HHS Public Access
Author manuscript
J Relig Health. Author manuscript; available in PMC 2024 April 08.

Revisiting Associations Among Parent and Adolescent Religiosity and Early Adolescent Suicide Risk in the United States

Salahudeen Mirza[1,2,3,4], **Andrea Wiglesworth**[2], **Mark B. Fiecas**[5], **Kathryn R. Cullen**[6], **Bonnie Klimes-Dougan**[2]

[1]Institute of Child Development, University of Minnesota, Minneapolis, MN, USA

[2]Department of Psychology, University of Minnesota, Minneapolis, MN, USA

[3]Department of Psychiatry, Yale School of Medicine, New Haven, CT, USA

[4]Child Study Center, Yale School of Medicine, New Haven, CT, USA

[5]Division of Biostatistics, University of Minnesota, Minneapolis, MN, USA

[6]Department of Psychiatry and Behavioural Sciences, University of Minnesota Medical School, Minneapolis, MN, USA

Abstract

The contributions of religion to reduced suicide risk have been studied in adults and adolescents, though to our knowledge no comprehensive investigation has been conducted in early adolescents, at a time coinciding with emergence of suicide risk trajectories. In this largest study to date on this topic, we aimed to characterise the contributions of various measures of "private" and "public" religiosity to early adolescent suicide ideation (SI) and suicide attempt (SA) histories using information from a large, epidemiologically informed U.S. sample of adolescents ($N = 7068$; mean age = 12.89 years, 47% female) and their parents. In all youth, parent-reported adolescent religious importance was associated with reduced odds of SA (OR = 0.75, CI = 0.61–0.92, $P = .005$). Muslim youth were more likely (OR = 1.52, CI = 1.02–2.22, $P = .033$), and Catholic youth were less likely (OR = 0.80, CI = 0.67–0.95, $P = .014$), to report SI. A variety of sex differences were noted, with significant protective associations of adolescent self-reported religiosity on SI and SA, religious service attendance on SI, and religious importance on SI, in female—but not male—youth; and significant protective associations of religious importance on SA in male—but not female—youth. Against expectations, there was no evidence that parent religiosity moderated the link between youth religiosity and SI or SA. These results shed light on the roles of cultural and familial context in youth suicide risk, which may ultimately be targeted in screening and interventional approaches.

Salahudeen Mirza, salahudeen.mirza@yale.edu.

Declarations

Conflict of interest The authors have no competing interests to disclose.

Supplementary Information The online version contains supplementary material available at https://doi.org/10.1007/s10943–023-01981–7.

Keywords

Suicide; Adolescence; Religion; Cultural psychiatry; Adolescent Brain Cognitive Development

---

Introduction

Suicide is the second leading cause of death for youth ages 10–14 in the United States (CDC, 2022). Suicide rates in this age group have increased for both male and female youth over the past two decades (Garnett et al., 2022). There is a critical need to better understand, prevent, and respond to youth suicidal behaviour.

Beginning in the nineteenth century, research efforts have examined cultural and environmental contributions to suicide risk and resilience. Durkheim suggested that social integration across a variety of domains, including religious affiliation (such as church membership), was an important protective resource against suicide risk (Durkheim, 1966). His work also infamously demonstrated that suicide rates differ across religious affiliation groups, with Catholics apparently being protected when compared to Protestant, non-Catholic Christians. In the years since Durkheim's seminal analyses, meta-analytic evidence suggests that any religious affiliation is associated with lower rates of suicide ideation (SI), suicide attempt (SA), and suicide death (SD) (Poorolajal et al., 2022). The prospective longitudinal evidence suggests that adults who frequently attend religious services are 67% less likely to die by suicide than infrequent attenders (Kleiman & Liu, 2014).

The data on specific religious affiliation groupings and their differential associations with suicide risk are more mixed (Lawrence et al., 2016a, b). Globally, the most common religious affiliation groups are Christians (Catholic or non-Catholic, 31%), followed by Muslims (24%), then no affiliation (16%) (Pew Research Center, 2017). In the U.S., however, Christians are the majority (71%), followed by no affiliation (23%), then Jews (2%) (Pew Research Center, 2015). A recent U.S. survey study found that Muslims were more than two times more likely to report a lifetime SA when compared to Protestant, non-Catholic Christians (Awaad et al., 2021). Other evidence from multiple countries including the U.S. suggests heightened risk in unaffiliated persons (SI, SA, SD), non-Christians (SI), and Hindus (SI) (Lawrence et al., 2016a, b).

In youth, the overall evidence on religion and suicide risk is more limited and therefore quite mixed, though in general, it appears that aspects of religion may similarly be protective against SI and SA (Burshtein et al., 2016; Hoffman & Marsiglia, 2014; Molock et al., 2006; Nkansah-Amankra, 2013; Nkansah-Amankra et al., 2012; Nonnemaker et al., 2003; Svob et al., 2018). When considering population-level trends, Canadian regions with higher rates of religious affiliation had lower rates of youth SD (Trovato, 1992). Little work to date has considered differential risk associations of specific youth religious affiliation groups.

Understanding the role of youth religion in suicide risk requires a deeper appraisal of the varying possible mechanisms that may drive protective effects, many of which are similar to those in adults. These mechanisms can arise from situational and cognitive factors. For example, youth who are at risk for developing internalising problems and contemplating

suicide may benefit from the direct social support of a religious community (Hovey et al., 2014; Robins & Fiske, 2009). This support may include increased exposure to older adults in the community, allowing for "natural mentoring" exchanges which may provide positive resources (Van Dam et al., 2018). This protective pathway, though clearly involving religious experience, may have more to do with the scaffolds that a religious community provides at a developmentally sensitive time, as opposed to the psychological effects of adhering to a particular faith.

Though there is evidence that the social support aspect of religion is important in protection against suicide risk, it also appears that some protective effects, such as those of religious service attendance, may be independent of social support (Rasic et al., 2009). Indeed, a large study of American school going adolescents found that "private religiosity"—a combination of prayer frequency and religious importance—was protective against SI and SA to a greater extent than "public religiosity" (Nonnemaker et al., 2003). Patterns of thinking encouraged by religion and spirituality may allow adolescents to draw on internal meaning-making resources such as reappraisal, which reduce the odds of pathological hopelessness in the context of distress (Vishkin et al., 2016). They may also be able to engage in collaborative coping processes—grounded in faith that they are not alone and are able to work with a higher power in pursuit of their goals—to minimise distress (Molock et al., 2006). These coping strategies may be critical tools during emotionally charged situations that adolescents may encounter. Further, many religions prohibit or strongly discourage suicide, and such moral implications may decrease the likelihood of considering suicidal behaviour as a realistic option when one is in distress (Dervic et al., 2004).

When considering religion in youth, the protective effect of religiosity may also be part of broader, family-level processes. Youth who are religious typically learn their religion from their parents (Flor & Knapp, 2001). Parent religiosity (and youth religiosity) may be associated with other promotive factors which decrease the risk of engaging in suicidal behaviour. For example, prior work has shown that parental religiosity is associated with higher (self-reported) parental efficacy and warmth, which appear to promote child social competence and school performance (Bornstein et al., 2017). In this pathway, rather than youth religiosity directly conferring protection against suicidal thoughts and behaviours, youth religiosity may signal certain parenting environments that act to reduce suicide risk. It is likely that the beneficial effects of religiosity arise from a range of these possible contributory pathways. Though, it could also be possible that in some contexts, religion could contribute to pathways of risk.

Adolescence is a particularly relevant time for changes in both religion and suicide risk. Notably, the adolescent transition involves a spike in youth reports of suicidal thoughts and behaviours (Nock et al., 2013). This increase is thought to result from various psychosocial and biological sources of vulnerability. Further, this developmental period is associated with reconfigurations in identity and belief systems, with increasing autonomy in the evaluation of religious beliefs and implementation of relevant practices (Chan et al., 2015). As youth begin to explore religion outside of the family-directed context, their experiences may impact liabilities to and protection against distress, which may manifest as suicidal phenotypes. Moreover, the changes that emerge from this developmental period

may introduce novel conflicts within the family system, both related to and outside of religion. As one possible example, dysfunction may be marked by disagreement between adolescents and parents on religion (Stokes & Regnerus, 2009). In particular, there could be circumstances in which youths rate themselves more or less religious than their parents. It could be hypothesised that when youth are low on religiosity despite their parents being high, this heightened religiosity could be a salient stressor and risk factor (Forehand et al., 1991; Kim-Spoon et al., 2012; Stokes & Regnerus, 2009). Indeed, a prior study specifically linked lower youth religiosity (when compared to parent religiosity) to maladaptive outcomes (Kim-Spoon et al., 2012). In that study, the converse option (higher youth religiosity and lower parent religiosity) was not linked to maladjustment. Though, to our knowledge, neither of these possibilities have been explored in the context of youth suicide risk.

Another aspect of the adolescent transition worth noting is the emergence of sex differences in psychopathology. Female adolescents tend to endorse SI and SA at greater rates as opposed to male adolescents (Nock et al., 2013). Though, male youth are at a greater risk for SD; these differences tend to persist into adulthood (Miranda-Mendizabal et al., 2019). The architecture of risk profiles is different between male and female youth, with one simple distinction being that male youth may present with externalising pathology more commonly as opposed to internalising pathology (Kaess et al., 2011). As such, perhaps the contributions of religion similarly are experienced differently between male and female youth. To our knowledge, this issue has only preliminarily been investigated. In one smaller, majority Christian (85%) U.S. sample selected for children at high familial risk for depression ($N = 214$; mean age = 12.5 years, 52% female), protective effects of various parent and adolescent religion measures against any SI or SA tended to predominate in female, but not male, youth (Svob et al., 2018). In another study of high school students in Nova Scotia, Canada ($N = 1615$; ages 15–19 years, 49% female), low religious importance and religious service attendance were associated with higher rates of SI (but not SA) in female, but not male, youth (Rasic et al., 2011). Though, there is much more to be understood from a more representative and in-depth approach in earlier age ranges, at the adolescent transition point. For example, considering the 'paradox' of males being at higher risk for SD despite presenting with lower rates of SI and SA when compared to females, it is important to carefully consider whether certain protections of religion are more specific to SI versus SA, as suggested by the prior Canadian study in older adolescents (Rasic et al., 2011). Indeed, past work has articulated differing pathways to SI versus SA/SD (May & Klonsky, 2016), though to our knowledge the overlap of sex differences and phenotypic differences (SI vs. SA) has not been comprehensively investigated in studies of early adolescent religion and suicide.

Finally, we are interested in how the fundamental measurement of religion may influence how pathways of protection and risk are outlined and observed. Aside from the cognitive self-rating involved in appraising one's own level of religiosity (akin to "private religiosity"), there is also an evaluation of one's religiosity by others (a "public religiosity"). In adolescents, parents' insights into their children's religiosity can provide complimentary information to their own self-ratings. Though, again this has not yet been carefully considered—doing so might outline cases in which the effects of a within-family

"public" and a more intra-individual "private" religiosity are at odds, whether due to one ascertainment being a closer estimate of the relevant protective processes, or a reflection of a more general relationship dynamic (i.e. a parent's rating of child's religiosity may have less to do with the child and more to do with the parent). For example, perhaps association of "public" but not "private" measures with suicide risk would be more consistent with a familial buffering pathway than an intra-individual one.

In the present study, we aimed to carefully and comprehensively consider the relationships between religion measures and SI and SA in early adolescence. We leveraged a large, normative, epidemiologically informed sample of adolescents and their parents drawn from the Adolescent Brain and Cognitive Development Study (ABCD Study®).

Our first study aim was to better understand the associations among "private" adolescent self-reported religiosity and "public" parent-reported measures of adolescent religious importance and service attendance, as well as parents' own self-reported religiosity, with adolescent lifetime SI and SA. We considered these main effects across the entire ABCD Study sample and conducted follow-up sex-stratified analyses to parallel existing research that suggests possible sex differences. *We hypothesised* that higher scores on measures of adolescent "private" and "public" religion and parent self-reported religiosity would be associated with reduced odds of adolescent lifetime SI and SA. Further, based on the prior literature, we hypothesised that protective effects would be stronger for female youth than for male youth. *In our second aim,* we were interested in better characterising how the effects of adolescent "private" religiosity on suicide risk may be moderated by parents' own self-reported religiosity. We leveraged the simultaneous, rigorous, multi-item self-report assessments of parent and adolescent religiosity to investigate the possibility of a moderating relationship. *We hypothesised* a significant interaction which would show a pattern of decreased adolescent self-reported religiosity in the setting of higher parental self-reported religiosity contributing to greater odds of SI and SA. In our *third aim*, we explored how rates of SI and SA may differ across religious affiliation groups. For affiliation groups in which differences were noted, we conducted analyses of "private" and "public" adolescent religion, parent self-reported religiosity, and moderation (Aims 1–2) within the affiliation groups, to better understand subgroup-specific mechanisms. *We made no explicit hypotheses* for this exploratory aim.

Methods

Sample

Participants were drawn from the ABCD Study data release 5.0 (June 2023). The ABCD Study is a national, multi-site investigation of development that enrolled children at ages 9–10 years old to form an epidemiologically informed sample (Zucker et al., 2018). Assessments, which include the collection of demographic and clinical data, occur on a yearly basis. All religiosity data analysed in this study were retrieved from the three-year follow-up assessment ($N = 10,366$ youth ages 12–13 years), as year three was the first study year to measure adolescents' self-reported religiosity. As some families had two or three children enrolled in the ABCD Study simultaneously, we randomly selected one sibling per family to be retained in our final sample. The full, unrelated sample which had available

information on parent/adolescent religion measures, SI/SA, and model covariates (described below) was $N = 7{,}068$ youth.

Measures

Parent-Reported Adolescent Demographics—Most demographic measures were obtained at the baseline assessment through a parent questionnaire (86% biological mother, 10% biological father, 2% adoptive parent, 0.8% custodial parent, 1% other). Baseline demographic measures retained as covariates included child sex assigned at birth, race, Hispanic/Latino/a ethnicity, and whether a parent or grandparent was born outside of the United States. Age and family income measured contemporaneously with religiosity at the three-year follow-up assessment were used.

"Private" Religion: Adolescent and Parent Self-Reported Religiosity—At the three-year follow-up, parents and adolescents completed the Mexican–American Cultural Values Scale (MACVS, Gonzalez et al., 2021; Knight et al., 2010), a survey of attitudes towards 28 religious and cultural statements. The MACVS was administered to the entire sample, regardless of ethnicity or cultural background. Though it was developed for use in the Mexican–American community, it is a valid measure of these attitudes in the general population as well (Zucker et al., 2018). The MACVS includes a religiosity subscale composed of seven Likert-scale items scored from 1 ("Not at All") to 5 ("Completely"): "It is important to thank God or Higher Power(s) every day for all one has"; "It is important to follow the Word of God or Higher Power(s)"; "Religion should be an important part of one's life"; "God or Higher Power(s) is first; family is second"; "One's belief in God or Higher Power(s) gives inner strength and meaning to life"; "Parents should teach their children how to pray"; "If everything is taken away, one still has their faith in God". Summary religiosity scores were calculated by summing the individual item scores, for a composite variable with a range from 7 to 35. The subscale showed good internal consistency in parents (Cronbach's alpha = 0.97) and adolescents (Cronbach's alpha = 0.95). The parent and adolescent religiosity scores were z-score transformed for interpretability in statistical analyses.

"Public" Religion: Parent-Reported Adolescent Religious Service Attendance and Importance—Parents responded to questions on adolescent religious service attendance and religious importance at each time point, though the three-year follow-up data were used to parallel the MACVS administration. The religious service attendance item asked, "How often does your child attend religious services?" on a scale from 0 ("Never") to 4 ("More than once a week"). The religious importance item asked, "In general, how important are your child's religious and spiritual beliefs in his/her daily life?" on a scale from 1 ("Not at all") to 4 ("Very"). Both items were treated as continuous predictors in statistical analyses for ease of interpretation.

Parent-Reported Adolescent Religious Affiliation—At the three-year follow-up ABCD Study assessment, parents provided the religious affiliation group for their children as part of a general demographics questionnaire. The religious affiliation item included response options for various denominations of Christianity, as well as Islam, Judaism,

Buddhism, Hinduism, Atheism, Agnosticism, and others such as Don't Know or Nothing in Particular. To overcome the limitation of small group size, we aggregated religious groups into seven categories. Various denominations of Non-Catholic Christianity (Mainline Protestant, Evangelical Protestant, Historically Black Church, Orthodox Christian, Mormon, Jehovah's Witness, Unitarian, Other Christian) were grouped due to small sample sizes within some of these denominations, though Catholic Christianity was kept as its own category due to historical distinctions in suicide research (Durkheim, 1897). Buddhism and Hinduism were grouped together due to small cell sizes and shared principles among adherents; and Atheism, Agnosticism, nothing in particular, and don't know were grouped as Areligious. Though grouping religions together based on commonalities may obscure some heterogeneity within groups, data aggregation was necessary due to small subgroup sizes which generally reflect the composition of the United States population. Adolescent religious affiliation groups were converted to separate binary variables (Non-Catholic Christian, Catholic Christian, Buddhist/Hindu, Muslim, Jewish, Areligious, Something Else) to allow investigation of associations without the selection of a reference group.

Adolescent Self-Reported Lifetime Suicide Ideation (SI) and Suicide Attempt (SA)—At the baseline assessment, 1-year follow-up, and 2-year follow-up (i.e. one year prior to completion of the MACVS religiosity scale), adolescents completed the Kiddie Schedule for Affective Disorders and Schizophrenia for DSM-5 (KSADS-5) diagnostic clinical interview. Reports across all three interviews were combined to create a measure of lifetime SI or SA. Youth were coded as having a history of SI or SA if they reported experiencing past or present SI or SA at any of the three time points. At the time of this manuscript, adolescent reports of lifetime SI/SA were not able to be retrieved for the three-year follow-up.

Statistical analyses—All analyses were conducted in R version 4.2.0. First, a preliminary association mapping of religion variables and their relations with affiliation groups and sex was performed. Descriptive Pearson's correlations were computed for all continuous religion measures (parent religiosity, adolescent religiosity, adolescent religious service attendance, and adolescent religious importance). Next, Mann–Whitney U-test was applied to assess whether any of the religion measures were significantly different across the religious affiliation groups, as well as across male and female youth, and chi-square test was applied to assess whether SI and SA rates differed across male and female youth.

Analyses across all aims were conducted using logistic regression models. All models were adjusted for adolescent age, sex, race (White/European-American, Black/African-American, Asian/Asian-American, Indigenous, or Other, each coded as binary to allow endorsement of multiple races), ethnicity (binary Hispanic/Latino/Latina), family income, and whether a parent or grandparent was born outside of the United States (binary). The $P < 0.05$ threshold was used as the benchmark for statistical significance, and odds ratios were calculated with 95% confidence intervals.

For our first aim, we implemented logistic regression models to examine relations between the predictor religiosity measures ("private" self-reported adolescent religion measures: adolescent self-reported religiosity; "public" parent-reported adolescent religion measures:

adolescent religious service attendance, adolescent religious importance; parent self-reported religiosity) and binary suicide risk outcomes (adolescent lifetime SI; adolescent lifetime SA). In each model, a sex by religion (adolescent self-reported religiosity, religious service attendance, religious importance, and parent self-reported religiosity) interaction term was included as a primary predictor to capture possible sex differences in religion-suicide risk associations. Additionally, the main analysis, regardless of the significance of the sex interaction term, was followed up by a sex-stratified analysis to allow for a more direct comparison to the existing literature (Svob et al., 2018). The first aim involved 24 models investigating associations in the full sample and in sex-stratified subset analyses.

For our second aim, a statistical interaction term (adolescent self-reported religiosity * parent self-reported religiosity) was included alongside adolescent self-reported religiosity, parent self-reported religiosity, and model covariates to evaluate a possible moderation effect of parent religiosity on the relationship between adolescent religiosity and lifetime SI and SA. The SI and SA models were then followed up stratified in female and male youth. This approach resulted in 6 models investigating interactions in the full sample and in sex-stratified subset analyses.

For our third aim, each religious affiliation group was tested as a binary predictor of SI or SA alongside covariates in its own logistic regression model. As cell sizes were small for most religious affiliation groups, a formal sex by affiliation term was not included in these models, and they were not followed up with sex-stratified analyses. The third aim involved 12 models investigating differential SI and SA rates across religious affiliation groups. Further, analyses from Aims 1 and 2 were repeated within the Catholic and Muslim youth subsets to better understand underlying mechanisms contributing to the differing SI rates. Due to limited variability within these groups resulting in model errors, covariates related to race and ethnicity were not included. Further, sex interaction analyses and sex stratification were not conducted. This resulted in 10 models investigating associations within Catholic youth and Muslim youth.

Results

Demographic Characteristics of the Full Sample

The full sample with available adolescent self-reported religiosity, parent self-reported religiosity, KSADS-PL SI/SA, and model covariates was $N = 7,068$ unrelated adolescents (mean age 12.89 years, 47% female; Table 1). The majority of the sample was Non-Catholic Christian, Areligious, or Catholic Christian. Lifetime SI was reported by 17.29% of adolescents; while, lifetime SA was reported by 2.04%. Sex differences in rates evaluated by chi-square test were non-significant for SI ($P = 0.779$) and SA ($P = 0.665$).

Preliminary Association Mapping of Religion Variables

The Pearson correlation matrix of adolescent self-reported religiosity, parent self-reported religiosity, and parent-reported adolescent religious service attendance and religious importance is presented for the full sample (Supplementary Table S1). Parent and adolescent self-reported religiosity (MACVS) were moderately correlated. Parent religiosity was more

strongly correlated with adolescent religious service attendance or religious importance than adolescent religiosity, which could reflect a shared informant bias (parent report).

Possible differences in religion measures were explored by religious affiliation groups. Mann–Whitney *U*-tests revealed substantial affiliation group differences in parent religiosity and "private" and "public" measures of adolescent religion, with general patterns of higher scores in non-Catholic, Catholic Christian, and Jewish youth, and lower scores in Areligious and Muslim youth (Supplementary Table S2; Supplementary Fig. S1 for visualisations).

Possible differences in religion measures were explored by sex. Mann–Whitney *U*-tests revealed that only adolescent self-reported religiosity was significantly different between males and females, with male youth reporting slightly higher religiosity on the MACVS (5% higher; *P* < 0.001) (Supplementary Figure S2). A further investigation of adolescent responses to the MACVS self-report measure at the item-by-item level revealed generally higher ratings by item for male youth (Supplementary Table S3).

Aim 1. Individual Contributions of "Private" and "Public" Measures of Adolescent Religion, and Parent Religiosity, to Adolescent Suicide Risk

Adolescent Self-Reported "Private" Religiosity—In the full sample, adolescent self-reported religiosity was not significantly related to adolescent lifetime SI (OR = 0.94, CI = 0.86–1.02, *P* = 0.142) or adolescent lifetime SA (OR = 0.88, CI = 0.69–1.11, *P* = 0.274) (Supplementary Table S4). There were no significant sex interaction terms in the main models for SI (*P* = 0.232) and SA (*P* = 0.456). Sex stratification revealed that adolescent religiosity was significantly associated with reduced odds of lifetime SI among female youth (OR = 0.85, CI = 0.77–0.93, *P* < 0.001), but not male youth (OR = 0.96, CI = 0.88–1.04, *P* = 0.312) (Fig. 1, Panel A; Supplementary Table S5). Sex stratification further revealed that adolescent religiosity was significantly associated with reduced odds of lifetime SA among female youth (OR = 0.73, CI = 0.55–0.96, *P* = 0.024), but not male youth (OR = 0.90, CI = 0.70–1.14, *P* = 0.367) (Fig. 1, Panel B; Supplementary Table S5).

Parent-Reported "Public Measures" of Adolescent Religion—In the full sample, adolescent religious service attendance (as rated by the parent) was not significantly associated with lifetime SI (OR = 0.97, CI = 0.91–1.04, *P* = 0.395) or SA (OR = 0.86, CI = 0.71–1.02, *P* = 0.100) (Supplementary Table S6). There were no significant sex interaction terms in the main models for SI (*P* = 0.252) and SA (*P* = 0.388). Sex stratification analysis revealed that religious service attendance was significantly associated with reduced odds of lifetime SI in female youth (OR = 0.92, CI = 0.86–0.98, *P* = 0.015), but not male youth (OR = 0.97, CI = 0.91–1.04, *P* = 0.407) (Fig. 1, Panel C; Supplementary Table S7). There were no sex stratified associations for SA.

In the full sample, adolescent religious importance (as rated by the parent) was not significantly associated with lifetime SI (OR = 0.93, CI = 0.87–1.01, *P* = 0.074), though it was significantly associated with reduced odds of lifetime SA (OR = 0.75, CI = 0.61–0.92, *P* = 0.005) (Supplementary Table S8). There were no significant sex interaction terms in the main models for SI (*P* = 0.760) and SA (*P* = 0.267). Sex stratification analysis revealed religious importance was significantly associated with reduced odds of lifetime SI in female

youth (OR = 0.90, CI = 0.83–0.98, *P* = 0.012), but not male youth (OR = 0.94, CI = 0.88–1.02, *P* = 0.144) (Fig. 1, Panel D; Supplementary Table S9). Sex stratification further revealed that the apparent protective effect of religious importance on SA was constrained to males (OR = 0.75, CI = 0.61–0.92, *P* = 0.006), but not females (OR = 0.87, CI = 0.69–1.11, *P* = 0.260) (Fig. 1, Panel E; Supplementary Table S9).

Parent Self-Reported Religiosity—In the full sample, parent self-reported religiosity was not significantly related to adolescent lifetime SI (OR = 0.95, CI = 0.87–1.04, *P* = 0.247) or adolescent lifetime SA (OR = 0.95, CI = 0.75–1.21, *P* = 0.662) (Supplementary Table S10). There were no significant sex interaction terms in the main models for SI (*P* = 0.991) and SA (*P* = 0.945). There were no significant sex-stratified associations for SI and SA (Supplementary Table S11).

Aim 2. Investigation of Potential Moderation of the Effect of Adolescent Self-Reported Religiosity by Parent Self-Reported Religiosity

When the interaction between parent and adolescent religiosity was considered in the full sample, it was not significantly related to adolescent lifetime SI (OR = 0.96, CI = 0.89–1.03, *P* = 0.214) or adolescent lifetime SA (OR = 0.94, CI = 0.77–1.14, *P* = 0.522) (Supplementary Table S12). In sex-stratified analyses, there continued to be no significant associations (Supplementary Table S13).

Aim 3. Exploratory Analysis of Differential Risk and Resilience Profiles Across Religious Affiliation Groups

In the full sample, Catholic Christian youth presented lower odds of lifetime SI as compared to youth who were not identified as Catholic Christian (OR = 0.80, CI = 0.67–0.95, *P* = 0.014), and Muslim youth presented higher odds of lifetime SI as compared to youth who were not identified as Muslim (OR = 1.52, CI = 1.02–2.22, *P* = 0.033) (Supplementary Table S14). Religious affiliation groupings were not related to lifetime SA (all *P*'s > 0.099).

In the Catholic Christian and Muslim youth subsets, SI-focused analyses from Aims 1 and 2 were repeated to identify possible mechanistic differences. In the Catholic Christian youth subset, adolescent self-reported religiosity was significantly associated with reduced odds of adolescent lifetime SI (OR = 0.67, CI = 0.56–0.81, *P* < 0.001) (Supplementary Table S15), though all other associations were non-significant. In the Muslim youth subset, no associations were significant (Supplementary Table S15).

Discussion

This study examined the roles of adolescent and parent religion in lifetime suicide risk during early adolescence. We were interested in better understanding the key dimensions involved in the relationships among measures of religion and suicide risk, including comparing various aspects of measured "private" and "public" religiosity and investigating sex-stratified effects. Key advances included (1) separating out SI and SA as outcomes of interest, (2) increasing statistical power and epidemiological representativeness of the sample (including a variety of religious affiliation groups), (3) using a validated measure

of religiosity for adolescents and their parents, (4) adding further nuance to the measures of religiosity by exploring the role of several complementary measures of "private" and "public" adolescent religiosity, in addition to parent religiosity, (5) considering potential moderation effects of parent religiosity on the associations of adolescent religiosity with youth suicide risk, and (6) considering differential patterns of risk and resilience among youth religious affiliation subgroupings. Most critically, to our knowledge, this is the first epidemiologically informed study which assesses these issues in the early phase of adolescence, a critical time for the development of suicide risk and identity formation.

In the full sample, there were a few significant associations, limited to parent-reported "public" adolescent religion measures: a 25% reduction in odds of SA with each increasing level of religious importance, a 20% reduction in odds of SI for Catholic youth, and a 52% increase in odds of SI for Muslim youth. When considering sex stratified effects, though, there were many more significant associations involving both "private" and "public" aspects of adolescent religion, typically significant only in female youth. For example, in female youth, a one standard deviation increase in "private" self-reported religiosity was significantly associated with 15% reduced odds of SI (Fig. 1, Panel A) and 27% reduced odds of SA (Fig. 1, Panel B), effects which were not significant in the full sample or in the male youth subset. Further, in female youth, but not the full sample or the male youth subset, there were novel significant findings for "public" parent-reported religion measures, such as 8% reduced odds of SI with each increasing level of religious service attendance (Fig. 1, Panel C) and 10% reduced odds of SI with each increasing level of religious importance (Fig. 1, Panel D). In one noteworthy deviation, when dissecting the full sample 25% reduction in odds of SA with each increasing level of religious importance, a significant effect was identified in only the male (25% odds reduction) but not female youth subset (Fig. 1, Panel E). Especially considering that male youth are more likely to die by suicide than female youth (Kaess et al., 2011), the ability to detect a marker for SA which was strongest in this population subset may be particularly important when considering the prevention of suicidal behaviour and death.

Notably, aspects of "private" (self-reported) and "public" (parent-rated) religiosity lowered the odds of reporting SI and SA, particularly in female youth. This is in contrast to a lack of significant associations with parents' own self-reported religiosity. Such null effects may be related to the emerging independence of youth and decrease in parental influence during this developmental period. Though certainly parents will continue to be important across the adolescent transition, perhaps the experience of religion becomes more personal, and therefore the adolescent's own religiosity, as opposed to the parent's, is more closely related to trajectories of well-being or despair. This could coincide with the onset of many coming-of-age religious ceremonies and opportunities for commitment to a religion during this age range. Parent ratings of "public" religiosity may capture aspects of adolescent "private" religiosity, being moderately correlated with adolescent self-reports, in addition to indexing broader parent perceptions of their children. How relations between "public" religiosity (as rated by others) and youth mental health change as adolescents age into later adolescence and explore new relationships (and perhaps spend less time with their parents) is worthy of further study.

Do the results here support differing pathways to SI and SA? Some findings, such as negative association between "private" self-reported religiosity and SI and SA in female youth, suggest some common overlap. In other cases, such as "public" parent-reported measures of adolescent religious service attendance (in female youth) and religious affiliation groups (in the full sample), signs of risk and resilience were limited to SI and did not extend to SA. There were also times when sex differences and phenotypic differences showed interesting intersections. For example, higher "public" parent-reported adolescent religious importance was associated with reduced odds of SI—but not SA—in females, but reduced odds of SA—and not SI—in males, which appeared to drive the full sample significant effect for SA.

The sex differences that emerged in our study bring to light questions about potential pathways of gendered socialisation between religiosity and risk for SI and SA. While we identified that male youth self-reported higher religiosity than female youth, these effects were small (5%). A further effort to identify architectural differences based on item-by-item responses only identified a more general pattern of male youth tending to endorse higher ratings at the item level (Supplementary Table S3). However, the protective nature of religiosity appears to be more salient for female youth. One possibility to explain these patterns is that there may be qualitative differences in how male and female youth think about and draw meaning from religion, which we were unable to capture in this study. A prior mixed-methods study among emerging adults in Hungary found weaker associations between religion/spirituality and mental health in males, with underlying differences in how commonly males and females reported positive and negative aspects of religiosity in their lives (Julianna & Koronczai, 2021). However, contradictory evidence suggesting stronger protective effects in males has also been identified (Maselko & Kubzansky, 2006). Perhaps also relevant is the female typical stress response pattern to "tend-and-befriend," rather than "fight-or-flight" (Taylor et al., 2000). This could suggest that female youth may be better able to marshall the social support from religious community to reduce distress and subsequent suicide risk. Further qualitative work holds promise for clarifying the role of religiosity and the paths through which religiosity may impact mental health for male and female youth in this early age range.

Findings that Catholic youth appear to be at lower risk and Muslim youth appear to be at higher risk for SI are in line with patterns previously identified in adults (Awaad et al., 2021; Durkheim, 1966). Durkheimian explanations may be more relevant to older adults than early adolescents. Perhaps at the level of the family system, there is some unmeasured protection related to either the specific beliefs of Catholics or the structure of their organised religious community. In the Catholic youth subset, a one standard deviation increase in adolescent self-reported religiosity was significantly associated with a 33% reduction in odds of SI, though in the Muslim youth subset, there were no significant associations. This evidence is quite preliminary considering the small Muslim youth subgroup size, though it might suggest possible mechanisms of future interest. A number of researchers are documenting the challenges of suicidality and self-harm in Muslim communities (Awaad et al., 2021; Lester, 2006). This is despite the condemnation against suicide in the Koran, the Islamic holy text, which might invite speculation of decreased suicide risk in adherents (Shoib et al., 2022). Less is known about the mental health experiences of Muslims in

non-Muslim-majority countries such as the United States. In our U.S. study of youth, we find that Muslim youth are at higher risk for experiencing SI than non-Muslim youth, while in another recent U.S. study Muslim adults were at higher likelihood of lifetime SA (Awaad et al., 2021). It is important to note that this increased risk may be less related to the specific religious affiliation and more related to discrimination or stigma that Muslim individuals may experience in non-Muslim-majority countries such as the U.S. Larger studies of Muslim individuals within the U.S. that provides a deeper insight to their experiences would be needed to truly understand the associated patterns of risk and resilience.

Against our expectation, an "Areligious" affiliation did not demarcate any additional risk, despite the Durkheimian notion that any religious affiliation may be an index of social integration and thus protective (and hence, lack of affiliation would signal risk). In comparing to ideas tracing back to Durkheim it is important to also note the rising number of people without religious affiliation (second most common in our sample and third most common globally)—being "unaffiliated" or "are-ligious" now may carry a substantially different social connotation as opposed to times in which majority of the population was affiliated with a given religion and various aspects of life likely revolved around religion in the public sphere, and popular trends of "spirituality" and "mindfulness" may be supplementing in some of these cases as well. Further, we know little about what it means to be religiously unaffiliated in early adolescence, as opposed to adulthood.

Against hypotheses, we failed to document a moderator effect in the interplay between parent and adolescent self-reported religiosity. We had previously hypothesised that lower adolescent religiosity may confer risk if it occurred in a context of higher parental religiosity (or vice-versa). The failure to detect any interactions could be constrained by the specific self-report measures used to assess religiosity, as well as the specific developmental period and prevalences of SI and SA. There has been prior evidence that general parent and youth attunement may be linked to protection against youth suicidal thoughts and behaviours (Lamis & Jahn, 2013), so despite our null results here, more fine-grained approaches could reveal some of these effects within the sphere of religion as well.

Limitations

There are a few limitations worth considering. The timing of the assessments with available data was such that the most recent lifetime suicidality measurement was conducted one year before the religiosity measures. As such, any suicidal thoughts or behaviours occurring in the intervening year were not captured. Thus, group differences between those who did and did not experience SI/SA may be watered down, given that adolescents with new-onset SI/SA as of the past year would be categorised as not experiencing SI/SA. The effects that we identified may actually be more pronounced (or this may explain why some associations were not significant). Measurement of lifetime suicide risk is prone to recollection bias (Klimes-Dougan et al., 2022), and these patterns could be prominent in youth. To mitigate these issues, we considered lifetime SI and SA as any report of SI or SA across three longitudinal assessment waves, which may have improved the detection of youth suicide histories.

Further, given that adolescent self-reported religiosity was only available at a single time point, we were unable to disentangle potential directional and bi-directional effects of religiosity and SI/SA. While it may be the case that religiosity is protective longitudinally, with higher religiosity being associated with lower SI over time, it is also possible that experiences of SI/SA are associated with reductions in religiosity and engagement in religious practices for some youth. Better understanding the potential for bi-directional effects between these constructs, particularly in this developmental period where youth are individuating from the family unit, will provide critical insight into the clinical utility of religiosity measures for identifying youth suicide risk.

Other issues in measurement are also relevant. The MACVS religiosity items are biased towards monotheistic religions. Most of the adolescents in this sample were affiliated with monotheistic faith according to parent report. The small number of youth who were Buddhist, Hindu, or another faith may have responded to items differently despite showing similar levels of religiosity (or spirituality) in other ways. Relatedly, this study was conducted in the United States and as such aimed to resemble the epidemiology of this but not other populations. As such, the religious composition of the sample was predominantly Christian faith, which prevents extrapolation to populations with differing religious demographics. The small subgroups of other religions (e.g. Buddhist, Hindu, Muslim, and Jewish) render it difficult to definitively understand risk and protective processes in those contexts.

Though the study had a large sample, SI and especially SA are relatively uncommon in early adolescence. In accounting for features of the ABCD Study sampling design and best practices for suicide research, such as excluding members of sibling pairs and controlling for common confounds, our analytic sample was reduced in size and the resulting subgroup reporting SA was particularly small. Therefore, failure to detect effects, especially after stratifying by sex (essentially halving the sample), might well be due to being underpowered. Moving forward, it would be wise to continue to pair large-scale epidemiological studies such as this one, which aim to be representative though not enriched for risk, with focussed in-depth studies of youth at high risk.

Finally, during this developmental period of early adolescence (e.g. ages 12–13), disagreement between parents and adolescents on religiosity may just be emerging. Additionally, in this sample, we only had access to reports on adolescent religious affiliation from the parent. Thus, it is possible that adolescent responses on the MACVS may have been in reference to a religion that differs from that of the parent. In a similar vein, parents within a single household may hold different religious views, yet we only had information from one parent. It will be important to continue to explore the implications of discordance on religion between adolescents and their parents as youth transition into late adolescence and young adulthood, given that this transition coincides with other developmentally prescribed changes in identity development and risk for psychopathology.

Future Directions

Large-scale longitudinal studies across broader developmental ranges will be useful for identifying how associations between religiosity and suicide risk unfold over time as a

function of development. Moreover, in cases where it may not be feasible to collect a sample that is both large and heterogeneous enough to detect statistically significant differences in SI/SA based on sex and religious affiliation within a single study, mixed-methods approaches are recommended. Through leveraging both quantitative and qualitative analysis, researchers can provide both breadth and depth in our understanding of how religiosity and SI/SA are related in adolescence. A critical step for further investigation is the role of relational dynamics in suicide risk. Other canonical risk and protective factors could be placed in a familial context, possibly by dyadic ecological momentary assessment, in-home, and other studies. Understanding the contributions from and interactions among peer and family religious influences in the context of youth suicide risk will be useful for further study.

Conclusion

In this largest-to-date study on early adolescent religion and risk for lifetime suicide ideation (SI) and suicide attempt (SA), we identified an overall protective association for parent-reported adolescent religious importance against SA. Sex stratification further revealed a variety of protective associations among parent-reported and self-reported adolescent religion measures and SI and SA which were only significant in female youth. There was one protective association between religious importance and SA which was only significant in male youth. There was no evidence to suggest that parent religiosity moderated the relationship between adolescent religiosity and SI and SA. Preliminary evidence also suggested that Catholic religious affiliation was associated with lower odds of SI, while Muslim religious affiliation was associated with higher odds of SI. Further research on the role of religion in youth suicide risk, as well as the mechanisms underlying the observed sex differences, may offer greater clarity on pathways of risk and resilience, as well as inform targeted multi-level interventions.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

Acknowledgements

References

Awaad R, El-Gabalawy O, Jackson-Shaheed E, Zia B, Keshavarzi H, Mogahed D, & Altalib H. (2021). Suicide attempts of Muslims compared with other religious groups in the US. JAMA Psychiatry, 78(9), 1041–1044. 10.1001/jamapsychiatry.2021.1813 [PubMed: 34287614]

Bornstein MH, Putnick DL, Lansford JE, Al-Hassan SM, Bacchini D, Bombi AS, Chang L, Deater-Deckard K, Di Giunta L, Dodge KA, Malone PS, Oburu P, Pastorelli C, Skinner AT, Sorbring E, Steinberg L, Tapanya S, Tirado LMU, Zelli A, & Alampay LP (2017). "Mixed blessings": Parental religiousness, parenting, and child adjustment in global perspective. Journal of Child Psychology and Psychiatry, and Allied Disciplines, 58(8), 880–892. 10.1111/jcpp.12705 [PubMed: 28244602]

Burshtein S, Dohrenwend BP, Levav I, Werbeloff N, Davidson M, & Weiser M. (2016). Religiosity as a protective factor against suicidal behaviour. Acta Psychiatrica Scandinavica, 133(6), 481–488. 10.1111/acps.12555 [PubMed: 27059615]

Chan M, Tsai KM, & Fuligni AJ (2015). Changes in religiosity across the transition to young adulthood. Journal of Youth and Adolescence, 44(8), 1555–1566. 10.1007/s10964-014-0157-0 [PubMed: 25104418]

Dervic K, Oquendo MA, Grunebaum MF, Ellis S, Burke AK, & Mann JJ (2004). Religious affiliation and suicide attempt. The American Journal of Psychiatry, 161(12), 2303–2308. 10.1176/appi.ajp.161.12.2303 [PubMed: 15569904]

Durkheim E. (1966). Suicide: A study in sociology (Simpson G (ed.); Spaulding JA, trans.). The Free Press. https://www.worldcat.org/title/suicide-a-study-in-sociology/oclc/492869

Facts About Suicide. (2022, July 25). https://www.cdc.gov/suicide/facts/index.html

Flor DL, & Knapp NF (2001). Transmission and transaction: Predicting adolescents' internalization of parental religious values. Journal of Family Psychology: JFP, 15(4), 627–645. 10.1037/0893-3200.15.4.627 [PubMed: 11770469]

Forehand R, Wierson M, Thomas AM, Armistead L, Kempton T, & Neighbors B. (1991). The role of family stressors and parent relationships on adolescent functioning. Journal of the American Academy of Child and Adolescent Psychiatry, 30(2), 316–322. 10.1097/00004583-199103000-00023 [PubMed: 2016238]

Garnett M, Curtin S, & Stone D. (2022). Suicide mortality in the United States, 2000–2020. National Center for Health Statistics (U.S.). 10.15620/cdc:114217

Gonzalez R, Thompson EL, Sanchez M, Morris A, Gonzalez MR, Feldstein Ewing SW, Mason MJ, Arroyo J, Howlett K, Tapert SF, & Zucker RA (2021). An update on the assessment of culture and environment in the ABCD Study®: Emerging literature and protocol updates over three measurement waves. Developmental Cognitive Neuroscience, 52, 101021. 10.1016/j.dcn.2021.101021 [PubMed: 34700197]

Hoffman S, & Marsiglia FF (2014). The impact of religiosity on suicidal ideation among youth in central Mexico. Journal of Religion and Health, 53(1), 255–266. 10.1007/s10943-012-9654-1 [PubMed: 23054483]

Hovey JD, Hurtado G, Morales LRA, & Seligman LD (2014). Religion-based emotional social support mediates the relationship between intrinsic religiosity and mental health. Archives of Suicide Research, 18(4), 376–391. 10.1080/13811118.2013.833149 [PubMed: 24846664]

Julianna O, & Koronczai B. (2021). Gender differences in the relationship between religion/spirituality, well-being and depression. Psychiatria Hungarica: A Magyar Pszichiatriai Tarsasag Tudomanyos Folyoirata, 36(4), 479–493.

Kaess M, Parzer P, Haffner J, Steen R, Roos J, Klett M, Brunner R, & Resch F. (2011). Explaining gender differences in non-fatal suicidal behaviour among adolescents: A population-based study. BMC Public Health, 11, 597. 10.1186/1471-2458-11-597 [PubMed: 21794184]

Kim-Spoon J, Longo GS, & McCullough ME (2012). Adolescents who are less religious than their parents are at risk for externalizing and internalizing symptoms: The mediating role of parentadolescent relationship quality. Journal of Family Psychology: JFP, 26(4), 636–641. 10.1037/a0029176 [PubMed: 22888785]

Kleiman EM, & Liu RT (2014). Prospective prediction of suicide in a nationally representative sample: Religious service attendance as a protective factor. The British Journal of Psychiatry: THe Journal of Mental Science, 204, 262–266. 10.1192/bjp.bp.113.128900 [PubMed: 24115346]

Klimes-Dougan B, Mirza SA, Babkin E, & Lanning C. (2022). Biased reporting of past self-injurious thoughts and behaviors: A literature review. Journal of Affective Disorders, 308, 596–606. 10.1016/j.jad.2022.04.073 [PubMed: 35429538]

Knight GP, Gonzales NA, Saenz DS, Bonds DD, Germán M, Deardorff J, Roosa MW, & Updegraff KA (2010). The Mexican American cultural values scales for adolescents and adults. The Journal of Early Adolescence, 30(3), 444–481. 10.1177/0272431609338178 [PubMed: 20644653]

Lamis DA, & Jahn DR (2013). Parent-child conflict and suicide rumination in college students: The mediating roles of depressive symptoms and anxiety sensitivity. Journal of American College Health, 61(2), 106–113. 10.1080/07448481.2012.754758 [PubMed: 23409860]

Lawrence RE, Brent D, Mann JJ, Burke AK, Grunebaum MF, Galfalvy HC, & Oquendo MA (2016a). Religion as a risk factor for suicide attempt and suicide ideation among depressed patients. The Journal of Nervous and Mental Disease, 204(11), 845–850. 10.1097/NMD.0000000000000484 [PubMed: 26894320]

Lawrence RE, Oquendo MA, & Stanley B. (2016b). Religion and suicide risk: A systematic review. Archives of Suicide Research, 20(1), 1–21. 10.1080/13811118.2015.1004494 [PubMed: 26192968]

Lester D. (2006). Suicide and islam. Archives of Suicide Research, 10(1), 77–97. 10.1080/13811110500318489 [PubMed: 16287698]

Maselko J, & Kubzansky LD (2006). Gender differences in religious practices, spiritual experiences and health: Results from the US General Social Survey. Social Science & Medicine, 62(11), 2848–2860. 10.1016/j.socscimed.2005.11.008 [PubMed: 16359765]

May AM, & Klonsky ED (2016). What distinguishes suicide attempters from suicide ideators? A meta-analysis of potential factors. Clinical Psychology, 23(1), 5–20. 10.1111/cpsp.12136

Miranda-Mendizabal A, Castellví P, Parés-Badell O, Alayo I, Almenara J, Alonso I, Blasco MJ, Cebrià A, Gabilondo A, Gili M, Lagares C, Piqueras JA, Rodríguez-Jiménez T, Rodríguez-Marín J, Roca M, Soto-Sanz V, Vilagut G, & Alonso J. (2019). Gender differences in suicidal behavior in adolescents and young adults: Systematic review and meta-analysis of longitudinal studies. International Journal of Public Health, 64(2), 265–283. 10.1007/s00038-018-1196-1 [PubMed: 30635683]

Molock SD, Puri R, Matlin S, & Barksdale C. (2006). Relationship between religious coping and suicidal behaviors among African American adolescents. The Journal of Black Psychology, 32(3), 366–389. 10.1177/0095798406290466 [PubMed: 17080183]

Nkansah-Amankra S. (2013). Adolescent suicidal trajectories through young adulthood: Prospective assessment of religiosity and psychosocial factors among a population-based sample in the United States. Suicide & Life-Threatening Behavior, 43(4), 439–459. 10.1111/sltb.12029

Nkansah-Amankra S, Diedhiou A, Agbanu SK, Agbanu HLK, Opoku-Adomako NS, & Twumasi-Ankrah P. (2012). A longitudinal evaluation of religiosity and psychosocial determinants of suicidal behaviors among a population-based sample in the United States. Journal of Affective Disorders, 139(1), 40–51. 10.1016/j.jad.2011.12.027 [PubMed: 22483954]

Nock MK, Green JG, Hwang I, McLaughlin KA, Sampson NA, Zaslavsky AM, & Kessler RC (2013). Prevalence, correlates, and treatment of lifetime suicidal behavior among adolescents: Results from the National Comorbidity Survey Replication Adolescent Supplement. JAMA Psychiatry, 70(3), 300–310. 10.1001/2013.jamapsychiatry.55 [PubMed: 23303463]

Nonnemaker JM, McNeely CA, & Blum RW, National Longitudinal Study of Adolescent Health. (2003). Public and private domains of religiosity and adolescent health risk behaviors: Evidence from the National Longitudinal Study of Adolescent Health. Social Science & Medicine, 57(11), 2049–2054. 10.1016/s0277-9536(03)00096-0 [PubMed: 14512236]

Pew. (2015). https://www.pewresearch.org/religion/2015/05/12/americas-changing-religious-landscape/

Pew. (2017). https://www.pewresearch.org/religion/2017/04/05/the-changing-global-religious-landscape/

Poorolajal J, Goudarzi M, Gohari-Ensaf F, & Darvishi N. (2022). Relationship of religion with suicidal ideation, suicide plan, suicide attempt, and suicide death: a meta-analysis. Journal of Research in Health Sciences, 22(1), e00537. 10.34172/jrhs.2022.72 [PubMed: 36511249]

Rasic DT, Belik SL, Elias B, Katz LY, Enns M, Sareen J, & Swampy Cree Suicide Prevention Team (2009). Spirituality, religion and suicidal behavior in a nationally representative sample. Journal of Affective Disorders, 114(1–3), 32–40. 10.1016/j.jad.2008.08.007 [PubMed: 18799219]

Rasic D, Kisely S, & Langille DB (2011). Protective associations of importance of religion and frequency of service attendance with depression risk, suicidal behaviours and substance use in adolescents in Nova Scotia, Canada. Journal of Affective Disorders, 132(3), 389–395. 10.1016/j.jad.2011.03.007 [PubMed: 21458077]

Robins A, & Fiske A. (2009). Explaining the relation between religiousness and reduced suicidal behavior: Social support rather than specific beliefs. Suicide & Life-Threatening Behavior, 39(4), 386–395. 10.1521/suli.2009.39.4.386 [PubMed: 19792980]

Shoib S, Armiya'u AY, Nahidi M, Arif N, & Saeed F. (2022). Suicide in Muslim world and way forward. Health Science Reports, 5(4), e665. 10.1002/hsr2.665 [PubMed: 35702511]

Stokes CE, & Regnerus MD (2009). When faith divides family: Religious discord and adolescent reports of parent-child relations. Social Science Research, 38(1), 155–167. 10.1016/j.ssresearch.2008.05.002 [PubMed: 19569298]

Svob C, Wickramaratne PJ, Reich L, Zhao R, Talati A, Gameroff MJ, Saeed R, & Weissman MM (2018). Association of parent and offspring religiosity with offspring suicide ideation and attempts. JAMA Psychiatry, 75(10), 1062–1070. 10.1001/jamapsychiatry.2018.2060 [PubMed: 30090928]

Taylor SE, Klein LC, Lewis BP, Gruenewald TL, Gurung RA, & Updegraff JA (2000). Biobehavioral responses to stress in females: Tend-and-befriend, not fight-or-flight. Psychological Review, 107(3), 411–429. 10.1037/0033-295x.107.3.411 [PubMed: 10941275]

Trovato F. (1992). A Durkheimian analysis of youth suicide: Canada, 1971 and 1981. Suicide & Life-Threatening Behavior, 22(4), 413–427. 10.1111/j.1943-278X.1992.tb01036.x [PubMed: 1488788]

Van Dam L, Smit D, Wildschut B, Branje SJT, Rhodes JE, Assink M, & Stams GJJM (2018). Does Natural Mentoring Matter? A Multilevel Meta-analysis on the Association Between Natural Mentoring and Youth Outcomes. American Journal of Community Psychology, 62(1–2), 203–220. 10.1002/ajcp.12248 [PubMed: 29691865]

Vishkin A, Bigman YE, Porat R, Solak N, Halperin E, & Tamir M. (2016). God rest our hearts: Religiosity and cognitive reappraisal. Emotion, 16(2), 252–262. 10.1037/emo0000108 [PubMed: 26461249]

Zucker RA, Gonzalez R, Feldstein Ewing SW, Paulus MP, Arroyo J, Fuligni A, Morris AS, Sanchez M, & Wills T. (2018). Assessment of culture and environment in the Adolescent Brain and Cognitive Development Study: Rationale, description of measures, and early data. Developmental Cognitive Neuroscience, 32, 107–120. 10.1016/j.dcn.2018.03.004 [PubMed: 29627333]
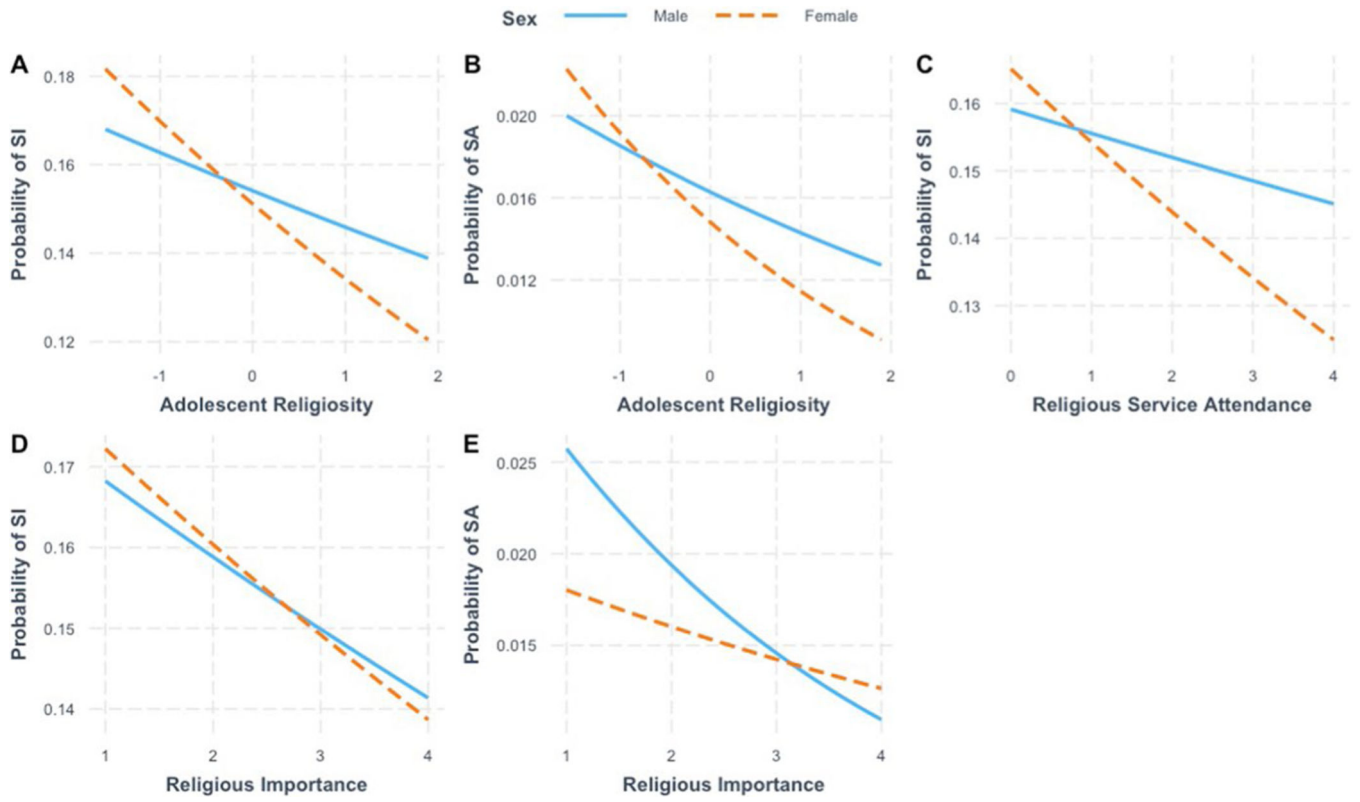
Author Manuscript Author Manuscript Author Manuscript Author Manuscript

Fig. 1.
Religion and suicide risk relationships for which sex-stratified analyses revealed differential results between female and male youth

Table 1

Demographic and clinical characteristics of the full sample with available adolescent/parent religiosity measures, SI and SA reports, and model covariates

	Total (*N* = 7068)	Females (*N* = 3347)	Males (*N* = 3721)
Age, *M* (SD)	12.89 (0.64)	12.87 (0.64)	12.91 (0.64)
Combined family income, *M* (SD)	7.67 (2.24)	7.68 (2.23)	7.65 (2.25)
Race/ethnicity, *N* (%)			
White/European-American	5562 (78.69%)	2611 (78.01%)	2951 (79.31%)
Black/African-American	1247 (17.64%)	626 (18.70%)	621 (16.69%)
Asian/Asian-American	474 (6.71%)	224 (6.69%)	250 (6.72%)
Indigenous	292 (4.13%)	141 (4.21%)	151 (4.06%)
Other	432 (6.11%)	200 (5.98%)	232 (6.23%)
Missing	59 (0.83%)	30 (0.90%)	29 (0.78%)
Hispanic/Latino/Latina	1421 (20.10%)	663 (19.81%)	758 (20.37%)
Family born outside of United States, *N* (%)	2319 (32.81%)	1083 (32.36%)	1236 (33.22%)
Religious affiliation, *N* (%)			
Non-Catholic Christian	3019 (42.71%)	1416 (42.31%)	1603 (43.08%)
Areligious	2500 (35.37%)	1211 (36.18%)	1289 (34.64%)
Catholic Christian	1166 (16.50%)	537 (16.04%)	629 (16.90%)
Muslim	145 (2.05%)	61 (1.82%)	84 (2.26%)
Jewish	37 (0.52%)	20 (0.60%)	17 (0.46%)
Buddhist/Hindu	34 (0.48%)	19 (0.57%)	15 (0.40%)
Something else	87 (1.23%)	41 (1.22%)	46 (1.24%)
Missing	80 (1.13%)	42 (1.25%)	38 (1.02%)
Parent religiosity raw score, *M* (SD)	21.47 (9.78)	21.30 (9.84)	21.61 (9.72)
Adolescent religion, *M* (SD)			
Religiosity raw score	19.56 (8.10)	19.10 (8.18)	19.98 (8.01)
Religious service attendance	1.33 (1.34)	1.33 (1.34)	1.33 (1.35)
Religious importance	2.60 (1.13)	2.61 (1.14)	2.59 (1.13)
Lifetime SI, *N* (%)	1222 (17.29%)	578 (17.27%)	644 (17.31%)
Lifetime SA, *N* (%)	144 (2.04%)	66 (1.97%)	78 (2.10%)

Family income bands (12 months): 1 = Less than $5,000; 2 = $5,000 through $11,999; 3 = $12,000 through $15,999; 4 = $16,000 through $24,999; 5 = $25,000 through $34,999; 6 = $35,000 through $49,999; 7 = $50,000 through $74,999; 8 = $75,000 through $99,999; 9 = $100,000 through $199,999; 10 = $200,000 and greater

SI suicide ideation, *SA* suicide attempt