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Pro-Social Behavior: Contributions of Religiosity, Empathic Concern, and Spirituality

Eric Roth¹ 

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Abstract The aim of the present study is to examine the relationship between empathy, antisocial behavior, religiosity, and spirituality as causal variables of pro-social behavior. The study has also considered the influence of other variables such as age, sex, religious creed, and ethnicity in a Catholic sample of Bolivian university students. A preliminary conceptual model of empathic concern was proposed based on the studied variables. While the relationship between religiosity and pro-social behavior did not prove to be very sound, the results did show strong ties between pro-social behavior, empathy, and spirituality, revealing how these variables contribute to explaining such behavior. The output of the modeling process indicates (verified through standardized weights) that at least three of the four latent variables included in the model showed a relevant influence on pro-social behavior (empathy, religiosity, and spirituality). Anti-social behavior was dismissed as a source of an endogenous variable explanation. Although the model seems to be acceptable, some adjustments are needed to achieve a more comprehensive understanding of the empathy—a pro-social conceptual framework.

Keywords Pro-social behavior · Empathic concern · Religiosity · Spirituality

Statements such as “Don’t do unto others what you don’t want others to do unto you”, attributed to Buddha, or “Love your neighbor as yourself” of the Christian gospels¹, or “Do good to others without expecting anything in return”, and many other similar expressions shared by different religions tell us much about the importance that sacred

¹Mateo 22, 39, Lucas 10, 25–37, and Levítico 19, 18.

✉ Eric Roth
eroth@ucb.edu.bo; <http://www.ucb.edu.bo>

¹ Department of Psychology, Universidad Católica Boliviana, Av. 14 de Septiembre, 4807 Obrajes, La Paz, Bolivia

scriptures place on the need of a better and more human relationship among people: a more qualified dimension of mutual and unconditional respect.

For this reason, many researchers (Batson et al. 1993; Yodrabum 2005; Hardy and Carlo 2005) consider the religious experience, the practice of faith, instilling moral thinking, sharing, cooperating, and promoting pro-social behavior as a wide range of actions that seek to benefit one or more people (Batson 1998). On the other hand, there are reasons to believe that individuals are usually generous, cooperative, concerned, and trustworthy, and it is assumed that religious people are more likely to show such attributes. Therefore, religiosity could be considered as a predictor of kindness and understanding as well as emotional pro-social altruism (Hardy and Carlo 2005).

However, a growing number of studies question the relationship between religious practices and pro-social behavior, making it necessary to deepen its analysis and review its underlying theoretical assumptions. The existing scientific literature related to this topic is far from having achieved a full agreement on the existence of evidence for such a relationship and, rather, reveals contradictions regarding the influence of religiosity on pro-social behavior.

While there is little doubt about the relationship as such, the controversy arises when discussing the causal status of religiosity. This seems to be related to the complexities of the multidimensional nature of the pro-social theoretical construct and the notion of religiosity. For example, it is evident that some religious groups exhibit more pro-social behaviors towards the members of their own creed than towards outsiders; this is because the former believe the latter threaten the core values of their religion. This could be explained by the development of a social identity within the religious group which establishes well-defined boundaries, as it happens in any group of people who share certain characteristics that differ from others (Hunsberger and Jackson 2005; Saroglou and Galand 2004; Saroglou et al. 2005).

Saroglou (2006) points out that it would be enough if the impact of pro-social religious ethics occurred between those people whose judgments and perceptions are mutually valued and among the members of a religious group involved in a relationship of greater reciprocity. The authors advance the idea that religion promotes pro-social cooperation within culturally defined groups, and they do not necessarily support the notion that pro-social behavior should be forced indiscriminately (Iannaccone and Berman 2006; Ruffle and Sosis 2006; Saroglou 2006). As suggested by Saroglou (2006), there is no reason to expect that religion implicates heroic standards and high-cost altruistic or pro-social behavior.

In these conditions, one might expect that religiosity predicts pro-social behavior in close, intimate groups, but not in people who are not somehow related. This distinction would fit well with the evolutionary perspective of religion psychology, which points out that religions promote spaces for well-defined coalitions and alliances involving reciprocal altruism (Kirkpatrick 2005). This perspective, however, challenges the notion of unconditional and unrestricted support, commitment, solidarity, and respect, which the pro-social and religious writings demand from all. It also argues that variations in the expression of religiosity can also play an important role in the determination of pro-social behavior; thus, the exercise of a religion from a fundamentalist perspective would not only reduce the pro-social behavior towards people with different beliefs, but it would even lead to aggressive and exclusive actions towards those who do not share the creed. Therefore, religious fundamentalism would create

prejudice, discrimination, and violence (Altemeyer and Hunsberger 2005; Laythe et al. 2002). For this reason, research on the relationship between pro-social behavior and religiosity should differentiate the multiple forms of this construct.

In the same direction, a third aspect that could explain the inconsistencies in this type of research could come from overlooking the influence of other religious variables that can mediate or modulate the pro-social behavior. For example, Francis et al. (2012) found that differences in empathic behavior are not the result of religious identity (Muslim, Christian, etc.), but of the image of God that people have within the framework of these religions. Therefore, those who have the idea of a merciful and protective God express higher levels of empathy (and pro-social behavior) than those who conceived God as a righteous and severe authority.

Similarly, the spirituality of a person can interact with their religiosity and produce differential results in empathy and pro-social behavior. Bellah et al. (1985) reported the existence of two expressions of spirituality in Western societies. One is characterized by a highly individualistic position, mainly centered in “seeking self-perfection” known as “modern spirituality”; and another rather highlights the active pursuit and the construction of meaning and transcendence with a sense of connection with each other and social responsibility. The latter is closer to religiosity and is rooted in pro-social values (Dillon et al. 2003).

Given this distinction, it is possible to observe differences in pro-social attitudes and benevolence, depending on the type of spirituality which modulates religious behavior. MacDonald (2000) points out that, except in cases in which spirituality emphasizes only personal experience and does not imply commitment and social practice (Belzen (2005) explains the difference), spirituality can exert influence on religiosity and promote help behavior, solidarity, and tolerance.

The lack of consistency between the existing results on the causal relationship between religiosity and pro-social behavior might come from the method with which researchers often address this study. Batson et al. (1993) observed that it should be noted that, except for a few relevant experiments, most of the research on religion and pro-social behavior adopts procedures of pencil and paper-based measurement mechanisms. Galen (2012) adds that other methodological operations, such as the use of inappropriate controls and self-reports, can also introduce data bias and social desirability, increasing the likelihood of incorrect conclusions of these studies. Despite the response to these assumptions (see Saroglou 2012), the concern regarding the methodological difficulties persists.

Batson et al. (1993) insist that research must mainly incorporate religion or its constituent elements as independent variables should be subject to experimental manipulation, and direct measurement of pro-social behavior should be applied. Research conducted in the framework of behavioral economics, derived from game theory and experimental economics, poses today a methodological alternative to the application of traditional scales and questionnaires, introducing more rigorous measurements and conceptualization, without adding more complexity. Interesting examples are the studies of Shariff and Norenzayan (2007) and Decety et al. (2015) which used the Dictator Game, or Paciotti et al. (2011) who also applied the Confidence Game and the Public Goods Game. However, the results of these investigations are certainly more critical and less conclusive regarding the influence of religion on pro-social behavior.

Empathy and Religiosity Empathy is one of the most genuine expressions of the pro-social behavior. It is about the “natural capacity to share, understand and respond with

care to the affective states of others, plays a crucial role in much of human social interaction from birth to the end of life” (Decety 2012, p. vii). Empathy has been conceived by many authors as a primary motivational force and an essential underlying mechanism which includes affective and cognitive components. The first reflects a primary emotional response to the suffering of others and a sense of goodwill towards people. The cognitive component of empathy allows the ability of understanding pain and sorrow of others and assumes their own perspective. Early in the life, empathy is a relatively stable pattern over time and across different contexts and species (Ben-Ami Bartal et al. 2011). Finally, empathy is a reliable predictor of pro-social behavior (Light and Zahn-Waxler 2012).

Because empathy occurs very early in the life of individuals, and it is also present in some lower species, there are those who do not doubt to consider it a biological or innate condition, a characteristic which may be sufficient for its exercise. However, as it was pointed out before, it is also evident that we can find individuals who show greater or lesser degrees of empathy, which points out to some contextual influences (social and cultural) that could explain such differences. For example, people feel empathetic towards the members of the social group to which they belong, but less so to people outside the group (Meissner and Brigham 2001). In other words, the group identity (social, ethnic, national, religious, etc.) has the possibility of influencing the empathic capacity of people who share it.

As we discussed above, religious groups develop strong group identities. Therefore, it is expected that the emphatic behavior of its members would be much more evident among them than with people who are considered foreign to the group’s principles, values, and beliefs.

Therefore, research on the relationship between religiosity and empathy (to better explain pro-social behavior) has the purpose of examining some of the multiple socio-cultural influences that can affect it in any direction.

In a previous research that seeks to clarify this relationship, Hardy et al. (2012) explored the moral identity as mediator between religiosity and empathy in a sample of adolescents. Religiosity was defined as the degree of commitment expressed in interpersonal relationships. It was found that empathy was directly related to religious commitment. Likewise, religious commitment allowed predicting moral identity that could be a leading mechanism towards positive social interactions.

On the other hand, Watson et al. (1985) studied the relationships between religiosity and empathy in a sample of university students. They measured the degree of orthodoxy, altruism, empathy, religious orientation, and evaluative dependence. Data showed a clear relationship between religiosity and emotional empathy and between cognitive perspective-taking and empathy. These results help to understand the motivations of religious people in situations of need and support. In the same trend, Ayten (2013), in a sample of Turkish Muslims, found that there is an important relationship between religiosity and help-providing behavior and between religiosity and empathic disposition.

To the conception that pro-social impulses mediated by empathy are part of the individual’s genetic heritage and that religion extends this potential further, Duriez (2004) postulated that this is not always possible to demonstrate. In his research, carried out with Belgium-Flemish students, he found that the relationship between religiosity and empathy should be understood in terms of how individuals process religious

contents, instead of people being religious or not. In this way, the author verified that, while empathy was not associated with being religious, cute, or nice, it was related with the processing of the religious content in a symbolic way; and Zhao (2012) adds that it is not religion per se that influences the pro-social behavior, but rather the moral foundation that may or may not be a trait of religious people.

More recently, Decety et al. (2015) evaluated the religiosity of a group of parents in six different countries, as well as the altruism, empathy, and justice perception of their children between 5 and 12 years of age. The results showed that most religious parents reported greater empathy and sensitivity towards justice in their children, than in those less religious. However, the religiosity of parents inversely predicted the altruism of their children and correlated positively with their punitive trends. These results clearly challenge the view that emphasizes the positive influences of religion on pro-social behavior.

Moreover, Huber II and MacDonald (2012), tried to go further, and in addition to setting up a simple relationship between empathy and pro-social behavior, they incorporated the spiritual dimension as an element of mediation between both constructs. The authors argued that, although empathy and altruism are related, the spirituality of the person acts as a modulator of that relationship. It was mentioned that empathy is positively related to non-religious spirituality and religiosity and negatively related to existential well-being. Regression analysis showed that the non-religious spirituality was an important predictor of empathy and altruism. Thus, it is clear that there are influences which limit, exacerbate, and clarify the expression of empathy in such a way that its relationship with religiosity does not follow a linear or one-dimensional logic. Therefore, it seems necessary to further explore the features of the pro-social behavior, considering carefully the influences that modulate variables such as religiosity, spirituality, and antisocial behavior, in its different forms.

The Empathy-Altruism Hypothesis The empathy-altruism hypothesis stated by Batson and Shaw (1991) explains that empathic concern evokes altruistic motivation to increase that person's welfare. In this conceptual formulation, *empathy* refers to feelings of compassion, sympathy, and tenderness. On the other hand, altruism refers to a motivational state in which the goal is to increase another person's well-being, as an end in itself. In other words, "these benefits to self are not the ultimate goal of helping; they are unintended consequences" (Batson and Shaw 1991, p. 114).

Thus, the purpose of the present research is to study causal relationships between antisocial behavior, religiosity, spirituality and empathy concern, and pro-social behavior, considering also the influence of certain variables such as age, sex, religious creed, and ethnicity. The following problems guided this purpose: (a) What will be the relative contribution of antisocial behavior, religiosity, empathy concern, and spirituality to the explanation of pro-social behavior? (b) What is the predictive power of antisocial behavior, empathy, religiosity, and spirituality on the pro-social response? (c) What is the relative influence of religiosity on pro-social behavior in a sample mainly composed by practicing Catholics? (d) Would it be possible to sustain, in the present research, the empathy-altruism hypothesis supported by Batson's work? And (e), based on the variables studied in the present research, would it be possible to suggest a preliminary conceptual model of the pro-social behavior that has acceptable validity and is relatively well adjusted?

These problems derived in the following hypothesis: (a) antisocial behavior will correlate negatively with empathy, spirituality, and religiosity, predicting the lack of pro-social behavior; (b) on the contrary, empathy, religiosity, and spirituality will be good predictors of pro-social behavior; (c) empathy and spirituality would enhance religiosity to explain pro-social behavior; and (d) the relationship between empathic concern and pro-social behavior is in line with the empathy-altruism hypothesis and congruent with a multidimensional explicative model of pro-social behavior.

Method

Sample and Participants A convenient sample of 295 young university undergraduate students, aged between 16 and 28 ($M = 20.73$, $SD = 1.825$) was recruited from a local university. One hundred fifty-two were females (51.5%) and 143 were males (48.5%). Despite being a Catholic institution, 112 (38%) of the sample defined themselves as not fully Catholic or as non-practicing Catholics (15.9 non-Catholic Christian, 8.1% agnostic, 6.1% atheist, and 7.8% other religious denominations). One hundred eight-three (62%) acknowledged practicing Catholics. Additionally, 69 (23.4%) were identified as descendants of the Aimara ethnic group, and the remaining 226 (76.6%) identified themselves as non-Aimara mestizos, or of European origin.

All participants were volunteers. They were informed about the nature and purpose of the study and signed an informed consent before advancing to the data-gathering procedures. The socioeconomic status of the participants can be defined as middle-income citizens, who are residents of the cities of La Paz and El Alto (Bolivia).

Procedure The survey was conducted through the application of several scales which took approximately 45 min to an hour to complete. The scales were administered in Spanish during a regular class period. All participants offered sociodemographic and religious information.

Variables The independent variables considered in the present research were the following: (a) the sociodemographic and religious variables (age, sex, educational background, socioeconomic status, and professed religion) that were included in the first section of the testing battery; (b) antisocial behavior, measured by a well-known instrument (Elliott et al. 1989); (c) pro-social behavior, assessed with the Self-report Scale for Adult Pro-socialness (Caprara et al. 2005); (d) religiosity (frequency of religious practices and beliefs or religious experiences) which was measured by the Duke University Religion Index (Durel), (Koenig and Büssing 2010); and (e) spirituality (spiritual practices and spiritual needs), which was assessed by the Parsian-Dunning Religiosity Questionnaire (Diaz-Heredia et al. 2012).

The dependent variable was cognitive and affective empathy, measured by the Empathy Basic Scale (Jolliffe and Farrington 2006).

Measurement Instruments The statistical information concerning the instruments that were applied in the present research is described below:

Antisocial Behavior Scale—Young Adults (Cho et al. 2009). The original Antisocial Behavior Scale (ASBS) is a 16-item instrument with five response options (from 1 = *never* to 5 = *always*) measuring antisocial behavior in adolescents (lying,

stealing, and cheating). In the present study, two items were removed to adjust the ASBS to a young adult's sample. A previous research (Guillén et al. 2015) adapted the ASBS to Bolivian populations and reported sufficient reliability data (Cronbach's $\alpha = 0.935$). The construct validity cast by the exploratory factor analysis (EFA) (principal component extraction method) recommended a monofactorial scale structure, explaining 53% of the variance. The confirmatory factor analysis (CFA) estimated successfully all its parameters. For the present study, even though $\text{CMIN}/df = 3.488$, $p = .000$ did not show a good result, other indexes seemed to be more relevant: root mean square residual (RMR) = 0.035; comparison baseline indicators (CFI) = 0.963, and root mean square error of approximation (RMSEA) = 0.051.

Adults Pro-Socialness Scale (Caprara et al. 2005). The Adults Pro-Socialness Scale (APS), a 16-item scale with five Likert type response options (from 1 = *never true* to 5 = *almost true*), measured pro-social behavior (sharing, helping, taking care of, and feeling emphatic towards others). The authors found that "this [...] scale had already demonstrated very adequate psychometric qualities, including that of tapping into a single factor or trait dimension of pro-socialness, a necessary prerequisite for employing most IRT models, [...] the majority of the items were moderately discriminative and appropriate to differentiate adults with a middle level of pro-socialness" (p.87). The APS application to the Bolivian population provided the following information: Reliability analysis was acceptable with a Cronbach's $\alpha = 0.886$; EFA (principal component extraction method) recommended a three-factor scale structure, explaining 53.7% of the total variance. The results for the CFA were as follows: $\text{CMIN}/df = 190.744$, $p = .000$; RMR = 0.036; Goodness of Fit Index (GFI) = 0.927; and RMSEA = 0.060.

The Parsian-Dunning Religiosity Questionnaire (Diaz-Heredia et al. 2012), in its original version, is a 29-item scale aimed to assess three components: self-consciousness and the importance of spiritual beliefs, spiritual practices, and spiritual needs. It is a Likert type scale with five response options (from 1 = *totally disagree* to 5 = *totally agree*). The Spanish adaptation obtained an acceptable total reliability (Cronbach's $\alpha = 0.88$). The EFA recommended a four-factor scale structure, explaining 52.6% of the variance, and the CFA confirmed that the model was capable of estimating all its parameters successfully (GFI = 0.998; AGFI = 0.992; RMSEA = 0.000). In the present study, spirituality was measured only with the Spiritual Practices and Spiritual Needs subscales. Statistical values obtained from its application in the Bolivian sample, indicate a good reliability for both subscales (Cronbach's α SP = 0.76; SN = 0.79). The EFA, as expected, recommended a two-factor scale structure, explaining 44.1% of the variance, and the CFA showed the following indexes: $\text{CMIN}/df = 128.137$, $p = .000$; RMR = 0.051; GFI = 0.945; and RMSEA = 0.053.

The Duke University Religion Index (DUREL) (Koenig and Büssing 2010) is a 5-item Likert type scale, used for measuring religiosity. Authors reported a high test-retest reliability (intraclass correlation = 0.91), high internal consistence (Cronbach's $\alpha = 0.78$ –0.91), and high convergent validity with other measures of religiosity ($r = 0.71$ –0.86). The application of DUREL in the Bolivian sample reported a good general reliability (Cronbach's $\alpha = 0.87$); EFA recommended a monofactorial structure, explaining 67.29% of the variance.

Empathy Basic Scale (Jolliffe and Farrington 2006). The brief version of the EBS (Oliva et al. 2011) has nine items and it can be applied to measure global empathy; nevertheless, it can also be used to evaluate cognitive and affective empathy independently. Even though the factorial validity of this condensed version of the EBS was put in doubt by Merino-Soto and Grimaldo-Muchotrigo (2015). The EFA obtained in the Bolivian sample recommended a two-factor scale structure, explaining 58.4% of the total variance. The global reliability obtained in the Bolivian sample showed an acceptable Cronbach's alpha = 0.82, and reliability indicators for both subscales (Cronbach's alpha CE = 0.76; AE = 0.79) also seem to be adequate. The CFA reported CMIN/df = 34.413, $p = .007$; RMR = 0.041; GFI = 0.976; and RMSEA = 0.059.

Data Analysis

Data analysis followed a sequential strategy (Roth 2012; Guillén et al. 2015): After confirming both the reliability and validity of the measurement, each research question was tested and demonstrated the relationship between variables through squared chi and correlation calculation and the relationship of each variable with the dependent variable (pro-social behavior). Afterwards, a linear regression procedure was designed to identify variables with empathic concern prediction potential. Finally, a multivariate structured equation modeling was implemented to test the theoretical relevance and the latent variables corresponded to those studied with linear multiple regression analysis. In all cases, SPSS software was used, except for the structural equation modeling which used AMOS (Byrne 2009; Roth 2012).

Results

Descriptive Statistics Table 1 presents descriptive information regarding age, gender, and religious and ethnic variables. The participants of this study were divided into two wide categories: low ($n = 199$, 67.5%) and high ($n = 96$, 32.5%) pro-social behavior levels. From this table, it is clear that females ($\chi^2 = 11.33$, $p = .001$) and religious professing ($\chi^2 = 5.62$, $p = .011$) are clearly associated with higher levels of pro-social behavior. These global results are in line with contemporary theory.

The remaining variables of the study were also analyzed contrasting both levels of empathic expressions. Table 2 shows the obtained results. As it can be viewed, religiosity experience ($\chi^2 = 11.19$, $p = .001$) and profound believes ($\chi^2 = 13.99$, $p = .000$) are related with high levels of pro-sociality more so than with the frequency of religious practices ($\chi^2 = 21.56$, $p = .000$), spiritual practices ($\chi^2 = 5.68$, $p = .011$), and spiritual needs ($\chi^2 = 19.33$, $p = .000$).

Finally, as expected, low levels of pro-social behavior are consistently and significantly related with low levels of empathy ($\chi^2 = 33.11$, $p = .000$).

Correlation Analysis Table 3 shows the correlation matrix of the different variables analyzed. As it can be observed, all variables obtained positive and significant inter-correlation values, showing the close relationship between them. The exception was the antisocial behavior which, as expected, correlated negatively with all other variables.

Table 1 Age, gender, ethnicity, Religion and Pro-sociality levels of the sample

Variable/category	Low pro-social (<i>N</i> = 199)		High pro-social (<i>N</i> = 96)		Total (<i>N</i> = 295)		χ^2
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	
Age:							
17–20 years	89	44.7	50	52.1	139	47.1	$\chi^2 = 1.41$
21–25 years	110	55.3	46	47.9	156	52.9	
Gender:							
Male	110	55.3	33	34.4	143	48.5	$\chi^2 = 11.32^*$
Female	89	44.7	63	65.6	152	51.5	
Ethnicity:							
No Aimara origin	158	79.4	68	70.8	226	76.6	$\chi^2 = 2.65$
Aimara origin	41	20.6	28	29.2	69	23.4	
Religion:							
Profess a religion	164	82.4	89	92.7	253	85.8	$\chi^2 = 5.63^*$
Do not profess a religion	35	17.6	7	7.3	42	14.2	

* $p < .05$

It is also important to note the significant relationship between all variables, especially between empathy and pro-social behavior and between empathy and spiritual variables. However, high correlation indices were not so high to suspect multicollinearity.

Means Comparison Table 4 presents *t* values derived from mean scores which compare pro-social behavior in groups that exhibit different values of relevant independent variables: empathy, religiosity, spirituality, religion creed, and gender. As it can be noticed, the mean differences obtained from low and high levels of empathy, religiosity, and spirituality were important enough to throw very significant *t* values. These results indicate that having high levels of empathy, religiosity, and spirituality could also determine a greater pro-social behavior. The results also show that being empathic influences pro-sociality more than just being religious.

Additionally, the question was raised whether professing a religious faith can be a factor that increases pro-social behavior. To answer this question, the mean values of pro-social behavior were compared in two groups: those who profess and those who do not profess a religion formally. The results show a strong influence of *faith professing* in the determination of pro-social response ($t = 2.543$, $p = .011$). Finally, comparing pro-social behavior levels between males and females, confirmed once again the preeminence of women over men ($t = 3.560$, $p = .000$).

Linear Regression Analysis As it was shown, all variables incorporated in the present study proved to be significantly related with one another and with pro-social behavior. Hence, further analysis was needed. Consequently, data was tested through regression analysis, entering the following independent variables: empathy concern, religiosity, frequency of religious practices, religion beliefs, spirituality, spiritual practices, and

Table 2 Descriptive cross tabulation analysis of all variables, grouped by type, high and low pro-social behavior values, obtaining χ^2 indices

Variable/ category	Low pro-social (<i>N</i> = 199) <i>n</i> (%)	High pro-social (<i>N</i> = 96) <i>n</i> (%)	Total (<i>N</i> = 295) <i>n</i> (%)	χ^2
Religiosity (total):				
Low	99 (49.7)	28 (29.2)	127 (43.1)	$\chi^2 = 11.19^{**}$
High	100 (50.3)	68 (70.8)	168 (56.9)	
Religiosity (Frequency):				
Low	136 (68.3)	57 (59.4)	193 (65.4)	$\chi^2 = 2.30$
High	63 (31.7)	39 (40.6)	102 (34.6)	
Religiosity (beliefs):				
Low	81 (40.7)	18 (18.8)	99 (33.6)	$\chi^2 = 13.99^{**}$
High	118 (59.3)	78 (81.2)	196 (66.4)	
Spirituality (total):				
Low	153 (76.9)	48 (50.0)	201 (68.1)	$\chi^2 = 21.56^{**}$
High	46 (25.0)	48 (51.1)	94 (31.9)	
Spirituality (practices):				
Low	89 (44.7)	29 (30.2)	118 (40.0)	$\chi^2 = 5.68^*$
High	110 (55.3)	67(69.8)	177 (60.0)	
Spirituality (needs):				
Low	66 (33.2)	9 (9.4)	75 (25.4)	$\chi^2 = 19.33^{**}$
High	133 (66.8)	87 (90.6)	220 (74.6)	
Empathy				
Low	131 (65.8)	29 (30.2)	160 (67.8)	$\chi^2 = 33.11^{**}$
High	68 (34.2)	67 (69.8)	135 (32.2)	
Antisocial behavior:				
Low	185 (93.9)	94 (97.9)	279 (95.2)	$\chi^2 = 2.28$
High	12 (6.1)	2 (2.1)	14 (4.8)	

* $p < .05$, ** $p < .001$

spiritual needs, expecting to identify those variables which could predict pro-social behavior as a criterion variable.

Initially, the model included all variables without exception. The preliminary results showed that this initial arrangement was not completely satisfactory. After excluding the variables with lower standardized regression values, in a second iteration, the new model accepted only those variables with sufficient impact on the criterion variable: empathy, religiosity, and spirituality. The dependent variable was once again pro-social behavior.

Table 5 presents, in the summary, the explained variance of the second model: the adjusted R^2 explained 35.4% of the total variance of empathic concern, with an independence error (Durbin-Watson) = 1.724. Although this result is not as high as expected, the model presented a very significant ANOVA ($F = 53.890$, $p = .000$) (Table 6).

Table 3 Correlation matrix (Spearman’s rho) of research variables

	1	2	3	4	5	6	7	8	9
1. Antisocial behavior	1.000								
2. Pro-social behavior	− 0.214**	1.000							
3. Spirituality	− 0.210**	0.402**	1.000						
4. Spiritual practices	− 0.217**	0.286**	0.846**	1.000					
5. Spiritual needs	− 0.152**	0.400**	0.865**	0.496**	1.000				
6. Religiosity	− 0.103	0.265**	0.336**	0.377**	0.230**	1.000			
7. Frequency of religious practices	− 0.102	0.230**	0.292**	0.361**	0.157**	0.887**	1.000		
8. Religious beliefs	− 0.088	0.255**	0.321**	0.333**	0.256**	0.927**	0.661**	1.000	
9. Empathy	− 0.035	0.481**	0.341**	0.231**	0.357**	0.298**	0.249**	0.288**	1.000

**Correlation is significant at the 0.01 level (two-tailed)

From Table 7, it is evident that the most influential variable is empathic concern, followed by spirituality. Religiosity, on the other hand, is not a reliable predictor of pro-social behavior. The table also confirms, through collinearity diagnosis, the functional independence of the variables studied (tolerance values not below 0.839 and FIV values not above 1.348). Finally, graphic information on standardized residual analysis (ZPRED-ZRESID and P-P cumulative probability) confirmed the linearity, normality, and homoscedasticity assumptions of the model.

Table 4 *t* values obtained comparing pro-social scores with differential values of the following independent variables: empathy concern, religiosity, spirituality, religious creed, and gender

Dependent variable	Independent variables	<i>n</i>	Mean	DS	<i>t</i>	<i>p</i>	Levene’s test	
							<i>F</i>	<i>p</i>
Prosocial behavior	Empathy							
	Low	158	57.57	7.99	− 6.765	.000	0.052	.820
	High	135	63.74	7.53				
	Religiosity							
	Low	127	58.18	8.42	− 0.4105	.000	0.055	.614
	High	166	62.12	7.92				
	Spirituality							
	Low	199	58.64	8.06	− 5.551	.000	0.168	.682
	High	94	64.17	7.73				
	Religious creed							
	Yes	251	60.91	8.38	2.543	.011	0.875	.350
	No	42	57.40	7.62				
	Gender							
	Male	143	58.65	8.76	− 3.560	.000	1.137	.287
Female	151	62.06	7.62					

Table 5 Model summary of variance proportion values explained by the multiple regression model

<i>R</i>	<i>R</i> ²	Adjusted <i>R</i> ²	S.E.	Durbin-Watson
.604 ^a	.365	.354	6.730	1.724

Dependent variable: pro-social behavior

^a Predictors: (constant), empathy, religiosity, and spirituality

In sum, using the enter method, a significant model ($F(3289) = 53.890, p < .000$) has been obtained with an R^2 adjusted = 0.354 with the following significant variables (see Table 8):

Multi-Causal Model of Pro-Social Behavior Once the relationship between research variables (including antisocial behavior) was verified, their mean differences between its divergent values confirmed and their predictive orientation identified, it was decided to test the formulation of a multi-causal model that could explain the empathic concern of the university student's sample, mostly comprised by Catholics. The pattern of the relationship between the study variables was examined by means of a structural equation modeling (Bentler 2005; Byrne 2010), using an IBM-AMOS program. The proposed explanatory model is presented in Fig. 1.

Based on classical approaches, the model postulated that the empathic concern and spirituality variables would have a clear effect on the pro-social behavior. Also, it was hypothesized that the religiosity construct would enhance the influence of these variables. Moreover, it was assumed that antisocial behavior would reduce any effect on the endogenous variable.

According with the model's goodness of fit, a relatively well-adjusted structure was obtained, corroborated by the following fit indices: Although the $CMIN/df = (\chi^2 = 1.587, p < .001)$ resulted insufficient, comparison baseline indicators ($CFI = 0.886$) were acceptable, as well as the Goodness of Fit Index ($GFI = 0.803$). Moreover, the $ECVI = 7.6$ confirmed a Parsimony-like model, and the $RMSEA = 0.045$ also offered a good fit.

The estimated results of structured equation modeling (significant beyond the 0.05 level, with the exception of antisocial behavior) are summarized in the path influence diagram in Fig. 2.

The output of the process, verified through standardized weights, indicates that, of the four latent variables included in the model, three showed a relevant influence on the pro-social behavior variable (empathic concern = 0.52; religiosity = 0.09; and

Table 6 General model analysis of variance with *F* value highly significant

Model	SS	<i>df</i>	MS	<i>F</i>	<i>p</i>
Regression	7319.215	3	2439.738	53.890	.000 ^a
Residual	13,083.815	289	45.273		

Dependent variable: pro-social behavior

^a Predictors: (constant), religiosity, empathy, and spirituality

Table 7 Standardized beta coefficients, *t* values, and collinearity indicators related to the model

Model	<i>B</i>	SE	β	<i>t</i>	<i>p</i>	Tolerance	VIF
(Constant)	25.530	3.011		8.478	.000		
Empathy	0.569	0.071	0.415	8.068	.000	.839	1192
Spirituality	0.202	0.100	0.202	2.008	.046	.219	1348
Religiosity	0.090	0.075	0.062	1.206	.229	.839	1192

Dependent (criterion) variable: pro-social behavior

spirituality = 0.25). The influence of antisocial behavior was dismissed as a source of endogenous variable explanation. The modeling also showed significant covariance between empathic response and religiosity (0.15), between pro-social behavior and spirituality (0.13), and a significant negative covariance (− 41) between empathic concern and antisocial behaviors.

Finally, the squared multiple correlation estimate confirmed that the three latent variables postulated by the model (empathy, religiosity, and spirituality) would explain 48.3% of the total variance of pro-social behavior.

Discussion

This preliminary model seems to confirm the strength of empathic concern and gives us a clear idea about its influence on pro-social behavior. These results are in line with the contributions of Batson et al. (1993) and Batson (1998). Also, the results of the present research replicated only partially the findings of Yodrabum (2005) and of Hardy and Carlo (2005), which supported the assumption that religiosity directly or indirectly enhances or favors the pro-social behavior, identifying religiosity as a reliable predictor of pro-sociality. In the present study, the influence of the religiosity variable seems to be very small and irrelevant.

On the other hand, the proposed model suggests (with MacDonald 2000) that leading a spiritual life centered on people is also a condition that influences the empathic response and enhances pro-social behavior.

Additionally, in this model, antisocial behavior, which correlated negatively with empathy, spirituality, and religiosity, lacks influence on the endogenous variable and inhibits it. There is evidence supporting the argument that empathic concern and positive emotions are reliable inhibitors of proactive aggressive behavior (Euler et al. 2017; Cristina-Richand and Mesurado 2016). Hence, it is possible to support that

Table 8 Beta and *p* values of relevant predictors in the regression analysis modeling

Predictor variables	β	<i>p</i>
Empathy	0.415	.000
Spirituality	0.202	.046

Criterion variable: pro-social behavior

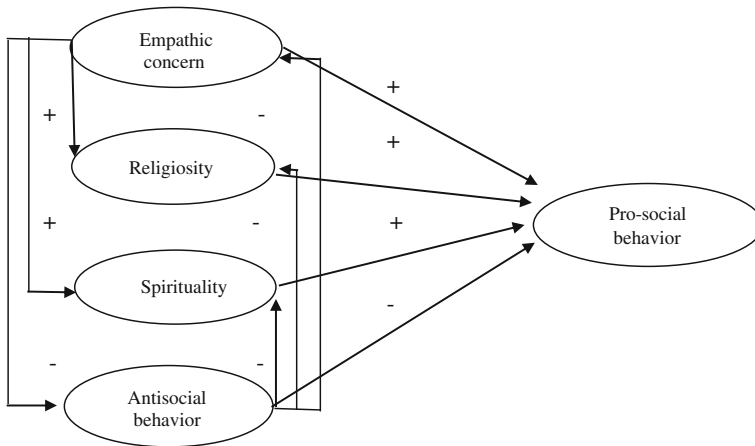


Fig. 1 Hypothetical causal structure through which latent variables affect pro-social behavior

antisocial behavior could negatively affect empathic behavior (Marshall and Marshall 2011) and perspective-taking (Yavuz et al. 2016).

Likewise, the model suggests antisocial behavior as a means to reduce or limit the religiosity and spiritual expressions, and such effect would impact negatively on the pro-social response. Furthermore, Simons et al. (2004) reported that parents with a strong religious orientation reduce the probability of child misconduct by promoting religious commitment in their children, thus, decreasing the probability that children would get involved in delinquent behavior. Laird et al. (2011) informed of more frequent antisocial and rule-breaking behavior among adolescents with low religious commitment, compared to adolescents reporting high religious involvement. Koenig et al. (2007) confirmed religiousness as a protective factor against antisocial behaviors and as a positive influence on pro-social behaviors.

Yonker et al. (2012) conducted a meta-analytic review of the spiritual effects on late adolescence across 75 studies. Results showed significant main effect sizes of

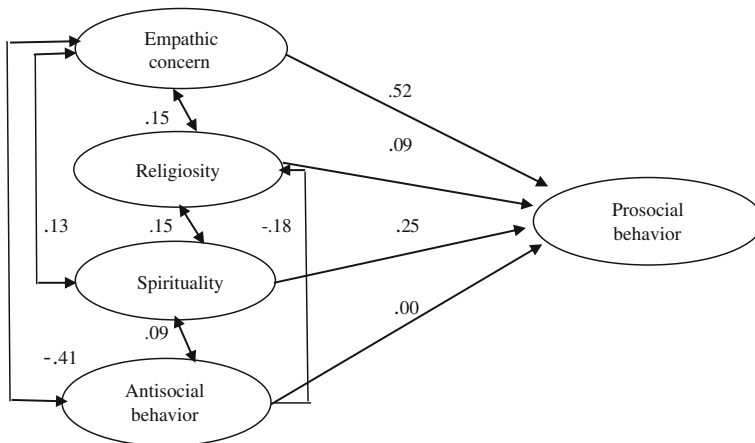


Fig. 2 Path diagram with the variables affecting pro-social behavior. The numbers correspond to standardized regression weights and covariates

spirituality and religiosity, with several outcomes in risk behavior and well-being, concluding that involvement in spiritual development would be a protective factor.

Regarding mutual influences between antisocial behavior and spirituality in a Latin-American country, Salas-Wright et al. (2013) suggested that spirituality and, to a lesser extent, religious coping protect Salvadoran youths of the risk of getting involved in delinquent behavior.

Finally, the model derived in the present study offered a hierarchy of variables influencing empathy and contributes to the understanding of the pro-social response. Similarly, religiosity and spirituality also showed causal influence, although in a lesser degree.

The theoretical model proposed suggests that, indeed, empathy and spirituality are determinants of pro-social behavior and influence it in causal terms. This could mean that the results are in line with what has been established by the mainstream theory, whose wealth of information supports the contemporary research evidence. However, at this point, we must remember the suggestion of Batson et al. (1993) that warns about the methodological trend that privileges, in this type of research, the use of paper and pencil-based measures, susceptible to social desirability bias, and that recommends the practice of experimental direct manipulation in game situations derived from behavioral economics. It is likely that, as it was demonstrated by Decety et al. (2015), the use of new methodologies will take into account new relationships so far unexplored. Finally, it must be recognized that the lack of representativeness of the sample in this study is an aspect that limits the scope of the results and forces us to be cautious about our conclusions.

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