

# Institutional and Personal Spirituality/Religiosity and Psychosocial Adjustment in Adolescence: Concurrent and Longitudinal Associations

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**Abstract** Spirituality/religiosity is hypothesized to promote positive adjustment among adolescents. The goals of this study were to assess the unique and joint associations between two dimensions of spirituality/religiosity—institutional and personal—and a range of domains of psychosocial adjustment (intrapersonal well-being, quality of parent–child relationship, substance use, and academic orientation) and to evaluate the direction of effects in these associations. Participants included 803 predominately Canadian-born adolescents (53 % female) from Ontario, Canada, who completed a survey in grade 11 and grade 12. At the concurrent level, higher personal spirituality/religiosity consistently and uniquely predicted more positive adjustment in terms of well-being, parental relationship, and academic orientation. Higher institutional spirituality/religiosity uniquely and consistently predicted lower substance use, particularly when personal spirituality/religiosity also was high. With regard to the direction of effects (i.e., longitudinal associations), institutional spirituality/religiosity predicted lower future substance use. The results imply that the personal and institutional dimensions of spirituality/religiosity may be associated differentially with psychosocial adjustment, and it may be only in the domain of substance use that spirituality/religiosity predicts change in behavior over time.

**Keywords** Religion · Spirituality · Direction of effects · Psychosocial adjustment · Substance use

## Introduction

The field of positive youth development has emerged in the past two decades partly in response to the negative portrayals, or “deficit view,” of youth (Lerner et al. 2003, p. 172). The deficit view characterizes adolescence as a stage fraught with difficulties, and portrays adolescent behaviors as deviations from healthy development. The positive youth development framework, in contrast, has reinterpreted adolescence as a period where resources and competencies are developed. Instead of focusing on managing and reducing problems, positive youth development places emphasis on strengthening youths’ existing intra- and inter-individual resources to promote thriving. In particular, researchers investigating positive youth development emphasize that thriving is fostered when individuals possess a strong, integrated sense of moral and civic identity, when they are involved in their communities, and when they are committed to ideas and institutions where the focus is placed beyond the self (Lerner et al. 2003). In recent years, spirituality and religiosity—in both institutional (i.e., interpersonal, public) and personal (i.e., intrapersonal, private) forms—have been studied within the positive youth development framework as factors that may promote thriving in young people (e.g., Lerner et al. 2008).

Among researchers in the field of positive youth development and beyond, however, there is a great deal of debate over what is the most appropriate definition(s) of spirituality and/or religiosity, and no gold standard exists (e.g., see Hill et al. 2000; Pargament 1999). In fact, Hill and Edwards (2013) estimate that over 200 measures of

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different aspects of these constructs have been published. It is inevitable, therefore, that there will be disagreement among researchers regarding which of these measures (and their accompanying operational definitions) is best. Although definitions of spirituality and religiosity vary across studies, spirituality often is defined as the search for sacred, divine, or nonmaterial aspects of life, whereas religiosity is conceptualized as behaviors and beliefs associated with organized religion. Despite this apparent separation between the concepts of spirituality and religion, there is evidence to suggest that, for many individuals, the search for the sacred takes place within faith institutions (Smith and Denton 2005; Zinnbauer and Pargament 2005). Rather than define spirituality and religiosity as separate constructs, therefore, we believe it may be more useful to conceptualize a single construct of spirituality/religiosity encompassing two dimensions: institutional (i.e., involvement in and attitudes towards religious organizations/traditions) and personal (i.e., feelings toward and behaviors facilitating a connection with the sacred), which is consistent with Cornwall et al. (1986; for excellent reviews on the definition and measurement of spirituality and religiosity, see Hill and Edwards 2013; Hill et al. 2000; Zinnbauer and Pargament 2005). The aim of the present study is to enhance our understanding of how both the *institutional* components of spirituality/religiosity (i.e., involvement in religious activities) and the *personal* components (i.e., connection with the sacred or a higher power) may be associated differentially and/or jointly with a wide range of psychosocial adjustment domains.

#### Problems with Conceptualization and Measurement of Spirituality/Religiosity in the Extant Literature

Inconsistencies and inadequacies in the measurement of spirituality/religiosity have limited our understanding of the way in which its various dimensions are linked to adjustment. The most common way in which spirituality/religiosity has been measured is with one- or two-item variables reflecting the frequency of participation in religious activities (Rew and Wong 2006). Researchers have reported consistent associations between these measures of religious involvement and positive adjustment in terms of lower substance use (e.g., Good et al. 2009), less depressive symptoms (e.g., Schapman and Inderbitzen-Nolan 2002), higher academic achievement (e.g., Glanville et al. 2008), and better family relationships (e.g., Regnerus and Burdette 2006). Because participation in religious groups is correlated moderately to strongly with behaviors involved in a personal search for the sacred (e.g., McCullough and Willoughby 2009), however, it is not possible to infer from these studies whether institutional spirituality/religiosity is associated *uniquely* with adjustment, or whether the

associations could be (at least partially) explained by personal spirituality/religiosity.

Although some researchers have examined differential associations between institutional versus personal spirituality/religiosity and adjustment (e.g., Regnerus and Smith 2005), most of these studies have measured “personal spirituality/religiosity” as the private aspects of religious commitment (e.g., scales comprised of items assessing importance of religion in daily life, private Bible-reading, etc.). These scales, therefore, do not capture personal spirituality/religiosity for individuals whose search for the sacred is not tied to religion. This limitation is an important one, as statistics from nationally-representative surveys in Canada, Europe, and the US indicate that, for some adolescents, the search for the sacred may be pursued outside of religious organizations and traditions. Bibby (2009), for example, reported that, although only 13 % of Canadian high school students said that religious involvement was very important to them, over 75 % reported that they often wondered about “ultimate questions” (such as what happens after death and the purpose of life), 66 % believed that God or a higher power cared about them personally, and 54 % believed they had “spiritual needs” (see also Lippman and Keith 2006; Smith and Denton 2005). Ensuring that the measurement of personal spirituality/religiosity is inclusive of youth who are not involved in religious organizations or traditions, therefore, is important.

Studies examining the association between psychosocial adjustment and “inclusive” measures of personal spirituality/religiosity (i.e., scales that reflect a search for the sacred that is not inherently tied to organized religion; for example, see Ritt-Olson et al. 2004; Seidlitz et al. 2002; Underwood and Teresi 2002) typically do not account for shared variance between personal spirituality/religiosity and institutional spirituality/religiosity. Because scales such as those used in the studies cited above typically are correlated with religious activity involvement (e.g., Kelley and Miller 2007), these studies suffer from the same limitation as studies that exclusively assess religious activity involvement. Namely, some of the associations that have been reported between psychosocial adjustment and personal spirituality/religiosity may have been at least partially due to the overlap between personal and institutional spirituality/religiosity. Failing to account for shared variance between personal and institutional dimensions when assessing their associations with other variables may result in misleading findings. McCullough and Willoughby (2009), for example, reported that the associations between “religiousness” (a composite scale consisting of items such as religious involvement and importance of religion) and personality traits were quite different after “spirituality” (i.e., the Self Transcendence Scale, which includes items

such as “Sometimes I have felt my life was being directed by a spiritual force greater than any human being”) was partialled out, even though the two variables were correlated quite strongly ( $r = .46$ ). The development of the Multidimensional Measure of Religiousness and Spirituality (MMRS; Fetzer Institute 1999), which consists of 12 subscales assessing different aspects of institutional and personal forms of spirituality/religiosity, is a promising step in the direction of understanding the unique associations between personal versus institutional aspects of spirituality/religiosity and adjustment. The results from studies that have used the MMRS, however, have yielded inconsistent findings, as researchers have been inconsistent in the number and type of subscales used across studies (e.g., Desrosiers and Miller 2007; Pearce et al. 2003; Dew et al. 2008).

Further, a limitation shared by studies that use only one dimension of spirituality/religiosity (i.e., either personal *or* institutional) and studies where numerous dimensions of spirituality/religiosity are considered (such as those cited above using the MMRS), is that both of these approaches preclude the examination of the *joint effects* of spirituality/religiosity dimensions. This limitation is important, as one of the main tenets of developmental systems theory (upon which the positive youth development framework is based) is that, in order to understand human development, it is necessary to consider the interactions between individual-level traits and the social contexts in which individuals are situated (e.g., Lerner and Castellino 2002). Developmental systems theory proposes that optimal development occurs when there is goodness-of-fit between an individual and his/her social context (e.g., Lerner et al. 2008). In applying these concepts to the topic of spirituality/religiosity, it could be hypothesized that the impact of a personal search for the sacred on an adolescent’s life may be enhanced by participation in a community of believers, and vice versa (King 2008). Similarly, individuals who are involved in religious/spiritual groups may be more likely to follow their standards of behavior (e.g., avoiding premarital sex, abstaining from substance use) if they personally espouse the beliefs of their congregations (e.g., Nonnemaker et al. 2006).

Despite a strong theoretical rationale, the hypothesis that the association between personal spirituality/religiosity and adjustment may be enhanced by institutional spirituality/religiosity (or vice versa) remains largely untested in empirical studies. In fact, only three studies of which the authors are aware have addressed this issue, and all of these have conceptualized the personal aspect of spirituality/religiosity in such a way that would exclude individuals whose personal connection with the sacred is not tied to a religious organization. Specifically, Nonnemaker et al. (2006) found that the protective effect of private religiosity on the probability of initiating experimental smoking was

enhanced when individuals reported higher levels of public religiosity, and Regnerus and Smith (2005) found that personal importance of religion was a stronger predictor of good family relationships and lower self-reported theft at higher levels of religious service attendance. More recently, Hardy et al. (2012) found that religious involvement was a stronger predictor of desire to incorporate positive moral qualities into one’s identity when religious commitment was high.

From the research reviewed above, it is clear that the way in which spirituality/religiosity has been conceptualized and measured has limited our understanding of how the different dimensions of spirituality/religiosity are associated uniquely and/or jointly with psychosocial adjustment. We believe, therefore, that it may be advantageous to conceptualize spirituality/religiosity in terms of two distinct dimensions—*institutional and personal*—measured, respectively, by involvement in religious or spiritual activities/groups, and the “inclusive” search for the sacred (i.e., using scales that are relevant for individuals whose personal search for the sacred is, or is not, tied to religious traditions). This conceptualization facilitates a straightforward assessment of both the unique and joint associations between the social/contextual (i.e., institutional) aspects of spirituality/religiosity, as well as the individual (i.e., personal) aspects, and psychosocial adjustment.

Only one study of which the authors are aware has conceptualized spirituality/religiosity in a similar way to what we propose (Walker et al. 2007). However, the interaction between the institutional and personal variables was not considered, and the researchers focussed on only one domain of psychosocial adjustment (substance use). In order to gain a more complete and nuanced understanding of the way that personal and institutional spirituality/religiosity may be associated with adjustment, it is important to consider multiple domains within the same study. It may be that personal spirituality/religiosity uniquely predicts some aspects of adjustment, while institutional spirituality/religiosity uniquely predicts others. Further, some domains may be best predicted by the *interaction* between institutional and personal spirituality/religiosity. In the present study, therefore, we consider a wider range of domains, including intrapersonal well-being, quality of relationship with parents, substance use, and academic orientation.

#### Personal and Institutional Spirituality/Religiosity: Associations with Multiple Domains of Psychosocial Adjustment

##### *Intrapersonal Well-Being*

Personal spirituality/religiosity may be associated uniquely (i.e., over and above institutional spirituality/religiosity)

with positive intrapersonal well-being (e.g., less depressive symptoms and anxiety, greater life satisfaction). Behaviors involving a personal search for the sacred may promote feelings of peace, hope, wonder, self-transcendence, and connection with a higher power (e.g., Hart 2006; Janoswki and Sandage 2011), as well as effective coping in the face of stress. For instance, Barnes et al. (2004) found that engaging in meditation was associated with decreases in blood pressure in African American adolescents at risk for hypertension, and Sharp (2010) found that prayer helped individuals who were victims of abuse to manage their negative emotions. We expect that the association between personal spirituality/religiosity and well-being would be maintained in a model where institutional spirituality/religiosity was statistically controlled, as the benefits specific to personal spirituality/religiosity (e.g., peace, coping) are likely more proximal to the domain of intrapersonal well-being than the assets specific to participation in religious activities (e.g., social capital, community involvement; Smith 2003a). For example, in a study using five subscales from the Multidimensional Measure of Religiousness/Spirituality (daily spiritual experiences, forgiveness, positive religious coping, congregational benefits, and congregational problems) as well as items assessing self-rated spirituality and religiosity, frequency of prayer, and religious service attendance, Kelley and Miller (2007) found that daily spiritual experiences was the only scale that uniquely predicted life satisfaction. Although interactions between personal and institutional spirituality/religiosity were not assessed, the association between personal spirituality/religiosity and well-being may be stronger for individuals who are involved in a religious or spiritual community, as the link between one's personal search for the sacred and well-being may be enhanced by the social benefits inherent in belonging to a supportive community of fellow believers (King 2008).

#### *Relationship with Parents*

Personal spirituality/religiosity also may be associated uniquely with more positive parent-adolescent relationships. Support for this idea comes from studies on attachment and religiosity, where researchers have suggested that an individual's internal working model may generalize to his/her image of God (e.g., Granqvist et al. 2007). Namely, individuals who report a positive internal working model may be more likely to perceive God or a higher power as being loving as opposed to distant or controlling (e.g., Kirkpatrick and Shaver 1992). Although the link between "non-religious" spirituality and parental relationship quality has not been widely explored in the literature, a recent study (Desrosiers et al. 2010) found that perceived warmth and care from parents was associated positively

with adolescents' "relational spirituality" (a composite of daily spiritual experiences, forgiveness, and positive religious coping).

In contrast, after accounting for personal spirituality/religiosity, institutional spirituality/religiosity may not be associated with parental relationship quality. Although studies have found that religious attendance is associated with positive parental relationships (e.g., Regnerus and Burdette 2006), both Regnerus and Smith (2005) and Regnerus and Burdette (2006) found that, when religious service attendance and personal importance of religion were entered into the same regression model, only importance of religion predicted positive parent-teen relationships. These studies imply that it may be an adolescents' personal commitment to their religious/spiritual beliefs, rather than involvement in religious groups, that is linked with positive parental relationships (which would be consistent with the attachment theory model). It may be expected, then, that "inclusive" scales of personal spirituality/religiosity also would uniquely predict parental relationship quality after accounting for institutional spirituality/religiosity.

#### *Substance Use*

One domain of adjustment in which institutional (but not necessarily personal) spirituality/religiosity may be expected to have unique benefits is in adolescent substance use. Because religious congregations generally present their adherents with a set of moral directives regarding what is right and wrong (e.g., Smith 2003b)—and in many religions, the wrongness of adolescent substance use is a component of those beliefs—the behavior of religiously-involved adolescents may reflect what they have been taught in their congregations (Rew and Wong 2006). A unique association between institutional spirituality/religiosity and lower substance use also may be expected because of the enhanced social network closure (i.e., the embedding of an individual within a system of interconnected individuals; Coleman 1988) that occurs in many religious communities (Smith 2003a). Network closure may facilitate better parental monitoring and supervision (e.g., Fletcher et al. 2001), and parental knowledge about their adolescents' activities is associated with less involvement in risk-taking (e.g., Stattin and Kerr 2000). Adolescents who attend religious activities, therefore, may be better monitored, and, as a result, engage in less substance use—regardless of whether or not they are pursuing a personal search for the sacred.

Although some studies have found personal spirituality/religiosity to be associated with lower levels of engagement in risk behavior (e.g., Ritt-Olson et al. 2004), the correlations could have been partially attributed to

institutional spirituality/religiosity, given that institutional spirituality/religiosity was not assessed. Further, few studies have assessed whether the nature of the association between spirituality/religiosity and substance use is best understood in terms of the *interaction* between personal and institutional spirituality/religiosity. It may be expected that institutional spirituality/religiosity would be a stronger predictor of substance use if personal spirituality/religiosity also was high. Indeed, Nonnemaker et al. (2006) and Regnerus and Smith (2005) reported that the association between the importance of religion and risk-taking was stronger for adolescents who frequently attended church. It is not clear if a similar interaction would be found when using a more “inclusive” measure of personal spirituality/religiosity.

#### Academic Orientation

Institutional spirituality/religiosity, as compared to personal spirituality/religiosity, also may be associated uniquely with academic success. Regnerus (2000) hypothesized that involvement in religious institutions may reinforce behaviors that promote academic success, and the social capital gained from religious participation may transfer into the school domain in the form of greater educational aspirations and tools for achieving higher grades. Further, McCullough and Willoughby (2009) proposed that institutional spirituality/religiosity (but not necessarily personal spirituality/religiosity) promotes self-regulation, which is known to be important for academic achievement (e.g., Shoda et al. 1990). More specifically, they reported that the association between “religiousness” (i.e., a composite of items such as religious involvement) and self-control was different after “spirituality” (i.e., self-transcendence) was partialled out (and vice versa), even though the two constructs were correlated quite strongly ( $r = .46$ ). Partialling out self-transcendence resulted in a stronger positive correlation between religiousness and self-control. With regard to self-transcendence, zero-order correlations indicated no relationships with conscientiousness or self-control, but partial correlations revealed that self-transcendence was associated significantly with lower conscientiousness and less self-control.

Indeed, other studies have found that religious involvement is associated with higher educational aspirations, school engagement, and grades (e.g., Loury 2004; Regnerus and Elder 2003). Although these studies did not include personal forms of spirituality/religiosity in their models, we expect that the association between institutional spirituality/religiosity and academic success would hold even after personal spirituality/religiosity was statistically controlled, as religious activities may facilitate assets that are more proximal to school success (e.g., social capital, self-control) than the assets that may be promoted by personal

spirituality/religiosity. As no studies have examined the association between personal forms of spirituality/religiosity and academic achievement when controlling for institutional spirituality/religiosity, this issue represents an important area of inquiry.

#### The Direction of Effects in the Association between Institutional Versus Personal Spirituality/Religiosity and Psychosocial Adjustment

Another important way in which our understanding of the role of spirituality/religiosity in the lives of adolescents could be enhanced is by considering the *direction of effects* in the associations between the dimensions of spirituality/religiosity and adjustment. When a concurrent association is found between spirituality/religiosity and some domain of adjustment, it is unclear whether that association is a function of *socialization effects* (i.e., prior involvement in religious groups or one’s prior search for the sacred predicts adolescents’ subsequent psychosocial adjustment), *selection effects* (i.e., prior adjustment predicts change in adolescents’ subsequent decisions regarding participation in religious groups and involvement in behaviors that facilitate a search for the sacred), or *third variables* (i.e., unmeasured variables cause change to occur in both spirituality/religiosity and psychosocial adjustment). No studies of which the authors are aware have assessed the direction of effects in the relationship between *both* personal and institutional spirituality/religiosity and psychosocial adjustment.

A few studies, however, have examined this issue using limited measures of spirituality/religiosity, with the results primarily supporting the socialization hypothesis. For example, religious service attendance and the importance of religion consistently have been found to predict subsequent substance use (e.g., Mason and Windle 2002). Further, Pospel et al. (2011) found that intrinsic religious orientation predicted lower depressive symptoms 4 months later, after controlling for initial level of depressive symptoms (but not vice versa). Sallquist et al. (2010) assessed the socialization and selection hypotheses for the relationship between a latent spirituality/religiosity variable (encompassing both personal and institutional dimensions) and multiple domains of adjustment (social competence, self-esteem, loneliness, and externalizing problems). The results supported both the socialization and selection hypotheses for social competence, but only the socialization hypothesis for loneliness. These studies represent important steps forward in our understanding of the direction of effects in the association between spirituality/religiosity and adjustment; however, further research is needed, given that the personal and institutional dimensions of spirituality/religiosity have not been adequately measured and assessed simultaneously and/

or jointly, and most studies have included only a limited number of psychosocial adjustment domains.

### Present Study and Hypotheses

To address the above gaps, the goal of the present study was to evaluate the unique (and joint) concurrent- and longitudinal associations between personal versus institutional spirituality/religiosity and a wide range of psychological adjustment domains, including intrapersonal well-being, quality of relationships with parents, substance use, and academic orientation. We assessed three different aspects of institutional spirituality/religiosity (religious service attendance, involvement in other religious/spiritual activities, and enjoyment of participation in one's religious/spiritual group) and three aspects of personal spirituality/religiosity (perceptions of and experiences with the sacred, wondering about spiritual issues, and the frequency of prayer). These spirituality/religiosity variables were selected for several reasons. First, they are frequently used as aspects of scales that combine personal and institutional spirituality/religiosity in adolescent populations, but they are not expected to be correlated so highly as to introduce problems of collinearity. The item assessing wondering about spiritual issues is less common in the literature; however, it was included in response to nationally-representative surveys suggesting that Canadian teens frequently wonder about issues related to spirituality and the supernatural (Bibby 2009). Second, these items incorporated not only behavior related to spirituality/religiosity (religious activities, prayer, spiritual wondering), but also beliefs about that behavior (enjoyment of religious activities, perceived effects of one's spirituality).

Two research questions were addressed. First, we assessed how the institutional and personal dimensions of spirituality/religiosity uniquely and jointly predicted the four domains of psychosocial adjustment at the concurrent level. Given the literature reviewed above, we expected that personal spirituality/religiosity would be related uniquely to more positive intrapersonal well-being and parent-adolescent relationship quality, and that institutional spirituality/religiosity would be related uniquely to lower substance use and greater academic orientation. With regard to the joint effects of personal and institutional spirituality/religiosity, we expected that the associations between personal spirituality/religiosity and well-being would be stronger for adolescents reporting higher institutional spirituality/religiosity. Similarly, we expected that the link between institutional spirituality/religiosity and substance use would be stronger when personal spirituality/religiosity also was high. In other words, when spirituality

and religiosity were congruent (both high), we expected that is when their ability to predict positive adjustment should be the strongest.

For our second research question, we explored the direction of effects in the association between personal versus institutional spirituality/religiosity and psychosocial adjustment. Given the dearth of longitudinal studies examining the direction of effects for the relationship between adjustment and *both* personal and institutional spirituality/religiosity, it is difficult to make specific predictions; however, in light of the general consistency with which the socialization hypothesis has been supported in the few studies that have been conducted on this issue (i.e., higher prior spirituality/religiosity predicting better subsequent adjustment), we expected that the socialization hypothesis would be supported for the domains related to loneliness/depressive symptoms (i.e., intrapersonal well-being) and risk-taking (i.e., substance use).

Students were assessed first at the end of grade 11 and again at the end of grade 12 because it was expected that some development in spirituality/religiosity may occur between those 2 time points. This is not to say that the grade 11–12 transition is the only or most important age period during which spirituality/religiosity development may occur, but it is the period during which most students make their first major independent life decision—what they are going to do after high school. During this time period, students go from their homeostatic high school existence (to which they have been accustomed since grade 9) to having to decide on a career or a college major, applying to work or college/university, and for many adolescents, being on the cusp of leaving home for the first time. This transition may prompt identity exploration, which often involves the examination of spirituality/religiosity issues (Kroger 1996). Furthermore, some researchers have suggested that individuals may consider their career to be an extension of their spirituality/religiosity values, wherein the spiritually or religiously-motivated desire to serve others or treat others with kindness and compassion is fulfilled in part through a vocation (e.g., Duffy 2006). Therefore, in this period of exploration regarding career decisions, development in various domains of spirituality/religiosity also may take place, and, therefore, may be a particularly important time during which to explore the associations between various aspects of spirituality/religiosity and psychosocial adjustment. Finally, because gender differences consistently have been found for institutional (e.g., Stark 2002) and personal spirituality/religiosity (e.g., Smith and Denton 2005), we controlled for gender in all analyses. Spirituality/religiosity also may be associated with socioeconomic status (e.g., Hood and Belzen 2005), and therefore, we also controlled for parental education level.

## Method

### Participants

Students from eight high schools encompassing a school district in Ontario, Canada took part in the study. This study was part of a larger longitudinal-sequential project examining youth lifestyle choices across the high school years (e.g., see Willoughby and Hamza 2011). In the larger study, surveys were completed several times between 2003 and 2008, with some students starting the study in 2003 and others joining the study in subsequent years. The current analysis is based on 803 students (52 % female) who completed the survey in May 2007 when they were in grade 11 ( $M$  age = 16.23) and again in May 2008 when they were in grade 12 ( $M$  age = 17.31), as questions regarding spirituality/religiosity were only included in the surveys conducted in 2007 and 2008. Students who took part in only one administration of the survey were not included in the analyses.

The overall participation rate for eligible students (i.e., students who were registered in a course during the period when the survey was conducted) was 83 % in 2007 and 85 % in 2008; nonparticipation was due to student absenteeism (15, 14 %), parental refusal (.04, .01 %), or student refusal (2, 1 %) in 2007 and 2008, respectively. There were no significant differences between longitudinal participants and those who completed the survey at only one time point on any of the spirituality/religiosity variables or parental relationship quality. There were slightly more girls than boys in the longitudinal sample (52 % girls) than in the non-longitudinal sample (49 % girls) and parental education level was higher for longitudinal participants ( $p < .001$ ), but the magnitude of this difference was small ( $\chi^2_{diff} = .21$ ,  $\eta^2 = .01$ ). The longitudinal sample also reported lower substance use, higher intrapersonal well-being, and more positive academic orientation than the non-longitudinal sample, but again the magnitude of the differences were small (i.e.,  $\eta^2 < .02$  for all variables).

Consistent with the broader Canadian population (Statistics Canada 2006), 92 % of the participants were born in Canada and the most common ethnic backgrounds reported other than Canadian were Italian (31 %), French (18 %), British (15 %), and German (12 %) (information on language(s) spoken in the home was not available). Data on socioeconomic status indicated mean parental levels of education falling between “some college, university or apprenticeship program” and “completed a college/apprenticeship/technical diploma.” Further, 70 % of the respondents reported living with both birth parents, 12 % with one birth parent and a stepparent, 15 % with one birth parent (mother or father only), and the remainder with

neither parent (e.g., other relatives, foster parents, etc.). The school board did not permit the release of students’ religious affiliations; however, the board was publicly funded (i.e., the schools were not private) and the religious affiliation of the population in this region is 37 % Catholic, 42 % Protestant, 14 % no affiliation, and 17 % other (e.g., Muslim, Hindu, Jewish) (Statistics Canada 2001).

### Procedure

Active informed assent was obtained from the adolescent participants. Parents were provided with written correspondence mailed to each student’s home prior to the survey administration outlining the study; this letter indicated that parents could request that their adolescent not participate in the study. An automated phone message about the study also was left at each student’s home phone number. This procedure was approved by the participating school board and the University Research Ethics Board. At all time periods, the questionnaire was administered to students in classrooms by trained research staff. Students were informed that their responses were completely confidential.

### Measures

All measures were assessed in both 2007 and 2008 (see Table 1 for descriptive information). Correlations are reported in Table 2.

**Demographics** Sex and parental education (one item per parent, averaged for those reporting on both parents,  $r = .44$ ) were measured. Higher scores indicated female gender and greater parental education.

**Institutional Spirituality/Religiosity** Institutional spirituality/religiosity was measured by three variables: (a) a single item assessing *involvement in religious services* (“In the past month, how often have you gone to church/temple/synagogue?”); (b) a single item assessing *other religious activity involvement* [(“How often in the last month have you gone to religious/spiritual meetings other than church/synagogue/temple (e.g., youth groups)?”)]; and (c) one items assessing *enjoyment of religious activities* (“I enjoy attending activities held by my religious/spiritual group”). These three items were standardized (because they were measured on different scales) and averaged to create a composite variable (alpha values for grade 11 = .66; grade 12 = .71).

**Personal Spirituality/Religiosity** Personal spirituality/religiosity was assessed by three variables: (a) a seven-item measure adapted from the Spiritual Transcendence Index (STI; Seidlitz et al. 2002) assessing *perceptions of and*

**Table 1** Means and standard deviations of study measures

Domain	Variable	No. items	Range	Scale anchors	Grade 11		Grade 12	
					M (SD)	$\alpha$	M (SD)	$\alpha$
Gender	Gender	1	1–2	1( <i>male</i> ) to 2( <i>female</i> )	1.53 (.50)	–	–	–
Parental education	Mother's education level	1	1–6	1( <i>did not finish high school</i> ) to 6( <i>professional degree</i> )	3.43 (1.46)	–	–	–
	Father's education level	1	1–6	1( <i>did not finish high school</i> ) to 6( <i>professional degree</i> )	3.39 (1.51)	–	–	–
Personal	Spiritual Transcendence Index	7	1–5	1( <i>strongly disagree</i> ) to 5( <i>strongly agree</i> )	3.08 (1.02)	.96	3.03 (1.05)	.97
	Wondering about spiritual issues	1	1–5	1( <i>strongly disagree</i> ) to 5( <i>strongly agree</i> )	3.66 (1.09)	–	3.53 (1.11)	–
	Frequency of prayer	1	1–4	1( <i>never</i> ) to 5( <i>every day</i> )	2.49 (1.57)	–	2.18 (1.50)	–
Institutional	Religious service attendance	1	1–5	1( <i>never</i> ) to 5( <i>every day</i> )	1.59 (.77)	–	1.49 (.73)	–
	Attendance at other religious activities	1	1–5	1( <i>never</i> ) to 5( <i>every day</i> )	1.18 (.51)	–	1.18 (.52)	–
	Enjoyment of religious activities	1	1–4	1( <i>I don't attend or I never enjoy</i> ) to 4( <i>I always enjoy</i> )	1.39 (.71)	–	1.37 (.70)	–
Intrapersonal well-being	Depression	20	1–4	1( <i>most of the time</i> ) to 5( <i>never</i> )	2.05 (.68)	.92	2.12 (.68)	.93
	Social anxiety	14	1–4	1( <i>almost always/always</i> ) to 4( <i>almost never/never</i> )	1.68 (.51)	.91	1.78 (.56)	.93
	Daily hassles	25	1–3	1( <i>often bothers me</i> ) to 3( <i>never bothers me</i> )	1.79 (.38)	.87	1.79 (.39)	.91
	Self-esteem	10	1–5	1( <i>strongly disagree</i> ) to 5( <i>strongly agree</i> )	3.81 (.72)	.91	3.76 (.72)	.89
	Life satisfaction	1	1–4	1( <i>almost never/never</i> ) to 4( <i>almost always/always</i> )	2.33 (.80)	–	2.19 (.79)	–
Parental relationship	Relationship with mother	17	1–4	1( <i>almost never/never</i> ) to 4( <i>almost always/always</i> )	3.00 (.58)	.90	2.96 (.59)	.88
	Relationship with father	17	1–4	1( <i>almost never/never</i> ) to 4( <i>almost always/always</i> )	2.84 (.57)	.91	2.80 (.55)	.90
Substance use	Alcohol frequency	1	1–8	1( <i>never</i> ) to 8( <i>every day</i> )	2.71 (1.42)	–	2.93 (1.46)	–
	Alcohol amount	1	1–6	1( <i>less than one drink</i> ) to 6( <i>more than 10 drinks</i> )	3.37 (1.54)	–	3.56 (1.50)	–
	Smoking	1	1–8	1( <i>none</i> ) to 8( <i>more than a pack</i> )	1.29 (.90)	–	1.35 (1.02)	–
	Marijuana	1	1–6	1( <i>never</i> ) to 6( <i>every day</i> )	2.29 (1.57)	–	2.45 (1.64)	–
Academic orientation	School grades	1	1–5	1( <i>below 50 %</i> ) to 5( <i>A</i> )	3.55 (.87)	–	3.57 (.83)	–
	Educational aspirations	1	1–6	1( <i>not finish high school</i> ) to 6( <i>professional training</i> )	4.98 (1.06)	–	4.90 (1.07)	–
	Importance of doing well in school	1	1–4	1( <i>not at all important</i> ) to 4( <i>very important</i> )	3.37 (.75)	–	3.36 (.77)	–

*experiences with the sacred*, (e.g., “My spirituality gives me a feeling of fulfillment”); (b) *wondering about spiritual issues*, as assessed by a single item (“I often wonder about spiritual issues (i.e., life after death, the existence of a higher power, etc.)”); and (c) frequency of *prayer* assessed by one item (“In the past month, how often have you prayed”). These three variables were standardized and averaged to create a composite variable ( $\alpha$  for grade 11 = .70; grade 12 = .72).

**Intrapersonal Well-Being** Intrapersonal well-being was a composite of five scales: (a) *Depression-related symptoms*,

measured using the Centre for Epidemiological Studies Depression (CES-D) scale (Radloff 1977), which consisted of 20 items (e.g., “I felt that I was just as good as other people”); (b) *social anxiety-related symptoms*, assessed using 14 items (e.g., “I only talk to other people my age that I know really well”) from Ginsburg et al. (1998); (c) *daily hassles*, assessed based on the frequency of experiencing 25 life stressors including finances, friends/peers, school work, and self-image; (e.g., “How often does it bother you to have problems with peers?”); (d) *self-esteem*, measured using the Rosenberg self-esteem scale

**Table 2** Correlations between study measures

Measure	1	2	3	4	5	6	7	8	9	10	11	12
1. Personal 11	–	.69***	.44***	.35***	.08*	.05	.18***	.14***	–.21***	–.18***	.22***	.23***
2. Personal 12		–	.42***	.49***	.06	.07	.14***	.21***	–.15***	–.17***	.18***	.23***
3. Institutional 11			–	.62***	.00	.02	.06	.06	–.16***	–.19***	.12**	.13**
4. Institutional 12				–	.01	–.03	.05	.08*	–.13***	–.15***	.10*	.14***
5. Intrapersonal well-being 11					–	.62*	.52*	.39*	–.01	.01	.16*	.15*
6. Intrapersonal well-being 12						–	.37***	.49***	–.03	–.02	.22***	.23***
7. Parental relationship 11							–	.65***	–.18***	–.18***	.19***	.15***
8. Parental relationship 12								–	–.10**	–.15***	.20***	.21***
9. Substance use 11									–	.69***	–.35***	–.32***
10. Substance use 12										–	–.31***	–.31***
11. Academic orientation 11											–	.74***
12. Academic orientation 12												–
Gender	.15***	.17***	.03	.05	–.11**	–.05	.05	.10*	–.17**	–.19***	.27***	.29***
Parental education	.06	.08*	.13***	.14***	.12**	.07*	.05*	.04	–.11**	–.10**	.24***	.22***

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

(Rosenberg 1965), which consists of 10 items (e.g., “I feel that I have a number of good qualities”); and (e) *life satisfaction*, measured with one item (“I am happy with my life”). A composite index was formed by standardizing each scale score and combining the scores such that higher values indicated more positive intrapersonal well-being. To establish the validity of a one-factor solution, a factor analysis was conducted using principal components analysis. The results revealed a one-factor solution (factor loadings of .5 or higher), supporting our decision to create a composite (alpha = .80 in grade 11; .81 in grade 12).

**Parental Relationship** Parent–child relationship was measured by 17 items from the Inventory of Parent and Peer Attachment (Armsden and Greenberg 1987). Participants completed this scale for both mother and father (e.g., “My mother trusts my judgment”; “My father can tell when I’m upset about something”). Higher scores indicated more positive relationships with one’s parents. The correlation between the mother and father scales was  $r = .49$  (in grade 11, and .51 in grade 12 ( $ps < .01$ )).

**Substance Use** *Alcohol use* was measured by two items: typical frequency of alcohol use; and average consumption

per drinking episode. *Smoking* was indicated by the typical number of cigarettes smoked each day. *Marijuana use* was assessed by the typical frequency of use in the past year. A composite index was formed by standardizing each score and combining the scores. Reliability for the composite index was .78 in grade 11, and .75 in grade 12. Principal components analysis revealed a one-factor solution (factor loadings of .5 or higher), supporting our decision to create a composite (see also Donovan et al. 1988).

**Academic Orientation** Academic orientation was measured by three questions: (a) “What grades do you typically get in school?”; (b) “How important is it to you that you do well in school?”; and (c) “How far do you plan to go in school?”. A composite index was formed by standardizing and combining items; alpha values were .71 and .70 in 2007 and 2008, respectively.

*Plan of Analysis*

In order to address our research questions, four steps were taken, First, preliminary analyses were conducted in order to: (a) screen data for outliers; and (b) impute missing data. Second, factor analyses were conducted in order to validate

the appropriateness of the variables that we considered, a priori, to represent personal and institutional spirituality/religiosity. Third, four regression analyses were conducted within each grade in order to assess the concurrent associations between represent personal and institutional spirituality/religiosity and the four psychosocial adjustment variables. Fourth, two regression analyses were conducted across grades in order to assess longitudinal associations.

## Results

### Preliminary Analyses

#### Data Screening

Multivariate outliers on the six spirituality/religiosity variables (Mahalanobis distance scores significant at  $p < .001$ ) at either wave were removed ( $n = 10$ , 1.3 % of the sample), as well as a small number of cases ( $n = 37$ , 5 % of the sample) where data screening revealed that these participants did not take the questionnaire seriously. The final analysis sample comprised 756 participants (53 % female, 47 % male,  $M$  age in Grade 11 = 16.41 years,  $M$  age in Grade 12 = 17.36 years). All variables exhibited acceptable skewness and kurtosis (Kline 2005).

#### Missing Data

To counterbalance missing data due to survey length, we included three versions of the survey at each time so that the same scales were not always near the end of the survey. For multi-item scales (i.e., variables in Table 1 for which the number of items = >1), composite scores were computed for participants who responded to at least 50 % of the items. For respondents who did not give a sufficient number of responses within a multi-item scale or who did not provide a response to a single-item measure), missing values within each wave were imputed using the expectation–maximization (EM) algorithm. EM is an iterative maximum-likelihood (ML) procedure in which a cycle of calculating means and covariances followed by data imputation is repeated until a stable set of estimated missing values is reached (see Schafer and Graham 2002). An average of, 7.8 % of the data were imputed in 2007 and 7.6 % were imputed in 2008. This percentage of imputed data is comparable with other longitudinal survey studies (e.g., Feldman et al. 2009).

#### *Establishing Personal and Institutional Spirituality/Religiosity as Separate Factors*

In order to establish that the variables we selected a priori to represent institutional and personal spirituality/religiosity

did, in fact, comprise two statistically separate domains, we conducted a principle components analysis (PCA) followed by a confirmatory factor analysis (CFA). First, in both grades, all spirituality/religiosity variables were entered into a PCA with oblique (oblimin) rotation. Two components emerged at each grade with eigenvalues greater than one. The first component represented a “personal” factor (loadings over .5 for the STI, frequency of prayer, and wondering about spiritual issues), while the second component represented an “institutional” factor (loadings over .5 for religious service attendance, involvement in other religious activities, and enjoyment of religious activities).

A CFA was then conducted using AMOS 17.0, where we specified two (correlated) latent factors (personal and institutional) for each grade, with STI, prayer, and wonder loading on the personal factor, and religious service attendance, other religious/spiritual activity involvement, and enjoyment of religious involvement loading on the institutional factor. As recommended by Hu and Bentler (1999), CFI values greater than .95 and RMSEA’s less than .06 (simultaneously) were used as the criteria for a well-specified model. The results of the two-factor model for grade 11 revealed adequate fit,  $\chi^2(6) = 28.16$ ,  $p < .001$ , CFI = .98, RMSEA = .07. Following Kline (2005), to assess if the two-factor model was better than a one-factor model, we conducted a Chi-square difference test between a model where the correlation between the latent factors was freely estimated (i.e., two factors) and a model where the correlation was fixed to 1.0 (i.e., one factor). The results revealed that the fit of the two factor model was significantly better than the one-factor model  $\chi^2_{diff}(1) = 193.24$ ,  $p < .001$  [CFI = .80 RMSEA = .20 for the fixed model]. Similarly, in grade 12, the results for the two-factor model revealed an adequate fit to the data ( $\chi^2(6) = 30$ ,  $p < .001$ , CFI = .98, RMSEA = .07), and in the test of Chi-square difference, the two-factor (i.e., freely estimated correlation between factors) model was statistically better than the one-factor (i.e., fixed) model,  $\chi^2_{diff}(1) = 210.3$ ,  $p < .001$  [CFI = .82 RMSEA = .81 for the fixed model]. Given these results, we concluded that the creation of separate personal and institutional composite variables was appropriate.

### Main Analyses

#### *Research Question 1: How Do the Institutional and Personal Dimensions of Spirituality/Religiosity Uniquely and Jointly Predict Psychosocial Adjustment in Grade 11 and in Grade 12 (Concurrent Associations)?*

At each grade, four hierarchical regression analyses were performed using SPSS—one for each domain of adjustment. All predictor variables were standardized prior to

being entered into the model, with the exception of the variable representing the interaction between institutional and personal spirituality/religiosity (the interaction variable was the product of the standardized institutional and personal variables, as recommended by Aiken and West 1991). Gender and parental education were entered on Step 1, and the two spirituality/religiosity dimensions were

entered on Step 2. On Step 3, the interaction term was entered. Full results are reported in Table 3.

*Grade 11* For *intrapersonal well-being*, the model explained 3.8 % of the variance in total, and the R-squared change was significant for the first two steps. The results from the final (i.e., second step) model indicated that being

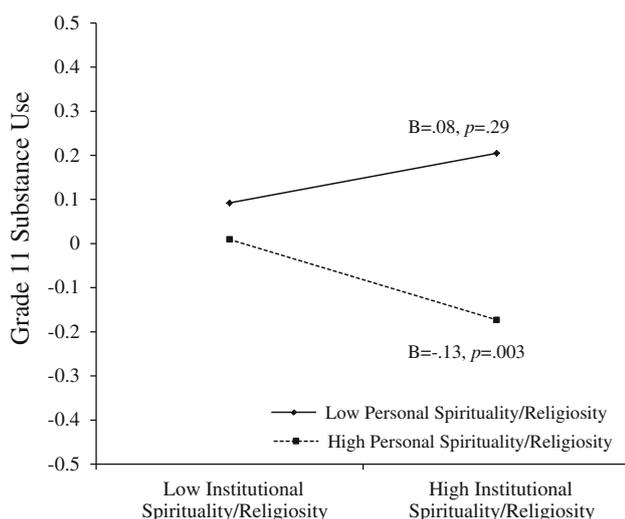
**Table 3** Results from concurrent regression analyses

	Intrapersonal well-being b (SE)	Parental relationship b (SE)	Substance use b (SE)	Academic orientation b (SE)
<i>Grade 11</i>				
Step one				
Gender	-.08 (.03)**	.03 (.02)	-.13 (.03)***	.20 (.03)***
Parent Ed	.09 (.03)**	.03 (.02)	-.08 (.03)**	.19 (.03)***
Model R <sup>2</sup>	.025***	.006	.039***	.127***
Step two				
Gender	-.09 (.03)**	.01 (.02)	-.11 (.03)***	.19 (.03)***
Parent Ed	.09 (.03)**	.02 (.02)	-.06 (.03)*	.18 (.03)***
Personal	.10 (.03)**	.10 (.02)***	-.11 (.03)***	.13 (.03)***
Institutional	-.05 (.03)	-.02 (.02)	-.07 (.03)*	.01 (.03)
R <sup>2</sup> Δ	.013**	.031***	.037***	.027***
Model R <sup>2</sup>	.038	.037	.075	.155
Step three				
Gender	.09 (.03)**	.01 (.02)	-.11 (.03)***	.19 (.03)***
Parent Ed	-.09 (.03)**	.02 (.02)	-.06 (.03)*	.18 (.03)***
Personal	.10 (.03)**	.10 (.02)***	-.13 (.03)***	.14 (.03)***
Institutional	-.07 (.04)*	-.02 (.02)	-.01 (.04)	-.01 (.04)
Pers × Inst	.04 (.03)	.01 (.02)	-.08 (.03)**	.03 (.03)
R <sup>2</sup> Δ	.001	.000	.009**	.001
Model R <sup>2</sup>	.039	.037	.084	.156
<i>Grade 12</i>				
Step one				
Gender	-.04 (.03)	.05 (.02)**	-.14 (.03)***	.22 (.03)***
Parent Ed	.06 (.03)*	.02 (.02)	-.07 (.03)*	.17 (.03)***
Model R <sup>2</sup>	.007	.013**	.043***	.129***
Step two				
Gender	-.05 (.03)	.04 (.02)*	-.13 (.03)***	.20 (.03)***
Parent Ed	.06 (.03)*	.01 (.02)	-.05 (.03)*	.16 (.03)***
Personal	.09 (.03)**	.10 (.02)***	-.07 (.03)*	.13 (.03)***
Institutional	-.07 (.03)*	-.01 (.02)	-.07 (.03)*	.02 (.03)
R <sup>2</sup> Δ	.012*	.035***	.025***	.028***
Model R <sup>2</sup>	.019	.049	.065	.157
Step three				
Gender	-.05 (.03)	.04 (.02)*	-.13 (.03)***	.20 (.03)***
Parent Ed	.06 (.03)*	.02 (.02)	-.05 (.03)*	.16 (.03)***
Personal	-.10 (.03)**	.10 (.02)***	-.07 (.03)*	.13 (.03)***
Institutional	.10 (.04)**	.03 (.03)	-.06 (.04)	-.01 (.04)
Pers × Inst	.05 (.03)	.02 (.02)	-.01 (.03)	.03 (.03)
R <sup>2</sup> Δ	.003	.002	.000	.002
Model R <sup>2</sup>	.022	.051	.064	.158

\*  $p < .05$ ; \*\*  $p < .01$ ;  
\*\*\*  $p < .001$ . All predictors are standardized. The interaction term is the product of the standardized variables

male, higher parental education, and higher personal spirituality/religiosity predicted more positive well-being. For *parental relationship quality*, the model explained 3.7 % of the variance. The first step was not significant (indicating that neither gender nor parental education predicted parental relationship quality), but the second step was significant, with personal (but not institutional) spirituality/religiosity predicting better relationship quality. For *substance use*, the R-squared change was significant for each step, and the overall model explained 8.4 % of the variance. The results from the final model indicated that the interaction between personal and institutional spirituality/religiosity was significant, with the interaction explaining 1 % of the variance. Simple slopes and standard errors were calculated for the regression of substance use on institutional spirituality/religiosity at different levels of personal spirituality/religiosity (Aiken and West 1991). As illustrated in Fig. 1, at low personal spirituality/religiosity (one standard deviation below the mean), the relationship between institutional spirituality/religiosity and substance use was not significant ( $B = .08, p = .29$ ); however, at high levels of personal spirituality/religiosity (one standard deviation above the mean), institutional spirituality/religiosity negatively predicted substance use ( $B = -.13, p = .003$ ). Finally, for *academic orientation*, the first two steps were significant, and the model accounted for 15.6 % of the variance. Being female, higher levels of parental education, and personal (but not institutional) spirituality/religiosity predicted having a more positive academic orientation.

**Grade 12** For *intrapersonal well-being*, the first and second steps were significant, and the overall model



**Fig. 1** Simple effects of the regression of grade 11 substance use on institutional spirituality/religiosity at low and high personal spirituality/religiosity

accounted for 2.2 % of the variance. Higher parental education and personal spirituality/religiosity were positive predictors of well-being. In contrast to grade 11, however, institutional spirituality/religiosity also emerged as a significant *negative* predictor of well-being. Further inspection revealed that personal spirituality/religiosity was a suppressor of institutional spirituality/religiosity, and vice versa. Although neither variable *on its own* was a significant predictor of intrapersonal well-being, the coefficients increased when the other variable was entered in the model. To a lesser extent, gender also was a suppressor of personal spirituality/religiosity, and parental education was a suppressor of institutional spirituality/religiosity. Therefore, when the variance associated with personal spirituality/religiosity and parental education was removed, institutional spirituality/religiosity predicted less positive intrapersonal well-being; similarly, when the variance associated with institutional spirituality/religiosity and gender was removed, personal spirituality/religiosity was associated with more positive well-being. For *parental relationship quality*, the first and second steps were significant, and the model accounted for 5.1 % of the variance. Being female and having higher personal spirituality/religiosity predicted higher parental relationship quality. For *substance use*, the overall model accounted for 6.5 % of the variance. The first two steps were significant, with being female, higher parental education, greater personal spirituality/religiosity and greater institutional spirituality/religiosity predicting lower levels of substance use. For *academic orientation*, the first two steps were significant, with the model accounting for 15.8 % of the variance. Being female, higher parental education, and personal spirituality/religiosity significantly predicted stronger academic orientation.

#### Research Question 2: What is the Direction of Effects in the Association Between Personal Versus Institutional Spirituality/Religiosity and Psychosocial Adjustment?

The *socialization* (i.e., prior personal and/or institutional spirituality/religiosity predict subsequent psychosocial adjustment after controlling for over-time stability in adjustment), and *selection* (i.e., prior psychosocial adjustment predicts changes in institutional and/or personal spirituality/religiosity after controlling for over-time stability in institutional and/or personal spirituality/religiosity) hypotheses were assessed using autoregressive path models. These models allow researchers to assess direction of effects by estimating reciprocal cross-lagged parameters that test whether a variable assessed at one point in time predicts another variable assessed at a later point in time, after controlling for the over-time stability in the variable being predicted (Little et al. 2009).

To test the socialization hypothesis, four hierarchical regression analyses were performed, one for each grade 12 adjustment variable. The corresponding grade 11 adjustment variable was entered as a predictor at step 1 (to control for stability in the construct) along with the covariates. Grade 11 personal and institutional spirituality/religiosity were entered as predictors in step 2, and the interaction between grade 11 institutional and personal spirituality/religiosity was entered at step 3. Support for the socialization hypothesis (i.e., models where there was a significant *r*-squared change after step 1) was found only for substance use.

For substance use, the socialization hypothesis was supported for institutional but not personal spirituality/religiosity. The model accounted for 49 % of the variance. More specifically, the first ( $R^2 = .48, p < .001$ ) and second steps of the regression model ( $\Delta R^2 = .01, p < .05$ ) were significant, and higher institutional spirituality/religiosity at grade 11 significantly predicted lower substance use in grade 12 after controlling for stability in substance use ( $b = -.06, p < .01$ ).

To test the selection hypothesis, two hierarchical regression analyses were performed, with grade 12 personal spirituality/religiosity as the criterion in one model and grade 12 institutional spirituality/religiosity the criterion in the other. In the first step, gender and parental education, as well as the corresponding grade 11 spirituality/religiosity variable was entered. In the second step, the four grade 11 adjustment variables were entered. The results from the models revealed that the selection hypothesis was not supported for any of the psychosocial adjustment variables for either institutional or personal spirituality/religiosity.

## Discussion

Spirituality/religiosity—in both its institutional (i.e., interpersonal, public) and personal (i.e., intrapersonal, private) forms—has been hypothesized to promote positive adjustment in young people (e.g., Lerner et al. 2008). The goals of the present study were to evaluate the unique and joint associations between personal versus institutional dimensions of spirituality/religiosity and a wide range of psychosocial adjustment domains, and to assess the direction of effects in these associations. It was predicted that personal spirituality/religiosity would be linked uniquely with more positive intrapersonal well-being and quality of relationship with parents. For institutional spirituality/religiosity, it was expected to uniquely predict lower substance use and more academic orientation. Further, joint (i.e., interactive) effects were predicted in that the link between personal spirituality/religiosity and well-being was expected to be stronger for

adolescents who reported high levels of institutional spirituality/religiosity, and the link between institutional spirituality/religiosity and substance use was predicted to be stronger for adolescents who also were highly engaged in a personal search for the sacred.

As expected, in both grades, personal spirituality/religiosity was associated uniquely with intrapersonal well-being. This result provides evidence that it may be personal—rather than institutional—spirituality/religiosity that is linked with well-being, and strengthens the validity of the findings from studies such as Ritt-Olson et al. (2004), and Perez et al. (2009) where “spirituality” was found to predict various aspects of intrapersonal well-being, but institutional spirituality/religiosity was not statistically controlled. The consistency with which personal spirituality/religiosity uniquely predicted well-being also is pertinent given that the strength of the link between spirituality and well-being has been questioned (Koenig 2008) because measures of “non-religious” spirituality often include items that could be considered indicators of positive mental health (e.g., the Spiritual Well-Being Scale includes items such as “I feel that life is a positive experience”, and “I feel that life is full of unhappiness”). Koenig (2008) points out that, in these studies, individuals who are well-adjusted would score higher than their peers on measures of spirituality simply because the items used to assess spirituality and well-being are similar. The present study used a more narrow conceptualization of personal spirituality/religiosity than is typically used in studies of “non-religious” spirituality (i.e., the personal spirituality/religiosity variable did not include items that overlapped with the construct of well-being) and still found a significant association between personal spirituality/religiosity and well-being in both grades, thus providing corroborating evidence for the link between feeling a connection with the sacred and feeling good about oneself.

Another finding where our predictions were confirmed was for the unique link between personal spirituality/religiosity and positive relationships with parents. Given that only one other study of which the authors are aware has examined the association between personal spirituality/religiosity and parent–child relationships (Desrosiers et al. 2010), this study represents a significant advance of the hypothesis that individuals who have positive internal working models may not only report more positive relationships with parents, but also may be more likely to perceive God or a higher power in a more positive manner and engage in a search for the sacred (e.g., Granqvist et al. 2007).

Contrary to expectations, the association between personal spirituality/religiosity and positive adjustment was not stronger for adolescents who reported higher institutional spirituality/religiosity. This was an unexpected

finding, particularly given the emphasis that the Developmental Systems Theory places on the importance of congruence between an adolescent's social/contextual and individual/personal commitments (e.g., Lerner et al. 2008). Our measure of institutional spirituality/religiosity (which included involvement in religious activities and enjoyment of participation in religious activities), however, may not have captured the specific aspects of involvement in religious communities, such as social support, that may enhance the association between personal spirituality/religiosity and well-being (e.g., Desrosiers and Miller 2008). In the future, it would be beneficial for researchers to identify the *specific aspects* of religious/spiritual group involvement that may enhance the link between personal spirituality/religiosity and well-being.

In addition, contrary to our predictions, it was personal—not institutional—spirituality/religiosity that was associated with more positive academic orientation in both grades. This finding was unexpected, given that institutional spirituality/religiosity is thought to promote assets more directly relevant for school success such as social capital and self-control (e.g., Regnerus 2000). Interestingly, at the zero-order level, institutional spirituality/religiosity was correlated significantly with academic orientation at both grades, but in the regression model, only personal spirituality/religiosity emerged as a significant predictor. It is possible that the associations between institutional spirituality/religiosity and academic success found in prior studies, where personal spirituality/religiosity was not statistically controlled (e.g., Loury 2004; Regnerus and Elder 2003), have been due at least partially to shared variance with personal spirituality/religiosity. The association between personal spirituality/religiosity and academic orientation may be a function of personality characteristics that may be more common in individuals who seek a connection with the sacred. For example, in adult samples, spiritual seeking (independent of institutional spirituality/religiosity) has been associated with openness to experience (e.g., McCullough and Willoughby 2009), which is linked to factors that promote school success, such as intellectual curiosity (Costa and McCrae 1995). Alternatively, individuals who report high levels of personal spirituality/religiosity in late high school may have been frequently involved in spirituality/religiosity groups or activities in the past (Good et al. 2010). It is possible that many of the young people who reported high levels of personal spirituality/religiosity in grades 11 and 12 were more highly involved in religious/spiritual groups as children or young adolescents, and the school-specific benefits of being involved in religious activities (e.g., social capital, self-control; King 2008; McCullough and Willoughby 2009; Smith 2003a) may have been carried over to the high school years—even though these adolescents may have decreased (or stopped) their involvement in religious activities. This

also may explain partially the stronger relationship between other adjustment variables and personal, as opposed to institutional spirituality/religiosity. Future research should investigate this possibility more directly (i.e., that the benefits of early religious/spiritual group involvement may carry over to positive adjustment later in life, even if involvement declines or stops).

Another unexpected finding was that institutional spirituality/religiosity predicted *less positive* well-being (although this relationship was significant only in grade 12). The results revealed that it was only after accounting for the shared variance between personal and institutional spirituality/religiosity (and parental education, to a lesser extent) that this association emerged. Interestingly, Kelley and Miller (2007) also reported that religious attendance became a significant *negative* predictor of life satisfaction when controlling for Daily Spiritual Experiences. Because decline in religious service attendance is so common in high school (e.g., Smith et al. 2002), perhaps individuals who attend religious activities frequently in late adolescence (particularly if they are not personally spiritual/religious) may be forced to participate in religious activities by parents. Such adolescents also may fare less well in many areas of life, as parents who force religious attendance may be less likely to grant their children autonomy in other areas of life, and lower autonomy has been linked to less positive adjustment (e.g., Soenens et al. 2007). These adolescents also may be experiencing religious doubt, which has been associated significantly (albeit weakly) with negative adjustment (e.g., Hunsberger et al. 1996). The suggestion that institutional spirituality/religiosity may be linked with less positive well-being after statistically controlling for personal spirituality/religiosity must be interpreted with caution, however, as the effect size was very small, and it was not found in grade 11. Nonetheless, given that Kelley and Miller (2007) reported similar results, future research should address this issue.

Although personal spirituality/religiosity uniquely and consistently predicted positive adjustment in terms of greater intrapersonal well-being, parental relationship quality, and academic orientation, longitudinal results revealed that these associations could not be explained by either the socialization or selection hypotheses. That is, grade 11 personal spirituality/religiosity did not predict well-being, parental relationship, or academic orientation in grade 12, and grade 11 well-being, parental relationship, and academic orientation did not predict personal spirituality/religiosity in grade 12. Our failure to find support for the socialization hypothesis in the association between personal spirituality/religiosity and intrapersonal well-being was unexpected, given that both Pospel et al. (2011) and Sallquist et al. (2010) found that prior spirituality/religiosity predicted subsequent well-being. However, methodological differences between these

studies and the present study may explain the differential findings; namely, Pospel et al. used a much shorter time frame (i.e., 4 months between assessment points) than the 1 year used in the present study, and Sallquist et al. used a sample that was younger (i.e., 7th–9th grade) and lived in a culture (Indonesia) where religion was a much more salient part of daily life (Lippman and Keith 2006). It is likely that these results reflect *third variable effects* (i.e., although the variables are associated, other variables are influencing change in both spirituality/religiosity as well as the domain(s) of adjustment). For example, reporting high personal spirituality/religiosity may be part of a constellation of factors that include feeling good about oneself, having good relationships with one's parents, and doing well in school. Changes in this constellation of factors may be driven by broader psychological-level variables such as personality or temperament. Future research should investigate the specific domains that may affect change in both personal spirituality/religiosity as well as the domains of adjustment with which personal spirituality/religiosity is correlated.

The domain of psychosocial adjustment where the results implied that spirituality/religiosity may be influential, however, was for substance use. For substance use, the most consistent finding was that institutional spirituality/religiosity was a significant unique predictor of less substance use, both concurrently and longitudinally (although only at an interaction level with personal spirituality/religiosity in grade 11). This finding also builds upon and corroborates our previous work, where institutional spirituality/religiosity predicted lower subsequent substance use even after controlling for non-religious extracurricular activities (Good et al. 2009), and several pertinent individual- (e.g., tolerance of deviance), peer- (e.g., friend tolerance of deviance), and parent- (e.g., parental control) level characteristics (Good and Willoughby 2011). Institutional spirituality/religiosity may impact upon an adolescent's engagement in substance use because attending religious/spiritual groups can create constraints on adolescents' opportunities to take part in substance use. Namely, adolescents who are involved in religious activities may experience a greater degree of social network closure (Smith 2003b), may be more involved in a variety of activities (e.g., Bartko and Eccles 2003), and, if their parents participate in religious activities (which is most often the case for religiously-involved adolescents, Smith and Denton 2005), they may be more likely to have parents who use an authoritative parenting style (e.g., Gunnoe et al. 1999)—all of which can prevent engagement in risk-taking (e.g., Fletcher et al. 2001; Mahoney and Stattin 2000; Steinberg 2001). In addition, because the practices associated with religious activities (e.g., getting up to go to church/temple/mosque on the weekend) may build self-control, and self-control is important for avoiding substance use, self-regulatory capacities fostered through involvement in

religious institutions may, at least partially, explain why institutional spirituality/religiosity may influence adolescent's decisions surrounding substance use (McCullough and Willoughby 2009). Although an interaction effect was found in grade 11, which implied that the relationship between institutional spirituality/religiosity and substance use was significant only when personal spirituality/religiosity was high, the moderation was a weak effect, and was only demonstrated in one grade; therefore, the bulk of evidence in the present study points towards institutional spirituality/religiosity uniquely predicting less substance use. Future research should explore whether other aspects of personal spirituality/religiosity not assessed in the present study may jointly predict more positive adjustment.

Findings from the present study must be interpreted against its limitations. The most significant limitation was the reliance on self-report surveys. It would have been beneficial to have multiple informants (i.e., parent report, teacher report, student records), particularly for the domains of parent-child relationships and academic orientation. Further, the sample from which the population was drawn also was fairly homogenous in terms of religion/ethnicity. Also, because students' religious affiliations were not known, differences in the results by religious affiliation could not be examined. Our measures of spirituality/religiosity also were limited in the sense that they did not reflect all possible components of the broad spirituality/religiosity construct. In particular, neither the personal nor institutional spirituality/religiosity scales reflected personal commitment to or internalization of religious beliefs. However, involvement in religious activities and religious internalization often are correlated very highly (e.g., Hardy et al. 2012). Limitations in the timing of the survey administration also existed, as 1 year might not have been a sufficient amount of time in which to observe strong selection or socialization effects. Also, there may be periods of the lifespan other than the transition from grade 11 to 12, where spirituality/religiosity may play an equally or more important role in the lives of young people. Researchers have suggested, for instance, that emerging adulthood is a period of intensive identity exploration (Arnett 2000). Events such as marriage or becoming a parent also may precipitate spirituality/religiosity development. To attain a more complete understanding of the role that spirituality/religiosity plays in the psychosocial adjustment of individuals, it will be necessary to study multiple transitions throughout the lifespan, over both the short-term and long-term.

Finally, given that standardized path coefficients of .10 are typically seen as small effects in the social sciences, the coefficients that were significant in the present study were all small to medium in magnitude. The small effect sizes also may be related to the fact that this sample was

comprised of Canadian adolescents, who typically view spirituality/religiosity as less important than their US counterparts. Theoretically, the strength of the association between spirituality/religiosity and an individual's behavior may be expected to decline as religiosity becomes less and less common within a given population (e.g., Regnerus 2003; Stark 1996). However, small effect sizes are common (even in US samples exploring the relationship between spirituality/religiosity and adjustment), particularly in cross-lagged models with high stability coefficients between adjacent waves of data. In this case, small effects would be expected. However, small effects are not necessarily trivial effects, and the magnitude of effects is consistent with the other studies that have used similar models (e.g., Mason and Windle 2002).

## Conclusions

The present study offers a significant contribution to the body of knowledge on the association between spirituality/religiosity and psychosocial adjustment in adolescence. It was the first study of which the authors are aware to assess the unique and joint associations between personal and institutional spirituality/religiosity and a wide range of psychosocial adjustment domains, and also to have considered the direction of effects in these associations. Given the differential associations of personal and institutional spirituality/religiosity with psychosocial adjustment, researchers might consider adopting a more nuanced approach to measuring spirituality/religiosity; in particular, an approach that allows for the identification of interactions between personal spirituality/religiosity and various aspects of institutional spirituality/religiosity would be beneficial. Further, assessing the direction of effects in the association between spirituality/religiosity and adjustment allowed us to consider whether the links between the different domains of spirituality/religiosity and various domains of psychosocial adjustment may be best explained by socialization, selection, or third variable effects. Here, we found that substance use was the only domain where spirituality/religiosity may be exerting some influence on change in behavior over time, whereas for the other variables with which spirituality/religiosity showed only concurrent correlations, it is likely that unmeasured variables are driving change in adjustment and spirituality/religiosity.

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**Author contributions** MG conceived of the study, participated in its design and coordination, performed statistical analyses, and drafted the manuscript. TW designed and coordinated the survey, helped with statistical analyses, and helped to draft the manuscript. All authors read and approved the final manuscript.

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