# Refining Research on the Intersection Between Sexual Orientation, Suicide, and Religiosity

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## Abstract

This study examined the intersection of religion, suicidality, and sexual orientation. Given conflicting findings in this area (Lytle et al., 2015, 2018), the conceptualization of religiosity is refined and its relationship to suicidality and related constructs are examined. Data come from the 2011 University of Texas at Austin's Research Consortium's "Survey of Distress, Suicidality, and Student Coping" ($n$ = 20,991). Analyses replicated previous work (Lytle et al., 2018) examining the relationships between importance of religious/spiritual beliefs and suicidality across sexual orientations. Analyses were enhanced with imputation and single regression analysis, and a more refined measure of religiosity was examined for its relationship with suicidality, belongingness, mindfulness, and sense of coherence. The helpfulness of religious/spiritual connections in coping were compared to other resources. Analyses found fewer associations between importance of religious/spiritual beliefs and suicidality for LGBQ (gay, lesbian, bisexual, and questioning) persons than previous work. Religiosity was protective against suicidality for heterosexuals, was positively associated with ideation for lesbians/gays, was unrelated to ideation for bisexual and questioning individuals, and was unrelated to suicide attempts for LGBQ individuals. For LGBQ individuals, when belonging, coherence, and mindfulness were related to religiosity, the association indicated better wellbeing for those who were religious. For LGBQ individuals, a connection with religion/spirituality was either equally or more helpful than connection with a university, mental health professionals, or campus resources. Findings reflect complexity between sexual orientation, suicidality, mental health, and religiosity with religiosity associated with protection and some risk. Future research requires more precise conceptualizations and operationalizations and the avoidance of simplistic narratives.

With suicide rates rising in the United States (United States Centers for Disease Control, 2019), research is needed to identify risk and protective factors that can be incorporated into interventions. The relationship between suicidality and religiosity has a long history of research, stretching back to Émile Durkheim who examined the relationship between suicide and religion in some of the earliest social science statistical analyses (Durkheim, 1897). Much of the research suggests religion is a protective factor against suicide (Stack & Kposowa, 2016), though this has recently come into question. Some research finds that adhering to a religion may create feelings of being an outsider because the individual does not feel they "fit" in the religion or because they belong to a minority religious tradition within their society (e.g., Lytle et al., 2018; Young et al., 2011). Further, as Lawrence, Oquendo, and Stanley (2016) note, a complicating factor in research on religiosity and suicide is that the operationalization of *religiosity* frequently lacks nuance.

The purpose of the current study was to examine how religiosity relates to suicidality within a group for whom religiosity may be a risk factor—those who identify as lesbian, gay, bisexual, or questioning (LGBQ). Although some previous research has examined the question, results are mixed (e.g., Lytle et al., 2015, 2018), likely due to inconsistencies in how "religiosity" is operationalized. The current study replicates and extends earlier work by 1) using a more holistic operational definition of *religiosity*, 2) including additional suicidality related measures, and 3) examining the helpfulness of using religion/spirituality for coping among LGBQ individuals.

**Religiosity as a Protective Factor and a Risk Factor**

Two systematic reviews of the research on religion and suicide find that, for the most part, religiosity (including affiliation and attendance at worship services) is related to lower

suicidality (Lawrence et al., 2016; Stack & Kposowa, 2016). Religion may provide a sense of belonging which is hypothesized as a key protective factor against suicide (Dyer et al., 2020; Joiner, 2005). Religion may also provide a social network one can draw upon during life's challenges (Stack & Kposowa, 2011). Stack (1983) also suggests religious beliefs may reduce suicide because: "One's earthly problems may be more endurable if one believes that God knows about them and cares" (p. 364; see also Rasic et al., 2011). In this same vein, religion may offer a worldview that provides coherence and meaning, both of which are related to lower suicidality (Drum et al., 2017; Stack & Kposowa, 2011).

However, in certain circumstances it may be that religion increases suicide risk. Rather than affording a sense of belonging, religious affiliation may increase suicide risk for those in minority religions. For example, one Scottish study of teenagers found when there was a "mismatch" between one's religion and the religion of the school attended (e.g., Non-Catholics attending Catholic schools) suicide attempt rates were higher (Young et al., 2011). A Chinese study found religion a risk factor for suicidality noting that, in China, church attendance and prayer are considered deviant behaviors (Zhang et al., 2011).

Other research has examined how religious lesbians, gays, bisexuals, and those questioning their sexual orientation (LGBQ) may encounter difficulties negotiating their sexual identities and their religious beliefs and community (Dehlin et al., 2015; Sherry et al., 2010). The higher rates of mental health problems among LGBQ individuals is frequently conceptualized using minority stress theory which has been used to describe prejudice and discrimination often experienced by LGBQ individuals, including within religion (Meyer, 2003). Indeed, rather than feeling a sense of community, LGBQ individuals may feel like outsiders in religions that have traditionally prohibited homosexual sexual relations (Sherry et al., 2010). Because of these

prohibitions, an "antireligion backlash" may exist in some of the LGBQ community (Haldeman, 2002). Given this, Haldeman (2002) notes that: "it is easier for some individuals to come out as lesbian or gay men in their communities of faith than it is to come out as spiritually or religiously oriented in the LGB community" (p. 262). Thus, being religious may create feelings of being an "outsider" for LGBQ individuals on multiple levels. Further, conflicts between one's sexual identity and one's religious identity may create a sense of confusion rather than coherence (Dehlin et al., 2015; Sherry et al., 2010). Thus, while some aspects of their religion may be protective for LGBQ individuals, other aspects may create risk.

**Research on Sexual Orientation, Religion, and Suicide**

A recent meta-analysis on sexual orientation, religion, and mental health found, on average, religiosity related to better mental health for LGBQ individuals (Lefevor et al., 2021). However, it was noted that several studies found religiosity related to poorer mental health for LGBQ individuals. Research specifically examining suicidality, sexual orientation, and religion is sparse and contains contradictory findings. For instance, an Austrian study found religious affiliation negatively related to suicidality for LGB individuals (Kralovec et al., 2014) with another study finding LGBT individuals who left their religion at greater risk for suicidality than those who stayed (Gibbs & Goldbach, 2015). In contrast, one study found that among suicidal same-sex attracted adolescents, high religiosity was associated with more suicide attempts (Shearer et al., 2018). Similarly, a 2018 study by Lytle and colleagues (Lytle et al., 2018) found instances where sexual minorities who felt religion or spirituality was important to their identity were at increased risk for suicidality.

The same authors of the Lytle et al. 2018 study which found religiosity to be a risk factor, published a 2015 study finding religiosity to be a protective factor: LGB individuals not

religiously affiliated reporting higher suicidality than Christian LGB individuals (Lytle et al., 2015). The seemingly contradictory findings between the 2015 and 2018 articles by the same authors are interesting given both used data from the University of Texas at Austin's Research Consortium (Consortium), though the data were collected at different times—the earlier article using data from 2006 and the later article using data from 2011.

One possible reason for the disparate findings is the different ways constructs were operationalized. In the 2015 study (Lytle et al., 2015), religion was measured as simply affiliation, and in the 2018 study (Lytle et al., 2018) "religiosity" was operationalized with the item: "How important are your religious or spiritual beliefs to your personal identity?"

Unfortunately, either definition likely obscures variability in individuals' connection to religion. Indeed, in much of the research on suicide and religiosity, the religiosity variables are often narrow, lacking nuance (see Lawrence et al., 2016). A single item question about affiliation does not capture activity within the religion nor does it capture strength of belief. Similarly, a single item question on the importance of religious/spiritual beliefs does not capture the depth of connection to a religious community or activity in that community. It also confounds religion and spirituality which are often conceptualized as separate, though related constructs (see Baumsteiger & Chenneville, 2015). Thus, each of these single item measures may mask important differences and lead to differing results across studies.

To more fully address the relationship between religiosity and suicidality, more complete conceptualizations and operationalizations of religiosity are needed. For instance, King, Ramos, and Clardy define religiosity as "the extent to which an individual has a relationship with a particular institutionalized doctrine about ultimate reality. This relationship occurs through affiliation with an organized religion, participation in its prescribed rituals and practices, and

assent to its espoused beliefs" (2013, p. 515). This definition of religiosity provides a more holistic view of religiosity by including aspects of affiliation, participation, and belief. When only one of these dimensions is measured, an incomplete view is presented. For instance, from the Lytle et al. 2018 research, when responding to the question about religious/spiritual beliefs, individuals may select the highest value ("very important") yet have no connection to religion. Unfortunately, such single item measures are not uncommon in the literature (Kralovec et al., 2014; Lytle et al., 2015, 2018; Shearer et al., 2018).

## Current Study

The current study expands on previous work by Lytle et al. 2018 by analyzing the data used in that study while employing a more holistic operationalization of religiosity. This operationalization includes affiliation (found negatively associated with suicidality for LGB individuals; Lytle et al., 2015) and importance of religious/spiritual beliefs (found positively associated with suicidality for LGBQ individuals; Lytle et al., 2018). In addition, an indicator of participation within the religion is included. Thus, the current study includes three aspects of religiosity as outlined by King and colleagues (2013). Given rationale and evidence for both a negative and positive relationship between suicidality and religiosity for LGBQ individuals, no specific hypotheses are made.

In addition to these indicators of religiosity, the current study also examines the degree to which religion is seen as helpful to LGBQ individuals' coping with life's challenges. Given their findings, Lytle et al. (2018) suggested that mental health faith-based organizations (FBOs) "may not be appropriate for LGBQ individuals in distress" (p. 649). Because Consortium data contain reported helpfulness of various resources (including religion), the possibility that faith based services are unhelpful is explored. If FBO's are unhelpful to LGBQ individuals, it was expected

that connection to religion/spirituality would be less helpful than connections to organizations such as university services or mental health professionals.

**Suicide-Related Constructs: Belongingness, Coherence, and Mindfulness**

The current study also expands previous work by including other suicide-related constructs. Unfortunately, large scale studies often contain measures of suicidality limited to a few binary items, such was the case in the 2011 Consortium data. Although these binary measures are useful, they obscure variability in suicidality which is captured more comprehensively with other well validated measures (see Batterham et al., 2015). The current study therefore also includes suicide-related constructs within the Consortium data that are more precisely measured than single binary items. These constructs include belongingness, coherence, and mindfulness.

Regarding belongingness, the Interpersonal Theory of Suicide conceptualizes thwarted belongingness as a proximal and sufficient cause of passive suicidal ideation, particularly when it is enduring (Chu et al., 2017). This borrows from Durkheim's theory of social integration (Durkheim, 1897; Stark et al., 1983) and Baumeister and Leary's (1995) conceptualization of "belonging" as a fundamental human need, without which, individuals may experience substantial distress that can lead to the desire to die.

Regarding coherence, a strong sense of coherence is defined as "a way of seeing the world which facilitated successful coping with the innumerable, complex stressors confronting us" (Antonovsky, 1993, p. 725). When an individual has a strong sense of coherence they sense they are able to obtain the resources to overcome the challenges of life and have a sense that life is comprehensible and worthwhile. These capacities are hypothesized to lower suicidality with several studies finding such an association (Drum et al., 2017; Ristkari et al., 2005; Sjöström et

al., 2012).

Finally, mindfulness has been conceptualized as "paying attention in a particular way: on purpose, moment-by-moment, and nonjudgementally" (Kabat-Zinn, 2009). This awareness is hypothesized to help individuals whose minds are dominated with suicidal cognitions by promoting a relationship with those cognitions such that individuals can evaluate and distance themselves from them (Chesin et al., 2015; Lamis & Dvorak, 2014; Williams et al., 2006).

As with suicide, it may be religiosity is both positively and negatively related to belonging, coherence, and mindfulness. While religiosity may enhance these, given minority stress theory (Meyer, 2003), it is also possible that for LGBQ individuals religiosity is related to feeling marginalized rather than belonging, feeling a sense of incoherence rather than coherence (e.g., "Does my religion's theology capture my experience?"), and feeling mentally agitated and clouded rather than mindful.

## Method

### Sample

This study draws on data used in Lytle et al.'s (2018) study: the 2011 Consortium's "Survey of Distress, Suicidality, and Student Coping" ($n$ = 26,292). Data came from 74 higher education institutions and was an online, self-administered questionnaire (further details are published elsewhere; Drum et al., 2017). As with Lytle et al. (2018), the sample used is restricted to those less than 30 years-old and with sexual orientation data ($n$ = 20,991). So as to preserve more information, no other observations are dropped due to missing data. The sample was 37.0% (n = 7,757) male, 63.1% (13,234) female, with an average age of 22.5 years ($SD$ = 3.3; range 18-30). Regarding suicide, 4.2% ($n$ = 875) of the sample had considered suicide in the last 12 month and 1.0% ($n$ = 216) of the sample had attempted suicide in the last 12 months. 5.8% ($n$ = 1,220)

of the sample had attempted suicide and some point in their life. The sample was 70.2% (*n* = 14,745) White, 10.7% (*n* = 2,236) Asian, 5.5% (*n* = 1,159) Latino/a, 3.7% (*n* = 775) Black, and 9.9% (*n* = 2,076) "other." The largest single religious affiliation was Catholic (20.3%, *n* = 4,246), followed by Protestant (16.9%, *n* = 3,529), a generic "Christian" designation (14.9%, *n* = 3,110), then no religion (14.8%, *n* = 3,106), and Atheist/Agnostic (13.6%, *n* = 2,844) with other religions making up the rest of the sample. Overall, 71.6% (*n* = 14,989) of the sample indicated some religious affiliation.

## Measures

**Suicidality.** Suicidality measures and the coding of those measures used here are identical to Lytle et al. (2018): recent suicide ideation (*During the past 12 months, have you seriously considered attempting suicide?*; 1=considered suicide, 0=not considered suicide), lifetime suicide ideation (if suicide consideration was reported, participants were asked: *How many times in your life have you attempted suicide?*, 0=never attempted, 1=one or more lifetime attempts), and recent suicide attempts (if lifetime attempts were reported, participants were asked: *How many of those attempts occurred in the past 12 months?*, 1=at least one attempt in the last 12 months, 0=no attempts in the last 12 months.).

**Sexual orientation.** Participants were asked: *How would you describe your sexual orientation?* Responses included: *bisexual, gay or lesbian, heterosexual, questioning,* and *other*. Following Lytle et al. (2018), those who indicated "straight" or "heterosexual" in the *other* category were recoded as heterosexual (125) and one individual who responded "homosexual" was categorized *gay or lesbian.* Sample sizes were: heterosexual *n* =19,577; lesbian/gay *n* = 485; bisexual *n* = 696; and questioning *n* = 233. Sample sizes match Lytle et al. (2018) except the current study has one additional heterosexual (it is unclear why).

**Religiosity.** Confirmatory factor analysis (CFA) was used to generate the religiosity variable (see Brown, 2015). Within factor analysis, a set of items are used as "indicators," their common variance identified, and a variable is generated representing their overlap. This method is preferred over mean scores as the nonoverlapping variance (i.e., the "error") is removed. Factor analytic advances allow for indicators of various distributions including continuous, ordinal, and multinomial (i.e., unordered categories).

Religiosity indicators were: religious/spiritual preference (an indication of denomination), religious activity, and importance of religious/spiritual beliefs. For religious/spiritual preference, participants were also asked: *What is your religious or spiritual preference* with 14 possible responses including: *Buddhist, Christian, Hindu, Jewish, None*, *Agnostic, Atheist,* etc. For this study, responses were coded 1=religious preference selected, 2=None, and 3=Atheist or Agnostic. That is, those who had a religious preference were grouped together and compared with those who had no religious preference (i.e., none) and those who identified as atheist or agnostic. Although comparing across more religious preferences is an important area of research (e.g., the differences between Christians and Hindus), such nuances are outside the scope of the current study.

To obtain the salience of religious/spiritual beliefs, participants were asked: *How important are your religious or spiritual beliefs to your personal identity?* Responses ranged from 1 (*not at all important*) to 5 (*very important*). For religious activity the question was asked: *Of the following activities, in which do you actively participate as either a member or in a leadership role?* with *Religious organizations* as an option. This variable was coded 1=*Member or Leadership* or 0=*Not involved*.

A CFA in Mplus 8.3 (Muthén & Muthén, 2017) was fit with these three variables as

indicators. Religious preference was specified as a multinomial indicator (i.e., an unorder categorical variable) and importance of religious/spiritual beliefs and activity were specified as ordinal. See Table 2 for measurement properties. With multinomial indicators, model fit such as CFI and RMSEA are not available. Evidence of good fit were high standardized estimates for religious/spiritual beliefs and activity. For religious preference, analyses found religious preference overlapped with 60% of the variance in the religiosity factor score, indicating a substantial amount of the religious preference variable was contained with the factor score. The factor score of "religiosity" based on these three indicators was exported for analyses and standardized for interpretability. Combining information from all three items is an important extension of previous religiosity work using these data.

**Belonging, mindfulness, and coherence.** Belonging, mindfulness, and coherence were self-reported and, to remove measurement error, CFAs in Mplus were specified and factor scores exported. For CFA, "maximal reliability" (MR) is the appropriate reliability index rather than Cronbach's alpha (Raykov, 2012). Belonging was measured with a five-item scale with items including: *How cared for by others do you feel?* (Becker et al., 2018). Mindfulness was measured with the 10-item Cognitive and Affective Mindfulness Scale-Revised (Feldman et al., 2006). Items included: *It is easy for me to concentrate on what I am doing* and *I am able to accept the thoughts and feelings I have*. The sense of coherence scale measured the degree to which life is comprehensible, manageable and meaningful (Antonovsky, 1993). Questions included: *When approaching the challenges of daily life: How critical are you of yourself?* MR was excellent for belonging (.90), mindfulness (.91), and coherence (.96).

**Coping resources.** In order to determine how helpful various forms of assistance were in coping with stress, participants were asked: *From the list below, please indicate how the*

*following impacted your ability to cope during the most stressful time?* Responses ranged from 1 (*Considerably reduced my ability to cope*) to 5 (*Considerably improved my ability to cope*). Analyses compare the helpfulness of: a) *connection to religion, spirituality or a higher power*; b) *connection with your college or university;* c) *connection with a mental health professional;* d) *involvement in extracurricular groups, activities, or communities;* and e) *resources available on campus (e.g., student services, health center, counseling center, career center).*

**Controls.** Controls included age, race (1=white, 0=nonwhite), income, participant's relationship status (1=in a relationship, 0=single), and whether the participant was international (1=international, 0=not international).

**Missing Data**

Missing data were imputed with Stata's ICE command (Royston, 2005) which uses stochastic regression. This is the preferred single imputation method as studies suggest it produces parameter estimates similar to maximum likelihood and multiple imputation (Enders, 2010). Imputing data avoids a fluctuating sample across analyses. For instance, Lytle et al. (2018) report 233 questioning individuals but analytic samples ranged from 177 to 229, a more than 20% change. A larger and consistent sample is used here providing additional power and uses all available data. Sexual orientation was not imputed with those missing this datum dropped ($n$ = 256). Like Lytle et al. (2018), those over 30-years-old or with age missing were dropped. For variables used in the analyses, missing data within the analytic sample ranged from 0% to 4% and were imputed.

**Statistical Analysis**

Lytle et al.'s (2018) analyses of the relationship between religious/spiritual beliefs and suicidality were replicated, providing a base from which to add two enhancements. The first

enhancement is that imputation was used. The second enhancement is that rather than conducing separate regressions for each sexual orientation, a single regression was used with sexual orientation included as an unordered categorical variable and an interaction between it and importance of religious/spiritual beliefs was included. Because regression parameters in a logistic regression (e.g., odds-ratio) depend on the mean of all the independent variables, for comparisons it is important to hold independent variables to the same mean across groups when comparing regression parameters (Long & Freese, 2014). This can be accomplished most directly with a single regression (code available upon request).

These same analyses were again conducted but with the factor score measuring religiosity as the primary independent variable rather than the single item of importance of religion/spirituality. Regression analyses were then conducted separately for the outcomes of belongingness, mindfulness, and coherence with the religiosity factor score as the primary independent variable.

Finally, the degree to which LGBQ individuals indicated: “Connection to religion, spirituality or a higher power” helped them cope was examined. This was compared to the helpfulness of other resources. A MANOVA was used with resources as dependent variables and sexual orientation as a predictor. Marginal means for the resources across sexual orientation are calculated and statistically compared.

One set of Lytle et al.’s (2018) analyses included stratifying by gender and importance of religion/spirituality. These analyses were attempted but not included here. For these analyses, excepting for heterosexuals, cell sizes were small and parameter instability became a serious concern. Lytle et al. (2018) recognized estimates produced in these analyses were unstable. In several instances, Lytle et al. (2018) found large odds-ratio 95% confidence intervals (one

ranging from 5.62 to 787.12). Despite the instability, Lytle et al. conclude that "results suggested the strongest effects among the group for whom religion was very important" (p. 648). However, no statistical comparisons were made. Given the substantial issues conducting such analyses with small cell sizes, they are not replicated here.

Lytle et al. (2018) also considered $p < .10$ statistically significant. Of the seven parameters they indicated significant for LGBQ individuals (see Lytle et al., 2018 Table 2), only three were significant at $p < .05$. Parameters here will be considered significant at the more conventional standard of $p < .05$.

All analyses controlled for the same variables as Lytle et al. (2018): race, age, gender, partnership status, and international status.

In sum, analyses proceeded in the following steps:

1) Replicated Lytle et al. (2018) analyses using identical methods to verify results.
2) Replicated Lytle et al. (2018) analyses with the following enhancements: a) single regression for appropriate comparisons across groups and b) imputing missing values.
3) Replicated Lytle et al. (2018) analyses with the enhancements from Step 2 but using the factor score of religiosity (i.e., more holistic measure of religiosity) rather than the more narrow measure used in Lytle et al. (2018).
4) Examined the relationship between the religiosity factor score and belonging, mindfulness, and coherence.
5) Compared how helpful various resources were in coping with life difficulties (e.g., compared connection to religion/spirituality to mental health services and university services).

The question of how to include transgender individuals in the analyses was also

considered. Analyses were fit twice, once with transgender individuals in the sample and again with transgender individuals not in the sample. With one exception (noted below), results were substantively identical in both sets of analyses, and transgender individuals were retained in models reported here.

## Results

See Table 1 for sample descriptives and correlations. The correlation between the religiosity factor score and the variable of religious/spiritual beliefs was .88, indicating substantial overlap between the two. Though, the religiosity factor score significantly correlated with age and race; whereas the variable of religious/spiritual beliefs did not. Further, the religiosity factor score was more strongly correlated with ideation than was the single item of religious/spiritual beliefs. Thus, although slight, it appears the religiosity factor score displays more predictive validity than does the religious/spiritual beliefs item. In concert with research cited above, belonging, mindfulness, and coherence were all significantly correlated with the three suicide indicators ($p < .001$ in all instances). Correlations with lifetime attempts were: belonging: -.17, mindfulness: -.09, and coherence: -.13. Correlations with recent attempt were: belonging: -.12, mindfulness: -.09, and coherence: -.09. Correlations with suicide ideation were: belonging: -.23, mindfulness: -.17, and coherence: -.18.

### Step 1 and 2: Importance of Religious/Spiritual Beliefs

Analyses from Lytle et al. (2018) Table 2 (importance of religion/spiritual beliefs predicting suicidality) were undertaken, and results were replicated, confirming findings. As an enhancement, a single regression with imputed data was fit with an interaction between sexual orientation and importance of religions/spiritual beliefs (see Table 3). Marginal effects were calculated (see Long & Freese, 2014) to determine the relationship between religious/spiritual

beliefs and suicidality for each sexual orientation. For recent suicide ideation, the relationship was significant for heterosexuals (Pr(suicidality)=-.30, 95% CI=-.48, -.12) and questioning (Pr(suicidality)=4.38, CI=.86, 7.90). These estimates are interpreted as: "For heterosexuals, for every one-unit increase in importance of religious/spiritual beliefs, the probability of recent suicide ideation decreases by .30%" and "For questioning persons, for every one-unit increase in importance of religious/spiritual beliefs, the probability of recent suicide ideation increases by 4.38%." For heterosexuals, the relationships between religious/spiritual beliefs and recent suicide attempts (Pr(suicidality) = -.15, 95% CI=-.22, -.08) and lifetime attempts (Pr(suicidality)= -.40, 95% CI=-.60, -.19) were significant. Importance of religions/spiritual beliefs were not significantly related to recent or lifetime attempts for LGBQ individuals.

**Step 3: Religiosity Factor Score**

The religiosity factor score was interacted with sexual orientation to predict suicidality (see Table 3). The relationship between religiosity and suicide ideation was negative and significant for heterosexuals (Pr(suicidality) = -.53, 95% CI=-.79, -.28) and positive and significant for lesbians/gays (Pr(suicidality)=3.48, 95% CI=.57, 6.39). These should be interpreted as: "For heterosexuals, for every standard deviation increased in religiosity, there is a .53% decrease in the probability of recent suicide ideation" and "For lesbians/gays, for every standard deviation increased in religiosity, there is a 3.48% increase in the probability of recent suicide ideation." For heterosexuals there was a negative significant relationship between religiosity and recent suicide attempt (Pr(suicidality)=-.17, 95% CI=-.28, -.07) and lifetime suicide attempt (Pr(suicidality)=-.41, 95% CI=-.71, -.11). No significant relationship was found between religiosity and attempts for other sexual orientation groups.

**Step 4: Belonging, Mindfulness, and Coherence**

See Table 4 for results. For heterosexuals, religiosity was significantly and positively associated with mindfulness (*b*(religiosity)=.07, 95% CI=.06,.08; *b**(religiosity)=.13), belongingness (*b*(religiosity)=.06, 95% CI=.06,.07; *b**(religiosity)=.12), and coherence (*b*(religiosity)=.02, 95% CI=.02,.03; *b**(religiosity)=.05). For lesbians/gays, religiosity was positively associated with belongingness (*b*(religiosity)= .07, 95% CI=.02,.12; *b**(religiosity)=.13). For bisexuals, religiosity was positively associated with mindfulness (*b*(religiosity)=.08, 95% CI=.03,.13; *b**(religiosity)=.14), belongingness (*b*(religiosity)=.06, 95% CI=.02,.11; *b**(religiosity)=.11), and coherence (*b*(religiosity)=.04, 95% CI=.01,.08; *b**(religiosity)=.11). And for questioning individuals, religiosity was positively associated with mindfulness (*b*(religiosity)=.12, 95% CI=.04,.20; *b**(religiosity)=.21). Standardized results for each of these (i.e., *b**) indicated a relatively small effect size of religiosity.

**Step 5: Coping Resources**

Table 5 contains marginal means from MANOVA analyses. All means were adjusted for controls, and pairwise tests of means were undertaken. Only significant differences between connection with religion/spirituality and the other resources are reported. For heterosexuals, connection with religion improved their ability to cope more than all other coping mechanisms tested. For lesbians/gays, religion was more helpful than connection with the university and less helpful than involvement with extracurricular activities. For bisexuals, connection to religion/spirituality was more helpful than connection with a university, mental health professionals, and campus resources (e.g., health and counseling centers). Religion was less helpful than extracurricular groups. For questioning individuals, religion/spirituality was more helpful than connection with a university. When these analyses were run without those who were transgender, for lesbian/gays, religious/spirituality was no longer significantly higher than

connection with the university (the *p*-value became .058 rather than .046).

## Discussion

The current study extended earlier work by Lytle et al. (2015) who found religiosity a *protective* factor for LGBQ individuals and Lytle et al. (2018) who found religiosity a *risk* factor for LGBQ individuals. As with much of the research in this area, the Lytle et al. 2015 and 2018 studies used narrow definitions of religiosity (i.e., "affiliation" in 2015 and "importance of religion and spirituality" in 2018). Further, in these studies, suicidality was measured with simple binary variables. Using the same data and identical measures, the current study was able to replicate Lytle et al. (2018) findings, noting that many findings they reported were not significant at $p < .05$ and several of their parameter estimates were unstable (something the authors noted but accepted and interpreted despite the limitations).

When methodological advances (i.e., imputation and single regression) were used to replicate Lytle et al.'s (2018) analyses, only one significant finding emerged for LGBQ individuals: a significant positive relationship between ideation and importance of religious/spiritual beliefs for questioning individuals. It is interesting that only one significant relationship was found despite the increased power of the analyses due to the larger sample. This speaks to the need for increased attention to missing data and treating missingness appropriately. Interestingly, (as more fully addressed below) positive associations between religiosity and well-being for LGBQ individuals were found for outcomes that were better measured than suicidality (i.e., belongingness, mindfulness, and coherence).

Further, the current study also analyzed the data used by Lytle et al. (2018), but employed a more holistic measure of religiosity which included affiliation, active participation in religion, and importance of religion/spirituality. This study also examined the interaction between sexual

orientation and religiosity as they predicted other constructs found related to (and far better measured than) suicidality (i.e., belonging, mindfulness, and coherence).

Using the more holistic measure of religiosity, results were somewhat reflective of both Lytle et al.'s 2015 and 2018 pieces, finding religiosity associated with both more and less risk depending on the outcome variable. This may be because the measure of religiosity includes aspects of both studies (with the addition of religious activity). For lesbians/gays, the religiosity factor score (the more holistic measure of religiosity) was positively associated with both ideation (risk) and belonging (protection). When religiosity was significantly associated with measures of well-being for bisexuals and questioning individuals, it was indicative of better well-being. Religiosity was not associated with lifetime or recent suicide attempts for LGBQ individuals. However, across all six outcomes in this study (the three suicidality measures and belongingness, mindfulness, and coherence) religiosity was associated with better mental well-being for heterosexuals.

The final analyses examined how helpful various resources were in coping with life difficulties. Findings from these analyses suggest religion/spirituality may be more helpful to LGBQ individuals than indicated by Lytle et al. (2018) who suggested religious based services may not benefit LGBQ individuals. In contrast, analyses here found LGBQ individuals rated religious/spiritual resources higher than a university connection and equally with mental health professionals and campus resources (bisexuals rated religious/spiritual connection higher than mental health professionals). Given this, to suggest religious/spiritual resources are unhelpful may discourage connections with coping strategies that are at least as helpful, if not more helpful, than university and mental health resources.

In all, findings suggest a much more nuanced view of how religiosity and sexual

orientation interact in predicting suicidality and other related correlates. One reason for conflicting findings in previous research is likely poor measurement of both religiosity and suicidality across studies. In studies with single item religiosity measures, substantial variation in religiosity is obscured and, with such measures, one is unable to tie into most theoretical models of religiosity which have more fine-tuned definitions of religiosity. Indeed, regarding religiosity, much more conceptual clarity is needed in studies. Research should also move beyond single item dichotomous measures of suicidality or also include other related, better measured constructs.

## Limitations

Given the data are cross-sectional, it is not possible to examine causal pathways. It may be, for instance, that LGBQ individuals disaffiliate with religion at a higher rate than non-LGBQ individuals due to difficult experiences within the religion. As religious disaffiliation is predictive of poorer mental health (Gibbs & Goldbach, 2015), it may be that the effect of religiosity on suicide is underestimated here. Further, data are self-reported: independent observations will be important to confirm findings.

Although this study moved past a single item measure of religiosity, the religiosity measure used remains limited. Basic scales such as strength of religious faith (for instance using the Santa Clara strength of religious faith questionnaire; Plante & Boccaccini, 1997) and frequency of attendance at worship services (an indicator of integration into the religious community) are not included because they were not asked in the Consortium study.

Data also do not contain information about whether the religion was supportive of homosexuality. This is a major limitation carried through much of the research in this area. Thus, although this study does improve upon past research and provides direction for future research,

better measures of religiosity are sorely needed. For LGBQ individuals there is likely an issue of "goodness-of-fit" between their sexual identity and their religious identity. It would be expected that the better the fit, the more protective religiosity would be. As Dean et al. (in press) have shown, this goodness-of fit may not necessarily be affirming of homosexuality, but rather it may be the religion affirms their various other beliefs.

Further, the Consortium question regarding religious affiliation contained some confounds. For example, an individual could have selected *Christian* if they did not belong to any particular denomination but identified with that tradition. Or, they could have selected *Christian* if they belonged to a Christian denomination not listed in the survey. Although the current study did include an item regarding activity in a religion (lessening this concern), future research will need to examine denominational differences. Still, even with this ambiguity, separating out those who had a religious preference from those who identified as "none" or Atheist/Agnostic is an important distinction made in the current analyses. Similarly, it is likely there are differences between religious groups. Combining Christians with all others likely obscures some important variance. However, differences between Atheists and Agnostics and differences between religious groups were not made in the previous work by Lytle et al. (2018). However, for comparisons sake, this work used methods as close to Lytle et al. (2018) in which these distinctions were also not made. Though these distinctions should be made in future work.

## Conclusion

Results are consistent with hypotheses that LGBQ individuals may not derive the same protection from religion as heterosexuals regarding suicidality. However, results also suggest LGBQ individuals may derive benefits from religion in other areas of well-being (see Table 4). Further, LGBQ individuals rate connection with religion/spirituality relatively high in helping

them cope with stressful circumstances. Although religiosity was related to suicide ideation for lesbians/gays, the risk was less prominent than reported by Lytle et al. (2018).

In order for this research area to progress, far more conceptual clarity and methodological rigor is required. For instance, researchers must carefully justify operationalizations and indicate why the construct they chose theoretically connects to suicidality. Comparisons should then be made to studies with similar constructs, being careful not to confound affiliation, religiosity, and spirituality with one another. By incorporating such rigor, this research area will continue to illuminate risk factors for the most vulnerable and provide implications for desperately needed interventions.

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Table 1

*Correlations, Means, and Standard Deviations for the Analytic Sample. n = 20,991*

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1.Ideation | -- | | | | | | | | | | | | | | | | | | |
| 2.Recent Attempt | .39* | -- | | | | | | | | | | | | | | | | | |
| 3.Life Attempt | .23* | .41* | -- | | | | | | | | | | | | | | | | |
| 4.Religiosity | -.03* | -.03* | -.03* | -- | | | | | | | | | | | | | | | |
| 5.Relig./Spirit Blf.[a] | -.02* | -.03* | -.03* | .88* | -- | | | | | | | | | | | | | | |
| 6.Heterosexual | -.09* | -.08* | -.13* | .11* | .09* | -- | | | | | | | | | | | | | |
| 7.Lesbian/Gay | .02* | .02* | .05* | -.07* | -.07* | -.57* | -- | | | | | | | | | | | | |
| 8.Bisexual | .07* | .07* | .11* | -.07* | -.05* | -.69* | -.03* | -- | | | | | | | | | | | |
| 9.Questioning | .07* | .05* | .05* | -.02* | -.03* | -.39* | -.02* | -.02* | -- | | | | | | | | | | |
| 10.Male | -.02* | -.02* | -.05* | -.07* | -.05* | -.01 | .08* | -.05* | -.01 | -- | | | | | | | | | |
| 11.Age | -.04* | -.03* | .00 | -.02* | -.01 | .00 | .02* | .00 | -.04* | .06* | -- | | | | | | | | |
| 12.White | -.01* | -.04* | -.05* | .05* | .01 | .03* | -.02* | -.02* | -.02* | -.02* | -.03* | -- | | | | | | | |
| 13.Single | .04* | .03* | .00 | .02* | .03* | -.03* | .02* | -.01 | .06* | .06* | -.23* | -.10* | -- | | | | | | |
| 14.International | -.02* | .02* | .00 | -.12* | -.08* | -.03* | -.01* | .04* | .02* | .09* | .20* | -.40* | .05* | -- | | | | | |
| 15.Cope Religion | -.04* | -.04* | -.04* | .60* | .60* | .09* | -.06* | -.06* | -.03* | -.07* | .02* | -.00 | .02* | -.05* | -- | | | | |
| 16.Cope University | -.07* | -.05* | -.05* | .03* | .03* | .01* | -.00 | -.01 | -.01 | -.02* | -.02* | -.00 | .02* | .03* | .24* | -- | | | |
| 17.Cope Mental H[b] | .07* | .02* | .04* | -.01 | -.00 | -.04* | .02* | .02* | .03* | -.07* | .07* | .05* | -.01 | -.04* | .20* | .34* | -- | | |
| 18.Cope Extra Curr[c] | -.03* | -.03* | -.03* | .07* | .06* | .01* | -.00 | -.01 | -.01 | -.01 | -.06* | .02* | .02* | -.02* | .23* | .37* | .29* | -- | |
| 19.Cope Campus[d] | .01* | -.00 | -.00 | -.01 | .00 | -.03* | .02* | .01* | .02* | -.04* | .02* | -.01* | .01 | .01 | .20* | .44* | .70* | .37* | -- |
| Mean | .04 | .01 | .06 | .00 | 3.11 | .93 | .02 | .03 | .01 | .37 | 22.53 | .70 | .37 | .09 | 3.43 | 2.93 | 2.88 | 3.21 | 2.90 |
| SD | .20 | .10 | .23 | 1 | 1.42 | .25 | .15 | .18 | .10 | .48 | 3.27 | .28 | .48 | .29 | 1.06 | .92 | .89 | .97 | .87 |

[a] Importance of Religious/Spiritual Beliefs, [b] Connection with Mental Health Services impacted ability to cope. [c] Involvement in extracurricular groups impacted ability to cope. [d] Campus resources impacted ability to cope.

* < p .05

Table 2

*Religiosity Factor Score Parameters*

| | |
|---|---|
| Loadings(se) | |
| Items | |
| Active in Religion | 1.00(.00) |
| Religious/Spiritual Beliefs | .65(.03) |
| *Religious Preference* | |
| *(base: indicated a religious preference)* | |
| None | -1.07(.05) |
| Atheist/Agnostic | -.72(.04) |
| Intercepts(se) | |
| *Religious Preference* | |
| *(base: indicated a religious preference)* | |
| None | -3.74(.12) |
| Atheist/Agnostic | -2.39(.06) |
| Thresholds(se) | |
| Active in Religion | 2.53(.09) |
| *Religious/Spiritual Beliefs* | |
| *(base: very important)* | |
| 1 Not important | -2.79(.05) |
| 2 | -1.25(.03) |
| 3 Moderately Important | .95(.03) |
| 4 | 2.17(.04) |

Note. All estimates significant at $p < .001$

Table 3

*Importance of Religion/Spirituality and Religiosity Predicting Suicidality by Sexual Orientation with Imputation and Single Regression. n = 20,991*

| | Heterosexual | | Lesbian\Gay | | Bisexual | | Questioning | |
|---|---|---|---|---|---|---|---|---|
| | Pr(suicidality)(ci) | | Pr(suicidality)(ci) | | Pr(suicidality)(ci) | | Pr(suicidality)(ci) | |
| *Importance of Religious/Spiritual Beliefs* | | | | | | | | |
| Recent Suicide Ideation | -.03** | (-.48, -.12) | 1.77 | (-.20, 3.74) | .36 | (-1.36, 2.09) | 4.38* | (.86, 7.90) |
| Recent Suicide Attempt | -.15*** | (-.22,-.08) | .14 | (-1.01, .73) | -.01 | (-1.00, .81) | 1.53 | (-.12, 3.18) |
| Lifetime Suicide Attempt | -.40*** | (-.61,-.20) | .39 | (-2.16, 2.94) | 1.27 | (-0.86, 3.40) | 2.90 | (-0.79, 6.59) |
| *Religiosity Factor Score* | | | | | | | | |
| Recent Suicide Ideation | -.53** | (-.79, -.28) | 3.48* | (.57, 6.39) | .34 | (-2.44, 3.13) | 3.93 | (-1.38, 9.23) |
| Recent Suicide Attempt | -.17*** | (-.28,-.07) | .14 | (-1.17, 1.45) | -.23 | (-1.68, 1.23) | 1.76 | (-.91, 4.44) |
| Lifetime Suicide Attempt | -.41** | (-.71,-.11) | 2.78 | (-.92, 6.48) | 1.01 | (-2.29, 4.50) | 2.29 | (-3.26, 7.84) |

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

Parameters in percentage change in likelihood of suicidality for a one unit increase in *Importance of Religion/Spirituality* or the religiosity factor score.

Example interpretation: “For every one unit increase in the religiosity factor score, the predicted recent suicide ideation decreases by .53 for heterosexuals.”

Table 4

*Religiosity Factor Score Associations with Mindfulness, Belongingness, and Coherence Stratified by Sexual Orientation. n = 20,991*

| | Heterosexual | | Lesbian\Gay | | Bisexual | | Questioning | |
|---|---|---|---|---|---|---|---|---|
| | b(religiosity)(ci) | | b(religiosity)(ci) | | b(religiosity)(ci) | | b(religiosity) (ci) | |
| *Mental Health* | | | | | | | | |
| Mindfulness | .07*** | (.06, .08) | .02 | (-.03, .08) | .08*** | (.03, .13) | .12** | (.04, .20) |
| Belongingness | .06*** | (.06, .07) | .07* | (.02, .12) | .06** | (.02, .11) | .04 | (-.04, .11) |
| Coherence | .02*** | (.02, .03) | .01 | (-.02, .05) | .04* | (.01, .08) | -.01 | (-.06, .04) |

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

Example interpretation: “For every one unit increase in the religiosity factor score, the average mindfulness score is .07 higher for heterosexuals.”

Table 5

*MANOVA Post-hoc Comparisons Within Sexual Orientation of Impact of Coping Resources. n = 20,991*

| | Heterosexual | | Lesbian\Gay | | Bisexual | | Questioning | |
|---|---|---|---|---|---|---|---|---|
| | Mean(ci) | | Mean(ci) | | Mean(ci) | | Mean(ci) | |
| *Resource* | | | | | | | | |
| Connection with Religion/Spirituality | 3.46[UMEC] | (3.45, 3.48) | 3.05[UE] | (2.95, 3.14) | 3.07 [UMC] | (2.99, 3.15) | 3.13[U] | (2.99, 3.26) |
| Connection with University | 2.94[R] | (2.93, 2.95) | 2.93[R] | (2.85, 3.02) | 2.87[R] | (2.81, 2.94) | 2.81[R] | (2.69, 2.93) |
| Connection with Mental Health Professional | 2.87[R] | (2.85, 2.88) | 3.03 | (2.95, 3.11) | 2.97[R] | (2.91, 3.04) | 3.15 | (3.03, 3.26) |
| Involvement with Extracurricular Groups | 3.22[R] | (3.20, 3.23) | 3.21[R] | (3.12, 3.30) | 3.16 | (3.09, 3.23) | 3.07 | (2.95, 3.20) |
| Campus Resources (e.g., health center, counseling center) | 2.89[R] | (2.88, 2.91) | 3.01 | (2.93, 3.09) | 2.96[R] | (2.89, 3.02) | 3.09 | (2.97, 3.20) |

[U]Significantly different from Connection with University, [M]Significantly different from connection with mental health professional, [E]Significantly different from Involvement with extracurricular groups, [C]Significantly different from campus resources.

Significant differences are at $p < .05$ or lower.

All comparisons are made within sexual orientation, not across and only report comparisons to "Connection with Religion/Spirituality."