Published in final edited form as:

Br J Dev Psychol. 2017 March ; 35(1): 91–105. doi:10.1111/bjdp.12183.

Profiles of Adolescent Religiousness using Latent Profile Analysis: Implications for Psychopathology

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Abstract

Prior research has documented robust associations between adolescent religiousness/spirituality (R/S) and psychopathology outcomes including externalizing and internalizing symptomatology, yet no previous studies have examined these associations with adolescent R/S profiles using a person-centered approach. We examined if there are identifiable subgroups characterized by unique multidimensional patterns of R/S experiences and how these experiences may be related to externalizing and internalizing symptomatology. The sample consisted of 220 Appalachian adolescents between 12 and 18 years old who were primarily White and primarily Christian. Latent profile analysis revealed three profiles of adolescent R/S; high religiousness (28.4%), introjectors (47.6%), and low religiousness (24.0%). These profiles were differentially related to internalizing and externalizing symptomatology such that the high religiousness group was significantly lower than the introjectors with respect to internalizing and externalizing symptomatology and lower than the low religiousness group in externalizing symptomatology. Implications and suggestions for future research using person-centered approaches to better understand differential developmental trajectories of religious development are provided.

The scientific study of religiousness and spirituality (R/S) has seen a dramatic increase in both the quantity and quality of research examining many different types of R/S (Emmons & Paloutzian, 2003; Rosmarin, Pargament & Robb, 2010). However, definitions of R/S, both theoretical and operational, are often controversial (Miller & Kelley, 2005). Furthermore, there is a prevalence of contradictory findings in relations between R/S and outcomes (Chadwich & Topp, 1993; Hill & Pargament, 2003; Hirschi & Stark, 1969; McCullough & Larson, 1999). Such findings have reinforced the continuation of a theoretical debate first described some thirty years ago – the question of the dimensionality of R/S (Gorsuch, 1984). These concerns are amplified when examining cultural differences in R/S (Saroglou, 2011), as even items and measures found to be psychometrically sound in one locale might have different cultural meanings elsewhere. Furthermore, the psychometric consequences of development across the lifespan have largely been left unaddressed in the literature. Indeed, measures that have been psychometrically validated among adults are often used with

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children and adolescents without due investigation. What we contend is that the use of person-centered research can uniquely address underlying questions about the dimensionality of R/S, limitations placed on traditional methods when used in cross-cultural contexts, and developmental differences across the lifespan.

Saroglou's (2011) Big Four religious dimensions model, comprised of believing, bonding, behaving, and belonging, provides a theoretical framework that allows for more flexibility in both cross-cultural and developmental religious study. This model posits that there are four components of religion that correspond to psychological dimensions and functions and that (a) are able to delimit religion from proximal constructs; (b) translate major distinct dimensions of religiousness; (c) can be seen across cultural contexts; and (d) are good candidates to study cultural variability in religion due to their diversity. At this point the authors of the current study are unaware of a cross-culturally validated measure of these four dimensions. Additionally, while the goal of cross-culturally valid measures would be a welcome addition to the literature, if this goal were accomplished there would still be concerns of how subscales and items in these measures would interact, both because of the high correlations (Tsang & McCullough, 2003) and the interactions between R/S dimensions (Saroglou, 2011). Person-centered research can both address both of these concerns, as person-centered research takes into account the composition of variables within individuals as opposed to relative standing of individuals on a continuum (Bem, 1983; Caspi & Silva, 1995). We propose the use culturally appropriate measures of R/S to assess each of these four dimensions and examine their interactions through techniques such as latent profile analysis.

Traditionally researchers have relied on community-level data (e.g., county- or state-wide attendance), regression analyses, or the construction of latent variables in the analysis of R/S data. However, each of these has theoretical and practical problems. Single-item measures of religiousness, while common (Rew & Wong, 2006), fail to account for the complex, multifaceted nature of R/S. Multi-construct analyses of R/S often fail to examine interaction effects, leaving the assumption that R/S is homogeneous, both across factors of R/S and across levels of statistically related variables (Lanza, Rhoades, Greenberg, Cox & The Family Life Project Key Investigators, 2011). Additionally, this creates an assumption that dimensions act in additive and subtractive manners (Klemmack, Roff, Parker, Koenig, Sawyer & Allman, 2007), meaning that a one unit increase or decrease in any one aspect of R/S is equivalent to another. Similarly, the use of latent variables may be useful to represent underlying latent traits but is limited in that it is not being able to consider possible interactions between R/S dimensions and in considering only additive effects. Further, the high correlations between R/S might lead to erroneous findings of only one underlying dimension, especially if measures are not psychometrically sound.

Adolescence might be a particularly turbulent time for R/S. Adolescents have been seen to be explorers spiritually and more likely to convert (Good & Willoughby, 2008). Relatively little is known about the makeup of adolescents' R/S beyond general measures such as attendance. For the most part, it has been seen that adolescents decline in religiousness and particularly participation in R/S related activities (Koenig, McGue & Iacono, 2008). Although there is an increasing volume of literature on the relations between various aspects

of R/S and adolescent adjustment outcomes, few studies have taken into account the multidimensional nature of R/S in person-centered ways.

Profiles of Adolescent R/S

In the extant literature, few studies on adolescent R/S have used person-centered methods. When multiple domains are measured, they are often summed, hindering understanding of unique contributions of individual domains. At present, only one study used a person-centered approach to examine adolescent R/S. Specifically, Good, Willoughby, and Busseri (2011) examined the development of R/S in 11th to 12th grade Canadian adolescents using cluster analysis and found five clusters of R/S based on six measures of R/S (religious activity involvement, enjoyment of religious activities, wonder, spiritual transcendence, prayer, meditation). Clusters were “aspiritual/irreligious” (low in all six measures; 14% grade 11, 13% grade 12), “disconnected wonderers” (low involvement, low prayer, low meditation, higher wonder; 36% grade 11, 45% grade 12), “high institutional and personal” (high on all, except average in meditation; 17% grade 11, 8% grade 12), “primarily personal” (above average wonder and spirituality, high prayer, low in others; 24% grade 11, 26% grade 12), and “meditators” (frequent meditation, near mean on all others; 9% grade 11, 8% grade 12).

Other studies have used person-centered approaches with adult samples. Klemmack et al. (2007) examined religiousness in older adults using cluster analysis. Using three measures of religiousness (attendance, prayer, intrinsic), six clusters were identified, labeled as “strongly religious” (53%), “moderately religious” (8%), “privately practicing moderate attenders” (16%), “privately practicing nonattenders” (12%), “intrinsically involved only” (6%), and “minimally religious” (2%). Similarly, Park et al. (2013) reported four clusters of R/S among older adults using measures of attendance, prayer, positive coping, and spirituality. Results revealed fewer groups, finding highly (23%), moderately (28%), somewhat (33%), and minimally (16%) religious groups, in which each successive group was lower in each of the four R/S types. It is premature to answer the question of whether or not adolescent R/S is structured similarly to adult R/S; nevertheless, previous studies show the broad number of measures used across studies, leading to different numbers of profiles, classes, or clusters, complicating the prediction of how typologies of R/S might be seen in research with different populations and with different measures.

Adolescent Religiousness and Psychopathology

The literature on adolescent R/S and psychopathology generally points to a negative relationship (Hackney & Sanders, 2003; Hill & Pargament, 2003; Kelly, Polanin, Jang & Johnson, 2015; King & Furrow, 2004; see Chitwood, Weis, & Leukefeld, 2008 and Holmes & Kim-Spoon, 2016a for reviews); however, fewer studies have examined specifically interactive effects of R/S measures on outcomes. Available studies examining interactive effects have revealed inconsistent findings trends. For example, Dowson and Miner (2015) investigated the interactive effects of quest religiousness and intrinsic religious orientation, finding intrinsic orientation moderated the relationship between quest and satisfaction with life such that those with intrinsic orientation had a lower negative relationship between

questing and psychological well-being. Abu-Raiya, Pargament & Neal (2016) found interactions between R/S struggle and four religious factors (religious commitment, life satisfaction, religious hope, and religious support) in the prediction of both happiness and depression. Specifically, the relationship between R/S struggle and lower levels of happiness was moderated by higher levels of all four variables, while religious commitment and life satisfaction buffered the relationship between R/S struggles and depressive symptoms.

In the present study, we used a person-centered approach to take into account joint contributions of the diverse aspects of R/S within individuals to adolescent psychopathology including internalizing and externalizing symptomatology. We focused on examining the following questions: (1) are there identifiable subgroups of adolescents characterized by multidimensional patterns of R/S experiences? and (2) how do different patterns of R/S experiences relate to adolescent internalizing and externalizing symptomatology? As previously outlined, there is currently a lack of person-centered research across religiousness research, and in particular among adolescents; therefore, instead of making hypotheses that lack a solid foundation, we took an exploratory approach. Despite this, we believe that this novel approach will spur future person-centered investigations into adolescent religiousness research.

Method

Participants

Participants included 220 adolescents who participated as part of a longitudinal study on youths' healthy development. Adolescents were 121 male (55%), with ages ranging from 12–18 ($M = 15.14$, $SD = 1.52$). Religious affiliation of adolescents was 129 Protestant (58.6%), 24 Catholic (10.9%), 1 Jewish (.5%), 30 "Other" (13.6%), and 36 "None" (16.4%). The racial composition was 88% White, 9% Black, and 3% "Other". Mean of the family annual income fell between \$35,000–\$49,000.

Procedure

Participants were recruited through phone lists, word of mouth, and fliers placed around Southwestern Virginia. Adolescents were interviewed by trained research assistants and received monetary compensation. All procedures were approved by the institutional review board of the university.

Measures

Traditional Religiousness—Traditional Religiousness was measured using 16 items adapted from Fetzer Institute and National Institute on Aging Working Group (1999) and Jessor and Jessor's (1977). The scale contained four subscales: two items measuring organizational religiousness (e.g., "How often do you go to religious services?"), three items measuring private practices religiousness (e.g., "How often do you pray privately in places other than at church or synagogue?"), four (e.g., "How important is religious faith in your life?"), and three items measuring religious social support (e.g., "How often do the people in your congregation listen to you about your private problems and concerns?"). Alphas for the subscales were .78, .85, .90, and .84, respectively.

Religious Internalization—Adolescents completed the 12-item scale that was an adaption of the Christian Religious Internalization Scale (CRIS; Ryan, Rigby, & King, 1993) to be more inclusive of all God-based religions. Changes to the scale included language that specifically referred to Christianity, such as altering the statement “I share my faith because I want other Christians to approve of me” to “I share my faith because I want others to approve of me.” The scale reflected two types of religious internalizations. Introjection assesses a partial internalization based around pressure to act and believe (e.g., “I attend church because others would disapprove if I didn’t”). Identification measures an adoption of religious beliefs as a part of oneself (e.g., “I pray because I find it satisfying”). All responses range from 1 = *not at all* true to 7 = *very true and*. Alphas were .81 and .94 for Introjection and Identification scales, respectively.

God Monitoring/Afterlife Belief Scale—Adolescents completed the God Monitoring/Belief in the Afterlife Scale (GMBA, Carter, McCullough, & Carver, 2012; McCullough & Carter, personal communication, July 13, 2014), and we used 13 items that examine the extent to which they feel being watched or monitored by a higher power, or God, and whether their behavior might be modified by the temporal perspective believing in an afterlife (e.g., “I believe there is a higher power that knows my thoughts”, with responses ranging from 1 = *not at all* to 5 = *very true*). Items excluded from use included those that reflected self- or other-monitoring, such as “I occasionally take moments to think about whether I’m living according to my values.” The alpha for the scale was .92.

Internalizing and externalizing symptomatology—Adolescent Internalizing and externalizing symptoms were assessed using the Youth Self Report (YSR; Achenbach & Rescorla, 2001), containing 102 items assessing adolescent perceptions of behavioral problems (with responses ranging from 0 = *not true* to 7 = *very true or often true*). The internalizing subscale included withdrawn, anxious/depressed, and somatic complaint subscales, and the externalizing subscale included aggressive and delinquent behavior subscales (alpha = .90 for both internalizing and externalizing symptomatology subscales, Achenbach & Rescorla, 2001).

Data Analytic Strategy—We used O’Connor’s (2000) minimum average partial (MAP) for data reduction purposes and tested the number of factors in each scale for two reasons. First, it is theoretically possible for items from different subscales to coexist on a different factors consisting of items that those researchers had not previously included in their analyses. Second, the total number of items assessing R/S (41 for adolescents) exceeded the limits for latent profile analysis (LPA) for our sample size. The MAP test is a technique to identify the proper number of factors on a given scale, and is preferable to rules such as the “eigenvalues-greater-than-one” and techniques such as the use of scree plots (O’Connor, 2000). The MAP test extracts increasing numbers of components and selects the ideal number from the lowest average squared partial correlation. This test also has an advantage over parallel analysis as parallel analysis extracts eigenvalues from random sets of data, whereas the MAP test uses the study dataset. Following the determination of the number of factors, principle components analysis (PCA) was used to identify the factors.

Profiles of within-individual religiousness were estimated based on factors extracted via the MAP test and PCA using LPA in MPlus (Muthén & Muthén, 1998–2010). LPA is used to recognize sets of mutually exclusive and exhaustive latent classes (or profiles) using continuous indicator variables. Fit of profiles were compared using several information criteria including the Akaike information criterion (AIC), Bayesian information criterion (BIC), sample-size independent BIC (SABIC), entropy R^2 and bootstrap likelihood ratio test (BLRT). Additionally, solution stability was checked to assure the maximum likelihood solution is replicated, using multiple sets of random starting variables. Finally, profile membership was assigned based on each individual's posterior probabilities, which allowed for categorical variable membership for each participant. Analysis of covariances (ANCOVAs) were then conducted using profile membership to predict internalizing and externalizing symptomatology, while controlling for demographic covariates including age, gender, race and family income.

Results

Adolescent Religiousness Profile

A MAP test conducted on traditional religiousness, religious internalization, and GMBA items indicated that a six-factor solution fit best. PCA indicated that these factors consisted of (1) identification/importance (loadings .42–.89), (2) introjection (loadings .42–.80), (3) God monitoring (loadings .44–.88), (4) social (loadings .59–.85), (5) private practices (loadings .49–.70), and (6) deterministic monitoring (loadings .44–.63). All items in the analysis loaded at least .4 on one factor. Questions for items on each factor can be found in Table 1. Although the current investigation was not specifically designed to validate measures of R/S, loadings largely supported original factor structures while also demonstrating the utility of analyzing measure structure simultaneously. For example, identification and importance loaded separately, as expected; yet, identification loaded with traditional measures of importance. Factor scores were then saved and used to run LPAs.

LPAs showed that a three-profile solution fit best, as that profile had the lowest BIC and the LMRT indicated the three-factor solution fit (see Table 2). Additionally, the four-factor solution added a profile with only 9% of the sample that was simply higher than one of the three classes in all measures. Means, standard errors, and significance of parameters can be found in Table 3, and visual representation can be found in Figure 1. The first profile we labeled the Introjectors as they were the only group significantly above the average of the sample in introjection and were low in private practices, possibly reflecting a partial internalization of religiousness. This group was the largest group (47.6%), and was significantly above average in identification/importance, introjection, God monitoring, and deterministic monitoring, while lower than average in private practices. Introjectors did not significantly differ from the average in social religiousness. Of the three groups, the Introjectors scored the highest in introjection and the lowest in private practices at approximately $\frac{1}{2}$ standard deviation lower than average. The second largest group (28.4%) was the High Religiousness group. The High Religiousness group was the highest of the three in identification/importance, God monitoring, social, and private practices, scoring more than $\frac{1}{2}$ a standard deviation above average on identification/importance, social, and

more than a full standard deviation above average in private practices. The third group, the Low Religiousness group, was the smallest group (24.0%), and was lower than both other groups in all categories except for private practices – more than ½ a standard deviation below the mean in introjection and deterministic monitoring and more than one standard deviation below the mean in identification/importance and social.

Relation of Profiles to Outcomes

In order to examine the relations of R/S profile membership and psychopathology variables, ANCOVAs were run using R/S group membership as a predictor, internalizing and externalizing symptomatology as the dependent variable, with age, gender, race, and family income as covariates. ANCOVAs revealed significant differences among profiles with respect to internalizing [$F(2,6) = 6.78, p < .01$] and externalizing symptomatology [$F(2,6) = 5.45, p = .01$]. Gender and race were significant covariates in the prediction of externalizing symptomatology. Graphical representation of means across study variables can be found in Figure 2. Bonferroni post-hoc tests indicated that the High Religiousness group scored significantly lower than the Introjectors group in internalizing symptomatology ($p < .001$). Additionally, the High Religiousness group scored lower in externalizing symptomatology than both the Introjectors ($p = .03$) and Low Religiousness groups ($p = .01$).

Discussion

Our data provided clear support for the utility of person-centered techniques in assessing R/S. We found three theoretically meaningful profiles of R/S adolescents and differences in outcomes by profile membership. Of particular import were trends in scores for the Introjectors and High Religiousness groups. While they were similar, scores in private practices were dramatically higher for the High Religiousness group. Further, those in the Low Religiousness and Introjectors groups scored similarly and significantly below average in private practices. Findings point toward private practices as a prominent point of differentiation in adolescent religiousness. This result may indicate that the full internalization of R/S beliefs includes prayer and reading scriptures more frequently, and this dimension differentiates the groups better than other R/S dimensions including religious salience, God monitoring, or deterministic monitoring, on all of which the Introjectors score significantly above the average level of the sample. Our findings suggest that private behavioral aspects such as prayer might be a better way to capture individual differences in internalization of beliefs among adolescents. Perhaps private practices as behavioral measures (such as prayer), compared to measures of motivational aspects, capture some aspect of religious internalization that can be more readily quantified by adolescents. Thus, it can be argued that researchers may receive more meaningful answers from adolescents by using straightforward questions of frequencies of prayer and scripture reading rather than using questions asking about what motivates their religious beliefs and behavior (e.g., others' approval). Moreover, the finding that those high in introjection would have higher levels of internalizing symptomatology supports Ryan et al.'s (1993) theorization that those high in introjection might experience greater internal conflict than those who more fully internalize.

Our question, “how does R/S relate to internalizing and externalizing symptomatology” extends in the long line of research examining the effects of religiousness on health outcomes by illustrating how different profiles of R/S are differentially related to the health outcomes. R/S has been generally seen to have a positive effect on anxiety and depression (McCullough & Larson, 1999) and externalizing behaviors such as delinquency (Holmes & Kim-Spoon, 2016b). Despite the abundance of research on these topics, the current investigation was the first of the authors’ knowledge to use person-centered techniques to relate adolescent R/S to psychopathology outcomes. There were significant differences between High Religiousness adolescents and Introjectors in internalizing symptomatology and between High Religiousness adolescents and both Introjectors and Low Religiousness adolescents in externalizing symptomatology. Of particular interest is the finding that there are differences in internalizing symptomatology not between High Religiousness and Low Religiousness adolescents, but between High Religiousness and Introjectors – groups that were similar in most domains except private practices. This result would not have been readily revealed by traditional variable-centered techniques that primarily focus individual differences within a continuum rather than considering individual differences in the patterns across dimensions.

Our findings also run somewhat counter to those of Good et al. (2011) who performed cluster analysis and found “disconnected wonderers” as the most prevalent group (more than a third) among 11th–12th graders. The disconnected wonderers were characterized as showing low religious activity involvement and prayer as well as frequent wondering about spiritual issues. While Good et al. were unable to release religious affiliation of their sample, the religious affiliation of the region was 37% Catholic, 42% Protestant, and 21% others. Canada is on average less religious than the United States (Clark, 2003), and that difference might be even larger when compared to our sample of adolescents from Appalachia. Furthermore, Good et al. (2011) used measures more associated with spirituality than religiousness. This measurement discrepancy could explain the difference, but it could also be that the current trend away from traditional religiousness and towards spirituality (Smith, 2010) was either better captured in their sample using these measures or that they were simply able to capture more differentiated spirituality. Additional person-centered research utilizing both spirituality and more traditional religiousness measures is warranted. Moreover, this discrepancy highlights the need for further investigation into R/S dimensionality in children and adolescents.

It has been found that effects of religiousness are modest, typically related to positive development, and robust even after controlling for demographic variables (Smith & Denton, 2005). Our results indicate that the effects of R/S on outcomes may be more complex; a linear association between level of R/S and internalizing and externalizing symptomatology was not evident. Instead, those who are in the “middle” religiousness group – the Introjectors – had the worst outcomes. The Introjector group may consist of those who have not fully internalized their R/S beliefs and thus represent a group who adhere to social norms. Considering that the majority of adolescents in the United States have a religious affiliation (Funk & Smith, 2012), believe in God, and attend religious services at least twice a month (Denton, Pearce & Smith, 2008), it is not surprising that the Introjector group is the majority in the current sample. Indeed, a recent study showed that adolescents’ higher

introjection was linked to higher substance use as well as lower self-regulation (Holmes & Kim-Spoon, 2016a). Those who look to understand individuals' R/S beliefs should be careful to note how well integrated these beliefs are to their lives and understand that simply acknowledging R/S belief does not necessarily bestow its beneficial effects. In fact, those who have not fully internalized may even be more vulnerable to poor mental health than those low in R/S.

Limitations and Future Directions

Findings from the current study should be interpreted in the context of study limitations. First, this sample was primarily Christian, White, and was from Southwestern Virginia. Person-centered techniques are by their nature sensitive to differences in group composition. The use of different samples both in terms of religious demographics and in terms of racial/ethnic distribution could yield results unlike those from this study. Examinations using person-centered techniques have shown differences in profile/class membership across countries (e.g., Canada; Good, Willoughby, & Busseri, 2011), and replication with diverse samples is warranted. Second, the findings were based on cross-sectional data. Future studies would benefit from longitudinal investigation to better appreciate direction of effects.

From a methodological viewpoint, future studies would benefit from including person-centered techniques such as latent profile analysis. While it has been proposed that the field has moved out of the "measurement paradigm" (Emmons & Paloutzian, 2003), there is still considerable debate about how to properly measure R/S. This is especially true with the increasing emphasis on spirituality and non-traditional forms of religiousness. By moving to the use of techniques that can optimally utilize multidimensional aspects of R/S, the field can better understand the R/S makeup of samples. Further, the use of person-centered techniques has advantages over more traditional variable-centered techniques for a variety of practical reasons, which include (1) there is no assumption that one R/S variable is homogenous across levels of other R/S variables, (2) there is no assumption that variables act in additive and subtractive manners, and (3) typically high correlations between R/S variables (which can cause multicollinearity) can be better accommodated. Additionally, future studies would be well-served by returning to a more basic framework to explore precisely what it means for adolescents to be religious and/or spiritual – from their perspective.

Conclusion

The psychology of religion and spirituality has been undergoing a major transformation in an attempt to better represent contemporary R/S – especially spirituality – due to large changes in the R/S of the population. The shift to a more individualized spirituality, particularly in younger populations (Funk & Smith, 2012; Good & Willoughby, 2006), is forcing researchers to reexamine some of the basic questions in the field and to reevaluate precisely what religion means. Here we find support for the use of person-centered techniques as a way to help identify various R/S configurations. Using diverse R/S measures, we found three theoretically meaningful profiles of adolescent R/S that allowed for the discovery of findings not possible through traditional variable-centered techniques. It is our belief that person-centered approaches would be beneficial for the advancement of the

R/S research field by expanding our understanding of the development of R/S and how developmental patterns of R/S are related to physical and psychological well-being.

Acknowledgments

This work was supported by grants awarded to Jungmeen Kim-Spoon from the National Institute of Child Health and Human Development (HD057386) and the National Institute on Drug Abuse (DA036017). We are grateful to adolescents and parents who participated in our study.

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Figure 1.
Profile Group Membership for Adolescent Religiousness

Figure 2. Means of Internalizing and Externalizing Symptomatology by Profile Group
Note. * = means significantly different ($p < .05$)

Table 1

Scale item wording by factor

Traditional/Identification	
Traditional 1	To what extent do you consider yourself a religious person?
Traditional 4	How often do you pray privately in places other than at church or synagogue?
Traditional 8	How important is religious faith in your life?
Traditional 9	How important is it to believe in God?
Traditional 10	How important is it to be able to rely on religious teachings when you have a problem?
Traditional 11	How important is it to be able to turn to prayer when you're facing a personal problem?
Traditional 12	How important is it to rely on religious beliefs as a guide for day to day living?
Traditional 13	How important is it to look to God for strength, support, and guidance when you deal with major problems in your life?
CRIS1	One reason I think it's important to actively share my faith with others is because God is important to me and I'd like other people to know about Him too.
CRIS4	When I turn to God, I most often do it because I enjoy spending time with Him.
CRIS6	When I turn to God, I most often do it because I find it is satisfying to me.
CRIS8	A reason I think praying by myself is important is because I enjoy praying.
CRIS9	A reason I think praying by myself is important is because I find prayer satisfying.
CRIS11	An important reason why I attend religious gatherings (a place of worship or worship service) is that by going there I learn new things.
Introjection	
CRIS 2	One reason I think it's important to actively share my faith with others is because I would feel bad about myself if I didn't.
CRIS 3	One reason I think it's important to actively share my faith with others is because I want other believers to approve of me.
CRIS 5	When I turn to God, I most often do it because I would feel guilty if I didn't.
CRIS 7	A reason I think praying by myself is important is because if I don't, God will disapprove of me.
CRIS 10	An important reason why I attend religious gatherings (a place of worship or worship service) is because one is supposed to go.
CRIS 12	An important reason why I attend religious gatherings (a place of worship or worship service) is because others would disapprove of me if I didn't.
Monitoring	
GMBA 1	I believe there is a higher power that knows my thoughts.
GMBA 2	I believe a higher power can see my behavior.
GMBA 3	I often feel as though I'm being watched from above.
GMBA 4	I believe a supreme being watches my actions.
GMBA 5	I sometimes feel as though I'm being observed by a higher power.
GMBA 7	After we die, we will be re-united with our deceased loved ones.
GMBA 10	There must be an afterlife of some sort.
GMBA 11	My consciousness will exist even after I physically die.
GMBA 12	We will all face judgment upon entering the afterlife.
GMBA 13	There is no such thing as life after death.

Social

Traditional 2	How often do you go to religious services?
Traditional 3	Besides religious services, how often do you take part in other activities at a place of worship?
Traditional 14	How often do the people in your congregation make you feel loved or care for?
Traditional 15	How often do the people in your congregation listen to you about your private problems and concerns?
Traditional 16	How often do the people in your congregation express interest and concerns in your well-being?

Activities

Traditional 5	How often do you watch or listen to religious programs on TV or radio?
Traditional 6	How often do you read the Bible or other religious literature?
Traditional 7	How often are prayers or grace said before or after meals in your home?

Deterministic Monitoring

GMBA 6	God or some spiritual force will decide what my afterlife will be like based on how I lived this life.
GMBA 8	I think about how my actions today will effect what awaits me when I die.
GMBA 9	Our existence after we die is determined in part by how we live our lives now.
GMBA 11	My consciousness will exist even after I physically die.

Note. Trad = traditional religiousness questionnaire, CRIS = Christian Religious Internalization Scale, GMBA = God Monitoring/Belief in the Afterlife Scale.

Table 2

Results for Latent Profile Analyses for Adolescents' Religiousness/Spirituality

	1	2	3	4	5	6	7	8
LL	-1773.32	-1609.50	-1576.98	-1559.97	-1544.60	-1525.57	-1058.96	-1495.45
AIC	3570.64	3257.00	3205.97	3185.94	3169.21	3145.14	3125.91	3112.90
BIC	3610.75	3320.51	3292.87	3296.24	3302.90	3302.23	3306.40	3316.79
SABIC	3572.73	3260.31	3210.49	3191.68	3176.16	3153.31	3135.30	3123.51
LMRT	N/A	0.00	0.01	0.37	0.07	0.06	0.17	0.06
BLRT	N/A	0.00	0.00	0.00	0.00	0.06	0.00	0.00

Notes. LL = Loglikelihood, AIC = Akaike Information Criteria, BIC = Bayesian Information Criteria, SABIC = Sample-Size Adjusted Bayesian Information Criteria, LMRT = Lo-Mendell-Rubin Adjusted Likelihood Ratio Test, BLRT = Bootstrapped Likelihood Ratio Test.

Best fitting indices are in bold.

Table 3
Means, Standard Errors, and Significance of Parameters for Adolescent Religiousness/Spirituality Latent Profiles

	High Religiousness			Introjectors			Low Religiousness		
	Mean	S.E.	Sig.	Mean	S.E.	Sig.	Mean	S.E.	Sig.
Identification	0.74	0.07	0.00*	0.26	0.08	0.00*	-1.38	0.09	0.00*
Introjection	0.07	0.19	0.70	0.29	0.10	0.00*	-0.66	0.11	0.00*
Monitoring	0.61	0.08	0.00*	0.31	0.08	0.00*	-1.34	0.11	0.00*
Social	0.65	0.07	0.00*	0.17	0.09	0.07	-1.10	0.15	0.00*
Practices	1.20	0.15	0.00*	-0.53	0.10	0.00*	-0.36	0.08	0.00*
Deterministic	0.07	0.18	0.69	0.30	0.09	0.00*	-0.67	0.12	0.00*