EFFECTS OF RELIGIOUS ATTENDANCE ON SUICIDAL IDEATION: EXAMINING
POTENTIAL MEDIATORS OF SOCIAL SUPPORT, LOCUS OF CONTROL,
AND SUBSTANCE ABUSE

Samantha Danielle Price, B. S.

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APPROVED:
Jennifer L. Callahan, Major Professor
Randall J. Cox, Committee Member
C. Edward Watkins, Committee Member
Vicki Campbell, Chair of the Department of Psychology
Mark Wardell, Dean of the Toulouse Graduate School

Religion has a well-documented relationship with mental health benefits and has consistently demonstrated an impact on several specific mental health concerns, including suicide, generally finding various religious facets to be inversely associated with suicidal thoughts and behaviors. More specifically, religion has been found to be associated with suicide in a number of ways, including decreased acceptance of suicide, decreased likelihood of suicidal thoughts, decreased likelihood of suicidal attempts, fewer suicide attempts, lower relative risk of suicide, lower suicide rate, and increased reasons for living. Several studies have proposed potential mediators (e.g., social support, locus of control, and substance abuse) of the relationship between religion and mental health, usually in non-clinical samples. The current study sought to examine the association between religious attendance and suicidal ideation using archival data of a clinical sample collected from the University of North Texas Psychology Clinic. Results from this sample revealed no evidence of mediation, instead suggesting a direct effect of religious attendance on suicidal ideation. Two mediation models demonstrated the effects of external locus of control and social support on suicidal ideation. These models are discussed in terms of their directionality, considering the extant research on these associations. Findings of the current study have implications for welcoming the incorporation of salient religious topics throughout treatment in mental health settings, including discussion of religious attendance among those clients who have identified religion as a personal value.
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<table>
<thead>
<tr>
<th>TABLE OF CONTENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>LIST OF TABLES ..................................................................................................................... v</td>
</tr>
<tr>
<td>LIST OF FIGURES ........................................................................................................................ VI</td>
</tr>
<tr>
<td>CHAPTER I INTRODUCTION ........................................................................................................... 1</td>
</tr>
<tr>
<td>CHAPTER II REVIEW OF THE LITERATURE ................................................................................... 5</td>
</tr>
<tr>
<td>Religion and Mental Health Issues ............................................................................................. 6</td>
</tr>
<tr>
<td>Suicidal Ideation .......................................................................................................................... 6</td>
</tr>
<tr>
<td>Potential Mediators .................................................................................................................... 7</td>
</tr>
<tr>
<td>Social Support ............................................................................................................................. 8</td>
</tr>
<tr>
<td>Substance Abuse ........................................................................................................................ 10</td>
</tr>
<tr>
<td>Locus of Control (LOC) .............................................................................................................. 12</td>
</tr>
<tr>
<td>Proposed Study .......................................................................................................................... 13</td>
</tr>
<tr>
<td>CHAPTER III METHOD ................................................................................................................ 15</td>
</tr>
<tr>
<td>Participants ................................................................................................................................. 15</td>
</tr>
<tr>
<td>Procedures ................................................................................................................................. 17</td>
</tr>
<tr>
<td>Measures ..................................................................................................................................... 17</td>
</tr>
<tr>
<td>Adult History Form (AHF) .......................................................................................................... 17</td>
</tr>
<tr>
<td>Psychiatric Diagnostic Screening Questionnaire (PDSQ) .......................................................... 18</td>
</tr>
<tr>
<td>Outcome Questionnaire 45.2 (OQ) .............................................................................................. 18</td>
</tr>
</tbody>
</table>
# LIST OF TABLES

<table>
<thead>
<tr>
<th></th>
<th>Table Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Percentage of Sample ($N = 144$) Meeting Clinical Cutoff Based on the PDSQ</td>
<td>16</td>
</tr>
<tr>
<td>2</td>
<td>Means and Standard Deviations of Variables of Interest</td>
<td>21</td>
</tr>
<tr>
<td>3</td>
<td>Percentage of Sample ($N = 144$) Reporting Religious Affiliation</td>
<td>23</td>
</tr>
<tr>
<td>4</td>
<td>Correlations of Primary Study Variables (IV, DV, and Potential Mediators/Moderators)</td>
<td>24</td>
</tr>
</tbody>
</table>
# LIST OF FIGURES

<table>
<thead>
<tr>
<th></th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Social support mediates the relationship between external LOC and suicidal ideation</td>
<td>27</td>
</tr>
<tr>
<td>2.</td>
<td>External LOC mediates the relationship between social support and suicidal ideation</td>
<td>28</td>
</tr>
</tbody>
</table>
CHAPTER I

INTRODUCTION

Religion has consistently demonstrated an impact on mental health concerns, with a particularly strong and consistent association with off-setting suicide risk factors (Gearing & Lizardi, 2009; Moreira-Almeida, Neto, & Koenig, 2006). In this regard, religious affiliation was one of the earliest studied aspects of religion's impact on suicide (Durkheim, 1897/1951). Religious affiliation has been related to decreased suicide attempts, more negative attitudes toward suicide and greater reasons for living (Dervic, Oquendo, Grunebaum, Ellis, Burke, & Mann, 2004). Similarly, religiosity is associated with lower likelihoods of suicidal ideation and attempts (Nonnemaker, McNeely, & Blum, 2003), while receiving childhood religious education is associated with less suicidal ideation and less acceptance toward suicide (Eskin, 2004). It is religious involvement, though, that has shown the most robust link to suicidality (Koenig, McCullough, & Larson, 2001). Several potential mediators of the religion-mental health relationship have been proposed throughout the literature, but three broad classes are commonly suggested: social support, locus of control (LOC), and substance abuse (e.g., Moreira-Almeida et al., 2006).

Social support has been conceptualized as having multiple associations with religion within the extant literature. Religion has been described as promoting connectedness among people or offering social support (Ammerman, 1997; Beyerlein & Hipp, 2006; Driskell, Lyon, & Embry, 2008; Ferraro & Koch, 1994; Putnam, 2000; Putnam & Campbell, 2010), and social support has been viewed as a central aspect of the effect religion has on well-being (George, Ellison, & Larson, 2002; Meyers, Sweeney, & Witmer, 2000). Among individuals who attend religious services, those who also practice private religious
behaviors have been found to be more likely to provide social support (McClure, 2013). Social support has been indicated as a mediator of religion and both physical and mental health (Ai, Park, Huang, Rodgers, & Tice, 2007; Bainbridge, 1989; Durkheim, 1897/1951; Fiala, Bjorck, & Gorsuch, 2002; Koenig, Hays, George, Blazer, Larson, & Landerman, 1997; Powell, Shahabi, & Thoresen, 2003); however, religion sometimes still exhibits a positive effect on health, even when social support is controlled (Levin, Markides, Ray, 1996; Nisbet, Duberstein, Conwell, & Seidlitz, 2000; Rasic, Belik, Elias, Katz, Enns, & Sareen, 2009; Rasic, Robinson, Bolton, Bienvenu, & Sareen, 2011). Religious social support has also been found to mediate the religious involvement-emotional functioning relationship and the religious involvement-depressive symptom relationship (Holt, Schulz, Williams, Clark, & Wang, 2014).

Additionally, social support has demonstrated mediation effects for the relationship between religiosity and depressive symptoms (Husaini, Blasi, & Miller, 1999) as well as for the association between religious involvement and depression (Ai, Huang, Bjorck, & Appel, 2013) and between religious experiences and psychological distress (Ai et al., 2007). Moreover, social support has served as a mediator for the religion-depression relationship for African-Americans, Asian-Americans, and Whites (Ai et al., 2013; Ai et al., 2007; Holt et al., 2014; Husaini et al., 1999). However, when examined as a single, heterogeneous construct in Koenig et al.’s (1997) study, religiousness appeared to have a moderating effect (instead of a mediating effect) on the religiousness-depressive symptom relationship. This may indicate why selecting a more restricting, presumably homogenous, religious variable (i.e., religious attendance), as in the current study, may provide a more clear understanding of the religion-suicidal ideation relationship. Regardless of the function
served by social support (e.g., mediation, moderation), it is clear that social support exerts some impact on the religion-mental health relationship.

Substance abuse also has a well-supported association with religion (Koenig et al., 2001; Moreira-Almeida et al., 2006). Religion has been found to serve as a protective factor against substance abuse/dependence (Dalgalarondo, Soldera, Filho, & Silva, 2004; Kendler et al., 2003; Sanchez, Oliveira, & Nappo, 2004; Tavares, Beria, & Lima, 2004), with one study reporting that 81% of adolescents who did not use drugs believed and practiced a religion, while only 13% of the drug-using adolescents did so (Sanchez et al., 2004). Greater religious involvement has also been found to be associated with decreased risk of substance abuse (Kendler et al., 2003) and significantly decreased levels of drug use (Tavares et al., 2004). Examining specific aspects of religious involvement indicates that higher levels of general religiosity, social religiosity, and perceptions of an involved God may also be associated with reduced risk for substance abuse/dependence (Kendler et al., 2003). Additionally, receiving religious childhood education is associated with lower rates and less frequent use/abuse of specific drugs than students without religious education (Dalgalarondo et al., 2004).

Finally, locus of control (LOC) has consistently been associated with religion/spirituality and health (Meadow & Kahoe, 1984). Studies have demonstrated associations between external LOC and poorer health, including depression and anxiety (Kennedy, Lynch, & Schwab, 1998; Pikó, Kovács, & Kriston, 2011; Presson & Bensassi, 1996), and relationships between internal LOC and more positive health (Pikó et al., 2011). LOC has also been examined as a mediator of the religion-mental health relationship. Both internal LOC and external LOC have served as mediators of the relationship between
religion and mental health (e.g., Fiori, Brown, Cortina, & Antonucci, 2006; Ryan & Francis, 2012).

The current study sought to build upon the extant literature by empirically elucidating the theoretically-derived mediators of the association between religious attendance, specifically, and suicidal ideation among treatment-seeking adults at an outpatient mental health clinic. Prior to detailing hypotheses and the study design, a more elaborate review of the existing literature is provided.
CHAPTER II  
REVIEW OF THE LITERATURE

Much research has been conducted on religion and spirituality; these variables have often been studied in tandem within the mental health literature. Though these constructs appear to have exhibited some differential associations with mental health variables, even within various aspects of religion, they have frequently not been differentiated for research purposes. For the current study, Koenig et al.’s (2001) definitions of religion and spirituality were used, as these have been previously applied in the mental health literature:

1) Religion is an organized system of beliefs, practices, rituals, and symbols designed to facilitate closeness to the sacred or transcendent (God, higher power, or ultimate truth/reality).

2) Spirituality is the personal quest for understanding answers to the ultimate questions about life, about meaning, and about relationship with the sacred or transcendent, which may (or may not) lead to or arise from the development of religious rituals and the formation of a community.

While religion and spirituality often are practiced simultaneously, spirituality often includes religious beliefs or practices, functioning as a more encompassing construct, whereas religion does not necessarily include spiritual practices. This study sought to examine individuals who identify themselves with a religious affiliation and respond about their religious practices, regardless of their identification with spirituality.
Religion and Mental Health Issues: Suicidal Ideation

Religion has a well-documented impact on several specific mental health concerns. Moreira-Almeida et al. (2006) conducted a review of 850 systematically identified articles that examined religion and mental health published within the twentieth century, highlighting findings from some of the main articles during this time. With respect to studies salient to the current study, their review suggests that suicide is one of the most studied (and robust) mental health outcomes associated with religion.

Suicidal thoughts and behaviors are generally viewed as some of the most critical and devastating mental health concerns. Various aspects of religion have generally been found to negatively correlate with suicidal ideation and behavior. For instance, religious affiliation is related to fewer suicide attempts, less acceptance of suicide, and greater reasons for living, even in clinical patients with the same level of depression (Dervic et al., 2004). Similarly, religiosity has been found to be related to decreased likelihood of suicidal ideation and attempts (Nonnemaker et al., 2003). Additionally, researchers have found decreased suicidal ideation and more negative attitudes toward suicide in students who received religious education (Eskin, 2004).

Unfortunately, many studies (including the early seminal work by Durkheim, 1897/1951) investigating the religion-suicide relationship) focused on exploring specific religious affiliations related to mental health, rather than religious attendance. However, some studies have focused on religious involvement/commitment (Koenig et al., 2001; Moreira-Almeida et al., 2006), which is thought to be closely tied with religious attendance, producing inconsistent findings. Hilton, Fellingham, and Lyon (2002) found a lower relative risk of suicide for men (ages 15-34) with high religious commitment than those with low
commitment. Additionally, among religious variables, examining religious involvement has demonstrated the strongest findings related to suicide (Koenig et al. 2001). A study by Nisbet and colleagues (2000) more narrowly operationalized commitment as attendance and found that, even after controlling for relevant variables (e.g., frequency of social contact, marital status), the suicide rate for adults 50 and over who were involved in religious practices was four times lower than their non-attending (also aged 50+) counterparts.

Potential Mediators

A recent review of religion and mental health (Moreira-Almeida et al., 2006) discussed variables that have been proposed as potential mediators of the relation between mental health and religion. These variables include social support, means for expressing stress, belief systems/cognitive framework (e.g., locus of control), healthy behaviors and lifestyle, spiritual direction, and religious practices. The authors suggest that, most likely, multiple factors contribute to the explanation of the religion-mental health relationship. The existing literature provides some mixed findings on the impact some of these potential mediators may have on the religion-mental health relationship, at times demonstrating these potential mediating variables having opposing effects on the religion-mental health relationship. For example, some religions prescribe (or prohibit) behaviors that promote health and prevent disease (e.g., monogamous marriages), while others recommend behaviors that may contribute to health risks (e.g., prohibiting medications; Jarvis & Northcott, 1987). The current study focused on examining two potential mediators of the relation between religious attendance and suicidal ideation: (1) social support and (2)
substance abuse. External locus of control was also explored as a potential mediator in supplementary analyses.

Social support. There is a well-documented association between religion and social interactions. However, clarifying the facets of this relationship has been difficult. Religion has the potential to foster a sense of connectedness among people (Ammerman, 1997; Beyerlein & Hipp, 2006; Driskell et al., 2008; Putnam, 2000; Putnam & Campbell, 2010). Several studies have explored this association, discussing social support as being a critical aspect of religion’s impact on well-being (George et al., 2002; Meyers et al., 2000), while others have suggested that some portion of the religion-social support relationship might be understood by considering religious activities as serving the function of attaining social support (Ferraro & Koch, 1994). Still other researchers insist that social support acts as a mediator of relationships between religion and various aspects of physical or mental health (Ai et al., 2007; Durkheim, 1897/1951; Fiala et al., 2002; Powell et al., 2003; Rushing, Corsentino, Hames, Sachs-Ericsson, & Steffens, 2013).

McClure (2013) examined religious attendance and social support in a large sample of adults (N = 37,625; mean age = 55) from 228 congregations. She found that among religious-service attenders, those who engage in private religious activities are more likely to offer social support. The author suggested that examining practices of both private and social facets of religion is necessary for understanding the relation between religion and social support. This study, however valuable in contributing to understanding religion’s role in provision of social support, limited its examination of social support to likelihood of providing social support, rather than social support experienced by the individuals.
Some research has specifically examined the potential mediating role of social support on the relationship between religion and mental health. In a national sample of 803 African-Americans, religious social support mediated the relationship between religious involvement and emotional functioning, as well as mediating the religious involvement-depressive symptom relationship (Holt et al., 2014). Similarly, Husaini and colleagues (1999) examined a sample of 995 elderly African-American and White Nashville residents. These authors found that perceptions of social support served as a mediator of the religiosity-depressive symptom relationship. Likewise, Ai et al. (2013) conducted a study examining religious attendance, mental health (specifically examining depression), and the potential mediation of this relationship by social support in a sample of 2,095 Asian-Americans. Even when the authors controlled for other main contributors to Major Depressive Disorder, religious involvement still predicted decreased probability of depression. Social support mediated the relationship between religious attendance and depression in this sample, as well. Additionally, Ai et al. (2007) conducted a study using a sample of 309 cardiac patients (90% White) primarily from the Midwest United States. These authors found that perceived social support served as a mediator of the relationship between religious experiences prior to surgery and psychological distress after surgery.

Koenig et al. (1997) conducted a study on religion, social support, and health in a sample of 4,000 adults (65+ years old). Social support was associated with religiousness (as a heterogeneous construct) and depressive symptoms in the expected directions (i.e., positively correlated and negatively correlated, respectively), but religiousness was not related to depressive symptoms. These findings suggest that social support may moderate (as opposed to mediate) the religiousness-depression relationship in this study. However,
when religious activity was divided into three dimensions, religious attendance was negatively associated with depressive symptoms and not related to social support. Private religious activities (e.g., prayer) were positively correlated with social support but were not related to depression. Moreover, controlling for gender and physical health in their model had little impact on the relationship between scarce church attendance and depressive symptoms.

While research has supported the role of social support as impacting the relationship between religion and mental health (Bainbridge, 1989; Koenig et al., 1997), other researchers have found that, even after controlling for social support, religion still exhibited health benefits (Levin et al., 1996; Nisbet et al., 2000; Rasic et al., 2009; Rasic et al., 2011). Thus, a clearer understanding of how social support impacts the religion-mental health relationship can aid our understanding of each of these three constructs and elucidate the complex relationship between religion and specific mental health symptoms. For this reason, the current study limited the religion construct to examining religious attendance in order to provide the most clarity from analyses.

Substance abuse. The Moreira-Almeida et al. (2006) review found that, based on more than 120 studies (prior to 2000) including both adolescents and adults, increased religious commitment demonstrated a well-defined relation to decreased rates of substance use/abuse (Koenig et al., 2001). One particular study (Kendler et al., 2003) examined facets of religiosity related to lifetime mental and substance use disorders in a sample of 2,616 male and female twins. They found lower risk for substance abuse for individuals with greater religious involvement. Specifically, they found that higher levels of general religiosity were related to lower risk of substance abuse/dependence (i.e., drug
abuse or dependence, alcohol dependence, nicotine dependence), and social religiosity was associated with decreased substance abuse/dependence risk, as well. Additionally, higher scores on their involved God factor were related to reduced risk for substance abuse/dependence.

Sanchez et al. (2004) utilized a sample of 62 drug-using and non-using youths from a dangerous and low socioeconomic area in Brazil to examine protective factors against drug use. They found religiousness to be one of the strongest protective factors against drug use, finding that 81% of adolescents who did not use drugs believed and practiced a religion, whereas only 13% of the drug-using adolescents demonstrated this behavior.

Dalgalarrondo et al. (2004) studied religion’s relationship to drug use in 2,287 elementary and high school students (mean age 15.8) from both public and private schools in Brazil. Even after adjusting for pertinent variables, religious variables were associated with lower levels of recent drug use. Students who received religious childhood education showed lower rates of specific drug uses/abuses than students without religious education. In addition, students with religious education also reported less frequent use of specific drug uses/abuses as well as less frequent heavy use of specific drug uses/abuses within the month prior to the study, compared to the students who did not receive highly religious education. Finally, students who reported a religious affiliation had lower drug use/abuse for specific substances.

A study by Tavares and colleagues (2004) examined the drug use of 2,410 adolescents in southern Brazil from both public and private schools. They found that students involved in no religious practices had 30% greater drug use than religious students, even after controlling for other variables. In this study, neither religious
affiliation nor belief contributed as a protective factor for adolescent drug use, but religious practice did.

Locus of control (LOC). Locus of control is generally defined as one’s belief about whether personal effort is responsible for attained outcomes (Rotter, 1966). Having an internal LOC means that one feels responsible for the events that occur in life (e.g., his circumstances). An external locus of control, however, is described as the belief that external forces (e.g., fate) are responsible for one’s circumstances. External LOC has typically been associated with poorer health outcomes (both physical and mental) as well as disorders of both depression and anxiety (Kennedy et al., 1998; Presson & Bensassi, 1996), while internal LOC has shown consistent associations with more positive health outcomes. Throughout the literature, religion/spirituality, health, and LOC have displayed consistent relationships (Meadow & Kahoe, 1984). For example, in a recent Hungarian study of youths examining religion/spirituality and mental health (Pikó et al., 2011), internal LOC was related to lower levels of depression, while those with external LOC showed higher depression levels and lower life satisfaction.

Other research has explored LOC’s role as potentially mediating relationship between religion and mental health. Although Wigert (2001) failed to find a mediating impact of religious commitment on the LOC-health relationship, other researchers have found mediating effects of external LOC on the religion-mental health relation (e.g., Fiori et al., 2006; Ryan & Francis, 2012). In a sample of adult Christians, Ryan and Francis (2012) examined LOC’s impact on the relation between “religious functioning” (including both religious and spiritual beliefs and practices in their study) and health (physical and psychological). They assessed specific dimensions of religious functioning, including
instability and God awareness. In their study, instability referred to the anxiety resulting from an individual’s religious principles, and God awareness reflected the strength of God’s presence that one experiences in his everyday life. In this study, the authors found that internal LOC mediated the relationship between awareness of God and mental health, whereas the relationship between instability and mental health was mediated external LOC. This study was the first to demonstrate a mediating effect of internal LOC on the religious functioning-health relationship (Ryan & Francis, 2012). While the preceding studies provide support for the relations among various aspects of religion/spirituality, LOC, and specific indicators of mental health, the current study sought to examine religious attendance’s relation to a specific mental health concern (i.e., suicidal ideation) and examine the potential mediation of LOC on this relationship.

Proposed Study

Many studies have examined the relationship between religion and/or spirituality and mental health (see Koenig et al., 2001). However, to the author’s knowledge, few studies have been conducted on these specific variables potentially mediating the relationship between religious attendance and suicidal ideation. The extant studies that do examine these relationships have rarely used clinical samples. In recent years, some researchers have studied the potential mediating effect of several variables on the well-documented relationship between religion and mental health (e.g., Fiori et al., 2006; Ryan & Francis, 2012). The results of these studies suggest that LOC and substance abuse may serve as mediators, but the specific function served by social support is less clear. Of the studies that were identified as including religious attendance and suicidal ideation, social support was the only proposed mediator from the current study to be examined in relation
to religious attendance and suicidal ideation (Mota, Medved, Whitney, Hiebert-Murphy, & Sareen, 2013; Rasic et al., 2009; Rasic et al., 2011; Rushing et al., 2013). However, even these studies yielded some conflicting results. The established literature reports social support to function as a mediator most often, but occasionally it is demonstrated to be a moderator instead. Thus, the current study proposes a mediation model consistent with most of the existing literature; however, if mediation is not demonstrated with respect to social support in the current study, a test of moderation will be conducted. The specific aim of this project is to elucidate empirically the theoretical mediators of the association between religious attendance and suicidal ideation. Based on the preceding review of the established literature, several hypotheses were proposed:

Hypothesis I: There is a significant correlation between religious attendance and suicidal ideation.

Hypothesis II: Social support mediates the association between religious attendance and suicidal ideation.

Alternative Hypothesis II: Social support moderates the association between religious attendance and suicidal ideation.

Hypothesis III: Substance abuse mediates the association between religious attendance and suicidal ideation.

Exploratory Hypothesis IV: External locus of control mediates the association between religious attendance and suicidal ideation.
CHAPTER III

METHOD

Participants

The current study used archival data from adults who sought treatment at the University of North Texas (UNT) Psychology Clinic between June 2009 and February 2012. Services within the Psychology Clinic are provided by doctoral trainees under the supervision of a licensed psychologist (generally a current faculty member within the student’s program), meeting for supervision individually for one hour weekly and as a group (i.e., supervisor and a small group of students within the same program) for two hours weekly. Trainee clinicians are generally expected to engage in some implementation of their supervisor’s therapeutic approach for training purposes. As such, trainees can best be described as utilizing an eclectic therapeutic approach to treatment of clients and all services are provided on a sliding fee scale.

The archival data was gathered following approval of the Institutional Review Board and the Psychology Clinic, and participants provided consent for use of their data for research purposes. However, this archival data set had not been previously analyzed in the manner detailed within this study. Within the archival data for adults we selected those clients who reported SI at some point during treatment (how these clients were identified is described more fully under Results section below).

Participants in this study included 144 (101 female; 38 male; 5 undisclosed) adults with a mean age of 29.92 ($SD = 11.35; range = 18-65). The mean annual familial income for these participants fell in the $10,000-$20,000 range (range = <$10,000 to >$80,000). The demographics of the sample reflect 64.6% White, non-Hispanic, 10.4% Hispanic, 8.3%
African-American or Black, 3.5% Asian, 4.2% biracial, and 9% other (i.e., Middle Eastern, “Other,” Non-disclosed). Marital status for the current study was comprised of 53.2% single, 18.0% married, 12.2% living with a committed partner, 10.1% divorced, 5.8% separated, and 0.7% widowed individuals. Regarding education, 61.0% reported some college or having an associate degree; 18.4% were college graduates; 12.8% were high school graduates; 5.0% held a graduate degree; and 2.8% reported less than high school education.

Table 1

Percentage of Sample (N = 144) Meeting Clinical Cutoff Based on the PDSQ

<table>
<thead>
<tr>
<th>Type of Disorder</th>
<th>n</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>Any Disorder</td>
<td>140</td>
<td>97.2</td>
</tr>
<tr>
<td>Anxiety</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Social Phobia</td>
<td>96</td>
<td>66.9</td>
</tr>
<tr>
<td>GAD</td>
<td>90</td>
<td>62.2</td>
</tr>
<tr>
<td>PTSD</td>
<td>72</td>
<td>50.0</td>
</tr>
<tr>
<td>OCD</td>
<td>68</td>
<td>46.9</td>
</tr>
<tr>
<td>Panic</td>
<td>62</td>
<td>43.4</td>
</tr>
<tr>
<td>Agoraphobia</td>
<td>53</td>
<td>36.6</td>
</tr>
<tr>
<td>Somatization</td>
<td>65</td>
<td>44.8</td>
</tr>
<tr>
<td>Hypochondriasis</td>
<td>43</td>
<td>30.1</td>
</tr>
<tr>
<td>MDD</td>
<td>113</td>
<td>78.3</td>
</tr>
<tr>
<td>Psychosis</td>
<td>46</td>
<td>32.2</td>
</tr>
<tr>
<td>Alcohol</td>
<td>40</td>
<td>27.7</td>
</tr>
<tr>
<td>Drug-related</td>
<td>28</td>
<td>19.7</td>
</tr>
<tr>
<td>Drug or Alcohol</td>
<td>56</td>
<td>38.9</td>
</tr>
<tr>
<td>Bulimia</td>
<td>20</td>
<td>14.0</td>
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Note. Anxiety = Any anxiety disorder; GAD = Generalized anxiety disorder; PTSD = Posttraumatic stress disorder; OCD = Obsessive-compulsive disorder; MDD = Major depressive disorder.
Based on the Psychiatric Diagnostic Screening Questionnaire (PDSQ), 97.2% of the sample met criteria for at least one disorder. Of the sample, 93.1% met criteria for an anxiety disorder, 78.3% met criteria for major depressive disorder, and 32.2% scored within the clinical range for psychosis on the PDSQ. In addition, 27.7% were in the clinical range for an alcohol disorder, 19.7% met criteria for a drug-related disorder, and 38.9% met criteria for a drug or alcohol disorder. Finally, 14.0% of the sample was in the clinical range for bulimia. See Table 1 for additional details. Distress, as measured by the Outcome Questionnaire 45.2 (OQ), was also assessed. Participants’ initial OQ mean was 91.11 (SD = 19.75), and their end-of-treatment OQ mean was 83.54 (SD = 23.01; the mean change in OQ score during treatment was 7.62; SD = 19.53).

Procedures

Clients completed the self-report Adult History Form and PDSQ prior to meeting with a Psychology Clinic clinician for their therapeutic intake. Subsequently, prior to each therapy session, clients completed the OQ to self-report their clinical symptoms experienced the preceding week.

Measures

Adult History Form (AHF). This measure was designed for use in the clinic in order to collect information that may be relevant to clients’ treatment. The questionnaire includes items that inquire about demographics, prior treatment, presenting problems, employment history, family history, substance use (both current and previous), and past and present mental health concerns. Additionally, this form asks respondents about religion and spirituality, including beliefs and practices to which they prescribe and their involvement in these activities. For the current study, the free-response item that inquires
about religious attendance (i.e., "How often do you attend religious services?") was used to measure religious commitment. This item was coded ordinally as days of involvement per week (i.e., never/none/zero/rarely was coded as 1; less than once weekly was coded as 2; one to two times per week was coded as 3; and two or more times per week was coded as 4).

Psychiatric Diagnostic Screening Questionnaire (PDSQ). The PDSQ (Zimmerman, 2002) screens for DSM-IV Axis I symptoms (Zimmerman & Mattia, 2001) and is composed of 111 dichotomous ("yes" or "no") items assessing respondents’ clinical symptoms (e.g., feelings, thoughts, and behaviors). Some items on this questionnaire inquire about symptoms experienced during the past two weeks (these items are generally focused on more acute symptoms that might require immediate attention), while other questions refer to symptoms experienced during the past six months. This measure yields 14 subscale scores, including those for total raw score and 13 clinical disorder scales. The PDSQ includes clinical cut-off scores for each subscale as well as several critical items that should involve follow-up inquiry by the intake clinician if the client answered “yes” to these questions. The subscales of the PDSQ demonstrate good to excellent levels of internal consistency and test-retest reliability as well as good convergent validity. Using cutoff scores with a sensitivity of 90%, the mean negative predictive value of the subscales is 97%.

Outcome Questionnaire 45.2 (OQ). The OQ (Lambert, Gregersen, & Burlingame, 2004) is a 45-item measure designed to assess clients’ symptoms over the previous week. Clients completed this measure before each psychotherapy session throughout the duration of their treatment within the Psychology Clinic. The OQ is extensively used to
track outcomes in psychotherapy studies and has demonstrated high concurrent validity while performing well with respect to both specificity and sensitivity to change during treatment. Responses for each item range from 0 to 4 (never to almost always) and are summed to produce three subscales as well as a total score. Scores at or above a raw total score of 63 are indicative of clinically significant distress. A change of +/- 14 raw points is indicative of a reliable change in the client’s distress; as such, a ≥ 14-point decrease in raw score indicates reliable improvement, while a ≥ 14-point increase in raw score indicates a reliable deterioration.
CHAPTER IV

RESULTS

Data was cleaned and carefully inspected for errors and the identification of outliers. Missing data was examined to determine if there are any patterns to the missing data that needed to be considered prior to hypothesis testing. No patterns of missing data were identified.

New variables were then computed. The Adult History Form (AHF) item inquiring about religious attendance (i.e., “How often do you attend religious services?”) was coded as attendance per week. Responses on this question were grouped into ordinal categories of attendance: never/none/zero/rarely was coded as 1; less than once per week was coded as 2; one to two times weekly was coded as 3; and twice or more weekly was coded as 4. These values were used for the independent variable in hypothesis testing as a proxy for the religious attendance construct. A mean score for suicidal ideation during treatment was coded as the sum of scores on Item 8 of the Outcome Questionnaire 45.2 (OQ; i.e., “I have thoughts of ending my life”) throughout treatment, divided by the number of OQ forms completed. This treatment SI score served as the dependent variable in each of the mediation analyses.

Several variables were then be created for use in detecting a mediating effect: (1) social support (SS) during treatment was computed by summing scores on Items 7, 20, 30, 37, and 43 on the OQ throughout treatment, and dividing by the number of OQ forms completed; (2) a composite score for substance abuse (SA) during treatment were coded as the sum of scores on Items 11, 26, and 32 of the OQ throughout treatment, divided by the number of OQ forms completed; and (3) external locus of control (LOC) during treatment
was coded as the sum of scores on Item 5 of the OQ throughout treatment, divided by the total number of OQ forms completed during treatment. See Table 2 for means and standard deviations of these variables.

Table 2

*Means and Standard Deviations of Variables of Interest*

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Religious Attendance</td>
<td>1.47</td>
<td>0.802</td>
</tr>
<tr>
<td>Suicidal Ideation</td>
<td>1.376</td>
<td>0.693</td>
</tr>
<tr>
<td>Social Support</td>
<td>9.746</td>
<td>2.948</td>
</tr>
<tr>
<td>Substance Abuse</td>
<td>0.917</td>
<td>1.621</td>
</tr>
<tr>
<td>External Locus of Control</td>
<td>2.802</td>
<td>0.770</td>
</tr>
</tbody>
</table>

The requisite assumptions for performing the proposed analyses were then checked. The mean treatment substance abuse variable and the mean treatment SI variable were both positively skewed and kurtotic (both greater than 3.3); thus data transformations were performed to try and normalize these variables. Square root, logarithm, and inverse transformations were conducted, but data normality did not improve with any of these transformations. However, neither suicidal ideation nor substance abuse is normally distributed in the general population (e.g., both are positively skewed). As a result of non-normality in the population, and the lack of benefit from data transformations, the mean substance abuse during treatment was left untransformed. However, because the suicidal ideation variable served as the dependent variable, only
cases with some reported suicidal ideation during treatment (i.e., scores of greater than 0.50) were included in the mediation and moderation analyses.

Descriptive Statistics

Frequency of religious attendance was next examined, revealing that 71.5% reported no religious service attendance. Of those that reporting attending services, 36.6% attended less than once per week, 61.0% attended 1-2 times weekly, and 2.4% attended more than twice a week. For the purposes of characterizing the sample, basic descriptive statistics, beyond the demographics presented within the participants section, were also computed for the following Adult History Form (AHF) items that pertain to religion or spirituality (see Table 3): Do you claim a specific religion? Which one?

As described above, those participants who reported some SI during treatment (85.7% of the sample) were included in hypothesis testing. At intake, 11.5% reported current SI, and 35.7% of the sample reported a previous suicide attempt. With regard to substance abuse, 26.8% acknowledged having a problem with substance abuse, and 37.8% have tried to cut down on their SA. While 45.9% of the sample has felt bad or guilty about their use, 27.0% reported being annoyed by others’ criticizing the client’s use. Finally, 13.5% reported using substances as an “eye-opener” in the morning to steady their nerves or help with a hangover. Within this sample, participants self-reported problems with alcohol (39.0%), caffeine (36.6%), tobacco (22.0%), and marijuana (19.5), and “other” (9.8%).
Table 3

Percentage of Sample (N = 144) Reporting Religious Affiliation

<table>
<thead>
<tr>
<th>Religious Affiliation</th>
<th>n</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>No affiliation</td>
<td>65</td>
<td>46.4</td>
</tr>
<tr>
<td>Christian, not specified</td>
<td>25</td>
<td>17.9</td>
</tr>
<tr>
<td>Baptist</td>
<td>12</td>
<td>8.6</td>
</tr>
<tr>
<td>Catholic</td>
<td>9</td>
<td>6.4</td>
</tr>
<tr>
<td>Atheist</td>
<td>4</td>
<td>2.9</td>
</tr>
<tr>
<td>Non-denominational Christian</td>
<td>4</td>
<td>2.9</td>
</tr>
<tr>
<td>Methodist</td>
<td>2</td>
<td>1.4</td>
</tr>
<tr>
<td>Latter Day Saints</td>
<td>2</td>
<td>1.4</td>
</tr>
<tr>
<td>Lutheran</td>
<td>2</td>
<td>1.4</td>
</tr>
<tr>
<td>Paganism</td>
<td>2</td>
<td>1.4</td>
</tr>
<tr>
<td>Agnostic</td>
<td>1</td>
<td>0.7</td>
</tr>
<tr>
<td>Buddhist</td>
<td>1</td>
<td>0.7</td>
</tr>
<tr>
<td>Episcopalian</td>
<td>1</td>
<td>0.7</td>
</tr>
<tr>
<td>Jehovah’s Witness</td>
<td>1</td>
<td>0.7</td>
</tr>
<tr>
<td>Judaism</td>
<td>1</td>
<td>0.7</td>
</tr>
<tr>
<td>Pantheist</td>
<td>1</td>
<td>0.7</td>
</tr>
<tr>
<td>Pentecostal</td>
<td>1</td>
<td>0.7</td>
</tr>
<tr>
<td>Presbyterian</td>
<td>1</td>
<td>0.7</td>
</tr>
<tr>
<td>Protestant</td>
<td>1</td>
<td>0.7</td>
</tr>
<tr>
<td>Shinto</td>
<td>1</td>
<td>0.7</td>
</tr>
<tr>
<td>Taoism</td>
<td>1</td>
<td>0.7</td>
</tr>
<tr>
<td>Unitarian Universalist</td>
<td>1</td>
<td>0.7</td>
</tr>
<tr>
<td>Wiccan</td>
<td>1</td>
<td>0.7</td>
</tr>
</tbody>
</table>

Correlations

Religious attendance was negatively correlated with substance abuse ($r = -.185; p = .027$) as well as suicidal ideation ($r = -.182; p = .029$). Social support, though positively correlated with external LOC ($r = .250; p = .003$) and suicidal ideation ($r = .323; p < .001$), was not significantly associated with religious attendance ($r = -.026; p = .764$). Additionally,
external LOC was not significantly related to religious attendance \((r = -.097; p = .250)\), but external LOC was positively correlated with suicidal ideation \((r = .289; p < .001)\). See Table 4 for additional, though non-significant, correlations.

Table 4

*Correlations of Primary Study Variables (IV, DV, and Potential Mediators/Moderators)*

<table>
<thead>
<tr>
<th></th>
<th>RA</th>
<th>SI</th>
<th>SS</th>
<th>SA</th>
<th>LC</th>
</tr>
</thead>
<tbody>
<tr>
<td>RA</td>
<td>--</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SI</td>
<td>-.182*</td>
<td>--</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SS</td>
<td>-.026</td>
<td>.323**</td>
<td>--</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SA</td>
<td>-.185*</td>
<td>.042</td>
<td>.024</td>
<td>--</td>
<td></td>
</tr>
<tr>
<td>LC</td>
<td>-.097</td>
<td>.289**</td>
<td>.250**</td>
<td>.005</td>
<td>--</td>
</tr>
</tbody>
</table>

*Notes. RA = Religious Attendance; SI = Suicidal Ideation; SS = Social Support; SA = Substance Abuse; LC = External Locus of Control. SI, SS, SA, and LC are summary variables created for analyses. * denotes that correlation is significant at the 0.01 level (2-tailed). ** denotes that correlation is significant at the 0.001 level (2-tailed).*

Hypothesis Testing

Hypothesis I stated that a significant relationship between religious attendance and suicidal ideation would be found. As demonstrated in Table 4 above, this hypothesis was supported. Hypotheses II-IV predicted mediation of the association between religious attendance and suicidal ideation by social support, substance abuse, or locus of control. Mediation (as presented in Hypotheses II-IV) assumes that all of the variables of interest are significantly correlated with one another. However, as shown in Table 4, none of the potential mediators were significantly correlated with both the religious attendance and suicidal ideation variables. The results of the correlation analyses indicate that none of the
potential mediators proposed in this study were, in fact, mediating the RA-SI relationship in the current sample. Thus, Hypotheses II-IV were not supported. As an alternative hypothesis, a moderating relationship was predicted for social support. Moderation does not require significant correlations among associated variables, which allowed for a test of moderation to be performed. However, the results were non-significant.

Secondary Analyses

In light of the pattern of correlations that was observed, several other possible associations among the variables were explored. One possibility explored was that it is actually religious attendance that serves as a moderator of these other relationships; however, exploration of this possibility revealed no significant evidence supporting such associations. Additionally, no significant evidence was found to suggest any other variables exerting indirect effects (i.e., mediators or moderators) on the religious attendance-SI relationship. Taken together, the hypothesis testing and results of exploratory analyses indicate that religious attendance exerts a direct effect on SI. In linear multiple regression, religious attendance was found to significantly predict SI ($b = -0.182, t(142) = -2.210, p = 0.029$). Additionally, religious attendance was also found to predict substance abuse ($b = -0.185, t(140) = -2.233, p = 0.027$) in linear multiple regression.

Although there was no evidence of mediation or moderation of the religious attendance-SI association, the observed pattern of correlations (as shown in Table 4) suggested the possibility of such indirect effects among the variables of social support, external LOC, and SI. Beyond the religion and mental health literature, the extant literature supports associations among these other variables (e.g., Endo et al., 2014; Lauer, de Man, Marquez, & Ades, 2008; VanderZee, Buunk, & Sanderman, 1997). As a result, religious
attendance was excluded from additional analyses and mediation was explored among social support, external LOC, and suicidal ideation. In these analyses, social support was revealed as a significant predictor of suicidal ideation ($b = .323$, $t(137) = 3.989$, $p < .001$), as was external LOC a predictor of SI ($b = .289$, $t(141) = 3.583$, $p < .001$). SS was also significantly predictive of external LOC ($b = .250$, $t(136) = 3.009$, $p = .003$).

Hierarchical linear regression analyses were performed to test if social support mediated the relationship between external LOC and suicidal ideation. For this analysis, external LOC was entered into Step 1 of the model as the predictor variable with SI serving as the criterion. Social support was then entered as the mediator into Step 2 of the model. Results indicate that social support mediates the relationship between external LOC and suicidal ideation ($b = .260$, $t(136) = 3.187$, $p = .002$). When both external LOC (the predictor in this analysis) and social support (the mediator in this analysis) were both included in the model, the indirect effect of LOC on SI via SS was significant as a mediator according to the Sobel (1982) test ($z = 2.196$, $p = .028$). The initial existing relationship between external LOC and SI also remained significant after controlling for social support, which indicates partial mediation. These results are displayed in Figure 1.
Figure 1. Social support mediates the relationship between external LOC and suicidal ideation.

In addition, hierarchical linear regression analysis was performed to test for mediation of external LOC on the SS-SI relationship. In Step 1, social support was entered into the model as the predictor with suicidal ideation as the outcome variable. External LOC was entered into Step 2 of the model as the mediating variable of the SS-SI relationship. This analysis indicated that external LOC does, indeed, mediate the relationship between social support and suicidal ideation ($b = .245, t(136) = 3.012, p = .003$). According to the Sobel test, external LOC mediation was significant ($z = 2.159, p = .031$). When controlling for external LOC, social support still significantly predicts suicidal ideation, suggesting partial mediation. These results are presented in Figure 2.
Figure 2. External LOC mediates the relationship between social support and suicidal ideation.
CHAPTER V

DISCUSSION

The current study found a direct effect of religious attendance on suicidal ideation. While this direct effect is consistent with a great deal of literature on the topic (e.g., Koenig et al., 2001; Moreira-Almeida et al., 2006), this finding is in contrast with some previous research. In those opposing reports, religion has been hypothesized as serving as either a method for attaining social support or as a proxy for social support itself (Ammerman, 1997; Beyerlein & Hipp, 2006; Driskell et al., 2008; Durkheim, 1897/1951; Ferraro & Koch, 1994; George et al., 2002; Meyers et al., 2000; Putnam, 2000; Putnam & Campbell, 2010). The results of this study indicate that, within this sample, although both religious attendance and social support are association with SI, they are not necessarily redundant constructs and can be parsed via distinct measures.

A direct effect of religious attendance on substance abuse was also observed. This finding is consistent with previous literature indicating that religious attendance serves as a protective factor for substance abuse (Dalgalarrondo et al., 2004; Kendler et al., 2003; Sanchez et al., 2004; Tavares et al., 2004). None of the variables of interest provided an indirect effect (i.e., mediation or moderation) between religious attendance and substance abuse.

Mediation

The proposed mediation models, and alternative moderation model, were not supported in the current study. Therefore, we explored other associations among the variables. Results of this study indicate that external locus of control (LOC), social support, and suicidal ideation are all significantly related. Thus, mediation was tested based on
research support for the direction of these relationships. It has been suggested that external LOC has been associated with suicide, in part, because external LOC may lead individuals to feel helpless or hopeless with regard to control in their lives, leading to greater suicidal ideation (Lauer et al., 2008).

People with high external LOC tend to exhibit deficits in coping strategies (Anderson, 1977; Hoffman & Levy-Shiff, 1994; Lauer et al., 2008; Liu et al., 2000). Thus, people who identify more strongly with an external LOC may be in greater need, and depend more upon, support from others than those who more strongly identify with internal LOC (VanderZee et al., 1997). Therefore, it may be that having increased social support serves as a protective factor against these emotions, limiting suicidal ideation for those individuals’ with an external locus of control.

Another possibility is that external LOC mediates the relationship between social support and SI. Given that research has shown people with external LOC perceive less social support than people with internal LOC (VanderZee et al., 1997), it may be that external LOC simply filters people’s perception of their social support, regardless of their actual social support network. Additionally, Kleinberg, Aluoja, and Vasar (2013) suggested that people with external LOC may accept help more easily (than those with internal LOC) because they typically expect help from external sources. Their study found that for people with external LOC, lack of social support was related to greater help-seeking behaviors for depression.

Results of the current study indicate a clear association among these three variables, and these findings are consistent with the literature, both presenting evidence that relationships exist among suicidal ideation, external LOC, and social support and yielding
results that do not clearly identify directionality among these variables. However, in the current study, the strength of the effect for the first mediation model presented (i.e., social support’s serving as a mediator rather than external LOC serving as the mediator; Figure 1) is stronger; therefore, the author speculates that the “real” relationship between external LOC and suicidal ideation is mediated by social support.

Limitations

The results found of the current study are from a university training clinic, which may cause one to question the generalizability of the findings. However, this is not thought to be a significant limitation as the study did not involve any training or clinician variables (the primary variables of distinction between a training clinic and other outpatient clinics). With respect to client variables, some may question whether a training clinic might see a disproportionate number of “easy” or subclinical presentations and therefore compromise the generalizability of the findings. However, the Outcome Questionnaire 45.2 (OQ) and Psychiatric Diagnostic Screening Questionnaire (PDSQ) data associated with the sample for this study strongly suggest this is not the case. Rather, the current sample contains a much greater number of individuals meeting diagnostic criteria than reported for other clinical samples in the PDSQ manual (e.g., 78.3% with Major Depressive Disorder in the current sample, compared to 51% in the manual). Similarly, the OQ scores for the current sample fell in the clinical range, and almost the entire sample (97.2%) had scores in the clinical range on this measure at the time of intake.

Archival data provides several benefits but limits the freedom researchers may have with measurement of their constructs of interest. For example, locus of control is a variable that likely has a strong relationship with suicidal ideation (Lauer et al., 2008) as well as a
relationship with aspects of religion (Ryan & Francis, 2012). However, despite evidence that external LOC is related to religious attendance (RA), this study found no relation between external LOC and RA. One reason for this lack of finding may be related to the measurement of external LOC by one item (“I blame myself for things”), which allows some room for interpretation and may not capture external LOC as well as a more comprehensive measure of LOC. Although the author acknowledged the limitations of the external LOC variable prior to the current study, LOC may have a critical impact on the religious attendance-suicidal ideation relationship, and this item provided the best measurement of external LOC within the current data set. Thus, this variable was pursued in spite of these confines and still yielded some significant associations with other variables as noted above. Similarly, with a measure of religious involvement that includes more variance in responding (or the method for coding that retains greater variance of responses), a stronger association between religious involvement and the other variables (i.e., social support, substance abuse, external locus of control, suicidal ideation) examined in this study might have been evident.

Future Directions

It would be interesting to examine both internal and external LOC in concert, as Ryan and Francis (2012) did, and explore how both constructs relate to religious attendance, specifically. These analyses may result in unique associations that better explain the results observed in the current study finding social support as a mediator of the external LOC-SI relationship.

Additionally, researchers should explore the relationships among LOC, social support, and suicidal ideation. Consistent with the findings of the present study, the extant
literature supports existing relationships but has yielded some mixed findings with regard to the direction of the relationships among these variables. Examining different facets of each of these variables (e.g., both perceived and actual social support), as well as examining samples in a longitudinal manner, may provide greater clarity about which variables may serve as mediators or moderators.

Future research may also benefit by focusing more on religious commitment in relation to mental health symptoms and/or treatment. More specifically, examining both public involvement (e.g., church attendance), as in the current study, as well as private practices (e.g., frequency of prayer) and alignment with values and beliefs associated with different religions could allow for a more varied assessment of the construct of religious commitment.

It is also recommended that future research examine clients’ values of religion or religious commitment in conjunction with therapists’ values of these constructs and explore the effect this might have on treatment. Future research that explores the value congruence between clients and therapists as well as time devoted to religious topics in session might be especially useful. Similarly, future research that explores the potential benefits of clinicians’ willingness to discuss their clients’ religious (or spiritual) beliefs throughout, or even as a component of, treatment could also be informative.

Clinical Implications

Because psychologists’ religious or spiritual beliefs often differ from their clients (Dein, Cook, Powell, & Eagger, 2010), research such as that described above might serve as a valuable pathway for providing students working within graduate training clinics (as is the case in the current study) an opportunity (e.g., via training workshop) to develop skills
on how to approach or incorporate clients’ religious beliefs within this professional
treatment setting or simply facilitate discussion of these topics within treatment, so that
the chasm is not so great between treatment provider and client.

The current study provides support for the notion that religion attendance predicts
suicidal ideation, regardless of other variables tested in this study. This finding
demonstrates the importance of religion as it relates to clients’ mental health treatment. In
the present sample, 71.5% reported no religious service attendance. However, as shown in
Table 3 above, a substantial number of clients reported a religious affiliation. There
appears to be a discrepancy between those individuals identifying themselves as having a
religious identification and those attending services (albeit some of the identifications are
unlikely to involve attendance at services, such as “atheist” or “agnostic”). It is clear that
religious attendance (in addition to various other aspects of religion) has a beneficial
impact on suicidal ideation. As such, for clients experiencing suicidal ideation who report
religion to be important to them, this topic may be especially important to include in
sessions. In light of the present study’s findings, it appears that clients experiencing
suicidal ideation who then choose to attend services are likely to experience benefits as the
current study indicates a direct effect of religious attendance on suicidal ideation.

Other researchers (e.g., Dein et al., 2010) have similarly argued that clinicians
should consider how religion and spirituality impact their clients and encourage inclusion
of this topic as a part of treatment. Gearing and Lizardi (2009) have even offered clinical
guidelines for assessing clients’ religious views and their influence on the client’s risk of
suicide. Considering that religious involvement is related to several physical and mental
health benefits, other than suicidal ideation (Koenig et al., 2001; Moreira-Almeida et al.,
2006), clinicians are encouraged not to shy away from discussing these topics. Not only do such discussions hold potential to be of great significance to clients, but they also seem to serve as protective factors for at least some mental health symptoms.
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