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ARTICLE



## The links between religiousness and prosocial behaviors in early adulthood: The mediating roles of media exposure preferences and empathic tendencies

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### ABSTRACT

We examined the links among religiousness, prosocial and violent media exposure preferences, empathic tendencies, and prosocial behaviors in early adulthood. Participants were U.S. college students ( $N = 324$ ;  $M$  age = 19.5 years; 79.6% Women). While young adults' religiousness was not associated with prosocial media exposure preferences, it was negatively related to violent movie and Internet exposure preferences. In turn, violent movie exposure preference was negatively related to prosocial behaviors through perspective taking and empathic concern. Prosocial movie exposure preference was positively linked to prosocial behaviors. Moreover, religiousness was related to young adults' prosocial behavior via empathic concern. Discussion focuses on religiousness, media exposure preferences, and empathic tendencies in understanding young adults' prosocial behaviors.

### KEYWORDS

Religiousness; prosocial media; violent media; empathic tendencies; prosocial behaviors; early adulthood

Scholars have called for greater attention to media as a socializing influence of moral outcomes (Ostrov et al., 2006). While many past studies have focused on the impact of violent media on aggression (e.g., Anderson & Dill, 2000; Gentile et al., 2004; Huesmann et al., 2003), we know relatively less about the relations between prosocial media exposure and prosocial behaviors (i.e., actions intended to benefit others). Furthermore, the majority of past studies have focused on the impact of prosocial video games (e.g., Greitemeyer & Osswald, 2010) or prosocial TV on prosocial behaviors (e.g., Mares & Woodard, 2005). However, less is known about how other types of media use (e.g., movies and Internet websites) differently affect prosocial development. Moreover, few studies on the relations between media exposure and prosocial outcomes have examined intervening variables (e.g., empathic traits) that may account for such links (Anderson & Bushman, 2001; Greitemeyer, 2011). Finally, religiousness (i.e., endorsement of religious beliefs and church attendance) has been noted as a predictor of young adults' prosocial behaviors (Eisenberg et al., 2011). However, it is not clear whether young adults' endorsement of religiousness predicts prosocial or violent media exposure preferences. The present study examined the links among young adults' religiousness, prosocial and

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violent media exposure preferences (i.e., movies, online media), perspective taking, empathic concern, and prosocial behaviors.

### ***Theoretical perspectives***

Several theoretical frameworks provide explanations about how media exposure can influence young adults' prosocial behaviors. According to social learning theory (Bandura, 1977), one can learn novel actions via observation of other people's behaviors. Because this modeling process is a vital component of learning, observing positive exemplars can be an effective socializing mechanism in the expression of social behaviors (Bandura, 1977). Specifically, media exposure to prosocial actions from movies or online media can serve as a model for such actions and consequently, facilitate the observer's expression of prosocial behaviors (e.g., donating money, cooperation with teammates, helping friends, and volunteer work for a community). Observers can also watch whether or not these models' prosocial actions are rewarded or penalized (Buckley & Anderson, 2006). Thus, the way that media presents prosocial behaviors may foster or discourage one's prosocial behaviors.

Desensitization hypothesis suggests that exposure to violent media causes people to be less emotionally and psychologically reactive when they experience or witness violence and leads to a decrease in sympathy and prosocial behaviors towards others (Carnagey et al., 2007; Fraser et al., 2012). This framework, however, emphasizes repeated exposure to violent media content in understanding empathic traits and prosocial behaviors; less is known about the degree to which the desensitization hypothesis may apply to prosocial behaviors.

The General Learning Model (GLM), which was expanded by Buckley and Anderson (2006) from the General Aggression Model (GAM), also can be a useful framework that accounts for the links between prosocial or violent media exposure and prosocial actions. The GLM suggests that personal and situational variables, which are input variables, influence one's cognition, affect, and arousal that are defined as an internal state and have an influence on each other, which in turn predicts one's behaviors (Buckley & Anderson, 2006). As media exposure is a situational variable, media content (e.g., prosocial or violent content) may positively or negatively influence cognitive traits, such as thoughts, attributes, and behaviors scripts (Buckley & Anderson, 2006). Specifically, scripts that are learned from past experience can serve as guidance that interprets related contexts and offers ideas about proper behaviors in those situations (Buckley & Anderson, 2006). Media content also positively and negatively affects one's developmental outcomes through affective variables (e.g., mood and emotion) and arousal (Buckley & Anderson, 2006). Thus, the GLM underscores not only destructive effects of antisocial media on one's social behaviors but also constructive impacts of prosocial media use on one's positive outcomes, indicating that media content plays a central role in prosocial development (Greitemeyer, 2009). Overall, learning novel patterns of behaviors, internalizing those actions, and employing behaviors scripts that are learned from previous experience are all considered as important guidance of one's social behaviors (Buckley & Anderson, 2006).

### ***Links between religiousness and prosocial behaviors***

Religiousness, specifically one's dedication to religious beliefs and exercises (Li & Chow, 2015), has been proposed as a key precursor of prosocial behaviors by theoretical

frameworks of religion and morality (Saroglou et al., 2005). Researchers note that most religious teaching underscores caring for others and upholding moral principles (Hardy & Carlo, 2005; Stravrova & Siegers, 2014). Many religions also offer various motivations and chances to engage in prosocial activities and communities (Eisenberg et al., 2011). Given that most major religions place a strong emphasis on moral and prosocial values (e.g., fairness, kindness, honesty), religiousness might also influence individuals' empathic tendencies and prosocial actions (Saroglou et al., 2005).

Empirical findings suggest that religiousness is strongly associated with prosocial behaviors (see Eisenberg et al., 2006, for a review). The majority of past studies, however, focused on religiousness and pro-sociality in adolescence (e.g., Hardy & Carlo, 2005; Li & Chow, 2015). Notably, far fewer researchers demonstrated the relations between religiousness and prosocial behaviors in young adulthood (e.g., Eisenberg et al., 2011; Saroglou et al., 2005). For example, Eisenberg et al. (2011) examined trajectories of religious coping, which is considered a key role of religiousness, and its associations with prosocial behaviors from adolescence to young adulthood. The researchers found that young adults who showed high and stable religious coping were more likely to demonstrate prosocial actions, compared to young adults in other groups (e.g., low and unstable religious coping). Saroglou et al. (2005) conducted four different types of studies (e.g., laboratory and self-report studies) to test religious young adults' pro-sociality. In one study, the researchers found that highly religious college students were more likely to be altruistic and empathic, and these results were the same even when a participant's sibling and/or friend rated their pro-sociality (Saroglou et al., 2005). In another study, female college students' religiousness was positively associated with helping behaviors with known targets (e.g., family or friends) in a hypothetical situation (Saroglou et al., 2005). Overall, previous literature suggests that religious young adults are more likely to show higher prosocial actions (Eisenberg et al., 2011; Saroglou et al., 2005). Little attention, however, has been given to potential mechanisms that account for how young adults' religiousness is linked to their prosocial behaviors.

### ***Prosocial and violent media and prosocial behaviors***

Relatively consistent patterns of relations between prosocial and violent media content and prosocial behaviors have been established (e.g., Anderson & Bushman, 2001; Anderson et al., 2010; Gentile et al., 2009; Greitemeyer & Osswald, 2010; Sestir & Bartholow, 2010; Wiegman & van Schie, 1998). While violent media use reduces prosocial actions (Anderson & Bushman, 2001; Anderson et al., 2010; Sestir & Bartholow, 2010; Wiegman & van Schie, 1998), exposure to prosocial media content fosters prosocial behaviors (Gentile et al., 2009; Greitemeyer & Osswald, 2010; Mares & Woodard, 2005). For example, several experimental studies were conducted to examine the causal effect of prosocial media content on prosocial behaviors in young adulthood (Gentile et al., 2009; Greitemeyer & Osswald, 2010). Their results indicated that college students who had played prosocial video games were more likely to offer spontaneous aid to experimenters who spilled pencils, were willing to further help the researchers, and were also willing to provide help to a woman who was harassed by her ex-boyfriend (Greitemeyer & Osswald, 2010). Gentile et al. (2009) found that young adults who had played prosocial video games were more likely to help their partner choose easy puzzles that would allow their

partner to win a small gift. In contrast, Sestir and Bartholow (2010) reported that college students who were assigned to violent video games (e.g., shooting and killing enemies) were less likely to offer prosocial responses in the story and word completion tasks as compared to participants who played nonviolent games (e.g., visual puzzle). In general, previous findings suggest positive and negative influence of media content (i.e., prosocial versus violent) on young adults' prosocial development as expected.

The majority of prior research, however, mainly examined the effects of video games and TV use on prosocial behaviors (Greitemeyer & Osswald, 2010; Mares & Woodard, 2005), and we know little about whether different kinds of media, such as Internet and movie use are associated with prosocial behaviors in young adulthood. Specifically, it is important to examine the relations between online media and movie use and young adults' outcomes, given that young adults tend to spend a considerable time using Internet websites (Padilla-Walker et al., 2010; Wang et al., 2012) and watching movies during this period (Coyne et al., 2013). Moreover, social media, such as Facebook and Instagram has been widely used among young adults as a powerful and essential tool to expand and maintain their social relationships; thus, these types of online media content may be associated with their prosocial behaviors. Substantial studies, however, have explored the frequency of online media use on college students' psychosocial outcomes, rather than considering the types of online media content (e.g., Engelberg & Sjöberg, 2004; Wang et al., 2012). For example, young adults who frequently used online media were more likely to report loneliness (Engelberg & Sjöberg, 2004) and higher levels of empathic concern (Alloway et al., 2014). Thus, more research examining young adults' violent and prosocial Internet website and movie use is required to address gaps in previous studies.

### ***Perspective taking, empathic concern, and prosocial behaviors***

Scholars have placed emphasis on perspective taking (i.e., understanding others' thoughts, feelings, and situation) and empathic concern (i.e., sorrow or concern for others) as important precursors of prosocial behaviors (see Eisenberg et al., 2006). Theorists also suggest that socioemotional understanding (i.e., perspective taking) fosters empathic concern, which in turn promotes prosocial behaviors (Batson, 1991; Hoffman, 1982). Davis (1983) and Hoffman (2000) assert that both perspective taking and empathic concerns are other-oriented tendencies that facilitate sensitivity to the plight of needy others, which can result in prosocial behaviors to alleviate their own distress or the distress of others.

Consistent with these notions, there is substantial evidence that both perspective taking and empathic concern are positively related to prosocial behaviors in young adulthood (e.g., Batson et al., 1997; Carlo, et al., 2011; Eisenberg et al., 1995, 2002; Fraser et al., 2012; Matsuba & Walker, 2005; Stocks et al., 2009). In one study, Fraser et al. (2012) showed that college students who reported higher empathic concern were more likely to exhibit prosocial behaviors towards family, friends, and strangers. Other correlational studies also demonstrated that young adults' ability to understand others' thoughts and emotions was positively linked to their helping behaviors (Eisenberg et al., 2002) and altruistic, emotional, dire, anonymous, and compliant forms of prosocial behaviors (Carlo et al., 2011). In several experimental studies, college students who were assigned instructions that provoked their empathy were more likely to show kind attitudes with stigmatized people

(i.e., young women with AIDS, a homeless man) (Batson et al., 1997), as well as offer to help a person in need (Stocks et al., 2009). These findings suggest that reading others' thoughts and understanding their emotions are key components that foster young adults' prosociality.

### ***The mediating roles of media exposure and empathic traits***

While positive associations between young adults' religiousness and their prosocial behaviors have been established (e.g., Eisenberg et al., 2011; Saroglou et al., 2005), intervening variables of these relations have been less considered. Specifically, it is not clear whether or not young adults' religiousness is also related to their preferences towards prosocial or violent media exposure. Koenig et al. (2008) asserted that young adults choose what they want based on their own preferences and beliefs rather than being affected by their parents' choices. Therefore, it is important to understand the indicator of media exposure during young adulthood. For example, one might expect that strongly religious individuals are more likely to use prosocial media and less likely to expose themselves to violent media. In turn, these preferences toward prosocial and violent media exposure might influence their prosocial behaviors. To our best knowledge, there is no research that examines this issue. Thus, we aim to explore the links among religiousness, media exposure preferences, empathic traits, and prosocial behaviors in young adulthood to address the gaps in previous studies.

Empathic traits might also account for the relations between religiousness and prosocial behaviors. According to previous studies, religious people are more likely to understand others' thoughts and emotions, as well as sorrow others' distress (Hardy et al., 2012; Saroglou et al., 2005). These empathic traits are also positively associated with prosocial behaviors (see Eisenberg et al., 2011, 2006; Saroglou et al., 2005). Notably, few studies tested the indirect relations among religiousness, empathic traits, and prosocial behaviors. Thus, this issue was addressed in this study to improve our understanding of these relationships.

Finally, a few studies have demonstrated the underlying mechanisms of the links between media exposure and prosocial behaviors (e.g., Fraser et al., 2012; Prot et al., 2014). Specifically, Prot et al. (2014) conducted a cross-sectional research in seven countries and found that empathy served as an important mediator in the prosocial media use and prosocial behaviors in collectivistic cultures (China, Japan, Romania, Croatia) and individualistic cultures (the US, Australia, and Germany). Violent media use, however, was not associated with empathy and prosocial behaviors in all cultural groups (Prot et al., 2014). Fraser et al. (2012) found that college students' violent video game use was negatively associated with their prosocial behaviors with strangers, friends, and family through empathic concern. Moreover, to our knowledge, no research exists on the mediating role of media exposure in the links between religiousness and empathic traits. Thus, the present study was designed to examine these relations.

### ***The role of gender***

Prior research using cross-sectional, longitudinal, and experimental research design found no gender differences in the relations between media exposure and prosocial behaviors (Anderson et al., 2010; Gentile et al., 2009; Wiegman & van Schie, 1998). For

example, Anderson et al. (2010) conducted a meta-analysis, and they found that gender did not moderate the links between violent media use and diverse outcomes including prosocial behavior and aggression. The associations between empathic concern and prosocial behaviors also do not differ between males and females (Fraser et al., 2012). Moreover, it is not clear whether the links between religiousness and prosocial behaviors differ by gender, given that many studies did not examine the moderating effect of gender by using gender as a covariate in their studies (e.g., Hardy & Carlo, 2005; Stravrova & Siegers, 2014). Although the similar relations between the study variables were generally found across gender in prior works (Anderson et al., 2010; Gentile et al., 2009; Wiegman & van Schie, 1998), researchers indicated that there were mean differences between males and females on each study variable (Hardy & Carlo, 2005; Derntl et al., 2010). For example, females were more likely to show higher levels of religiousness, prosocial behavior (Hardy & Carlo, 2005), and empathy (Derntl et al., 2010) than males. Females were also less likely to use violent media (Padilla-Walker et al., 2010) than males. Therefore, it is important to examine whether gender plays a moderating role in the relations among religiousness, media exposure preferences, empathic trait, and prosocial behaviors.

### **Study hypotheses**

Taken together, few studies have examined how the variety of media forms are associated with prosocial behaviors in early adulthood. In addition, less is known about the underlying mechanism of these associations. We hypothesized that religiousness would be positively associated with preferences to prosocial movie and online media exposure, which in turn, would be positively related to perspective taking. In turn, high levels of perspective taking would be linked to high levels of empathic concern, which in turn would be related to high levels of prosocial behaviors. We also hypothesized that religiousness would be negatively associated with reports of violent movie and online media use, which in turn would be associated with lower levels of perspective taking. In addition, perspective taking was expected to be positively related to empathic concern, which in turn would be positively linked to prosocial behaviors. Finally, we hypothesized that religiousness would be directly positively related to prosocial behavior in early adulthood.

## **Methods**

### **Participants**

The sample consisted of 324 U.S. young adults from a public university which is not a religiously affiliated institution in the Midwestern United States. Participants included 258 women (79.6%) and 66 men (20.4%) between the ages of 18 to 27 years ( $M$  age = 19.5 years,  $SD$  = 1.1). Two hundred seventy-two participants (84%) were White/European American, and 27 participants (8.3%) were Black/African American. There were also 13 Asian/Asian American (4.0%), three Hispanic (0.9%), and eight other ethnic participants (2.5%). Most of the participants were first year (47.2%) or second year (37.7%) undergraduates. One hundred forty-five mothers (44.8%) graduated college, and



78 mothers (24.1%) graduated graduate or professional school. Also, 61 mothers (18.8%) graduated some college, and 32 mothers (9.9%) graduated high school. Six mothers (1.9%) graduated some high school. One hundred twenty-nine fathers (39.8%) graduated college, and 80 fathers (24.7%) graduated graduate or professional school. Moreover, 50 fathers (15.4%) graduated some college and 48 fathers (14.8%) graduated high school. There were also 10 fathers (3.1%) who graduated some high school.

### **Procedures**

Data came from a college survey that was conducted in 2014. Participants were recruited from undergraduate psychology courses and received extra credit. All participants completed the survey in their classrooms. Participants' completion time on this survey was approximately 45 min.

### **Measures**

#### **Control variables**

Young adults' ethnicity/race and age, as well as parental education levels, were used as control variables. Ethnicity/race was assessed using a 6-point-categorical scale (e.g., 1 = *White/European American*, 2 = *Black/African American*, 3 = *Hispanic*, 4 = *Asian/Asian American*, 5 = *Native American*, and 6 = *other*). Mothers' and fathers' education levels were measured using a 5-point-ordinal scale (e.g., 1 = *Some high school* to 5 = *Graduate or professional school*).

#### **Religiousness**

Young adults' religiousness was measured using seven items that asked participants' religious commitment and involvement (Hardy & Carlo, 2005). Participants rated the degree of their religiousness using a 5-point-Likert scale (e.g., 1 = *not at all* to 5 = *frequently or very religious*). Example items included: 'How often do you pray outside of formal services?' and 'How deeply religious in a spiritual way are you?'. Participants reported their religious denomination through the last question, 'What religious denomination (e.g., Catholic, Lutheran, Jewish, Atheist) do you belong to?' Of the participants, 41.1% are Catholic; 44% are Christian; 5.6% are Athiest; 2.6% are Agnostic; 2.0% are Jewish; 4.6% are others. Cronbach's alpha coefficient for religiousness scale was .72.

#### **Prosocial and violent media exposure preferences**

Young adults' prosocial and violent media exposure preferences were measured via six questions, respectively. This measure was derived from previous studies that examined media use and one's social behaviors (e.g., Anderson & Dill, 2000; Prot et al., 2014). First, participants were asked to list three favorite movies and three favorite Internet sites (e.g., YouTube, blog sites, website). Then, they were instructed to rate their perceptions of the frequency of helping and violent contents for each movies and Internet sites list using a 7-point-Likert scale (1 = *never* to 7 = *all the time*). A sample item included: 'Please list your three favorite movies below. Using the scale below, rate how frequently helping and violent contents occur.' The average score of helping contents in participants' three favorite movie lists was used as prosocial movie exposure preference. The average

score of violent contents in participants' three favorite movie lists was used as violent movie exposure preference. Prosocial and violent Internet exposure preference use scales were also constructed in this manner. Higher scores of this scale indicated high levels of prosocial and violent media exposure preferences. Cronbach's alpha coefficient for three-item prosocial movie scale was .76. The three-item prosocial Internet scale had an alpha coefficient of .71. The alpha coefficient for the three-item violent movie scale was .65. The three-item violent Internet scale had an alpha coefficient of .68.

### ***Perspective taking and empathic concern***

Participants' perspective taking and empathic concern were measured using seven-item subscales of the Davis Interpersonal Reactivity Index (Davis, 1983). Each subscale includes items that ask participants to rate their responses using a 6-point-Likert scale (0 = *does not describe me at all* to 5 = *describes me perfectly*). Sample items include: 'I try to look at everybody's side of a disagreement before I make a decision (perspective taking),' 'I often have tender, concerned feelings for people less fortunate than me (empathic concern).' Two items of the perspective taking subscale (e.g., 'I sometimes find it difficult to see things from the other person's point of view' and 'If I'm sure I'm right about something, I don't waste time listening to other people's arguments') and two items of the empathic concern subscale (e.g., 'Other people's misfortunes do not usually disturb me a great deal' and 'When I see someone being treated unfairly, I sometimes do not feel very much pity for them') were reverse coded. The average scores of these subscales were used in the analysis, and high scores indicate high levels. Cronbach's alphas were .77 for perspective taking and .76 for empathic concern.

### ***Prosocial behaviors***

Emotional, dire, and compliant subscales of the Prosocial Tendencies Measure-Revised (PTM-R: Carlo et al., 2003) were administered to assess young adults' prosocial behaviors. Participants were asked to rate how well the questionnaires describe them using a 5-point-Likert scale (e.g., 1 = *does not describe me at all* to 5 = *describes me greatly*). The emotional subscale consists of four items that assess engagement in prosocial behaviors when people are in emotionally evocative situations. The dire subscale includes three items that measure helping behaviors when people are in emergency situations. The compliant subscale is composed of two items that assess helping others when their assistance is requested. Sample items include: 'I tend to help others particularly when they are emotionally distressed (emotional),' 'I tend to help people who are in a real crisis or need (dire),' 'I never hesitate to help others when they ask for it (compliant).' Cronbach's alphas were .82 for emotional, .70 for dire, and .75 for compliant prosocial behaviors. As has been done in previous studies (e.g., Calderon-Tena et al., 2011), a latent variable using these three types of prosocial behaviors was created. PTM-R (Carlo et al., 2003) has been used in many previous studies (e.g., Calderon-Tena et al., 2011; Nickerson, & Mele-Taylor, 2014; Simões & Calheiros, 2016), and prior research suggested that this scale is valid to assess prosocial behaviors (see McGinley et al., 2009; Xiao et al., 2019). Moreover, Rodrigues et al. (2015) found that actual helping behaviors in experiments were associated with prosocial behaviors that were measure by the PTM-R.

## Results

### Preliminary analyses

Table 1 presents descriptive statistics and correlations among the main study variables. In general, most of the observed and latent variables were significantly related to each other. Specifically, young adults' religiousness was negatively associated with their violent movie and Internet exposure preferences. In contrast, religiousness was not related to their prosocial media exposure preferences. Religiousness was also positively related to empathic concern. Moreover, exposure preference to prosocial movies was positively related to prosocial behaviors. Prosocial internet exposure preference was also positively associated with perspective taking. Violent movie exposure preference was, however, negatively linked to empathic concern. Additionally, perspective taking was positively related to empathic concern and prosocial behavior, and empathic concern was positively related to prosocial behaviors. Furthermore, two types of media exposure preferences in both prosocial and violent parts were moderately linked to each other, which indicated that we could use these as different constructs.

### Main analyses

Structural equation modeling using STATA 14.2 (StataCorp, 2015) was conducted to examine the relationships among young adults' religiousness, prosocial and violent media exposure preferences, perspective taking, empathic concern, and prosocial behaviors. We used Full Information Maximum Likelihood (FIML) to handle missing data (see Acock, 2005). Young adults' age and ethnicity/race, mothers' education levels, and fathers' education levels were controlled as exogenous covariates to all manifest variables in the study. The exogenous variable (i.e., religiousness) and control variables were allowed to co-vary. Residuals of prosocial and violent media exposure preferences were allowed to co-vary with each other. Furthermore, the bootstrapping approach was used to test the indirect effects of media exposure preferences and empathic traits in the relations between religiousness and prosocial behaviors as many scholars have suggested (MacKinnon et al., 2007; Preacher & Hayes, 2008). Using bias-corrected bootstrap confidence intervals (CIs) provides a stronger result, especially when multiple mediators are included in the study model (Preacher & Hayes, 2008). Thus, bias-corrected

**Table 1.** Descriptives and correlations for the main study variables.

	1	2	3	4	5	6	7	8
1. Religiousness	–							
2. Prosocial movie	.09	–						
3. Prosocial internet	–.00	.18**	–					
4. Violent movie	–.23***	.10	.06	–				
5. Violent internet	–.16*	.01	.38***	.30***	–			
6. Perspective taking	.07	.08	.15*	–.10	.10	–		
7. Empathic concern	.23***	.09	.09	–.15**	–.03	.44***	–	
8. Prosocial behaviors	.06	.22**	.02	–.08	–.10	.38***	.58***	–
Mean	2.97	4.14	3.71	3.26	2.56	3.34	3.73	0
Standard deviation	.81	.09	.10	.09	.10	.04	.04	1

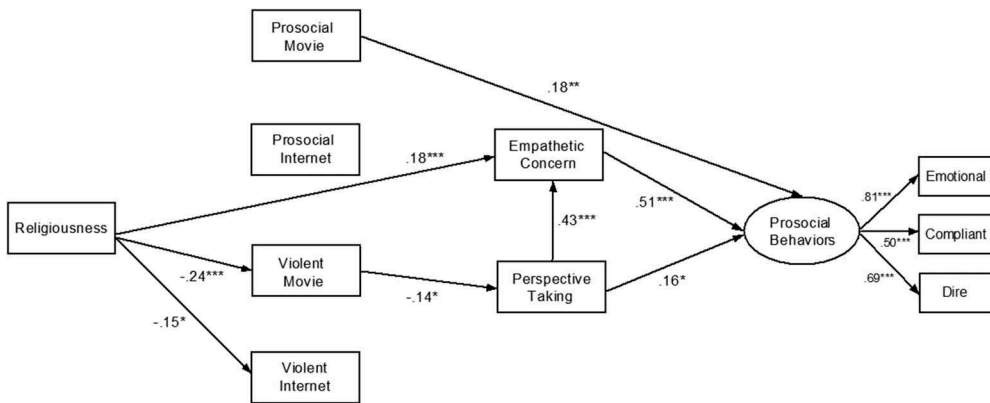
Raw means and standard deviations are presented. \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$ .

bootstrap confidence intervals were used to examine the indirect relations among the study variables in this study.

Moreover, to examine whether the models differed across men and women, multiple group analysis was conducted using FIML estimate in STATA 14.2 (StataCorp, 2015). Structural path coefficients were allowed to vary across men’s and women’s groups. Then, structural path coefficients were constrained across two groups. Chi-Square differences of these two models (i.e., the unconstrained model, the constrained model) were tested to identify whether there are significant gender differences in these relationships (see Acock, 2013). Moreover, a post-hoc power analysis was conducted to explore a power value of this study (Cohen, 1988; Soper, 2020). The current study’s predictors are 11, observed  $r^2$  is .41, probability level is .05, and sample size is 324. Observed statistical power of this study is 1.0; thus, the sample size of this study is large enough.

According to the cut-off criteria for model fit (Hu & Bentler, 1999), Tucker-Lewis Index (TLI) and Comparative Fit Index (CFI) are needed to be .95 or greater than .95. The Root Mean Square Error of Approximation (RMSEA) is also required to be .06 or less than .06 to be considered as a good model fit (Hu & Bentler, 1999).

Figure 1 shows the results for the study model. In Figure 1, only significant standardized paths were depicted. This model fit was adequate [ $\chi^2(24) = 31.47, p > .05, RMSEA = .03, CFI = .99, TLI = .95$ ]. The result indicated that young adults’ religiousness was negatively associated with their violent movie exposure preference ( $\beta = -.24, SE = .06, p < .001$ ) and violent Internet exposure preference ( $\beta = -.15, SE = .06, p < .05$ ). However, young adults’ religiousness was not associated with prosocial movie and Internet exposure preferences. Religiousness was positively related to empathetic concern ( $\beta = .18, SE = .05, p < .001$ ), which in turn was positively linked to prosocial behaviors in young adulthood ( $\beta = .51, SE = .06, p < .001$ ). Moreover, young adults’ prosocial movie exposure preference was positively related to their prosocial behaviors ( $\beta = .18, SE = .06, p < .01$ ). Violent movie exposure preference was also negatively related to perspective taking ( $\beta = -.14, SE = .06, p < .05$ ), which in turn was positively linked to



**Figure 1.** The relationships among religiousness, media exposure preferences, morality, and prosocial behaviors.

Standardized path coefficients are presented. Nonsignificant paths are not depicted. Model fit indices:  $\chi^2(24) = 31.47, p > .05, RMSEA = .03, CFI = .99, TLI = .95. * p < .05, ** p < .01, *** p < .001.$

empathic concern ( $\beta = .43$ ,  $SE = .04$ ,  $p < .001$ ) and prosocial behaviors in early adulthood ( $\beta = .16$ ,  $SE = .07$ ,  $p < .05$ ). Young adults' empathic concern was positively associated with their prosocial behavior ( $\beta = .51$ ,  $SE = .06$ ,  $p < .001$ ).

In this model, several indirect effects were found. Religiousness was indirectly associated with prosocial behaviors via empathic concern in young adulthood ( $CI = [.026, .080]$ ,  $p < .05$ ). Young adults' religiousness also indirectly predicted their perspective taking through violent movie exposure preference ( $CI = [.003, .037]$ ,  $p < .05$ ). Young adults' empathic concern also mediated the links between perspective taking and prosocial behaviors ( $CI = [.091, .162]$ ,  $p < .05$ ). Moreover, violent movie exposure preference was indirectly related to their empathic concern ( $CI = [-.036, -.004]$ ,  $p < .05$ ) and prosocial behavior ( $CI = [-.015, -.001]$ ,  $p < .05$ ) via perspective taking behaviors.

Multiple group comparisons of the model were examined. In the first stage, structural path coefficients were allowed to vary across males' and females' groups. Chi-Square differences of these two models (i.e., the unconstrained model, the constrained model) were tested to identify whether there are significant gender differences in these relationships. As a result, we did not find significant gender differences in this model,  $\Delta \chi^2 (\Delta df = 50) = 52.54$ ,  $p > .05$ .

## Discussion

We found that religious young adults were less likely to choose exposures to violent movies and Internet. In turn, violent movie exposure preference was negatively related to prosocial behaviors via perspective taking and empathic concern. Although there was no association between religiousness and prosocial media exposure preferences, young adults' prosocial movie exposure preference was directly positively linked to their prosocial behaviors. Moreover, religious young adults were more likely to be empathic towards others' situations, which in turn was positively related to their prosocial behaviors. The pattern of findings was consistent across gender. To our best knowledge, this study is the first to simultaneously examine the relations among religiousness, prosocial and violent media use, empathic tendencies, and prosocial behaviors in young adulthood and highlight the protective roles of empathic traits and religiousness.

The results indicated that young adults' religiousness was negatively associated with violent, but not prosocial, media exposure preferences. Religiousness was not related to both prosocial movie and Internet exposure preferences, which was not consistent with our expectations. According to past studies, young adults' religiousness is negatively associated with violent tendencies (Berkel et al., 2004) and risk behaviors, including deviant actions (Yonker et al., 2012). Additionally, religiousness is positively related to prosocial tendencies (Eisenberg et al., 2011). However, it is not clear whether religiousness is also related to preferences to prosocial or violent media exposure. We hypothesized that young adults' religiousness is positively related to prosocial media exposure preferences and negatively linked to violent media exposure preferences. The present findings suggest that religiousness is more likely to prevent young adults from the use of violent media. This may be due to the fact that the majority of religions emphasize strict rules that need to be kept as a religious person (e.g., the Ten Commandments of Christianity and Buddhism), and these rules contain less violent actions. Given that a number of religious teachings also underscore the notion of 'sin,' religious people might be more likely to feel guilty when they transgress religious rules. Therefore, these factors might foster religious people to avoid

violent media content. On the other hand, religious people might have less motivation to be exposed to prosocial media content because it is not their priority to manage religious life. To our knowledge, there is no study that explores the relations between religiousness and preferences to media exposure; we call for future research that addresses this issue to enhance our understanding of these relations.

Moreover, prosocial and violent media content were directly and indirectly associated with prosocial behaviors through diverse mechanisms in young adulthood. In particular, young adults who were more likely to watch prosocial movies showed high levels of prosocial behaviors. Violent movie exposure preference was also negatively related to prosocial behaviors via perspective taking and empathic concern. These results were also in line with previous findings (Anderson & Bushman, 2001; Anderson et al., 2010; Fraser et al., 2012; Gentile et al., 2009; Greitemeyer & Osswald, 2010; Mares & Woodard, 2005; Sestir & Bartholow, 2010; Wiegman & van Schie, 1998) and theories (Bandura, 1977; Buckley & Anderson, 2006). For example, Coyne et al. (2018) found that adolescents' violent media use was not associated with subsequent externalizing behavior, but was longitudinally related to their prosocial behavior via empathic concern. Another study also suggests that prosocial media content had a positive effect on young adults' helping behaviors, while young adults were less likely to be helpful after they were exposed to violent media content (Gentile et al., 2009). These results suggest that violent media content might disrupt young adults' understanding of others' minds and emotions, which in turn is less likely to show prosocial behaviors. Specifically, violent media content tends to focus less on victims' minds and emotions than prosocial media content; thus, the use of violent media might impede media viewers to take victims' perspectives and suffering. Media viewers might also internalize the violent model's immoral values and attitudes by observing the model's behaviors in the media. Furthermore, they might employ violent behavior scripts that are learned from media experience, as the GLM theory suggested (Buckley & Anderson, 2006).

Although there was no direct association between religiousness and prosocial behaviors, religiousness was indirectly positively associated with prosocial behaviors via empathic concern in young adulthood. Previous studies demonstrated positive relations between religiousness and prosocial behaviors (Eisenberg et al., 2011; Li & Chow, 2015; Stravrova & Siegers, 2014). The majority of past research, however, has not considered underlying mechanisms of these links. Thus, the present findings suggest empathic tendencies as intervening variables that explain how young adults' religiousness is associated with prosocial behaviors. According to previous literature, religious people might be more likely to comprehend others' emotions, given that moral and prosocial norms, such as fairness and respect, are central values for them (Saroglou et al., 2005). Religious people are also more likely to be given opportunities that involve prosocial activities from a religious organization (Eisenberg et al., 2006); thus, they might be more exposed to emotional difficulties of people who are in different kinds of hardships, which may, in turn, impact their motivations and actions to understand others' predicaments. Furthermore, religion places a strong emphasis on moral principles related to loving, caring, understanding, and helping others (Hardy & Carlo, 2005; Stravrova & Siegers, 2014); thus, religious people's morality, specifically focused on other-oriented emotions, might be more reinforced and internalized by religious teaching and activities.

There are limitations in the present study. Given that the current study is a cross-sectional design, we cannot make strong inferences about the causal relations among the study variables. Further longitudinal studies are needed to improve our understanding about the relations among religiousness, media exposure preferences, empathic tendencies, and prosocial behavior. Future research using experimental studies is also required to clarify the causal effects of religiousness, media exposure preferences, and empathic tendencies on prosocial behaviors in young adulthood. Moreover, participants of this study were college students; thus, it is difficult to generalize to young adults who do not attend college (Fraser et al., 2012). Specifically, it has been found that enrollment in college is affected by parental educational levels and family income (Sanderfur et al., 2006). Therefore, the links among religiousness, media exposure preferences, empathic tendencies, and prosocial behaviors might be different in young adults who do not attend college. Moreover, the sample of the present study mostly consisted of European American young adults. Racial and ethnic diverse samples are called for in future studies in order to generalize the present findings to broader populations. Finally, this study employed young adults' self-report questionnaires, thus there are concerns about common method variance and self-presentational demands. More studies that use multiple methods and reporters are needed to address this issue.

Despite these limitations, the present study has a number of strengths. While the bulk of prior studies mostly examined violent media (e.g., Anderson & Dill, 2000; Gentile et al., 2004; Huesmann et al., 2003), the current research suggests significant roles of prosocial media content, in combination with violent media content in understanding young adults' prosocial and moral development. Moreover, the study provides perspective taking and empathic concern as underlying mechanisms that may explain the relations between media use and prosocial behaviors. Furthermore, prior research on media exposure focuses on TV (Mares & Woodard, 2005) and video games (Prot et al., 2014; Greitemeyer & Osswald, 2010; Gentile et al., 2009), and few studies have examined other types of media, such as movie and online. This study addressed the gap in previous research, and the results of this study highlight the importance of movie use in understanding prosocial behaviors of young adults. Thus, the present results enhance our understanding about understudied relations among religiousness, prosocial and violent media exposure preferences, empathic tendencies, and prosocial behaviors.

### **Disclosure statement**

No potential conflict of interest was reported by the authors.

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