Relationships between religion, moral foundations, and environmentalism in young adult Catholics

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Abstract

The purpose of this study was to examine the mediating role of moral foundations in the relationship between religion and environmentalism. The online survey data was collected from 616 young adult Catholics from Poland aged 19–25, who are likely to be affected by climate change more than any other generation before them. Regression analysis showed that the relationship between religion and environmentalism can be predicted by the opposing paths of spirituality (positively) and religious fundamentalism (negatively). Analysis of multiple mediator models showed that the relationship between religion and climate care can be mediated by complex moral profiles that can influence each other and jointly contribute to the development of environmentalism. Analysis of specific indirect effects showed that care/harm and fairness/cheating play a special role in promoting climate care. The results suggest that religious attitudes, along with moral values, may play a significant role in solving climate problems.

Keywords Environmentalism · Moral foundations · Religion · Spirituality · Religious fundamentalism

1 Introduction

More than half of the global population claims to be religious, with one of the world's leading religions being Christianity (Hill et al., 2000). For these individuals, religion is considered a system that provides meaning to individuals' lives (Park, 2005), as well as a coping mechanism (Koenig et al., 1998). On the other hand, it is a source of moral beliefs and values, and thus can have a strong influence on attitudes toward the environment and climate change (Tucker & Grim, 2001; White, 1967). Although a number of studies have shown that people who identify with a Christian religion manifest less concern for the environment than non-religious people, mainly through external attribution of responsibility for climate change (Chung et al., 2019; Davis et al., 2019; Eom et al., 2021), the assumption that religiosity is exclusively opposed to concern for the environment has been challenged by many researchers (e.g., Djupe & Hunt, 2009; Muñoz-García, 2014). Recent findings indicate that the paradox of religious environmentalism,

in which religion has both positive and negative effects on pro-environmental behavior, is explained by the opposing and separate influences of spirituality and religious fundamentalism (Shin & Preston, 2021; Skalski et al., 2022).

Most conceptualizations define spirituality as a multidimensional phenomenon, and their most common denominator is reference to transcendence (Cloninger, 2004; Piedmont, 2007). In the present study, spirituality is defined as the personal heuristics used to make sense of a person's time-limited existence, which involves belief in a sacred higher power and the capacity for self-transcendence (Kira et al., 2021a, 2021b).

Religious fundamentalism, on the other hand, is associated with advocating the imposition of one's dogmas (as a framework that defines what is allowed and what is forbidden) on society as a whole and society-wide obedience to one's own infallible sacred texts (Altemeyer, 2009). The specific form of 'religiosity' that characterizes fundamentalists determines their opposition to secular legislation and their treatment of representatives of their own movements as a chosen elite, as well as their selective choice of those elements of tradition that should be given special emphasis and those aspects of modernity that are acceptable and exploitable (Beeman, 2001).

Religious fundamentalist dogmas reinforce climate change denial and thus negatively predict ecological behavior, spirituality reflects a personal relationship to the divine, so it can encourage greater concern for the climate and environment through empathic compassion for others (e.g., stronger moral associations with empathy) and universal pro-social concerns (Bradley, 2009; Preston & Shin, 2022; Saroglou et al., 2005).

Religion as an integral part of the lives of many people around the world is particularly prominent in the context of the formation and development of human morality (Friesen, 2019). Among the theories proposed to describe the variability of moral values, the moral foundations theory has proved to be particularly influential (Graham et al., 2013). The conceptualization assumes the existence of five foundations to evaluate behavior as moral or immoral: 1. *Care/harm*, which refers to the principle of not harming others and helping those in need; 2. *Fairness/cheating* referring to the principles of reciprocity (a sense of obligation to return the favor) and condemnation of those who benefit from the help of others but do not reciprocate it; 3. *Loyalty/betrayal* referring to the principles of loyalty and commitment to one's group and condemning traitors; 4. *Authority/subversion*, which is related to respect for hierarchy, norms and traditions (based on emotions of respect and fear); and 5. *Sanctity/degradation* referring to treating one's body as a 'temple' and reacting with revulsion to anything that might contaminate it, as well as controlling one's bodily impulses. The above foundations are independent of one another. This means that behavior can be considered moral from the point of view of one foundation and at the same time immoral from the point of view of another one. These five moral foundations are grouped into two broader categories of moral intuitions. *Care/harm* and *fairness/cheating* are known as individualizing morals because they refer to the way individuals relate to one other. The remaining foundations are known as binding morals, as they refer to the morality needed to bind groups together to function optimally in larger groups and institutions. The moral foundations theory (Haidt, 2012) and related empirical work have provided reliable measures of individuals' moral profiles, providing a robust framework for understanding how moral judgments shape human attitudes, intentions and behavior (Graham et al., 2011).

Previous research has shown that individual differences in the validity of particular moral foundations (based on generalized moral intuitions) may be associated with different conservation attitudes and actions (Bamberg & Möser, 2007; Dickinson et al., 2016; Farrell, 2011; Feinberg & Willer, 2013). The relationship between morality and the environment is most

often explained through the norm activation theory of altruistic behavior by Schwartz (1977). The theory defines personal norms as a sense of moral obligations to behave in a favorable (rather than harmful) manner toward others. Altruistic behavior is the result of people assigning responsibility for their actions and understanding that their actions can have consequences for the well-being of others (a sense of moral obligation). In previous research, the norm activation theory has helped explain why some people are more inclined to pro-environmental behavior than others (Bamberg & Schmidt, 2016; Hopper & Nielsen, 2016; Liere & Dunlap, 1980; Milfont et al., 2009; Schultz & Zelezny, 1999; Stern et al., 1985).

Both the norm activation theory and literature on morality suggest that most of the moral basis for caring about the environment can be attributed to *care/harm*, but also to *fairness/cheating* (Farrell, 2011; Graham et al., 2013; Milfont et al., 2019). In other studies, these two individualizing moral foundations have been associated with positive feelings toward environmentalists and vegetarians (Graham et al., 2011; Karpiak & Baril, 2008). Koleva et al. (2012) found that while political liberalism is a leading determinant of attitudes toward global warming, *care/harm* and *fairness/cheating* are also positive independent predictors of the belief that those in power should impose limits on carbon emissions to stop the effects of global warming.

Moral judgments can be culturally conditioned (Prinz, 2011) and also change with age (Friesen, 2019). In such a situation, it seems particularly interesting to learn about the mechanisms related to the moral values underlying the relationship between religion and environmentalism among young adults in developed or economically developing countries and at the same time with low environmental awareness. Poland is such an example, where environmental protection is far less often perceived as a problem area compared to other European Union states (Baran, 2017). The special attention given to young adults, on the other hand, is due to the fact that this is the generation most likely to be affected by climate change more than any other generation before it. On the other hand, young adults, as the future working population (or those just starting their careers), will have a major impact on environmental protection and the measures taken for environmentalism. Since 80% of Poles declare themselves to be Catholics (Dobrakowski et al., 2021), in this study we focus exclusively on the Christian religion, and more specifically on Catholicism believers.

Although the moral foundations theory has proven fruitful in predicting pro-environmental behavior, little is still known about how moral profiles interact with religious environmentalism. In a recent study, Preston and Shin (2022) noted that certain moral foundations can enhance the positive effect of spirituality on pro-environmental attitudes. The effects obtained by the authors focused on the mediating role of individualizing foundations, which are conceptually similar to the phenomena of empathy for others and emotional empathy (Preston & Shin, 2022). Earlier, Preston et al. (2010) noted that all religious traditions endorse some version of the golden rule, according to which one should treat others the way one would like to be treated oneself, and these central pro-social values are a strong predictor of climate care. For Christians, the Bible includes the parable of the Good Samaritan (Luke 10: 25–37), which extols the virtues of kindness and altruism, while Islam requires followers to pay zakat (welfare tax) to the poor and needy (Khan, 2011). Since spirituality leads to empathy and concern for the welfare of others (Chau et al., 1990; Watson et al., 2010), it is reasonable to assume that its positive associations with environmental concern and ecological behavior will be explained by individualizing moral foundations (hypothesis 1). Conversely, religious fundamentalism, which is associated with community-wide obedience, should develop binding morality, while *care/harm* and *fairness/cheating* can reduce its negative impact on variables related to caring for the environment (hypothesis 2).

Since a single topic such as climate change can be simultaneously considered from the point of view of several moral foundations (they are independent of one other), it is likely that people's behavioral intentions will result from complex moral profiles. In such a situation, including all five foundations in the same mediation model (despite the above hypotheses) may provide a better understanding of how general moral values along with spirituality and religious fundamentalism are related to environmental concern and ecological behavior (see Fig. 1). Moreover, according to Preacher and Hayes (2008) a multiple mediator model that allows simultaneous testing of mediators can reduce the likelihood of parameter error due to omitted variables. In addition, the multiple mediator model is more precise and simplified than separate simple mediation models.

2 Materials and methods

2.1 Participants and procedure

The study was conducted with the approval of the Ethics Committee of the Institute of Psychology of the Polish Academy of Sciences in Warsaw (# 14/05/2021). It involved 616 Poles, of whom 47% were women. The mean age of participants was 22.15 ($SD = 1.68$). Inclusion criteria were 19–25 years of age (young adulthood) and Catholic religious faith (both conditions were verified based on the participant's self-report). The study was conducted in May 2022 via the Prolific survey panel (data was collected in Google Forms and then exported to an aggregate data sheet excluding identifying data). The study procedure included completing questionnaires measuring spirituality, moral foundations, environmental concern, and ecological behavior. The average time to finish the questionnaires was 15 minutes. Participants were paid £2.50 for participation in the study.

2.2 Measures

The Interfaith Spirituality Scale (IFS) by Kira (2021) in the Polish version (Surzykiewicz et al., 2022) was used to assess spirituality, understood as a sense of direct relationship with one's creator and the ability to transcend oneself. The IFS consists of 22
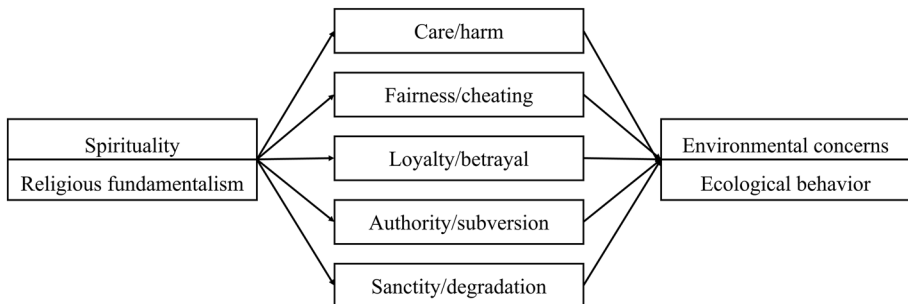

Fig. 1 Tested multiple mediators model

statements arranged into four factors: 1. *Direct connection with the creator* ($\alpha=0.97$), which means feeling a sense of the creator's existence (God for Catholics) in our life and having a relationship with him; 2. *Asceticism* ($\alpha=0.91$) refers to self-discipline and virtue, such as reducing one's love of material things in favor of deepening spirituality; 3. *Meditation* ($\alpha=0.83$), which describes perceptions of nature and silence, provoking reflection and the search for knowledge about human existence; and 4. *Divine love* ($\alpha=0.81$) describes the perception of the creator's love for us and the expression of our love for him. The above four factors cluster into a second-order factor ($\alpha=0.96$). The participant responds on a four-point Likert scale: one = "Disagree" and four = "Agree." Sample items include: "My feeling of direct connection with my creator gives me a sense of inner peace;" "I meditate about the miracle of creation and the meaning of existence."

The Religious Fundamentalism Scale (RFS) by Altemeyer and Hunsberger (1992) in Polish standardization (Besta & Blazek, 2007) was used to assess religious fundamentalism. The RFS measures the beliefs and practices of organizing the world used by religious fundamentalists and does not refer to political ideology or party preferences. The questionnaire consists of 20 items arranged into one factor ($\alpha=0.90$). The participant responds on a nine-point Likert scale: one = "Strongly disagree" and nine = "Strongly agree." Sample items: "The long-established traditions in religion show the best way to honor and serve God, and should never be compromised;" "Religion must admit all its past failings, and adapt to modern life if it is to benefit humanity."

The Moral Foundations Questionnaire (MFQ) by Graham et al. (2011) in the Polish version (Jarmakowski-Kostrzanowski & Jarmakowska-Kostrzanowska, 2016) was used to assess moral foundations in moral decision-making. This 30-item questionnaire measures the five dimensions of morality that Moral Foundations Theory (Graham et al., 2013) proposed: *care/harm* ($\alpha=0.69$; e.g., "Compassion for those who are suffering is the most crucial virtue"); *fairness/cheating* ($\alpha=0.60$; e.g., "When the government makes laws, the number one principle should be ensuring that everyone is treated fairly"); *loyalty/betrayal* ($\alpha=0.70$; e.g., "It is more important to be a team player than to express oneself"); *authority/subversion* ($\alpha=0.68$; e.g., "Respect for authority is something all children need to learn"); and *sanctity/degradation* ($\alpha=0.84$; e.g., "I would call some acts wrong on the grounds that they are unnatural"). The *care/harm* and *fairness/cheating* foundations reflect individualizing foundations; the *loyalty/betrayal*, *authority/subversion*, and *sanctity/degradation* foundations reflect binding foundations. The MFQ consists of two parts. In the first section, participants were asked how relevant to their moral decision-making various considerations are, and they responded on a six-point Likert-type scale: one = "Not very relevant" and six = "Extremely relevant" (e.g., "Whether or not someone cared for someone weak or vulnerable", which loads on the *care/harm* scale). In the second section, participants responded to statements on a six-point Likert-type scale: one = "Strongly disagree" and six = "Strongly agree" (e.g., "People should be loyal to their family members, even when they have done something wrong", which loads on *loyalty/betrayal*).

The Environmental Concern Scale by Diekmann and Preisendörfer (2003) in Polish standardization (Skalski et al., 2022) was used to assess environmental concerns. The questionnaire consists of nine statements arranged into one factor ($\alpha=0.81$), which includes cognitive, affective, and conative components. The participant responds on a five-point Likert scale: one = "Strongly disagree" and five = "Strongly agree". Sample items: "Watching TV or reading in the newspaper about environmental problems, I am often embarrassed and angry"; "Environmental protection measures should be carried out, even if it reduces the number of jobs in the economy".

The Pro-environmental Behavior Scale by Preisendörfer (1998) in the Polish language version (Skalski et al., 2022) was used to assess ecological behavior. The scale consists of 16 statements arranged in one factor ($\alpha = 0.79$) that define ecological behavior related to purchasing, energy and water saving, recycling, and mobility. In the Polish version of the scale, the participant responds on a five-point Likert scale: one = "Definitely not" and five = "Definitely yes". Sample items include: "Did you take your last holiday trip without a car/airplane?"; "Do you recycle batteries?".

2.3 Statistical analyses

Data analysis was conducted in IBM SPSS Statistics 27 and Hayes PROCESS macro. Pearson's correlation analysis was used to determine the relations between variables. The significance level was determined at $p < .050$. The effect size was assessed based on R^2. The approach introduced by Preacher and Hayes (2008) was followed to test mediation effects in the context of multiple mediator models (model 4 in PROCESS macro). Specifically, total indirect effects and specific indirect effects were both examined. A total indirect effect is the mediation effect of the set of mediators. A specific indirect effect is the unique mediator effect of a mediator above and beyond other mediators in the model. Bias-corrected bootstrapped 95% confidence intervals of the indirect effects were derived from 10,000 bootstrapped samples. A mediated effect is considered significant if the interval does not include zero. The bootstrap method is preferred over other ways as it has a lower type I error rate and has greater power to detect mediation (MacKinnon et al., 2004).

3 Results

Among the dimensions of spirituality, the lowest mean values were obtained in direct connection with the creator, while the highest was in meditation. For the moral foundations, the lowest mean values were obtained in *authority/subversion*, while the highest in *care/ harm*. The means are presented in Table 1. The means represent the sums of the scales/sub-scales divided by the number of statements in each factor. This allows interpretation of the levels of phenomena in the sample in the same units as the original Likert response scale for each item (see Measures).

Correlation analysis showed statistically significant positive links between spirituality and its four dimensions (*direct connection with the creator*, *asceticism*, *meditation*, *and divine love*) with religious fundamentalism, all five moral foundations (*care/harm*, *fairness/cheating*, *loyalty/betrayal*, *authority/subversion*, and *sanctity/degradation*), environmental concern, and ecological behavior. Religious fundamentalism correlated negatively with moral foundations such as *care/harm* and *fairness/cheating*, environmental concern, and ecological behavior, and positively with *loyalty/betrayal*, *authority/subversion*, and *sanctity/degradation*. Of the moral foundations, *care/harm* and *fairness/cheating* were significantly positively related to environmental concern and ecological behavior. In addition, *authority/subversion* was negatively associated with environmental concern and ecological behavior. The remaining relationships are shown in Table 1.

Gender (0 = male, 1 = female) was positively associated with *care/harm* ($r = .11$, $p = .006$), *fairness/cheating* ($r = .15$, $p < .001$), environmental concern ($r = .19$, $p < .001$), and ecological behavior ($r = .10$, $p = .013$), and negatively with *loyalty/betrayal* ($r = -.09$, $p = .026$) and *authority/subversion* ($r = -.08$, $p = .047$).

Table 1 Means and correlations (N = 616)

	M (SD)	1	1.1	1.2	1.3	1.4	2	3	4	5	6	7	8
1. Spirituality	1.85 (0.69)	–											
1.1. Direct connection with the creator	1.58 (0.81)	0.89***	–										
1.2. Asceticism	1.77 (0.72)	0.82***	0.61***	–									
1.3. Meditation	2.19 (0.61)	0.87***	0.64***	0.73***	–								
1.4. Divine Love	1.86 (0.62)	0.87***	0.88***	0.63***	0.65***	–							
2. Religious fundamentalism	2.58 (1.15)	0.48***	0.57***	0.25***	0.28***	0.61***	–						
3. Care/harm	4.73 (0.83)	0.22***	0.12**	0.27***	0.28***	0.10*	−0.14***	–					
4. Fairness/cheating	4.69 (0.70)	0.10*	0.09*	0.16***	0.23***	0.08*	−0.35***	0.67***	–				
5. Loyalty/betrayal	3.44 (0.88)	0.32***	0.28***	0.26***	0.28***	0.30***	0.39***	0.13**	−0.02	–			
6. Authority/subversion	3.06 (0.92)	0.31***	0.30***	0.22***	0.22***	0.33***	0.45***	−0.04	−0.14***	0.66***	–		
7. Sanctity/degradation	3.23 (0.93)	0.52***	0.50***	0.39***	0.42***	0.52***	0.49***	0.13**	0.01	0.57***	0.64***	–	
8. Environmental concern	3.55 (0.57)	0.13**	0.10*	0.16***	0.17***	0.08*	−0.18***	0.42***	0.42***	−0.05	−0.13**	0.01	–
9. Ecological behavior	3.52 (0.67)	0.08*	0.09*	0.16***	0.14***	0.08*	−0.12**	0.26***	0.29***	−0.02	−0.08*	0.02	0.46***

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

Table 2 The mediating role of moral foundations in relationships between spirituality/religious fundamentalism and ecological outcomes (N=616)

	a Path			b Path			c Path			c' Path			Indirect effect and B (SE)	95% CI lower upper
	B	SE	β	B	SE	β	B	SE	β	B	SE	β		
Model A/predictor: spirituality, outcome: environmental concern														
S → CH → EC	0.27	0.05	0.22***	0.17	0.03	0.24***	0.11	0.03	0.13**	0.07	0.04	0.09*	0.045 (0.013)	0.021; 0.073
S → FC → EC	0.10	0.04	0.10*	0.19	0.04	0.24***							0.019 (0.009)	0.003; 0.039
S → LB → EC	0.41	0.05	0.32***	−0.04	0.03	−0.07							−0.018 (0.016)	−0.050; 0.012
S → AS → EC	0.41	0.05	0.31***	−0.05	0.03	−0.08							−0.020 (0.014)	−0.051; 0.007
S → SD → EC	0.71	0.05	0.52***	0.01	0.03	0.02							0.010 (0.023)	−0.036; 0.056
Model B/predictor: religious fundamentalism, outcome: environmental concern														
RF → CH → EC	−0.10	0.03	−0.14***	0.17	0.03	0.25***	−0.09	0.02	−0.18***	−0.05			−0.018 (0.006)	−.032; −0.006
RF → FC → EC	−0.21	0.02	−0.35***	0.17	0.04	0.21***							−0.037 (0.011)	−0.060; −0.016
RF → LB → EC	0.29	0.03	0.39***	−0.03	0.03	−0.06							−0.011 (0.011)	−0.035; 0.009
RF → AS → EC	0.36	0.03	0.45***	−0.04	0.03	−0.07							−0.017 (0.013)	−0.043; 0.008
RF → SD → EC	0.40	0.03	0.49***	0.05	0.03	0.08							0.020 (0.012)	−.003; 0.045
Model C/predictor: spirituality, outcome: ecology behavior														
S → CH → EB	0.27	0.05	0.22***	0.10	0.04	0.13*	0.08	0.04	0.08*	0.04	0.05	0.04	0.027 (0.013)	0.003; 0.057
S → FC → EB	0.10	0.04	0.10*	0.18	0.05	0.19***							0.018 (0.009)	0.002; 0.037
S → LB → EB	0.41	0.05	0.32***	−0.02	0.04	−0.03							−0.008 (0.018)	−0.045; 0.026
S → AS → EB	0.41	0.05	0.31***	−0.04	0.04	−0.05							−0.015 (0.019)	−0.052; 0.022
S → SD → EB	0.71	0.05	0.52***	0.02	0.04	0.02							0.012 (0.026)	−0.039; 0.064
Model D/predictor: religious fundamentalism, outcome: ecology behavior														
RF → CH → EB	−0.10	0.03	−0.14***	0.11	0.04	0.13**	−0.07	0.02	−0.12**	−0.03	0.03	−0.04	−0.011 (0.005)	−0.023; −0.002
RF → FC → EB	−0.21	0.02	−0.35***	0.16	0.05	0.17**							−0.035 (0.010)	−0.056; −0.015
RF → LB → EB	0.29	0.03	0.39***	−0.01	0.04	−0.02							−0.004 (0.013)	−0.031; 0.021
RF → AS → EB	0.36	0.03	0.45***	−0.03	0.04	−0.04							−0.012 (0.017)	−0.047; 0.021
RF → SD → EB	0.40	0.03	0.49***	0.04	0.04	0.06							0.017 (0.014)	−0.008; 0.045

Table 2 (continued)

a path = effect of the independent variable on the mediator

b path = effect of the mediator on the dependent variable

c path = effect of the independent variable on the dependent variable

c′ path = direct effect of the independent variable on the dependent variable while controlling for mediators. Effects are adjusted for gender and age

S spirituality, *RF* religious fundamentalism, *CH* care/harm, *FC* fairness/cheating, *LB* loyalty/betrayal, *AS* authority/subversion, *SD* sanctity/degradation, *EC* environmental concern 9, *EB* ecological behaviour

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

We built four independent models for the analyses. Bootstrap sampling analysis (10,000) with a 95% confidence interval indicated that the set of the moral foundations significantly mediated the relationships between spirituality and environmental concern ($B=0.04$, $SE=0.01$, $t=3.02$, $p=.003$), between spirituality and ecological behavior ($B=0.06$, $SE=0.03$, $t=2.04$, $p=.042$), between religious fundamentalism and environmental concern ($B=-0.04$, $SE=0.01$, $t=-4.48$, $p<.001$), and between religious fundamentalism and ecological behavior ($B=-0.05$, $SE=0.02$, $t=-2.81$, $p=.005$). Since the spirituality subscales were highly intercorrelated, we used only a second-order factor for IFS in the analysis. Table 2 shows the bootstrap results for specific indirect effects.

Examination of specific indirect effects revealed two moral foundations as significant mediators for the relationships between spirituality/religious fundamentalism and environmental concern/ecological behavior. The total effect (c path) for the relationship between spirituality and environmental concern (model A) amounted to $\beta=0.13$ ($t=3.20$, $p=.002$; $R^2=0.02$). In the case of *care/harm*, the regression coefficient of the independent variable on the mediator (a path) amounted to $\beta=0.22$ ($t=5.66$, $p<.001$; $R^2=0.05$). The mediator regression coefficient on the dependent variable with simultaneous control of the independent variable and other moral foundations (b path) amounted to $\beta=0.24$ ($t=4.84$, $p<.001$). The a path for *fairness/cheating* totaled $\beta=0.10$ ($t=2.41$, $p=.016$; $R^2=0.01$), the b path totaled $\beta=0.24$ ($t=4.89$, $p<.001$). The other moral foundations were not significant mediators in this relationship. Moral foundations decreased the strength of the relationship between spirituality and environmental concern in a direct effect (c′ path), amounting to $\beta=0.09$ ($t=1.99$, $p=.047$; R^2 for the entire model $=0.22$).

The c path for the relationship between religious fundamentalism and environmental concern (model B) amounted to $\beta=-0.18$ ($t=-4.47$, $p<.001$; $R^2=0.03$). In the case of *care/harm* the a path amounted to $\beta=-14$ ($t=-3.61$, $p<.001$; $R^2=0.02$), the b path amounted to $\beta=0.25$ ($t=5.20$, $p<.001$). The a path for *Fairness/cheating* totaled $\beta=-0.35$ ($t=-9.14$, $p<.001$; $R^2=0.12$), the b path totaled $\beta=0.21$ ($t=4.25$, $p<.001$). The c′ path in this model amounted to $\beta=0.05$ ($t=1.05$, $p=.291$; R^2 for the entire model $=0.22$).

The c path for the relationship between spirituality and ecological behavior (model C) amounted to $\beta=0.08$ ($t=1.94$, $p=.050$; $R^2=0.01$; for the *a* path see: Model A). In the case of *care/harm* the b path amounted to $\beta=0.13$ ($t=2.33$, $p=.020$). The b path for *fairness/cheating* totaled $\beta=0.19$ ($t=3.60$, $p<.001$). The c′ path in this model amounted to $\beta=0.04$ ($t=0.91$, $p=.360$; R^2 for the entire model $=0.09$).

The c path for the relationship between religious fundamentalism and ecological behavior (model D) amounted to $\beta=-0.12$ ($t=-3.03$, $p=.003$; $R^2=0.01$; for the *a* path see: Model B). In the case of *care/harm* the b path amounted to $\beta=0.13$ ($t=2.51$, $p=.012$). The b path for *fairness/cheating* totaled $\beta=0.17$ ($t=3.12$, $p=.002$). The c′ path in this model amounted to $\beta=-0.04$ ($t=-0.88$, $p=.379$; R^2 for the entire model $=0.10$).

4 Discussion

The purpose of this study was to assess the relationship between religion, morality and environmentalism in young adults, who, on the one hand, are exposed to the effects of climate change more than other generations before them, and, on the other hand, will have a significant impact in the future on protecting the environment and taking pro-environmental action. We found it particularly interesting to learn about mechanisms that can increase

environmental concern in European countries with low environmental awareness such as Poland (Baran, 2017). Since more than 80% of Poles are Catholics (Dobrakowski et al., 2021), our analysis included only data from young adults with this religious affiliation.

Multiple mediator models provided information on the mediating effects of moral foundation sets in the relationship between spirituality/religious fundamentalism and environmental concern/environmental behavior, the mediating effect of each mediator over other proposed mediators, and the relative size of each mediator (Preacher & Hayes, 2008). In this study, significant indirect effects suggest that moral judgments may underlie the relationship between religion and environmental concern. This effect also suggests to some extent that behavioral intentions to care about the climate stem from complex moral profiles, i.e., individual moral foundations may influence each other and together contribute to the development of environmentalism in young adult Catholics. The results for specific indirect effects revealed that moral foundations such as *care/harm* and *fairness/cheating* may play a particular role in promoting climate care, which indirectly corresponds with the existing literature on the relationship between morality and environmentalism (Farrell, 2011; Graham et al., 2013; Milfont et al., 2019). These individualizing morals appeared to enhance the positive associations of spirituality with environmental concern and ecological behavior (supporting hypothesis 1), while inhibiting the negative impact of religious fundamentalism on environmental concern (supporting hypothesis 2).

In addition, the results support previous findings (Preston & Shin, 2022; Skalski et al., 2022) that the impact of religion on climate care can be predicted through the independent opposing paths of spirituality and religious fundamentalism. Instead, further analysis shows that these pathways are explained by underlying individual differences in the importance of particular moral foundations. In a similar study by Preston and Shin (2022), the positive effect of spirituality on environmental moralization and intentions was explained not only by moral foundations, but also by stronger trait-level compassion. On the other hand, Skalski et al. (2022) noted that the negative relationship between religious fundamentalism and environmental concern may also be explained by support for right-wing authoritarianism, which is associated with the presence of cognitive rigidity that causes climate change denial. Thus, it seems that religion can drive a range of socio-moral values that inform environmental concerns.

The effect of negative support for right-wing authoritarianism on environmental concern (Skalski et al., 2022) also seems a plausible explanation for the weak negative association of *authority/subversion* with environmentalism. The remaining binding morals did not correlate significantly with environmental concern or ecological behavior. Similar results on moral foundations as predictors of willingness to change lifestyles to avoid climate change in the US were observed by Dickinson et al. (2016). An Australian study, on the other hand, showed that valuing *sanctity/degradation* can be negatively associated with a preference for state action on climate change (Dawson & Tyson, 2012). However, it seems that these associations may occur regionally and be due to differences in the interpretation of *sanctity/degradation*, which is associated with the qualities of religiosity, chastity, decency and disgust. Although these traits are highly correlated with each other (Graham et al., 2013), it is unclear which of them have a possible connection to climate change and its "impure" effects on the planet.

The results obtained for the relationship between religion and morality are in line with the consensus in the literature that spirituality and the concept of a benevolent God foster higher rates of all five moral foundations (Graham & Haidt, 2010). In addition to being negatively related to individualizing foundations, religious fundamentalism was also positively related to binding morals. This finding corresponds with the results of Greenway

et al. (2019), who noted that binding morals are primarily predicted by negative religious beliefs associated with religious fundamentalism, Christian orthodoxy, belief in a masculine God, post-critical orthodoxy and second naiveté.

Women were more likely to value individualizing foundations, while they were less likely to make behavioral intentions based on ratings in the *loyalty/betrayal* and *authority/subversion* categories compared to men. Niazi et al. (2020) indicated that women were more consistent in being care oriented, with men more consistent in being justice-oriented, which helps explain the results we obtained. In addition, women showed more concern for the environment than men, which also supports previous findings (Borden & Francis, 1978; Skalski et al., 2022). Eisler et al. (2003) believes that although men present a higher knowledge of climate change, women are more strongly mobilized to green thinking and behavior.

It is worth noting the important limitations of our study. First, the analyses are correlational and therefore do not provide strong support for causal inferences. In addition, we conducted the survey only on Catholics, as more than 80% of people in Poland declare such faith (Dobrakowski et al., 2021). The inclusion of other religions would result in significant underrepresentation of these faiths and make it impossible to generalize conclusions. However, we assume that other religions may provide their followers with different concepts of moral values, nature and its relationship with man. Thirdly, our study focused exclusively on young adults as the generation potentially most interested in stopping environmental degradation than earlier generations. This state of affairs makes it impossible to assess the development of phenomena with age. Fourthly, in the survey, we did not control education, which could moderate the level of knowledge on climate change. In addition to experimental techniques, it seems interesting in future studies to include measures of political views, which, given the data to date, may drive (in addition to religion) the relationship between morality and environmentalism (Milfont et al., 2019).

A key role in ensuring ecological security is played by the creation of proper relations between humans and the natural world, including, in particular, the formation of pro-environmental attitudes, which requires the integration of the ecological dimension into the overall educational process. Significantly, the environmental education that has been implemented so far, which is the main area of activity in this scope (Buchcic, 2009; Varela-Candamio et al., 2018), does not return fully satisfying results. In recent years, there has been growing concern that traditional environmental education has limited the ability to elicit appropriate attitudes toward the phenomenon of environmental degradation (Taylor et al., 2009). In such a situation, it is necessary to develop new pedagogical interventions in this area. The present data have applied value in this regard. Educational programs that not only increase knowledge of environmental degradation, but also target the development of compassion for others and emotional empathy can increase religious environmentalism. Thus, volunteer and community service programs funded by religious or secular organizations that help develop empathy among students by helping those in need should be supported. An example of such educational interactions is the "roots of empathy" (Gordon, 2005) which helps develop empathy in school-aged children to increase pro-social behavior (provoking caring for the climate), but also to reduce aggression, anti-social behavior and bullying. In addition, our study highlights the role of religious upbringing based on the development of spirituality, which, through a sense of belonging and openness to infinity, the highest truths and a path to experiencing transcendence in a broad sense, can lead to caring for the environment through central pro-social values.

Overall, this study enriches the existing literature by providing a more detailed explanation of the relationship between different forms of religiosity, moral problems and environmentalism. To our knowledge, we are the first to show that the opposing effects of spirituality (positive) and religious fundamentalism (negative) on climate care can be explained by complex moral profiles, and that individual moral foundations can influence each other and jointly contribute to the development of environmentalism in young adult Catholics. Our research shows that religion is more strongly associated with caring about climate with high levels of individualizing morality. The relationship between religion and environmental protection is therefore much more complex than would appear from the existing literature. This study highlights the importance of including moral foundations as a third and important construct in the study of religion and environmentalism.

Author contributions All authors contributed to the manuscript—they planned the study, collected data, conducted statistical analysis and interpretation of data: SBS-B, KK, LLT, AK, and JS. The first version of the manuscript was prepared by SBS-B and then revised and accepted by all authors.

Data availability The datasets generated during and/or analyzed during the current study are available from the corresponding author on reasonable request.

Declarations

Competing interests The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Ethical approval All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. This study was approved by the Ethics Committee of the Institute of Psychology, Polish Academy of Sciences.

Consent to participate Informed consent was obtained from all individual participants included in the study.

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