.	
6	Listening to God is an essential part of my life.		18.2	When this happens, I still have the sense that God will always be with me.	
7	I am always in a worshipful mood when I go to church.		19	I am aware of God attending to me in times of need.	
8.1	There are times when I feel frustrated with God.		20	God understands that my needs are more important than most people's.	
8.2	When I feel this way, I still desire to put effort into our relationship.		21	I am aware of God telling me to do something.	
9	I am aware of God prompting me to do things.		22	I worry that I will be left out of God's plans.	
10	My emotional connection with God is unstable.		23	My experiences of God's presence impact me greatly.	
11	My experiences of God's responses to me impact me greatly.		24	I am always as kind at home as I am at church.	

12.1	There are times when I feel irritated at God.		25	I have a sense of the direction in which God is guiding me.	
12.2	When I feel this way, I am able to come to some sense of resolution in our relationship.		26	My relationship with God is an extraordinary one that most people would not understand.	

SAI v7.1r

1 Not At All True	2 Slightly True	3 Moderately True	4 Substantially True	5 Very True

27.1	There are times when I feel betrayed by God.		37	I find my prayers to God are more effective than other people's.	
27.2	When I feel this way, I put effort into restoring our relationship.		38	I am always in the mood to pray.	
28	I am aware of God communicating to me in a variety of ways.		39	I feel I have to please God or he might reject me.	
29	Manipulating God seems to be the best way to get what I want.		40	I have a strong impression of God's presence.	
30	I am aware of God's presence in times of need.		41	There are times when I feel that God is angry at me.	
31	From day to day, I sense God being with me.		42	I am aware of God being very near to me.	
32	I pray for all my friends and relatives every day.		43	When I sin, I am afraid of what God will do to me.	
33.1	There are times when I feel frustrated by God for not responding to my prayers.		44	When I consult God about decisions in my life, I am aware of God's direction and help.	
33.2	When I feel this way, I am able to talk it through with God.		45	I seem to be more gifted than most people in discerning God's will.	
34	I have a sense of God communicating guidance to me.		46	When I feel God is not protecting me, I tend to feel worthless.	
35	When I sin, I tend to withdraw from God.		47.1	There are times when I feel like God has let me down.	
36	I experience an awareness of God speaking to me personally.		47.2	When this happens, my trust in God is not completely broken.	

Appendix F: Alcohol, Smoking and Substance Involvement Screening Test

Appendix A

The Alcohol, Smoking and Substance Involvement Screening Test (ASSIST v3.1)

Clinician Name		Clinic	
Client ID or Name		Date	

Introduction (please read to client or adapt for local circumstances)*

The following questions ask about your experience of using alcohol, tobacco products and other drugs across your lifetime and in the past three months. These substances can be smoked, swallowed, snorted, inhaled or injected (show response card).

*Some of the substances listed may be prescribed by a doctor (like amphetamines, sedatives, pain medications). For this interview, we will **not** record medications that are used **as prescribed** by your doctor. However, if you have taken such medications for reasons **other** than prescription, or taken them more frequently or at higher doses than prescribed, please let me know.*

While we are also interested in knowing about your use of various illicit drugs, please be assured that information on such use will be treated as strictly confidential.

Before asking questions, give ASSIST response card to client

QUESTION 1 ‖ In your life, which of the following substances have you *ever used* (non-medical use only)?		
a Tobacco products (cigarettes, chewing tobacco, cigars, etc.)	No	Yes
b Alcoholic beverages (beer, wine, spirits, etc.)	No	Yes
c Cannabis (marijuana, pot, grass, hash, etc.)	No	Yes
d Cocaine (coke, crack, etc.)	No	Yes
e Amphetamine-type stimulants (speed, meth, ecstasy, etc.)	No	Yes
f Inhalants (nitrous, glue, petrol, paint thinner, etc.)	No	Yes
g Sedatives or sleeping pills (diazepam, alprazolam, flunitrazepam, midazolam, etc.)	No	Yes
h Hallucinogens (LSD, acid, mushrooms, trips, ketamine, etc.)	No	Yes
i Opioids (heroin, morphine, methadone, buprenorphine, codeine, etc.)	No	Yes
j Other – specify: _____	No	Yes
Probe if all answers are negative: "Not even when you were in school?"	If "No" to all items, stop interview. If "Yes" to any of these items, ask Q2 for each substance ever used	

* ASSIST V3.1 is to be utilized by for screening in clinical settings. For research purposes please use the previous version ASSIST V3.0.

QUESTION 2 | In the *past three months*, how often have you used the substances you mentioned (first drug, second drug, etc)?	Never	Once or twice	Monthly	Weekly	Daily or almost daily
a Tobacco products (cigarettes, chewing tobacco, cigars, etc.)	0	2	3	4	6
b Alcoholic beverages (beer, wine, spirits, etc.)	0	2	3	4	6
c Cannabis (marijuana, pot, grass, hash, etc.)	0	2	3	4	6
d Cocaine (coke, crack, etc.)	0	2	3	4	6
e Amphetamine-type stimulants (speed, meth, ecstasy, etc.)	0	2	3	4	6
f Inhalants (nitrous, glue, petrol, paint thinner, etc.)	0	2	3	4	6
g Sedatives or sleeping pills (diazepam, alprazolam, flunitrazepam, midazolam, etc.)	0	2	3	4	6
h Hallucinogens (LSD, acid, mushrooms, trips, ketamine, etc.)	0	2	3	4	6
i Opioids (heroin, morphine, methadone, buprenorphine, codeine, etc.)	0	2	3	4	6
j Other – specify: _____	0	2	3	4	6

If "Never" to all items in Q2, skip to Q6.

If any substances in Q2 were used in the previous three months, continue with Questions 3, 4 & 5 for each substance used.

QUESTION 3 | During the *past three months*, how often have you had a strong desire or urge to use (first drug, second drug, etc)?	Never	Once or twice	Monthly	Weekly	Daily or almost daily
a Tobacco products (cigarettes, chewing tobacco, cigars, etc.)	0	3	4	5	6
b Alcoholic beverages (beer, wine, spirits, etc.)	0	3	4	5	6
c Cannabis (marijuana, pot, grass, hash, etc.)	0	3	4	5	6
d Cocaine (coke, crack, etc.)	0	3	4	5	6
e Amphetamine-type stimulants (speed, meth, ecstasy, etc.)	0	3	4	5	6
f Inhalants (nitrous, glue, petrol, paint thinner, etc.)	0	3	4	5	6
g Sedatives or sleeping pills (diazepam, alprazolam, flunitrazepam, midazolam, etc.)	0	3	4	5	6
h Hallucinogens (LSD, acid, mushrooms, trips, ketamine, etc.)	0	3	4	5	6
i Opioids (heroin, morphine, methadone, buprenorphine, codeine, etc.)	0	3	4	5	6
j Other – specify: _____	0	3	4	5	6

QUESTION 4 | During the *past three months*, how often has your use of (first drug, second drug, etc) led to health, social, legal or financial problems?	Never	Once or Twice	Monthly	Weekly	Daily or Almost Daily
a Tobacco products (cigarettes, chewing tobacco, cigars, etc.)	0	4	5	6	7
b Alcoholic beverages (beer, wine, spirits, etc.)	0	4	5	6	7
c Cannabis (marijuana, pot, grass, hash, etc.)	0	4	5	6	7
d Cocaine (coke, crack, etc.)	0	4	5	6	7
e Amphetamine-type stimulants (speed, meth, ecstasy, etc.)	0	4	5	6	7
f Inhalants (nitrous, glue, petrol, paint thinner, etc.)	0	4	5	6	7
g Sedatives or sleeping pills (diazepam, alprazolam, flunitrazepam, midazolam, etc.)	0	4	5	6	7
h Hallucinogens (LSD, acid, mushrooms, trips, ketamine, etc.)	0	4	5	6	7
i Opioids (heroin, morphine, methadone, buprenorphine, codeine, etc.)	0	4	5	6	7
j Other – specify: _____	0	4	5	6	7

QUESTION 5 | During the *past three months*, how often have you failed to do what was normally expected of you because of your use of (first drug, second drug, etc)?	Never	Once or Twice	Monthly	Weekly	Daily or Almost Daily
a Tobacco products					
b Alcoholic beverages (beer, wine, spirits, etc.)	0	5	6	7	8
c Cannabis (marijuana, pot, grass, hash, etc.)	0	5	6	7	8
d Cocaine (coke, crack, etc.)	0	5	6	7	8
e Amphetamine-type stimulants (speed, meth, ecstasy, etc.)	0	5	6	7	8
f Inhalants (nitrous, glue, petrol, paint thinner, etc.)	0	5	6	7	8
g Sedatives or sleeping pills (diazepam, alprazolam, flunitrazepam, midazolam, etc.)	0	5	6	7	8
h Hallucinogens (LSD, acid, mushrooms, trips, ketamine, etc.)	0	5	6	7	8
i Opioids (heroin, morphine, methadone, buprenorphine, codeine, etc.)	0	5	6	7	8
j Other – specify: _____	0	4	5	6	7
Ask questions 6 & 7 for all substances ever used (i.e. those endorsed in Q1).					

QUESTION 6	Has a friend or relative or anyone else *ever* expressed concern about your use of (first drug, second drug, etc)?	No, never	Yes, in the past 3 months	Yes, but not in the past 3 months
a	Tobacco products (cigarettes, chewing tobacco, cigars, etc.)	0	6	3
b	Alcoholic beverages (beer, wine, spirits, etc.)	0	6	3
c	Cannabis (marijuana, pot, grass, hash, etc.)	0	6	3
d	Cocaine (coke, crack, etc.)	0	6	3
e	Amphetamine-type stimulants (speed, meth, ecstasy, etc.)	0	6	3
f	Inhalants (nitrous, glue, petrol, paint thinner, etc.)	0	6	3
g	Sedatives or sleeping pills (diazepam, alprazolam, flunitrazepam, midazolam, etc.)	0	6	3
h	Hallucinogens (LSD, acid, mushrooms, trips, ketamine, etc.)	0	6	3
i	Opioids (heroin, morphine, methadone, buprenorphine, codeine, etc.)	0	6	3
j	Other – specify: _____	0	6	3
	Ask questions 6 & 7 for all substances ever used (i.e. those endorsed in Q1).			

QUESTION 7	Have you *ever* tried to cut down on using (first drug, second drug, etc) but failed?	No, never	Yes, in the past 3 months	Yes, but not in the past 3 months
a	Tobacco products (cigarettes, chewing tobacco, cigars, etc.)	0	6	3
b	Alcoholic beverages (beer, wine, spirits, etc.)	0	6	3
c	Cannabis (marijuana, pot, grass, hash, etc.)	0	6	3
d	Cocaine (coke, crack, etc.)	0	6	3
e	Amphetamine-type stimulants (speed, meth, ecstasy, etc.)	0	6	3
f	Inhalants (nitrous, glue, petrol, paint thinner, etc.)	0	6	3
g	Sedatives or sleeping pills (diazepam, alprazolam, flunitrazepam, midazolam, etc.)	0	6	3
h	Hallucinogens (LSD, acid, mushrooms, trips, ketamine, etc.)	0	6	3
i	Opioids (heroin, morphine, methadone, buprenorphine, codeine, etc.)	0	6	3
j	Other – specify: _____	0	6	3
	Ask questions 6 & 7 for all substances ever used (i.e. those endorsed in Q1).			

QUESTION 8	Have you *ever* used any drug by injection (non-medical use only)?	No, never	Yes, in the past 3 months	Yes, but not in the past 3 months
(Please tick the appropriate box)				

IMPORTANT NOTE

Clients who have injected drugs in the last 3 months should be asked about their pattern of injecting during this period, to determine their risk levels and the best course of intervention.

Pattern of injecting	Intervention guidelines
4 days per month, on average, over the last 3 months or less	Brief intervention including the risks of injecting card
More than 4 days per month, on average, over the last 3 months	Further assessment and more intensive treatment

How to calculate a specific substance involvement score.

For each substance (labelled 'a' to 'j') add up the scores received for questions 2 through 7 inclusive. Do not include the results from either Q1 or Q8 in this score. For example, a score for cannabis would be calculated as: **Q2c + Q3c + Q4c + Q5c + Q6c + Q7c.**

Note that Q5 for tobacco is not coded, and is calculated as: **Q2a + Q3a + Q4a + Q6a + Q7a.**

The type of intervention is determined by the patient's specific substance involvement score				
	Record specific substance score	**No intervention**	**Receive brief intervention**	**More intensive treatment**
a Tobacco		0 – 3	4 – 26	27+
b Alcohol		0 – 10	11 – 26	27+
c Cannabis		0 – 3	4 – 26	27+
d Cocaine		0 – 3	4 – 26	27+
e ATS		0 – 3	4 – 26	27+
f Inhalants		0 – 3	4 – 26	27+
g Sedatives		0 – 3	4 – 26	27+
h Hallucinogens		0 – 3	4 – 26	27+
i Opioids		0 – 3	4 – 26	27+
j Other drugs		0 – 3	4 – 26	27+
Now use ASSIST feedback report card to give client brief intervention.				

Appendix G: List of Substance Use Resources

Online substance use support: National Drug Helpline

http://drughelpline.org/

Telephonic substance use support

1-888-633-3239

Substance use services by county (Northeast Florida region) Baker County:

River Region Human Services, 56 S Second St, Macclenny, FL 32063, (904) 899-6300

Clay County:

Clay Behavioral Health Services, 3292 County Road 220 Middleburg, FL 32068, (904) 291-5561, Email: info@ccbhc.org

Duval County:

River Region Human Services, 3901 Carmichael Ave, Jacksonville, FL 32207, (904) 899-6300 Jacksonville Substance Abuse, LLC, 601 N Ocean St, Jacksonville, FL 32202, (904) 299-6285 **(Opioid Use Treatment Only)** Jacksonville Metro Treatment Center, 4427 Emerson St, Jacksonville, FL 32207, (904) 398-7015

Flagler County:

Vince Carter Sanctuary, 301 Justice Ln, Bunnell, FL 32110, (904) 601-3899
Quantum's Oceanside Recovery, 4873 Palm Coast Pkwy NW #3, Palm Coast, FL 32137, (855) 708-0333
Daytona Treatment Center, 1823 Business Park Blvd, Daytona Beach, FL 32114, (386) 254-1931

Nassau County:

Awakening—Nassau, 1324 S 14th St, Ste 1, Fernandina Beach, FL 32034, (904) 432-8798

Putnam County:

Putnam Behavioral Healthcare—SMA, 330 Kay Larkin Dr, Palatka, FL 32177, (386) 329-3780

St. Johns County:

The Augustine Recovery Center, 3930 US-1, St. Augustine, FL 32086, (904) 217-0480
Recovery Keys, 1301 Plantation Island Dr S, Ste 201B, St. Augustine, FL 32080, (904) 615-8601

(Opioid Use Treatment Only) St. Augustine Metro Treatment Center, 3574 Highway US 1 S, Ste 101, St. Augustine, FL 32086, (904) 217-7161