

# Does Adolescents' Religiousness Moderate Links Between Harsh Parenting and Adolescent Substance Use?

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Extant literature suggests that religiousness is inversely related to adolescent substance use; yet, no systematic investigation has examined whether religiousness may be a protective factor against substance use in the presence of risk factors. We examined whether religiousness moderates the links between parents' psychological and physical aggression and adolescent substance use directly and indirectly through adolescent self-control. The sample comprised adolescents ( $n = 220$ , 45% female) and their primary caregivers. Structural equation modeling analyses suggested that adolescents with low religiousness were likely to engage in substance use when subjected to harsh parenting, but there was no association between harsh parenting and substance use among adolescents with high religiousness. Furthermore, although harsh parenting was related to poor adolescent self-control regardless of religiousness levels, poor self-control was significantly related to substance use for adolescents with low religiousness, whereas the link between poor self-control and substance use did not exist for adolescents with high religiousness. The findings present the first evidence that adolescent religiousness may be a powerful buffering factor that can positively alter pathways to substance use in the presence of risk factors such as harsh parenting and poor self-control.

**Keywords:** adolescent substance use, harsh parenting, religiousness, self-control

Although research on the beneficial effects of religiousness among adolescents has increased over the past decade, substantial gaps remain in our understanding of the role of religiousness in coping with family-related distress such as harsh parenting (Mahoney, 2013). Inverse relations between religiousness and youths' substance use behaviors have been extensively documented (Ford & Hill, 2012; Mason & Spoth, 2011; see Chitwood, Weiss, & Leukefeld, 2008 for a review). We proposed that above and beyond the inverse association between adolescent religiousness and substance use, religiousness may serve as a protective factor against the detrimental effects of risk factors. Thus, in this investigation, we hypothesized that harsh parenting is predictive of adolescent substance use behaviors, mediated by poor self-control, and that adolescent religiousness moderates such mediated asso-

ciations. We aimed to test possible protective roles of religiousness by examining whether adolescents with higher religiousness, compared with those with lower religiousness, are less likely to show substance use despite the presence of risk factors of harsh parenting and poor self-control.

## Harsh Parenting and Poor Self-Control as Risk Factors for Adolescent Substance Use

In examining harsh parenting and poor self-control as risk factors for adolescent substance use, we focused on the two tenets of self-control theory, which describes the etiology of substance use (Gottfredson & Hirschi, 1990): (a) the lack of youths' ability to control their cognitions, emotions, and behavior is the root cause of deviant behaviors which provide immediate gratification (e.g., smoking, excessive drinking); and (b) child rearing (e.g., parenting practices) is key in the socialization of self-control. In the current study, we define self-control as the ability to regulate the self strategically in response to goals, priorities, and environmental demands (Vohs & Baumeister, 2004). According to this perspective, and in line with what Gottfredson and Hirschi (1990) argue, adolescents lacking self-control are expected to pursue immediate pleasures and thus are vulnerable to using substances, whereas those with high self-control resist immediate pleasures for a delayed gratification.

Indeed, ample evidence demonstrates that inadequate self-control is linked to substance use problems. People who have low self-control are prone to becoming addicted to substances because of their inability to restrain impulsive responses to temptations (Madden & Bickel, 2010). In contrast, research using both norma-

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tive and high-risk samples indicates that adolescents with better self-control show lower rates of substance use (Dishion & Connell, 2006; Kim-Spoon, McCullough, Bickel, Farley, & Longo, *in press*; Wills, Walker, Mendoza, & Ainette, 2006). Prior research suggests that parents shape their children's regulatory styles through sensitive caregiving in the absence of hostility (Eisenberg et al., 2001). Accordingly, we expect that adolescents who receive harsh parenting would show poor self-control because of their experiences of poor-quality attachment, lack of warmth, and limited modeling. Although literature on adolescent self-control in relation to harsh parenting is currently not available, research on children indicates that harsh parenting and abuse potential are associated with poor self-control, which in turn is associated with internalizing and externalizing problems (Kim-Spoon, Cicchetti, & Rogosch, 2013; Schatz, Smith, Borkowski, Whitman, & Keogh, 2008).

We define harsh parenting as caregivers' use of psychological and physical aggression toward the youth and draw evidence for the negative influence of harsh parenting on adolescent substance use from the child maltreatment literature. Empirical findings have shown that maltreated children are at increased risk for substance use problems. Exposure to maltreatment in childhood is related to illicit drug use, abuse, and dependence in adulthood (Fergusson, Boden, & Horwood, 2008; Widom, Mamorstein, & White, 2006). In a longitudinal study spanning from middle childhood to late adolescence, Rogosch and colleagues (2010) found that child maltreatment prior to middle childhood was predictive of higher levels of marijuana abuse and dependence in early adolescence as well as increases in marijuana use problems in late adolescence. Similarly, existing research using typically developing children and adolescents indicates that harsh parenting is a risk factor for the development of externalizing problems that facilitates the onset and persistence of substance use problems (Cohen, Richardson, & LaBree, 1994; Lochman & van den Steenhoven, 2002; Siebenbruner, Englund, Egeland, & Hudson, 2006). Taken together, these findings underscore that harsh parenting is a potent risk factor for adolescent substance use.

Furthermore, there is evidence that the detrimental effects of harsh parenting on adolescent alcohol use are mediated by low levels of self-control. Specifically, using a community sample of early adolescents, Brody and Ge (2001) reported that harsh-conflicted parenting was related to poor adolescent self-control, which in turn was associated with higher rates of alcohol use. In contrast, the direct association between harsh-conflicted parenting and adolescent alcohol use was not significant. Thus, in the present study, we will examine whether low levels of self-control mediate the relationship between harsh parenting and multiple types of substance use among adolescents.

### **Religiousness as a Protective Factor for Adolescent Substance Use**

Following theoretical reviews suggested by McCullough and Willoughby (2009), we define religion as "cognition, affect, and behavior that arise from awareness of, or perceived interaction with, supernatural entities that are presumed to play an important role in human affairs." Empirical studies examining buffering effects of religiousness among children and adolescents are extremely rare. Indeed, we know of only two published studies that examined whether religiousness buffers the negative effects of

stressors on adjustment outcomes by testing statistical moderation (interaction) effects. First, Wills and colleagues (2003) found that the effects of negative life events (e.g., having a serious illness) on cigarette, alcohol, and marijuana consumption were reduced for adolescents with high religiousness compared to adolescents with low religiousness. Second, Kim (2008) studied a high-risk sample of maltreated and nonmaltreated school-age children from low-income families and found that religiousness was a protective factor against internalizing symptomatology among maltreated girls. Overall, extant literature suggests that greater levels of religiousness tend to mitigate the negative consequences of trauma and life stressors (e.g., Smith, McCullough, & Poll, 2003), although some specific religious beliefs and practices can intensify distress (e.g., Mahoney, 2013; Pargament, 1997).

Based on previous findings as well as theoretical reasons, typically we believe that adolescents with higher religiousness, compared with those with lower religiousness, cope better with the stress associated with harsh parenting because of the social and personal resources available to them. According to social control theory (Hirschi & Stark, 1969; Smith, 2003), religious communities are characterized as social networks of relational ties that often facilitate effective oversight and control of adolescents by adults who care about them. Such social networks may influence adolescent substance use behaviors because they reduce opportunities for involvement in risky situations or with deviant peers. Furthermore, religious adolescents are likely to feel connected to religious communities, which may discourage them from engaging in health risk behaviors including substance use (Holder et al., 2000; Resnick, Harris & Blum, 1993). By participating in religious assemblies (e.g., youth group), religious adolescents tend to build strong ties to friends and associates within a body of faith; thus, these religious networks may serve as powerful referent groups that promote resistance to substance use. Above and beyond what religious communities and secular social groups may commonly offer, involvement in religious social groups provides unique social resources by facilitating explicitly religious and spiritual beliefs and behaviors that may deter substance use including perceptions of the sanctity of the body and an obligation to God to limit substance use (Mahoney, 2013; Pargament & Mahoney, 2005).

As religious coping theory (Pargament, 1997) suggests, religious adolescents may engage in "a search for significance in times of stress in ways related to the sacred." Religious adolescents are likely to engage the divine in a quest for solace and guidance, and their relations with the divine are likely to bolster their sense of personal meaning, religious identity, and moral commitments (Furrow, King, & White, 2004). Furthermore, unlike other social institutions, religion connects the search for significance during stressful times with higher powers and beliefs, experiences, rituals, and institutions associated with supernatural forces (Mahoney, Pendleton, & Ihrke, 2006). Consequently, religious coping may weaken the association between poor self-control and substance use. In line with this perspective, prior research demonstrated that poor self-control was associated with higher levels of antisocial behavior among college students with lower moral beliefs, but there was no association between poor self-control and antisocial behavior among those with higher moral beliefs (Schoepfer & Piquero, 2006).

## The Present Study

Although certain religious beliefs and behaviors can intensify distress when coping with stressors (Mahoney, 2013), extant literature on the role of religiousness in adolescent development is in a general consensus that religiousness promotes positive development and offers protection against risk behaviors (King & Furrow, 2004). However, the majority of past studies have focused on examining only the bivariate associations between adolescents' general levels of religiousness and adjustment outcomes. To the best of our knowledge, no previous work has tested the buffering roles of adolescent religiousness on the pathways linking harsh parenting and adolescent substance use. In the current study, we examined whether adolescent religiousness played a protective role for adolescent substance use in the presence of harsh parenting. We used a moderated mediation model (Muller, Judd, & Yzerbyt, 2005) to test the hypothesis that harsh parenting is related to poor adolescent self-control, which in turn is related to higher substance use, and also that adolescent religiousness attenuates direct or indirect associations between harsh parenting and substance use.

## Method

### Participants

The sample consisted of 220 families with adolescents who participated in the Youth Healthy Development (YHD) project. The purpose of YHD project was to examine predictors of youth health risk behaviors. Data were collected from both adolescents (121 boys and 99 girls) and their primary caregivers (parents hereafter), including 80% mothers, 15% fathers, and 5% other types of caregivers. Adolescents' ages ranged from 12 to 18 years ( $M = 15.12$ ,  $SD = 1.53$ ). About 87% of adolescents were White, 10% African American, 2% Hispanic, and 1% in other ethnic groups. Parents' ages ranged from 28 to 71 years ( $M = 45.37$ ,  $SD = 6.54$ ), with the ethnic composition of 90% White, 7% African American, 2% Hispanic, and 1% other. The majority (78%) of parents were married, 4% were never married, 2% were widowed, and 16% were divorced or separated. Mean family income was between \$35,000 and \$49,999 a year. In terms of religious affiliation, 58% of adolescents reported as Protestant, 11% Roman Catholic, 1% Jewish, 16% no religious affiliation, and 14% "other."

### Measures

**Religiousness.** Religiousness was assessed by adolescents' self-reports with eight items from published measures. Organizational religiousness was measured using two items that assessed participants' involvement in formal public religious institutions by instructing respondents to indicate how often they attended "religious services" and "other religious activities," respectively (Idler, 1999). Responses ranged from 1 = *never* to 6 = *more than once a week*. Personal religiousness was assessed using three items that instructed respondents to indicate the importance of religion (Jessor & Jessor, 1977). These items were how important they think it is "to believe in God," "to be able to turn to prayer when you're facing a personal problem," and "to rely on religious beliefs as a

guide for day to day living." Responses ranged from 1 = *not at all important* to 4 = *very important*. Religious support was assessed using three items indicating the emotional support received from congregations (Krause, 1999). These items were How often do the people in your congregation "make you feel loved and cared for," "listen to you talk about your private problems and concerns," and "express interest and concerns in your well-being." Responses ranged from 1 = *very often* to 4 = *never*, with 5 = *not applicable*. We reverse coded the religious support scores so that higher scores indicated greater religious support and treated "not applicable" as equal to "never" because both answers indicated a lack of religious support. Internal consistency coefficients ( $\alpha$ ) were .70 for organizational religiousness, .90 for personal religiousness, and .92 for religious support. We believe that religiousness can be meaningfully represented as a general dimension that encompasses multiple, specific dimensions (Gorsuch, 1984; Johnson & Robinson, 2008). Therefore, we created a latent variable based on the three subscales that were intercorrelated ( $r$ s ranging from .42 to .61,  $p < .001$ ). To create an overall index of religiousness, we first standardized the scores from the three subscales using  $z$ -score transformations, and then averaged the resulting transformed scores.

**Harsh parenting.** Adolescents were asked separately about mother's and father's psychological and physical aggression in the past year using the Conflict Tactics Scale (Straus, Hamby, Finkelhor, Moore, & Runyan, 1998). The psychological aggression subscale consisted of 5 items asking about parenting behaviors including swearing or shouting at the adolescent. The mild physical assault subscale consisted of six items asking about parenting behaviors such pinching, slapping, or spanking. The severe physical assault subscale consisted of three items asking about parenting behaviors including throwing the adolescent or hitting the adolescent with a belt. Answers on these scales ranged from 0 = *this has never happened* to 6 = *more than 20 times in the past year*, with 7 = *not in the past year, but it happened before*. We calculated annual frequency scores of psychological aggression, mild physical assault, and severe physical assault by adding the midpoints for the response categories chosen by the respondent (e.g., 15 for the answer 5 = *11–20 times*, and 25 for the answer 6 = *more than 20 times*) as suggested by Straus et al. (1998). We treated "not in the past year, but it happened before" as missing so that we could focus on the severity in harsh parenting in the past year. For each item, we used the maximum score between adolescents' reports on the mother and the father. Because univariate skewness values greater than 3 can present problems for latent variables models (Kline, 1998), the mild and severe physical assault indicators were log transformed prior to conducting the main analyses. In the current sample, internal consistency coefficients ( $\alpha$ ) were .76 for mother's and .79 for father's psychological aggression, .90 for mother's and .51 for father's mild physical assault, and for .75 mother's and .51 for father's severe physical assault. The alpha coefficients for the physical assault subscales were relatively low, especially for paternal harsh parenting. However, the original authors also reported similar ranges or lower alphas for the physical assault scales and explained that the low alphas may be attributable to the fact that the items measure rare events (Straus et al., 1998). We created a latent factor of harsh parenting based on the three subscales of psychological aggression, mild physical assault, and severe physical assault (all intercorrelated with  $r$ s ranging from .51 to .70,  $p < .001$ ).

**Self-control.** Adolescents and parents were asked to report adolescents' self-control ability with the Brief Self-Control Scale (Tangney, Baumeister, & Boone, 2004). The scale included 13 items assessing self-control behavior in the domains of thoughts, emotions, impulses, and performance by asking how typical each statement was of the adolescent (e.g., *I am good at resisting temptation*), using a Likert scale ranging from 1 = *not at all* to 5 = *very much*. Internal consistency coefficients ( $\alpha$ ) were .83 for adolescent reports and .89 for parent reports. Parent and adolescent reports were significantly correlated ( $r = .36, p < .001$ ). Taking advantage of information provided by multiple informants, we used the mean of adolescent and parent reports.

**Substance use.** Adolescent substance use was measured by three items adapted from Chassin, Rogosch, and Barrera (1991). Adolescents were asked to indicate typical frequencies of alcohol (beer, wine, hard liquor, or mixed drinks), cigarette, and marijuana use (e.g., which is the most true for you about smoking cigarettes?) using a Likert-type scale ranging from 1 = *never used* to 6 = *usually use every day*. Internal consistency coefficient ( $\alpha$ ) was .81. We created a latent factor of substance use based on the three item scores (all intercorrelated with  $r$ s ranging from .52 to .66,  $p < .001$ ).

## Procedure

Participants were recruited from Southwestern Virginia by diverse advertisement methods including flyers, recruitment letters, and e-mail distributions. Families interested in the study were asked to call the research office. Research assistants described the nature of the study, which examined protective factors related to youth's physical and mental health, to the interested individuals over the telephone and invited them to participate. Data collection took place at the university's offices. Upon arrival, the parent and the adolescent were escorted to separate interview rooms. Measures for the study were administered by two trained research assistants, one with each participant. The interviewers read the instructions to the participants and were present while the participants filled out the questionnaires. Parents and adolescents received monetary compensation (\$55 for parents and \$10 for adolescents) for participating in an extensive 2-hour interview and assessment and were debriefed after the study. All procedures were approved by a university's institutional review board. Web-based computerized questionnaires were used for harsh parenting and adolescent substance use because this format is less intrusive for sensitive topics that might otherwise prove difficult in an interview, such as underage alcohol use (Dillman, Smyth, & Christian, 2009). One of the participants' responses was inadvertently not coded, resulting in missing data in substance use. Therefore, the current analyses involved 219 adolescents (121 boys and 98 girls).

## Statistical Analyses

We estimated a series of two-group latent factor structural equation models (SEM) using Mplus 7.0 (Muthén & Muthén, 2012) based on maximum likelihood estimation. We evaluated possible buffering effects of adolescent religiousness by testing whether the direct and indirect associations between harsh parenting and adolescent substance use differed between high versus low religiousness groups. We compared four nested models in which

equality constraints were tested hierarchically. We first fit the *configural invariance model* in which all parameters were freely estimated across the two groups. This configural invariance model was the least restricted model among those tested and served as a baseline model. In the subsequent models, we imposed cross-group equality constraints and tested the adequacy of the constraints using nested chi-square difference tests (Bollen, 1989). The second model was the *equal harsh parenting effect on self-control model* in which equality constraints were imposed on the regression path between harsh parenting and self-control to test whether high and low religiousness groups were equivalent in terms of the effect of harsh parenting on self-control. The third model was the *equal self-control effect on substance use model* in which equality constraints were imposed on the regression path between self-control and substance use to test whether the two groups were equivalent in terms of the effect of self-control on substance use. The last model was the *equal direct effect model* in which equality constraints were imposed on the regression path between harsh parenting and substance use to test whether the two groups were equivalent in terms of the effect of harsh parenting on substance use.

In evaluating the overall goodness of fit of each model, we utilized the root mean square error of approximation (RMSEA) and the comparative fit index (CFI). The RMSEA (Browne & Cudeck, 1993) index assesses the degree of lack of fit for a model and values less than .05 and .08 reflect a close fit and a reasonable fit, respectively. The CFI (Bentler, 1990) varies along a 0–1 continuum in which values greater than .90 and .95 reflect acceptable and excellent fits to the data, respectively. We tested significance of mediated effects using the  $z$  tests based on Delta method standard errors (MacKinnon, 2008).

## Results

### Preliminary Analyses

Descriptive statistics and correlations for all study variables appear in Table 1. Univariate general linear modeling (GLM) analyses revealed no significant effects of some demographic characteristics on adolescent substance use, including gender, ethnicity, family income, and parent marital status. Because age showed significant effects on adolescent substance use ( $p < .001$ ), we included it as a covariate in the SEM analyses.

### Moderation of Religiousness for the Associations Among Harsh Parenting, Self-Control, and Substance Use

We tested a moderated mediation model to investigate whether religiousness moderated the pathways between harsh parenting and adolescent substance use. In particular, we expected to see significant moderated mediation such that indirect effects of harsh parenting on substance use via self-control would be significantly stronger for the high religiousness group than for the low religiousness group. We performed two-Group SEM analyses with religiousness as the grouping variable. A mean split was used to categorize adolescents into the high ( $n = 124$ ) and low religiousness group ( $n = 95$ ). Table 2 presents descriptive statistics for study variables by religious group. Before testing differences in the



Table 1

*Descriptive Statistics and Correlations of Religiousness, Harsh Parenting, Adolescent Self-Control, and Adolescent Substance Use*

Variables	1	2	3	4	5	6	7	8	9	10	<i>M</i> ( <i>SD</i> )	Range
1. Psychological aggression											3.07 (4.06)	0.00–25.00
2. Mild physical assault	.64**										0.59 <sup>a</sup> (2.09) <sup>a</sup>	0.00–22.17 <sup>a</sup>
3. Severe physical assault	.51**	.75**									0.17 <sup>a</sup> (0.78) <sup>a</sup>	0.00–6.00 <sup>a</sup>
4. Organizational religiousness	.09	.18**	.03								3.76 (1.33)	1.00–6.00
5. Personal religiousness	.06	.12	.02	.61**							3.15 (0.78)	1.00–4.00
6. Religious support	.11	.17*	.08	.45**	.42**						2.69 (0.98)	1.00–4.00
7. Religiousness composite	.14*	.19**	.09	.57**	.57**	.89**					–0.01 (0.88)	–1.87–1.31
8. Self-control	–.41**	–.30**	–.31**	.08	.11*	.09	.14				3.61 (0.55)	2.12–4.85
9. Cigarette use	.27**	.23**	.25**	–.18**	–.15*	–.13	–.22**	–.31**			1.35 (0.84)	1.00–6.00
10. Alcohol use	.14*	.06	.06	–.22**	–.23**	–.22**	–.31**	–.26**	.61**		1.81 (1.05)	1.00–5.00
11. Marijuana use	.19**	.14*	.15*	–.27**	–.19**	–.21**	–.26**	–.29**	.66**	.52**	1.34 (1.00)	1.00–6.00

<sup>a</sup> Before transformation.

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

patterns of associations among harsh parenting, self-control, and substance use between the high and low religiousness groups, we examined whether means and variances of the study variables differed significantly between the two religiousness groups. First, we performed two-group SEM analyses to test whether the latent factor means and variances of harsh parenting and substance use were equivalent between the groups. The results indicated no significant difference between the two groups in terms of mean levels,  $t = 1.89$ ,  $p = .059$  or variances ( $\Delta\chi^2 = .21$ ,  $p = .645$ ) of the harsh parenting latent factor. For the substance use latent factor, we found that the low religiousness group had a significantly higher latent factor mean,  $t = -3.50$ ,  $p < .001$  and significantly greater variance ( $\Delta\chi^2 = 38.37$ ,  $p < .001$ ) compared with the high religiousness group. Second,  $t$  test results indicated that the high religiousness group showed significantly higher levels of self-control than the low religiousness group,  $t = -2.35$ ,  $p = .020$ , but variances did not differ between the groups (Levene's Test  $F = 1.61$ ,  $p = .206$ ).

The results of nested model comparisons for testing the hypothesized moderated mediation models are summarized in Table 3. Model 1, the configural invariance model, produced a good fit. We first tested differences between groups in the effects of harsh parenting on adolescent self-control. In Model 2, we imposed equality constraints on parameters for the effects of harsh parenting on adolescent self-control. Model 1 and Model 2 were nested, and the difference in fit was indexed by subtraction. The difference in  $\chi^2$  was not significant, suggesting that the effects of harsh parenting on adolescent self-control did not differ between the two

groups. For both the high and low religiousness groups, higher harsh parenting was associated with poorer self-control ( $b = -.08$ ,  $SE = .01$ ,  $t = -6.41$ ,  $p < .001$ ).

Model 3 was nested within Model 2 with added equality constraints on the regression coefficients for the effect of self-control on substance use across the two groups. When comparing the model fits between Model 2 and Model 3, we found that Model 2 provided a significantly better fit than Model 3. The significant difference between the two groups indicated that poor self-control was significantly related to higher substance use in the low religiousness group ( $b = -.72$ ,  $SE = .15$ ,  $t = -4.71$ ,  $p < .001$ ), whereas self-control was not significantly associated with substance use in the high religiousness group ( $b = -.13$ ,  $SE = .09$ ,  $t = -1.42$ ,  $p = .156$ ). We also tested the significance of indirect effects and found a significant indirect effect of harsh parenting on substance use via self-control for adolescents with low religiousness ( $z = 3.78$ ,  $p < .001$ , 95% CI [0.027, 0.086]) but not for adolescents with high religiousness ( $z = 1.37$ ,  $p = .170$ , 95% CI [–0.004, 0.025]). In Model 4, we added equality constraints to Model 2 for testing differences in the regression coefficients for the direct effects of harsh parenting on substance use. Model 4 yielded a significantly worse fit compared with Model 2, indicating that higher harsh parenting was significantly related to higher substance use among adolescents with low religiousness ( $b = .13$ ,  $SE = .04$ ,  $t = 3.19$ ,  $p = .001$ ), whereas harsh parenting was not associated with substance use among adolescents with high religiousness ( $b = .01$ ,  $SE = .01$ ,  $t = .61$ ,  $p = .545$ ).

Table 2

*Descriptive Statistics for Study Variables by Religious Group*

Variables	Low religiousness ( $n = 95$ )			High religiousness ( $n = 124$ )		
	<i>M</i>	<i>SD</i>	Range	<i>M</i>	<i>SD</i>	Range
1. Psychological aggression	2.51	3.70	0.00–25.00	3.51	4.27	0.00–17.60
2. Mild physical assault	0.50	2.61	0.00–22.17	0.65	1.60	0.00–9.33
3. Severe physical assault	0.12	0.69	0.00–6.00	0.20	0.84	0.00–5.33
4. Self-control	3.51	0.58	2.15–4.81	3.68	0.52	2.12–4.85
5. Cigarette use	1.60	1.12	1.00–6.00	1.16	0.45	1.00–3.00
6. Alcohol use	2.16	1.15	1.00–5.00	1.55	0.89	1.00–4.00
7. Marijuana use	1.66	1.38	1.00–6.00	1.10	0.43	1.00–4.00

Table 3

*Two-Group Latent Factor Moderated Mediation Models of Harsh Parenting, Adolescent Self-Control, and Adolescent Substance Use for High and Low Religiousness Groups*

Model (M) label	Goodness-of-fit					Step-down goodness-of-fit			
	$\chi^2$	df	p	CFI	RMSEA	Models	$\Delta\chi^2$	$\Delta df$	p(d)
M1: Configural invariance	89.48	36	.00	.92	.08	—	—	—	—
<b>M2: Equal harsh parenting effect on self-control</b>	<b>91.10</b>	<b>37</b>	<b>.00</b>	<b>.92</b>	<b>.08</b>	<b>a vs. b</b>	<b>1.62</b>	<b>1</b>	<b>.20</b>
M3: Equal self-control effect on substance use	101.50	38	.00	.91	.09	b vs. c	10.39	1	< .05
M4: Equal direct effect	99.75	38	.00	.92	.09	b vs. d	8.65	1	< .05

Note. CFI = comparative fit index; RMSEA = root mean square error of approximation. Boldface indicates the best-fitting model.

To summarize, although the two-group comparison analyses demonstrated that the effects of harsh parenting on adolescent self-control were similar across the two religiousness groups, the groups differed significantly with respect to the contributions of self-control and harsh parenting to adolescent substance use. Figure 1 presents the summarized results of the best fitting model (Model 2 in Table 3) separately for the high and the low religiousness group. Overall, the direct and indirect effects of harsh parenting accounted for a notably greater amount of variance in adolescent substance use for adolescents with low religiousness (52%), compared with adolescents with high religiousness (10%). However, it is best to interpret this finding with caution given that the low religiousness group had greater substance use variance than did the high religiousness group.

### Discussion

To better understand the role of adolescent religiousness in the face of stress, we examined whether adolescent religiousness mod-

erated the pathways through which harsh parenting was related to substance use directly as well as indirectly via poor self-control. We established our moderated mediation model by integrating religiousness, child maltreatment, and adolescent substance use literatures, and we presented the first evidence that religiousness served as a protective factor against the risk factor of harsh parenting in a community sample of adolescents even when adolescent self-control was compromised in the presence of harsh parenting. Adolescents with low religiousness were vulnerable to engaging in substance use when subjected to harsh parenting, whereas adolescents with high religiousness were relatively immune to the levels of harsh parenting. Thus, the finding suggests that religiousness may have the potential to negate the impact of high stress levels associated with experiencing harsh parenting and improve adolescent health and well-being within families who were not involved in clinical or social services for adolescent substance abuse or parental maltreatment. These findings mirror prior research using nonclinic referred adult samples, which re-

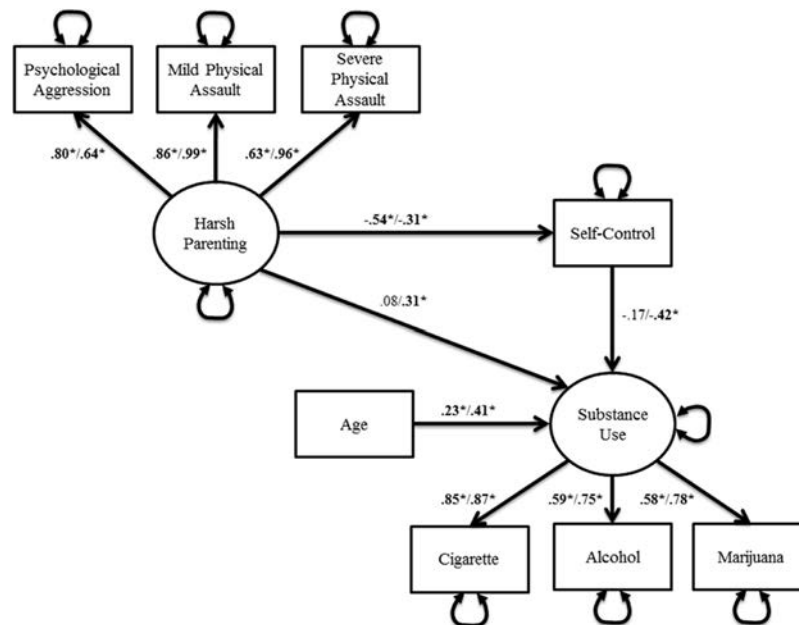


Figure 1. Moderated mediation model fitting results of the associations among harsh parenting, adolescent self-control, and adolescent substance use for high and low religiousness groups. Standardized parameter estimates are presented. Numbers in bold are significant coefficients. High religiousness group is on left, and low religiousness group is on right. \*  $p < .05$ .

veals that religious beliefs and religious attendance form an important coping mechanism for negotiating life stresses (e.g., Maltby & Day, 2003; Pargament, 1997).

### **Moderation of Religiousness for the Associations Between Harsh Parenting and Adolescent Substance Use**

Our findings showed that religious adolescents are more likely to refrain from substance use under the stress of harsh parenting compared with their less religious peers. In line with social control theory (Hirschi & Stark, 1969; Smith, 2003), the buffering role of religiousness may be partially attributable to the benefit of belonging to religious communities that exert effective control over adolescents' deviant behaviors. In addition, adolescents with high religiousness seem to receive better parental monitoring compared to those with low religiousness (Kim-Spoon et al., 2014). Clearly, vigilant parental monitoring can reduce adolescent substance use by maximizing opportunities for parents to intervene in adolescents' involvement in risky behaviors (Piko & Balázs, 2012). However, whether the effectiveness of parental monitoring may be compromised because of the negative psychological context in which parental monitoring is carried out (e.g., lack of warmth associated with harsh parenting) is an important question for further investigation.

In addition, adolescents with higher religiousness, compared with their counterparts with lower religiousness, may enjoy better quality relationships with their family members other than the parent who exhibits psychological and physical aggression. Research suggests that religiousness is associated with good family functioning (Mahoney, 2010), and adolescents who attend religious services tend to report more involvement in, and satisfaction with, their families (Smith, 2003). High levels of perceived family support mitigate the effects of stressful events on adolescent substance use (Wills, Resko, Ainette, & Mendoza, 2004). Researchers should further investigate whether high-quality family relationships may explain why adolescents with higher religiousness cope better with stresses related to harsh parenting than adolescents with lower religiousness.

Religious communities are unique in the sense that it is the only social institution that explicitly strives to facilitate religious and spiritual beliefs and behaviors, including a connection to the divine, sanctification of the body, and religious coping strategies (Mahoney et al., 2005; Pargament, Magyar-Russell, & Murray-Swank, 2005). Individuals who perceive their body as having divine significance and character are more likely to show behaviors that help maintain their physical well-being (Mahoney et al., 2005). In addition, religious coping may promote perceived control (Pargament, 1997), which has been shown to impede adolescent substance use (Flory, Lynam, Milich, Leukefeld, & Clayton, 2004). Religious adolescents might try to gain control of the stressful situation associated with harsh parenting through a partnership with God (Mahoney, 2013; Mahoney et al., 2006). As such, religious adolescents may view themselves as having high levels of control based on their perception that they share in the control wielded by God. Consequently, they may be less likely to become hopeless and engage in substance use as a coping strategy. Future research is necessary to test whether bolstering perceived

control by spiritual means protects adolescents with poor self-control who may be otherwise at risk for using substances.

The current analyses present notably stronger statistical moderation effects of religiousness than those found in a previous study examining the moderation effects of adolescent religiousness against negative life events. That is, Wills and colleagues (2003) reported the ratio of the path coefficients for the stressor-substance use link between the high and low religiousness groups to be .71, whereas our data showed the ratio to be .26. The ratio of the path coefficients between the high and low religiousness groups is an index of moderation effect size with smaller values indicating greater differences between the groups and thus stronger moderation effect sizes. We could detect powerful statistical moderation effects of religiousness because we used a latent factor of religiousness based on multiple dimensions seemingly important to stress coping (resulting in an increased range of variances), whereas Wills and colleagues (2003) measured only a single aspect of religiousness (e.g., the importance of religious faith). In addition, we may have found this large effect size because we targeted harsh parenting, a potent risk factor for the development of substance use, instead of examining less specific risk factors of negative life events.

### **Moderation of Religiousness for the Mediated Pathways From Harsh Parenting to Adolescent Substance Use**

Although researchers have paid increased attention to the mediated effects of religiousness on substance use via self-control (e.g., Kim-Spoon et al., 2014; Walker, Ainette, Wills, & Mendoza, 2007), we still know very little about the moderating effects of religiousness. Available studies examined interaction effects between religiousness and self-control without considering other risk factors (or stressors) and reported either nonsignificant interaction effects on adolescent alcohol and marijuana use (Desmond, Ulmer, & Bader, 2013) or significant, yet relatively weak, interaction effects on adolescent antisocial behaviors (Laird, Marks, & Marrero, 2011). Thus, the unique contribution of the current study is to elucidate the protective role of religiousness against poor self-control in the presence of a formidable risk factor—harsh parenting.

We found significant moderated mediation effects demonstrating that the indirect effect of harsh parenting via poor self-control existed for adolescents with low religiousness but such an effect did not exist for adolescents with high religiousness. Specifically, although harsh parenting was related to poor adolescent self-control regardless of religiousness levels, only in adolescents with low religiousness did poor self-control significantly relate to substance use. For adolescents with high religiousness, no association existed between poor self-control and substance use. Therefore, although our finding supports social control theory (Gottfredson & Hirschi, 1990) that suggests that parenting practices are vital to the socialization of self-control, our finding also identifies situations in which self-control theory may not work. That is, strong religiousness can break the link between poor self-control and substance use.

Our findings illustrated that highly religious adolescents experiencing harsh parenting, compared with their less religious counterparts, were less likely to use substances even with compromised self-control. As religious coping theory (Pargament, 1997) sug-

gests, the inclusion of the sacred in the coping process may provide ultimate meaning, order, and safety in place of human question, chaos, and fear (Pargament et al., 2005), thus facilitating strong resistance to substance use even when they suffer from poor self-control. Furthermore, religiousness may weaken the link between poor self-control and substance use because religiousness provides adolescents with an extra source of monitoring. Many religious belief systems posit a god, or gods, who watch human behaviors and pass judgment (Carter & McCullough, 2010). A recent study showed that adolescents with higher religiousness reported higher perceptions of being monitored by God and such perceptions were related to lower levels of substance use (Kim-Spoon et al., 2014). Religious adolescents, compared with their nonreligious peers, may closely monitor their behaviors with regard to their personal goals and values that are influenced by the rules and principles of religious teachings. As a consequence, religious adolescents are less likely to engage in substance use behaviors that are prescribed as deviant behaviors according to most religious teachings.

We found that religiousness (especially organizational religiousness and religious support) was positively correlated with mild physical aggression as indicated in Table 1. Although there was no mean difference for the latent factor of harsh parenting between adolescents with higher religiousness and adolescents with lower religiousness, the significant correlations suggest that adolescents with higher religiousness tended to report higher levels of mild physical aggression than those with lower religiousness. Prior research suggests that parents' and adolescent's levels of religiousness are highly similar (Kim-Spoon et al., 2014). Therefore, as Mahoney (2010) discussed, our findings suggest the possibility that certain aspects of religious beliefs and practices regarding discipline might increase mild form of parents' physical aggression toward their children.

## Limitations and Conclusion

Some limitations of this study suggest directions for future research. First, it is important to note that our findings are based on correlational data and do not imply causality in relations among the study variables. In the present study, for example, the strong association between harsh parenting and adolescent self-control may reflect the effect of the adolescent on the parent (e.g., Brody & Ge, 2001). Our data were collected cross-sectionally, and we were not able to test possible bidirectional effects between adolescent self-control and harsh parenting. We used the term "effect(s)" in describing our SEM models to refer to the estimation of regression coefficients (as opposed to correlations) without implying causal relations. Second, although the ranges of substance use frequencies and harsh parenting were not restricted, the mean levels of substance use and harsh parenting were low in our community sample of adolescents. Replications using samples of adolescents with high levels of substance use or harsh parenting will be helpful to evaluate the generalizability of the current findings to adolescents with differing levels of risks. In particular, it is important to note that our findings may not apply to subsamples of youth or families who are struggling with clinically significant levels of substance abuse or child maltreatment, where religious or spiritual beliefs may be particularly likely to play a harmful role (e.g., Mahoney, 2013; Pargament, 1997).

Third, even though we used multiple informants to assess self-control, we measured harsh parenting and adolescent substance use based solely upon adolescents' self-reports. Consequently, associations among the variables might have been inflated artificially by method variance attributable to single informant or monomethod (self-report only) bias. Using data from multiple informants (e.g., parents, teachers, and clinicians) and multiple methods (e.g., observation, clinical interview, and formal diagnostic criteria) might be worthwhile for future research. Finally, we measured adolescent substance use only by typical frequencies of cigarette, alcohol, and marijuana use. Future investigations should consider involving additional dimensions (e.g., substance use related problems, age of onset) and the use of other drugs to represent the multifaceted construct of substance use in a more comprehensive fashion.

In closing, this study makes a theoretical contribution by presenting evidence that religiousness is a significant resilience factor that accounts for heterogeneity in developmental outcomes associated with stress. The results highlight the utility of future research focusing on the transactions of risk (e.g., harsh parenting) and protective (e.g., religiousness) factors leading to maladaptation. In addition, the current results contribute to the expanding knowledge regarding the protective role of religiousness by illustrating that, although harsh parenting may present formidable challenges that interfere with the development of adaptive self-control, religiousness may weaken the link between maladaptive self-control and substance use among adolescents in a community sample.

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