Religiousness and Aggression in Adolescents: The Mediating Roles of Self-Control and Compassion

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Although people have used religion to justify aggression, evidence suggests that greater religiousness corresponds with less aggression. We explored two explanations for the religion–aggression link. First, most major religions teach self-control (e.g., delaying gratification, resisting temptation), which diminishes aggression. Second, most major religions emphasize compassionate beliefs and behavior (i.e., perspective taking, forgiveness, a broader love of humanity) that are incompatible with aggression. We tested whether self-control and compassion mediated the relationship between religion and aggression (direct and indirect) in a longitudinal study of 1,040 adolescents in the United States. Structural equation analyses revealed that self-control and compassion together completely mediated the religion–aggression relationship for both types of aggression. Aggr. Behav. 41:608–621, 2015. © 2015 Wiley Periodicals, Inc.

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INTRODUCTION

The history of religion is intimately linked with aggression. Believers throughout history have committed countless acts of aggression—mostly toward non-believers or people who otherwise believe differently—in the name of religion including the Crusades and other Holy Wars (Madden, 2005), heresy executions (Durant, 1950), and more recently, religious-fueled terrorism (Juergensmeyer, 2004). A reading of religious scriptures reveals that several of the world religions seem to advocate or model aggressive behavior. Moreover, some evidence suggests that people are more aggressive after reading religious passages in which God sanctions aggression (Bushman, Ridge, Das, Key, & Busath, 2006). At the same time, religion has played an important role in curbing aggression and violence. For example, one of the Ten Commandments explicitly forbids killing people, and many other passages from the Bible as well as scriptures from various world religions encourage or model kindness, compassion, caring, and forgiveness (Wilson, 1998). Evidence that religious scriptures seem to both model and discourage aggression raises an important question. Does greater religiousness correspond with more or less aggression? In line with the perspective that one of the major functions of religion is to discourage non-normative behavior and encourage normative behavior (Durkheim, 1915; Malinowski, 1935; Smith, 2003), we propose that greater religiousness will correspond with less aggression.

We review findings based on Christians and non-Christians in the United States and Europe that link religiousness to aggression (verbal or physical behavior designed to hurt or harm others), particularly among adolescents. We focus on religiousness and aggression in adolescents because adolescence represents a pivotal, understudied point in time when young people are developing the capacity for self-control and compassion (Casey & Caudle, 2013) and are beginning to make their own decisions about religious orientation and engagement. We also review findings relevant to two potential paths by which religiousness might curb aggression in adolescents: (i) religion promotes self-control and (ii) religion promotes compassion. Our review of the literature proceeds as follows. First, we describe evidence bearing on the link between religiousness and aggression. Second, we describe theorizing and evidence pertinent to the link from religiousness to self-
control and then the link from self-control to aggression. Third, we describe theorizing and evidence from different cultures and religion pertinent to the link from religiousness to compassion, and then the link from compassion to aggression. We use the term religion to refer to one or more specific religious traditions or belief systems (e.g., Christianity, Islam, Judaism, etc.). We define religiousness as the extent to which a person endorses or practices religious beliefs and behavior.

**RELIGION AND AGGRESSION IN ADOLESCENTS**

Early research linking religiousness to less aggression among adolescents is mixed (for a review see Salas-Wright, Vaughn, & Maynard, 2014). However, the results of three relatively recent large, national, representative studies find that greater religiousness corresponds with less aggression. The first study examined over 16,000 ninth-grade Christian and Muslim boys in Germany and found that greater religiousness correlated with less aggression among Christian boys but was unrelated to aggression among Muslim boys (Baier, 2014). The second study involved approximately 16,000, mostly Christian adolescents in grades 7–12 from the National Longitudinal Study of Adolescent to Adult Health (Add Health) and found that greater religiousness corresponded with less weapon-related violence (Nonnemaker, McNeely, & Blum, 2003). The third study was even larger (90,000 adolescents, mostly Christian, between the ages of 12 and 17) and found that greater religiousness corresponded with lower aggression (Salas-Wright et al., 2014). The findings from these studies are consistent with the results of a meta-analysis mostly of studies conducted in the United States with mostly Christian participants showing that greater religiousness corresponds with less destructive adolescent delinquency (Cheung & Yeung, 2011). All three of the empirical studies were cross-sectional, measuring religiousness and aggression at the same time. Nevertheless, the studies are consistent with the notion that religion, at least among Christians, curbs aggression. We examined the relationship between religiousness and aggression longitudinally among adolescents.

**Mechanisms of Influence**

Research suggests at least two paths by which religiousness may translate into less aggression, although perhaps less aggression only toward people who believe similarly. The first is that many religions promote self-control (e.g., delaying gratification, resisting temptation), which in turn, diminishes aggression. The second is that many religions teach compassionate beliefs and behavior that are incompatible with aggression. We discuss the two paths separately.

**Self-control.** Religions can promote greater self-control in a number of ways (McCullough & Willoughby, 2009). They can foster personal monitoring either through membership in a moralistic group or as a result of perceived interactions and monitoring by a supernatural entity. Alternatively, they can build self-regulatory strength through participation in religious communities or involvement in religious rituals. Not surprisingly, research supports a link between religiousness and self-control. For example, one review found that 11 of 12 studies, using samples dominated by Christian, demonstrated a positive link between religiousness and self-control (McCullough & Willoughby, 2009) and other research finds that subtle reminders of religious concepts lead to greater self-control among Canadian college students, religion unspecified (Rounding, Lee, Jacobson, & Ji, 2012). The few studies examining religiousness and self-control among adolescents reveal similar results. Most notable are the findings from a nationally representative study of adolescents, again using the Add Health data, showing that greater religiousness corresponded with higher levels of self-control (Desmond, Ulmer, & Bader, 2013).

Theory and research also link greater self-control with less aggression. Regarding theory, a variety of models suggest that greater self-control can diminish aggression (Denso, DeWall, & Finkel, 2012). For example, the I-cubed theory proposes three processes that underlie aggression (Finkel et al., 2012). First, the person experiences an instigation (e.g., a provocation) that triggers the urge to aggress. Second, situational or dispositional factors psychologically impel the person to experience a strong urge to aggress when encountering an instigator. Third, the person lacks sufficient inhibitions against aggression. Self-control affects the third process by influencing inhibition of the aggressive urge. Regarding research, training adults in self-control reduces aggression (Denso, Oaten, Friese, & Schofield, 2011). In addition, studies of adolescents find that greater self-control, defined in terms of executive functioning, corresponds with less aggression (Ellis, Weiss, & Lochman, 2009). Likewise, a longitudinal study of over 1,000 early adolescent boys found that higher initial self-control corresponded with lower levels of aggression 6 months later (de Kemp et al., 2009).

A second longitudinal study of adolescents age 14–18 recruited from juvenile and adolescent court systems in communities that were largely Christian replicated these findings for criminal behavior, and showed that self-control partially explained the link between religiousness and aggression (Pirutinsky, 2014). Although criminal behavior is not aggression per se, many criminal behaviors examined in the study involved...
aggression, including behavior such as fighting, beating or attacking someone, and gun violence. Thus, the research provides preliminary support for the model we propose. In sum, theory and research suggest a link between religiousness and self-control and between self-control and aggression. We, thus, explored the full path by examining whether self-control might explain the observed link between religiousness and aggression.

**Compassion.** The second path by which religiousness may eventuate in less aggression, at least toward fellow believers, is through teaching beliefs and behavior that are incompatible with aggression. Three such beliefs are a love for humanity, perspective taking, and forgiveness. We group these aggression-incompatible beliefs and behavior under the umbrella of compassion.

Love for humanity refers to feelings of caring, kindness, and tenderness toward others (Sprecher & Fehr, 2005) and holds a central place in many religions (Durkheim, 1915). Perspective taking refers to the ability to see circumstances from another person’s point of view (Davis, 1983). It overlaps with empathy—the experience of another person’s emotions (Davis, 1983). Forgiveness refers to letting go of negative emotions and excusing transgressors (McCullough, Pargament, & Thoresen, 2000). It is central to many world religions including Christianity (Mathew, 6:22), Islam (Al’ Araf, 7:199), Judaism (Isaiah, 3:25), Hinduism (Mahabharata Vana Parva: 27), and Shintoism (Engishiki, 8) (for a more complete listing, see Wilson, 1998).

Although the research is sparse, several studies confirm that greater religiousness correlates positively with the three aspects of compassion. For example, a nationally representative study of adults showed that a stronger religious identity corresponded with greater feelings of tenderness toward others (Saslow et al., 2013). Likewise, a study of adolescents revealed that greater religiousness corresponded with greater empathy (Hardy, Walker, Rackham, & Olsen, 2012). Finally, a number of studies, albeit of adults rather than adolescents, have shown that greater religiousness corresponds with higher levels of forgiveness of others (for reviews, see Davis, Worthington, Hook, & Hill, 2013; Fehr, Gelfand, & Nag, 2010; McCullough & Worthington, 1999).

We propose that the three aspects of compassion are incompatible with aggression and thus should correspond with less aggressive responding. For example, the care, kindness, and tenderness that characterize love for humanity are the opposite of aggression. Aggression reflects actions designed to hurt or harm, whereas care, kindness, and tenderness reflect actions to help others and perhaps alleviate their suffering. In addition, empathizing with or taking the perspective of another person is likely to initiate a host of cognitions (e.g., sympathy, understanding) that would seem to undermine aggressive responding toward that person. Imagining circumstances from a target’s perspective prompts people to consider how they might behave similarly to the target, which can make a target’s actions—actions that might normally elicit an aggressive responses—seem more justifiable. Finally, forgiveness entails setting aside negative emotions and pardoning those who caused harm, and thus represents an alternative to aggressive responding. Indeed, the reduction in negative affect and anger that often accompany forgiveness (Thompson et al., 2005) can serve to eliminate the felt need to aggress.

Research offers strong evidence that greater compassion corresponds with less aggression. For example, manipulations that increase perspective taking or empathy reduce aggression (Richardson, Green, & Lago, 1998; Richardson, Hammock, Smith, Gardner, & Signo, 1994; Stanger, Kavussanu, & Ring, 2012; Tsuneoka & Takano, 2011). In addition, two studies of adolescents in the United States found that greater perspective/empathy taking corresponded with lower levels of aggression (Batanova & Loukas, 2011; Carlo, Raffaelli, Laible, & Meyer, 1999). The second of these two studies is particularly important because it demonstrated the relationship longitudinally with a 1 year gap between the measurement of perspective taking and aggression.

Regarding forgiveness, overwhelming evidence from studies typically conducted in the United States suggests that greater forgiveness corresponds with lower aggression (e.g., Berry, Worthington, O’Connor, Parrott, & Wade, 2005; Eaton & Struthers, 2006; Lutjen, Silton, & Flannelly, 2012; Webb, Dula, & Brewer, 2012). Most notable is a study of 556 Japanese high school juniors and seniors that found that greater forgiveness corresponded with less physical and relational aggression (Ishikawa & Hamaguchi, 2007). Interestingly, we found no studies examining the link between love for humanity and aggression, indicating a clear gap in the research.

**Summary and limitations.** Our review of the literature—mostly conducted in the United States and using largely Christian samples—revealed that greater religiousness corresponds with greater self-control and compassion, and with lower levels of aggression. In addition, greater self-control and compassion correspond with lower levels of aggression. These findings suggest that the link between religiousness and aggression may be explained by self-control and compassion. However, the prior studies generally have limitations that keep us from drawing this conclusion. First, we know of no study that has directly tested the hypothesized path. Instead, studies have examined only...
part of the path—either the relationship of religiousness with self-control and compassion, or the relationship of self-control and compassion with aggression. The closest study that tied these pathways together examined adolescents in the United States who likely were mostly Christian and found that self-control partially mediated the relationship between religiousness and criminal behavior (Pirutinsky, 2014). To the extent that aggression is related to criminal acts, this study provides preliminary support for our hypotheses. Second, the vast majority of studies are cross-sectional, making it difficult to establish causal direction. Third, few studies explore the various links of the model we propose among adolescents.

The Present Research

We explored the two explanations for the link between religiousness and aggression in a longitudinal study of 1,040 adolescents. We measured religiousness at three points in time, and self-control, compassion, and aggression at the second and third time points. We assessed religiousness in two ways. First, we assessed level of religiousness in adolescents using an individual difference measure (Miller, Shepperd, & McCullough, 2013). Second, we distinguished religious adolescents (adolescents who reported belonging to a religious faith) from non-religious adolescents (adolescents who reported that they were agnostic or atheist) in recognition that non-religious adolescents may have difficulty responding to a measure of religiousness.

In our analyses, we set religiousness as the predictor, self-control and compassion as our mediators, and aggression as the outcome. Because we had responses at three points in time, we tested the proposed path model in three ways (see Fig. 1). Model 1 examined religiousness at Time 1 and the mediators and aggression at Time 2. Model 2 examined religiousness at Time 2 and the mediators and aggression at Time 3. Model 3 examined religiousness at Time 1, the mediators at Time 2, and aggression at Time 3. Examining the three models allowed us to test whether the proposed path replicated.

If religion teaches self-control and compassion, then greater religiousness should correspond with higher scores on our measures of self-control and compassion (love of humanity, forgiveness, and perspective taking). In line with previous research, we predicted that greater religiousness would also correspond with lower levels of aggression. However, we predicted that self-control and compassion would mediate the link between religiousness and aggression.

In the United States, religion features prominently in the lives of most people with more than a third reporting that they attend religious services at least weekly, and 92% reporting that they believe in God or a universal spirit (Pew Forum on Religion & Public Life, 2008). Aggression represents a pervasive social problem. Homicide is a leading cause of death among youth, and violence resulted in 650,000 non-fatal injuries among youth ages 15–24 in 2013 (Centers for Disease Control and Prevention, 2015). Understanding how religiousness might contribute to lower levels of aggression would be an important step in developing interventions that curb aggressive behavior by targeting the underlying psychosocial variables.

METHODS

Participants

We describe data from waves 4–6 of data collection in a longitudinal study of religiousness and adolescent behavior. Although we have published two prior studies using the data set, there is no overlap in the results between the current study and the prior studies (Miller et al., 2013; Shepperd, Miller, Smith, & Algina, 2014). We examined data from wave 5 and 6 because they were the only waves in which we assessed compassion and aggression, and examined data from wave 4 because it occurred 6 months prior to wave 5, giving us a temporal precedence in measuring religiousness. We initially sent approximately 12,000 letters to parents of ninth-graders in school districts in central and north central Florida inviting their child to participate in an IRB-approved, online study examining religiousness and adolescent behavior. We then sent an e-mail with a personal password and link to 2,128 adolescents whose parents returned signed consent forms. Of the 1,428 people who logged into the webpage, six were ineligible based on their grade and three withdrew without completing the wave 1 survey, giving us an initial sample of 1,419 students. We contacted participants every 6 months to complete five follow-up surveys. From the original sample, 1,162 adolescents completed the survey at wave 4, 1,142 completed the survey at wave 5, and 1,040 completed the survey at wave 6 for return rates of 81.9, 80.5, and 73.3%. At wave 4, 546 (47.0%) of participants were male, 610 (52.5%) were female, and 6 (0.5%) did not report their gender. In addition, 805 (69.3%) of participants were White/Non-Hispanic, 65 (5.6%) were White/Hispanic, 88 (7.6%) were African American, 32 (2.8%) were Asian American/Pacific Islander, 115 (9.9%) self-identified as other, and 57 (4.9%) did not report their race/ethnicity. Most of our participants (n = 843, 72.5%) were 16 years old, but a handful were age 15 (n = 136, 11.7%), age 17 (n = 160, 13.8%), age 18 (n = 19, 1.6%), and age 19 (n = 3, 0.03%); 1 (0.01%) participant reported an inaccurate age. Finally, 567 (48.8%) of participants self-identified as Protestant, 152
(13.1%) as Catholic, 130 (11.2%) as Agnostic, 79 (6.8%) as Atheist, 9 (0.08%) as Hindu, 9 (0.08%) as Muslim, 15 (1.3%) as Jewish, 6 (0.05%) as Buddhist, and 94 (8.1%) as other. The remaining 101 (8.7%) participants did not respond to the religion item. Participants received $35 for completing the wave 5 survey and $15 for completing the shorter, waves 4 and 6 surveys. To avoid confusion, from hereon we refer to waves 4, 5, and 6 as Time 1, 2, and 3, respectively.

**Procedure**

Participants logged in to the survey webpage and read a brief statement that restated the purpose and duration of the study, reassured them that their responses were confidential, and again described the compensation participants would receive for completing the surveys. Next, participants completed the survey questionnaires presented in randomized blocks. To avoid an inordinate time demand on participants, we used abbreviated versions of many of our measures.

**Materials**

With the exception of religiousness and self-control, the measures described in the present study were added to the final two stages of an ongoing longitudinal study of religiousness. Because the survey already had many items, we were concerned with a decline in the quality of responses due to participant fatigue. We thus used a strategy typical of many large federally funded surveys (e.g., the National Health Interview Survey). Participants completed abbreviated versions of the four measures (love of humanity, perspective taking, forgiveness, and aggression) that we added to the survey. We also found it necessary to modify some items on the scales to be suitable for an adolescent reading level. We describe the scales and modifications below.

**Demographic items.** Demographic items assessed participants’ sex, age, ethnic background, and religion.

**Religiousness.** We measured religiousness using the RCI-A, an 11-item measure based on the Religious Commitment Inventory (RCI-10) (Worthington et al., 2003), that assesses the extent to which people follow their religious values, beliefs, and practices (Miller et al., 2013). We chose this instrument because it measured religious sentiments and behavior broadly, was applicable to all religious groups, and was generally meaningful to people who were non-religious, and was appropriate, after modification, for adolescents. The

Fig. 1. Tested path models.
RCI-A splits a doubled barreled item and uses simpler language so that it is appropriate for adolescents. In our sample, Cronbach’s α for the RCI-A was acceptable for religious participants (Cronbach’s α ≥ .96) and non-religious participants (Cronbach’s α ≥ .80) at all Time points. The scale shows good convergent, divergent, and predictive validity (Miller et al., 2013; Shepperd et al., 2014). Example items include, ‘I enjoy participating in religious activities, and I am involved in my religious group.’ Participants responded to each item on a five-step scale (1 = not at all true of me; 5 = totally true of me). It is noteworthy that the items are answerable by religious and non-religious (agnostic or atheist) adolescents alike, but that non-religious adolescents typically have scores that fall at the low end of the continuum. It was crucially important to include non-religious adolescents in our sample so that we could examine the full range of religiousness and its consequences for our proposed mediators and for aggression.

**Self-control.** We measured self-control at Time 2 by adapting 9 of 13 items from the Brief Self-Control Scale (items 1, 2, 3, 4, 7, 8, 9, 12, 13), which assesses the extent to which people can regulate their internal responses and refrain from undesirable behavior (Tangney, Baumeister, & Boone, 2004). Example items include, ‘I am good at resisting temptation, and I have a lot of will power.’ Participants responded to each item on a five-step scale (1 = not at all; 5 = very much). We modified four items from the original scale that required high reading skills and modified four of the nine items that we retained to increase the reading ease. For example, we changed one item from, ‘Sometimes I can’t stop myself from doing something, even if I know it is wrong,’ to read, ‘Sometimes I can’t stop myself from doing something I shouldn’t do.’ Cronbach’s α for the Self-Control Scale was α = .81, which is comparable to the reliability reported by the scale authors (α = .83; Tangney et al., 2004). In addition, the correlation between the five original and the four altered items was quite high (r = .69), suggesting that all items measured the same underlying construct.

We measured self-control at Time 3 using the 10 items from the Inhibition subscale of the Trait Self-Control Scale, which assesses the extent to which people can consciously resist goal-inconsistent behavior and instead engage in goal-directed behavior (Hoyle & Davisson, 2015). The Inhibition subscale items were reliable in our sample (Cronbach’s α = .83). Example items include, ‘I can deny myself something I want but don’t need, and I stop myself from doing things I know I shouldn’t do.’ Participants responded to each item on a five-step scale (1 = hardly ever true of me; 5 = nearly always true of me). The Tangney et al. self-control was included in waves 1, 3 and 5 of the larger study; the Hoyle and Davisson self-control was added after the first year of the larger study to waves 4 and 6 in recognition that it better captured the type of self-control relevant to religiousness and risk behavior. Other research finds that the two self-control scales correlate highly (r = .73; Hoyle & Davisson, 2015).

**Love for humanity.** Participants completed six items from the Love of Humanity Scale, a 21-item measure that assesses the extent to which people feel caring and concern for others, and a motivation to help others in need (Sprecher & Fehr, 2005). We chose the items with the best factor loadings. Although the scale captured the construct we wished to measure, the reading level for the items was quite high, making it necessary to modify them to make them more accessible to high school students. For example, we modified an item that read, ‘I feel considerable compassionate love for people from everywhere, to read, ‘I feel a great deal of caring for all people.’ We modified a second item from, ‘I would rather engage in actions that help others, even though they are strangers, than engage in actions that would help myself; to instead read, ‘I would rather help others, even I if don’t know them, than help myself.’ Participants responded to each item on a seven-step scale (1 = not at all true of me; 7 = very true of me). In our sample, Cronbach’s α for the Love of Humanity Scale was α = .95 at Time 2 and α = .94 at Time 3, which is comparable to the reliability reported by the original scale authors (α = .95, Sprecher & Fehr, 2005).

**Perspective taking.** We measured perspective taking using three unaltered items from the seven-item perspective taking subscale of the Interpersonal Reactivity Index, a 28-item scale that assesses the extent to which people possess dispositional empathy (Davis, 1980). The items were, ‘When I’m upset at someone, I usually try to “put myself in his or her shoes” for a while; before criticizing somebody, I try to imagine how I would feel if I were in their place; and I sometimes try to understand my friends better by imagining how things look from their perspective.’ Participants responded to each item on a five-step scale (1 = does not describe me well; 5 = describes me very well). Cronbach’s α for the three items was (α = .87) at both Time 2 and Time 3, which compares favorably with the α for the original scale reported by the scale author (α = .71 for men, α = .75 for women; Davis, 1980).

**Forgiveness of others.** The Heartland Forgiveness Scale is an 18-item measure that assesses the extent to which people possess a dispositional tendency to forgive the self, others, and situations (Thompson et al., 2005). We measured forgiveness of others with the first three items from the six-item forgiveness of others subscale. In our sample, Cronbach’s α for this scale was α = .65 at Time 2 and α = .71 at Time 3.
alphas may seem low, keep in mind that the number of items influences reliability and we assessed forgiveness with only three items. The three selected items were, Although others have hurt me in the past, I have eventually been able to see them as good people; I continue to be hard on others who have hurt me; and, If others mistreat me, I continue to think badly of them. We reverse-coded the last two items. Participants responded to each item on a seven-step scale (1 = almost always false of me; 7 = almost always true of me). The full scale shows good psychometric characteristics and correlates negatively with vengeance and hostility and positively with positive affect and cognitive flexibility (Thompson et al., 2005).

Aggression. We measured aggression with the Richardson Conflict Response Questionnaire. We used 5 of 10 items measuring direct aggression (i.e., face-to-face verbal or physical harm) and 5 of 10 items measuring indirect aggression (i.e., circuitous harm through other people or objects). Participants reported how frequently they engaged in the behavioral act when angry or upset with another person (Richardson & Green, 2003). Three items were unchanged from the original, five items were new combinations of original items (e.g., we combined items that read, Cursed at them and Yelled or screamed at them to form a single item that read, Cursed, yelled, or screamed at them), and two items were altered slightly to make them more accessible to adolescents (e.g., we changed an item that read, Told others not to associate with them; to instead read, Told others not to hang out with them). Participants responded to each item on a five-step scale (1 = never; 5 = very often). In our sample, the direct and indirect aggression items were reliable (Cronbach’s α ≥ .85) at Times 2 and 3, which is comparable to the reliability coefficients reported in prior research (rs ranged from .77 to .91 for direct aggression and from .80 to .84 for indirect aggression; Richardson & Green, 2003). It is noteworthy that the scale authors report that they successfully used abbreviated versions of the scale in their research (Green, Richardson, & Lago, 1996; Walker, Richardson, & Green, 2000).

RESULTS

Prior to testing our models, we examined whether self-control, the variables that comprise compassion (i.e., compassionate love of humanity, forgiveness of others, perspective taking), and direct and indirect aggression differ by religious affiliation (religious vs. non-religious). Further, we confirmed the factor structure of each of our measures of interest. Finally, we tested our models on the full sample then tested whether our models were invariant across religious affiliation.

The Religiousness of Religious and Non-religious Adolescents

For our purposes, we classified participants as religious if they identified themselves as belonging to a religious faith (n = 953, 82%) or as non-religious if they identified themselves as atheist or agnostic (n = 209, 18%). Not surprising, non-religious adolescents were lower in religiousness than were religious adolescents at Time 1 (M = 1.31, SD = .54 vs. M = 3.09, SD = 1.14; F (1, 1041) = 470.58, P < .001, η² = .31) and at Time 2 (M = 1.20, SD = .46 vs. M = 2.87, SD = 1.19; F (1, 993) = 346.18, P < .001, η² = .26). In addition, the reliability of our religiousness measure appeared lower among non-religious adolescents than religious adolescents at Time 1 (α = .86 vs. α = .95) and Time 2 (α = .80 vs. α = .96). The lower reliability is likely due in part to the fact that non-religious adolescents scored toward the bottom of the scale in religiousness and showed modest variability in their responses. However, the non-religious adolescents still showed variability and high internal consistency in their responding, suggesting that non-religious participants responded reliably to the items. Finally, it is noteworthy that identification as religious versus non-religious was stable across time, with 92% of participants reporting no change in religious identification over the course of the year.

Group Differences in Self-Control, Compassion, and Aggression

If religion teaches self-control and compassion, then adolescents should report higher self-control and compassion if they are religious than if they are non-religious. Table I presents mean responses to our potential mediators and to aggression separately by religious affiliation at Times 2 and 3. Consistent with predictions, at Time 2, religious adolescents, compared with non-religious adolescents, reported greater love of humanity, F (1, 992) = 28.42, P < .001, η² = .03, forgiveness of others, F (1, 989) = 4.85, P = .03, η² = .01, and perspective taking, F (1, 992) = 12.24, P < .001, η² = .01. At Time 3, we again observed differences between religious and non-religious adolescents in love of humanity, F (1, 925) = 48.22, P < .001, η² = .05, and perspective taking, F (1, 921) = 10.01, P = .002, η² = .01, and perspective taking, F (1, 923) = 4.61, P = .03, η² = .01. We observed no difference between religious and non-religious adolescents in self-control, direct or indirect aggression at either time point, all Fs < 3.09, all Ps ≥ .08, all η² < .005.

Factor Analysis

Factor analysis confirmed the factor structure of our measures of religiousness, self-control, love of
TABLE I. Mean Responses on Mediators and Aggression

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<tr>
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<th>Time 2</th>
<th>Time 3</th>
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<tr>
<td></td>
<td>Non-religious</td>
<td>Religious</td>
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<tr>
<td></td>
<td>M</td>
<td>SD</td>
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<tr>
<td>Self-control</td>
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<tr>
<td>Love of humanity</td>
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<td>Forgiveness of others</td>
<td>12.51_a</td>
<td>4.09</td>
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<td>Perspective taking</td>
<td>9.10_a</td>
<td>3.53</td>
</tr>
<tr>
<td>Direct aggression</td>
<td>10.89</td>
<td>4.38</td>
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Note: All subscripts refer to comparisons between religious and non-religious adolescent within a single time period. Means with different subscripts differ at $P < .05$. The sample size was 1,142 at Time 2 and 1,040 at Time 3. However, the sample sizes for specific comparisons varied because of missing data. See the degrees of freedom reported in the text for information relevant to the sample size for specific comparisons.

humanity, perspective taking, forgiveness of others, and direct and indirect aggression. To create a more manageable model, we treated our measures of love of humanity, perspective taking, and forgiveness of others as indicators of a second-order factor named Compassion. All factor loadings for the second-order factor were >.50.

Mediation Models

We predicted that greater religiousness would correspond with less direct and indirect aggression, and that self-control and compassion would mediate this relationship. Preliminary correlation analyses revealed that religiousness, self-control, and our three aspects of compassion correlated negatively with both direct and indirect aggression, and that religiousness correlated positively with self-control and the three aspects of compassion (see Table II). As noted earlier, religiousness was lower among non-religious than religious adolescents. However, our non-religious group included adolescents who self-identified as agnostic in addition to adolescents who self-identified as atheists. Accordingly, the mean response was not zero and non-religious adolescents responded reliably to our measure of religiousness. Because we wished to examine whether our mediators explained the effects of the full range of religiousness on aggression, we included non-religious adolescents in our mediation analyses. However, we also conducted moderated mediation to examine whether the mediation effects differed based on whether participants were or were not religious.

Testing the link between religiousness and aggression. We tested our models using MPlus6. We present the path coefficients for the direct aggression models in Figure 2 and the path coefficients for the indirect aggression models in Figure 3. For both figures, the first line of path coefficients corresponds with Model 2, and the third line of path coefficients corresponds with Model 3. In our analyses, we treated all variables as latent variables in the path models. For each of our three models and for our two measures of aggression, we first ran a model that included only the direct effect of religiousness on aggression. The standardized path coefficients ($\beta$s) and standard errors (SEs) for these models appear to the left of the first slash for the path from religiousness to aggression. As seen in Figures 2 and 3, greater religiousness corresponds with less direct aggression ($\beta$s range from $-.10$ to $-.15$) and less indirect aggression ($\beta$s range from $-.13$ to $-.14$).

Testing the role of self-control. Next, we added self-control as a mediator. We entered self-control into the model prior to compassion because the research literature more strongly supports a model in which self-control accounts for the link between religiousness and aggression. As such, we wished to examine first whether self-control alone could account for the religiousness-aggression link, and to examine second whether compassion would account for any remaining unexplained variance. For the paths from religiousness to self-control and from self-control to direct and indirect aggression, the values left of the slash represent the $\beta$s and SEs with self-control in the model. Greater religiousness corresponded with greater self-control ($\beta$s range from $+.09$ to $+.14$). Further, greater self-control corresponded with less direct aggression ($\beta$s range from $-.39$ to $-.43$) and less indirect aggression ($\beta$s range from $-.33$ to $-.41$). As predicted, the indirect effects of religiousness on both direct and indirect aggression through self-control were significant for all models (see Table III). The model samples sizes vary from the sizes of the sample that completed the survey at Times 1–3 because the structural model program (mPlus) is able to include participants with missing data (e.g., participants who completed the Time 2 survey but not the Time 1 survey).
For the direct path from religiousness to aggression, the values to the right of the first slash represent the $\beta$s and SEs after adding self-control to the model. As evident in Figure 2, self-control fully mediated the relationships between religiousness and direct aggression in Models 2 and 3 (religiousness no longer significantly predicted direct aggression) and partially mediated the relationship in Model 1. As evident in Figure 3, self-control partially mediated the relationships between religiousness and indirect aggression in all three models (religiousness continued to significantly predict indirect aggression).

**Testing the role of compassion.** Finally, we added compassion as a second mediator of the relationship between religiousness and aggression. The values in the paths from religiousness to compassion and from compassion to direct and indirect aggression represent the effects after entering compassion last in the prediction model. As seen in Figures 2 and 3, greater religiousness corresponded with greater compassion ($\beta$s range from .43 to .45), and greater compassion corresponded with less direct aggression ($\beta$s range from $-.30$ to $-.37$) and less indirect aggression ($\beta$s range from $-.21$ to $-.24$). As predicted, the indirect effects of religiousness on aggression through compassion were significant (see Table III).

In the direct path from religiousness to aggression, the values to the right of the second slash represent the $\beta$s and SEs with compassion added to the model. As evident in Figures 2 and 3, these path coefficients are no longer significant for indirect aggression and no longer significant for direct aggression in Model 1, indicating complete mediation. Surprisingly, for Model 2 predicting direct aggression, relationship between religiousness and direct aggression was non-significant when self-control was included in the model. However, the relationship became significant after we added compassion to the model. This finding suggests that compassion may suppress error variance in the relationship between religiousness and direct aggression. However, given that this finding emerged only once in our models, we believe it should be regarded cautiously.

For the paths from religiousness to self-control and self-control to aggression, the values to the right of the slash represent the $\beta$s and SEs for these paths after we entered compassion in the model. None of these paths changed appreciably and all remained significant. Moreover, the indirect effects from religiousness to aggression through self-control remained significant after entering compassion into the models.

**Moderated Mediation**

We conducted moderated mediation analyses using multi-group models in MPlus6 to test whether the

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### TABLE II. Correlations Among Predictor and Outcome Measures

<table>
<thead>
<tr>
<th>Variable</th>
<th>Religiousness (T1)</th>
<th>Religiousness (T2)</th>
<th>Religiousness (T3)</th>
<th>Direct aggression (T2)</th>
<th>Direct aggression (T3)</th>
<th>Total Aggression (Time 2)</th>
<th>Total Aggression (Time 3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Religiousness (T1)</td>
<td>1.00 *</td>
<td>.90 **</td>
<td>.89 **</td>
<td>.81 ***</td>
<td>.81 ***</td>
<td>.88 ***</td>
<td>.89 ***</td>
</tr>
<tr>
<td>Religiousness (T2)</td>
<td>.90 **</td>
<td>1.00 *</td>
<td>.90 **</td>
<td>.86 ***</td>
<td>.86 ***</td>
<td>.95 ***</td>
<td>.96 ***</td>
</tr>
<tr>
<td>Religiousness (T3)</td>
<td>.89 **</td>
<td>.90 **</td>
<td>1.00 *</td>
<td>.83 ***</td>
<td>.83 ***</td>
<td>.91 ***</td>
<td>.92 ***</td>
</tr>
<tr>
<td>Direct aggression (T2)</td>
<td>.81 ***</td>
<td>.86 ***</td>
<td>.83 ***</td>
<td>1.00 *</td>
<td>.94 ***</td>
<td>.94 ***</td>
<td>.95 ***</td>
</tr>
<tr>
<td>Direct aggression (T3)</td>
<td>.81 ***</td>
<td>.86 ***</td>
<td>.83 ***</td>
<td>.94 ***</td>
<td>1.00 *</td>
<td>.94 ***</td>
<td>.95 ***</td>
</tr>
<tr>
<td>Total Aggression (Time 2)</td>
<td>.88 ***</td>
<td>.95 ***</td>
<td>.92 ***</td>
<td>.94 ***</td>
<td>.94 ***</td>
<td>1.00 *</td>
<td>.96 ***</td>
</tr>
<tr>
<td>Total Aggression (Time 3)</td>
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<td>.96 ***</td>
<td>.92 ***</td>
<td>.95 ***</td>
<td>.95 ***</td>
<td>.96 ***</td>
<td>1.00 *</td>
</tr>
</tbody>
</table>

* $P < .05$, ** $P < .01$, *** $P < .001$
mediating role of self-control and compassion was unique to being religious. If religious affiliation (i.e., being religious or not) mattered, then the pattern of effects we observed in our model would hold for religious adolescents but not for non-religious adolescents. Across all analyses, we found no evidence for moderated mediation in our analyses. To be sure, the effects were visually weaker for non-religious adolescents than religious adolescents. However, the absence of a difference with the $\chi^2$ test suggests that

![Diagram showing mediation models with standardized path coefficients and SE (in parentheses). The three rows of numbers correspond with Models 1, 2, and 3. For the path from religiousness to direct aggression, the values left of the first slash represent the coefficients with only direct effects in the model, the values right of the first slash represent the coefficients after adding self-control to the model, and the values right of the second slash represent the coefficients with both self-control and compassion included in the model. For the paths from religiousness to self-control and self-control to direct aggression, the values left of the slash represent the coefficients with only self-control added to the model, and the values right of the slash represent the coefficients when we include both self-control and compassion in the model. $^* P < .05$, $^{**} P < .01$, $^{***} P < .001$.](image)

![Diagram showing mediation models with standardized path coefficients and SE (in parentheses). The three rows of numbers correspond with Models 1, 2, and 3. For the path from religiousness to indirect aggression, the values left of the first slash represent the coefficients with only direct effects in the model, the values right of the first slash represent the coefficients after adding self-control to the model, and the values right of the second slash represent the coefficients with both self-control and compassion included in the model. For the paths from religiousness to self-control and self-control to direct aggression, the values left of the slash represent the coefficients with only self-control added to the model, and the values right of the slash represent the coefficients when we include both self-control and compassion in the model. $^* P < .05$, $^{**} P < .01$, $^{***} P < .001$.](image)
TABLE III. Indirect Effects for the Predicted Models

<table>
<thead>
<tr>
<th>Model 1 (n = 1,241)</th>
<th>Direct Aggression</th>
<th>Indirect Aggression</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>SE</td>
</tr>
<tr>
<td>Self-control only</td>
<td>-.05***</td>
<td>.01</td>
</tr>
<tr>
<td>Both mediators</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Self-control</td>
<td>-.05***</td>
<td>.01</td>
</tr>
<tr>
<td>Compassion</td>
<td>-.15***</td>
<td>.03</td>
</tr>
<tr>
<td>Model 2 (n = 1,199)</td>
<td>Direct Aggression</td>
<td>Indirect Aggression</td>
</tr>
<tr>
<td></td>
<td>B</td>
<td>SE</td>
</tr>
<tr>
<td>Self-control only</td>
<td>-.04*</td>
<td>.02</td>
</tr>
<tr>
<td>Both mediators</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Self-control</td>
<td>-.03**</td>
<td>.01</td>
</tr>
<tr>
<td>Compassion</td>
<td>-.14***</td>
<td>.02</td>
</tr>
<tr>
<td>Model 3 (n = 1,262)</td>
<td>Direct Aggression</td>
<td>Indirect Aggression</td>
</tr>
<tr>
<td></td>
<td>B</td>
<td>SE</td>
</tr>
<tr>
<td>Self-control only</td>
<td>-.04***</td>
<td>.01</td>
</tr>
<tr>
<td>Both mediators</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Self-control</td>
<td>-.04***</td>
<td>.01</td>
</tr>
<tr>
<td>Compassion</td>
<td>-.11***</td>
<td>.02</td>
</tr>
</tbody>
</table>

Note: B = unstandardized coefficient; β = standardized coefficient. *P < .05, **P < .01, ***P < .001.

The mediation model for religious and non-religious adolescents did not differ. In short, our mediation models predicted equally well for religious and non-religious adolescents. Put another way, although non-religious adolescents scored significantly lower in religiousness than religious adolescents, they showed variability in their religiousness and that variability corresponded with variability in aggression. Moreover, self-control and compassion explained relationship between their (albeit, low) religiousness and their reports of aggression. Further analyses (not reported in the interest of space) also revealed that our findings were consistent across gender.

DISCUSSION

Consistent with predictions, greater religiousness corresponded with lower levels of direct and indirect aggression. It also corresponded with higher levels of self-control and compassion. Mediation analyses revealed that the relationship between religiousness and aggression was explained by self-control and compassion. Although self-control entirely mediated the effect of religiousness on direct aggression in two of our three models, it only partially mediated the effect of religiousness on indirect aggression in our three models. Adding compassion as a second mediator led to complete mediation. Stated otherwise, self-control and compassion together completely mediated the relationship between religiousness and aggression. We noted in the results one surprising exception to this general pattern. Adding compassion to Model 2 actually led to partial mediation, suggesting that compassion may be suppressing error variance in the relationship between religiousness and direct aggression. Because this effect occurred in only one of the models, and only for direct aggression, we urge caution in interpretation.

We found no evidence of moderated mediation. That is, the models predicted equally well for religious and non-religious adolescents. This finding is important and deserves elaboration. Non-religious adolescents were lower in religiousness than were religious adolescents. They also displayed lower means than religious adolescents in responses to all aspects of compassion at Time 2 and 3. However, even among these low religious participants, self-control and compassion accounted for the link between religiousness and aggression.

Limitations and Future Directions

The present study has several limitations. Our sample consisted of adolescents from one small region in the United States and had limited representation from non-Christian religious groups, which limits our ability to generalize. We also did not distinguish between aggression toward people who are versus are not members of one’s religious group. One might argue that religiousness mostly curbs aggression toward members of one’s own religious group.

We assessed self-control with different instruments at Time 2 and Time 3. Although it might seem unorthodox to use different measures of self-control in this study, keep in mind that the two time points are two of six waves in a larger data set. In the larger data set, we administered the first self-control at waves 1, 3, and 5. We added the second self-control to waves 4 and 6 in recognition that it better captured the type of self-control relevant to religiousness and risk behavior. It is noteworthy, however, that the two scales overlap considerably and that both explained equally well variance in the religiousness-risk behavior link. Moreover, the use of different self-control scales can be viewed as a virtue rather a liability because it demonstrates the strength of the findings. The fact that our effects replicated using different models, using two different measures of self-control and even for our non-religious adolescents (who self-identified as agnostic or atheist) suggests that our effects are quite robust.

Another limitation is that all our variables were measured, not manipulated, limiting our ability to make causal statements about the relationship between religiousness and aggression and the mechanisms of change. Finally, all our measures were self-report and we recognize that self-reported aggression, for example, is not the same as actual aggression. Indeed, it is possible that religious adolescents may have been motivated to report greater self-control and compassion and less
direct and indirect aggression because these responses are perhaps more valued in religious communities. We believe this explanation is unlikely because our model did not vary between religious and non-religious adolescents. Moreover, in a prior article using this sample, we found that controlling for social desirability concerns did not change the relationship between religiousness and socially undesirable behavior (Miller et al., 2013).

These limitations suggest several directions for future research. For example, we operationalized compassion with three measures—love of humanity, perspective taking, and forgiveness—designed to tap beliefs, such as love and concern for other people, that are a part of many religious teachings and seem incompatible with aggression. However, there are undoubtedly other psychological constructs—such as empathy, a close cousin of perspective taking—that also meet this criterion and that may absorb variance in the religion-aggression relationship equally well.

Finally, two obvious directions entail reexamining the effects we observed using different samples and including measures of behavior rather than self-reports. More interesting, however, would be studies that manipulate religiousness, self-control, or compassion. For example, psychologists have identified a number of ways to prime or accentuate aspects of identity (for a review, see Molden, 2014). Presumably, these procedures could be adapted to manipulate perceptions of personal religiousness. Consistent with this reasoning is a study cited in the introduction that noted that subtle reminders of religious concepts lead to greater self-control (Rounding et al., 2012). Needed is research that examines whether increases in self-control (and compassion) that come from situational manipulations of religiousness would eventuate in less aggression.

Implications

Our findings have several implications. If lower levels of aggression are a consequence of greater self-control and compassion, then the most obvious implication is that we may be able to curb aggression by teaching self-control and compassion. Religion is clearly one source of these attributes; the religious adolescents in our sample displayed greater compassion (although not greater control) than did the non-religious adolescents. We do not advocate religious indoctrination or training. Rather we propose that society may benefit in terms of diminished aggression by developing secular approaches to teaching self-control and compassion. To this end, we noted in our literature review several successful approaches to increasing self-control and compassion (Denson et al., 2011; Richardson et al., 1994, 1998; Stanger et al., 2012; Tsuneoka & Takano, 2011).

We began with the observation that many aggressive acts have occurred in the name of religion, suggesting that religion can serve as a justification for aggression. As our research and the research of others reveals, religiousness is also linked to greater self-control and compassion, two traits that are largely incompatible with aggression. The challenge facing society is to guide people who use religion as a rationalization for aggression toward a focus on the self-control and compassion messages of religion and how behaving aggressively conflicts with these messages. Such a redirection of attention may diminish aggressive responding and move people who are inclined to use religion as a justification for violence toward more peaceful behavior. Research we described at the outset showed that college students in the United States behaved more aggressively after reading religious passages in which God sanctioned aggressive behavior (Bushman et al., 2006). Perhaps exposure to religious passages in which God sanctioned compassion and self-control might reduce aggressive behavior.

REFERENCES


