

Article

Investigating the Relationship between Centrality of Religiosity, Instrumental Harm, and Impartial Beneficence through the Lens of Moral Foundations

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Abstract: A growing body of work suggests that religiosity is typically associated with deontological or non-utilitarian moral judgments. However, recent conceptualizations of utilitarian psychology show that instrumental harm is just one (negative) dimension of utilitarianism. In the new two-dimensional model of utilitarian psychology, impartial beneficence is the second (positive) dimension of utilitarianism. In the current study, we investigated the relationship between the centrality of religiosity and utilitarianism (its two dimensions) among adults ($N = 401$). We also examined whether five moral foundations serve as mediators of this relationship. We found that religiosity was directly and indirectly (through the care foundation) related to impartial beneficence. Although the direct effect of religiosity on instrumental harm was insignificant, we found two indirect effects through purity and authority foundations. The results suggest that the relationship between religiosity and utilitarianism is more complex than previously assumed.

Keywords: religiosity; instrumental harm; impartial beneficence; utilitarianism; moral foundations; moral psychology; open science



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1. Introduction

A cursory glance at the holy books of almost all major religions reveals an excessive number of rules dictating actions that are either morally obligatory (e.g., observing the Sabbath) or morally impermissible (e.g., coveting a neighbor's wife). Notably, such actions are typically seen as morally required or forbidden by virtue of being what they are rather than as a result of their consequences—God commands it, and so it must be. That is why religion has often been linked to deontological, non-utilitarian approaches to ethics (Quinn 2000; McKay and Whitehouse 2015).

Deontological ethical theories posit that moral judgments should be based on rights, duties, and obligations (Kant 1895). Using the famous bridge version of the trolley dilemma (Thomson 1976), where study participants decide if it is appropriate to push a person from the bridge to stop the train and save five people on the track, we can say that deontologists would not push the man from the bridge because we should strictly follow moral norms, such as the norm “not to harm other people.” Deontological theories are often contrasted with consequentialist theories, of which utilitarianism is the most well-known example (Bentham 1983; Mill 1863; Singer 1993). Utilitarians posit that consequences are of main concern when making moral judgments, and that is why they would push the person from the bridge because they are guided by the consequences for the greater good (which is, in this case, saving five lives instead of one). The bridge dilemma highlights the tension between deontology and consequentialism; however, these ethics are measured in the

so-called traditional, sacrificial dilemma approach to moral dilemmas, which was already broadly criticized for many reasons, among others, for focusing only on harming scenarios, or for linking utilitarian preferences with action and deontological preferences with inaction (see, e.g., [Conway et al. 2018](#); [Gawronski et al. 2017](#); [Kahane 2015](#)).

Following the dual-process theory of Greene and colleagues ([Greene et al. 2004](#)), the vast majority of psychological work on utilitarianism and religiosity has focused on the sacrificial dilemma approach, which measures only one dimension of utilitarianism: instrumental harm. Focusing on instrumental harm, research suggests that religiosity is associated with deontology ([Piazza 2012](#); [Szekely et al. 2015](#); [Saroglou and Craninx 2020](#)). That means that religious individuals are more likely to endorse a non-utilitarian approach to morality and tend to prefer rule-based over outcome-based explanations for the wrongness of moral action. Using the sacrificial dilemma example mentioned above, they are less likely to push the person from the bridge than non-religious individuals.

In this paper, following the criticism of the traditional approach to moral judgment ([Kahane 2015](#); [Kahane et al. 2015, 2018](#)), we argue that previous research on religiosity and utilitarianism focused only on a narrow understanding of utilitarianism (i.e., instrumental harm) and that is why previous studies might assume too hastily that religiosity is only related to deontology. Utilitarianism can also be understood in a positive way, which focuses on maximizing happiness for as many people as possible without giving priority to oneself or close friends. According to the two-dimensional model of utilitarian psychology ([Everett and Kahane 2020](#); [Kahane et al. 2018](#)), it is the dimension of impartial beneficence.

The main goal of the current study was to provide deeper insights into the relationships between religiosity (operationalized as the centrality of religiosity) and utilitarianism by using a two-dimensional model of utilitarian psychology, which measures instrumental harm and impartial beneficence ([Kahane et al. 2018](#)). The second goal of the current study was to investigate the relationship between religiosity and utilitarianism through the lens of moral foundations theory ([Graham et al. 2011, 2018](#); [Graham and Haidt 2012](#); [Haidt 2001](#)), which posit that people differ in their evaluations of the importance of five moral foundations. In the present study, we tested how moral foundations mediate the relationship between religiosity and utilitarianism.

1.1. Previous Research

There are two reasons why religiosity was mainly related to the deontological, not utilitarian, approach to moral judgment. First, religion has often been linked to deontological approaches to ethics from the theoretical point of view ([Quinn 2000](#)). It is because religions are mainly based on rules, similar to deontology ([McKay and Whitehouse 2015](#)). That is why utilitarianism (understood narrowly as a preference for instrumental harm) has often been seen as a “godless doctrine” ([Mill 1863](#)). Second, most empirical studies suggest that religiosity is associated with deontology, not utilitarianism ([Piazza 2012](#); [Szekely et al. 2015](#); [Saroglou and Craninx 2020](#)). However, previous research focused only on instrumental harm using the traditional approach in moral judgment (i.e., the trolley dilemmas), which was criticized for many reasons (e.g., [Conway et al. 2018](#); [Gawronski et al. 2017](#); [Kahane et al. 2015](#)).

While instrumental harm captures the willingness to cause harm to achieve positive consequences for the greater good, impartial beneficence taps the extent to which people endorse the radically demanding and impartial helping utilitarianism requires. Research guided by the two-dimensional model of utilitarian psychology infers endorsement of instrumental harm and impartial beneficence from participants’ agreement with broad ethical statements about key ideas of the two dimensions ([Kahane et al. 2018](#)). Previous research using this model has demonstrated that instrumental harm and impartial beneficence show different patterns of correlations with measures of individual differences ([Kahane et al. 2018](#)) and with sensitivity to consequences, moral norms, and inaction tendency captured by the CNI model of moral decision making ([Gawronski et al. 2017](#); [Körner et al. 2020](#); [Paruzel-Czachura et al. 2021](#)). Moreover, although endorsement of pro-sacrificial harm in

moral dilemmas (e.g., trolley dilemma) has been found to be positively correlated with instrumental harm, they were unrelated to impartial beneficence (Kahane et al. 2018). That is why distinguishing two dimensions of utilitarianism may be useful to understand the complex relations between religiosity and moral judgment.

There is only one existing preliminary evidence suggesting that religiosity may be related to utilitarianism, specifically, to the dimension of impartial beneficence. In a correlational study conducted among mTurk participants ($N = 282$), Kahane et al. (2018) noted that religiosity, measured with a short five-item version of the Centrality of Religiosity Scale (Huber and Huber 2012), positively correlated with impartial beneficence. By contrast, the relationship between religiosity and instrumental harm was insignificant. While the results of Kahane et al. (2018) are suggestive, it is difficult to draw a broad conclusion from the results of a single study.

Religiosity was extensively studied through the lens of moral foundations theory (Graham and Haidt 2010, 2012). This theory was conceived to understand why moral beliefs vary widely across cultures yet still show many similarities and recurrent themes (Graham et al. 2011). The theory proposes that people differ in their evaluations of the importance of five moral foundations: care, fairness, loyalty, authority, and purity (Graham et al. 2018). The care foundation (the opposite of harm) relates to feeling empathy for the pain of others. Fairness (the opposite of cheating) concerns sensitivity to justice, rights, and equality. Loyalty (the opposite of betrayal) refers to the tendency to form coalitions and feel proud of being a group member. Authority (the opposite of subversion) relates to a preference for hierarchical social interactions and feeling respect for, or fear of, people in a higher social position. Lastly, the purity foundation (the opposite of degradation) refers to a propensity to exhibit disgust in response to incorrect behavior and reflects individual differences in concerns for the sacredness of values (Koleva et al. 2012). Care and fairness are said to be individualizing foundations because they are person-centered and focus on protecting individuals, whereas loyalty, authority, and purity are conceptualized as binding foundations because they focus on preserving one's group as a whole (Graham et al. 2011, 2018). All over the world, religiosity has been linked to the binding foundations (loyalty, authority, and purity), which emphasizes group-binding loyalty (Saroglou and Craninx 2020; Graham and Haidt 2010). As far as we are aware, there are no empirical data on the relationship between the five moral foundations and the two dimensions of utilitarianism.

1.2. Current Study

In the current research, we aimed to address the limitations of prior research on the relationship between religiosity and utilitarianism in three ways. First, we distinguished two dimensions of utilitarianism: instrumental harm and impartial beneficence (Kahane et al. 2018). Second, we used a long version of the Centrality of Religiosity Scale (Huber and Huber 2012). Third, we tested whether five moral foundations (Graham et al. 2018) mediate the relationship between religiosity and utilitarianism.

Regarding impartial beneficence, we expected that religiosity would be positively related to impartial beneficence in line with the preliminary findings of Kahane et al. (2018). Moreover, since the majority of studies on the topic showed a negative relationship between religiosity and instrumental harm (Saroglou and Craninx 2020), we expected to replicate this finding. When testing whether moral foundations mediate the relationship between religiosity and impartial beneficence, we expected that the care foundation would mediate this relationship. Impartial beneficence has its roots in Christianity, as Christian ethics generally involve a radical demand for self-sacrifice, impartiality, and universal love (Lampert 2005), and our subjects were mainly Christians. Moreover, religiosity has been linked to empathic concern (Ziebertz 2018), and empathic concern is related to impartial beneficence (Kahane et al. 2018). In addition, the empathic trait is related to the care foundation (Dawson et al. 2021). All these findings support our hypothesis on the mediational role of the care foundation in the relationship between religiosity and impartial beneficence.

Regarding instrumental harm, we expected that binding foundations (loyalty, authority, and purity) would mediate the relationship between religiosity and instrumental harm. Previous studies suggest that binding foundations positively correlate with religiosity (Saroglou and Craninx 2020). There are no empirical studies on the relationships between moral foundations and instrumental harm (Kahane et al. 2018). However, based on the theoretical assumptions (Haidt and Joseph 2008), we might expect that people who reject instrumental harm might have a higher level of purity foundation because purity refers to a propensity to exhibit disgust in response to incorrect behavior and harming others might be seen as an example of incorrect, unacceptable behavior. Moreover, we expected that loyalty and authority foundations would be positively related to instrumental harm because loyalty and authority foundations focus on preserving one's group as a whole, and accepting instrumental harm is based on counting the number of people when making moral decisions (i.e., choosing to save more people or harm a smaller number of people).

2. Method

2.1. Participants and Procedure

The participants were recruited from religious organizations in Poland using bulletin announcements, online notice boards, and direct requests for participation in churches. The participants received the link to the study to complete the survey in their spare time at home. Moreover, the information about the online study was placed on the first author's professional website and social media sites (Facebook). The participants were informed about the objectives of the study and its procedure and were assured of anonymity and voluntary participation. Online consent was collected from each participant. After one month, we collected our expected sample size and finished the data collection.

The sample consisted of 401 Polish adults ($n = 201$ women) ($M_{\text{age}} = 22.44$, $SD_{\text{age}} = 1.94$). All participants had Polish nationality and spoke Polish. The majority of participants (53.6%) graduated from secondary schools, 45.9% had a university degree, and two graduated from vocational schools. Most participants declared themselves to be Catholic (71.8%). Other denominations were as follows: Protestant (1.0%), Buddhist (0.7%), Jehovah's Witness (0.5%), and others (2.8%). Most of the remaining participants (21.7%) declared themselves to be atheists, and 1.5% described themselves as agnostics.

2.2. Measures

2.2.1. Centrality of Religiosity Scale

Religiosity was assessed using a Polish version (Zarzycka 2007) of the Centrality of Religiosity Scale (CRS) (Huber and Huber 2012). The CRS measures the importance religiosity has in a person's everyday life. It consists of 15 items that assess five dimensions of religious beliefs and behavior (Stark and Glock 1968), i.e., intellect (cognitive interest), ideology (religious beliefs), religious experience (of the presence of God in life), private practice (prayer), and public practice (worship). The response options for intellect, ideology, and religious experience range from 1 (*not at all/never*) to 5 (*very much so/very often*). In the case of two items (concerning private and public practices), the response options range from 1 (*never*) to 8 (*several times a day*) or from 1 (*never*) to 6 (*more than once a week*), respectively. In the current study, we used only the total score for the CRS. The Polish version of the CRS has good reliability as measured with Cronbach's alpha coefficient (0.93) and test-retest method with a four-week interval (0.85). Moreover, the theoretical validity and criterion validity of the scale have been supported (Zarzycka 2007).

2.2.2. Oxford Utilitarianism Scale

Dimensions of utilitarianism were measured using the Oxford Utilitarianism Scale (OUS) (Kahane et al. 2018) in a Polish version (Paruzel-Czachura et al. 2021). The OUS consists of two subscales: Impartial Beneficence subscale (five items) and Instrumental Harm subscale (four items). Participants are asked to indicate how much they agree or disagree with each statement, using a 7-point scale (1 = *strongly disagree* to 7 = *strongly*

agree). The reliability of the OUS, measured with Cronbach's alpha coefficient, is acceptable (see Duong 2021; Kahane et al. 2018). The validity of the scale has been supported by means of confirmatory factor analysis and the investigation of the relationships between two dimensions of utilitarianism and emphatic concern, identification with the whole of humanity, concern for future generations, religiosity, and subclinical psychopathy (Kahane et al. 2018).

2.2.3. Moral Foundations Questionnaire

We used a Polish version (Jarmakowski-Kostrzanowski and Jarmakowska-Kostrzanowska 2016) of the Moral Foundations Questionnaire (MFQ) (Graham et al. 2011) to measure the degree to which the participants endorse five sets of moral intuitions (i.e., care, fairness, loyalty, authority, and purity). The measure consists of two parts, each of which has 15 items. Participants are asked (a) how relevant given morality items are to their perceptions of morality (1 = *not at all relevant* to 6 = *extremely relevant*) and (b) how much they agree with items relevant to a given moral domain (1 = *strongly disagree* to 6 = *strongly agree*). The reliability coefficients for the moral foundations in the Polish validation of the MFQ ranged from 0.62 (fairness) to 0.83 (purity) (Jarmakowski-Kostrzanowski and Jarmakowska-Kostrzanowska 2016). The validity of the measure has been supported by the results of the confirmatory factor analysis and exploration of how moral foundations were related to values, religiosity, emotional attitude toward given social groups, and political orientation (Jarmakowski-Kostrzanowski and Jarmakowska-Kostrzanowska 2016).

3. Results

3.1. Statistical Analysis

In the first step of the analysis, we calculated descriptive statistics, bivariate correlations, and reliability coefficients (Cronbach's α and McDonald's ω) for each study variable. Next, we calculated variance inflation factor (VIF) values to examine whether there was a multicollinearity problem in our data (i.e., if the predictors were highly correlated with each other; James et al. 2017). VIF values higher than 5 suggest that multicollinearity exists (James et al. 2017). Then, we tested a parallel multiple mediation model, which allows several mediators to be examined and reports the specific effects of each mediator while controlling for the others (Hayes 2013; Preacher and Hayes 2008). In our model, moral foundations served as potential mediators between the centrality of religiosity and the two dimensions of utilitarianism. Based on the theoretical premises and empirical findings (Davies et al. 2014; Graham et al. 2011; Kawamoto et al. 2019; Kugler et al. 2014), we allowed for correlations between the residuals of the mediators.

Model fit was evaluated using the following model fit indices: relative χ^2 (χ^2/df), Comparative Fit Index (CFI), Goodness of Fit (GFI), Tucker–Lewis Index (TLI), root mean square error of approximation (RMSEA), and standardized root mean square residual (SRMR). A model fits the data well when $\chi^2/\text{df} < 2$, CFI, GFI, and TLI > 0.95 , RMSEA < 0.06 , and SRMR < 0.08 (Brown 2006; Hu and Bentler 1999). To test the significance of indirect effects, we used the bootstrap method, which involves drawing random samples with replacement from the original sample to derive the confidence intervals for the parameters (MacKinnon et al. 2007). In the current study, the 95% bias-corrected confidence intervals from 5,000 bootstrap replicates were calculated. An indirect effect was deemed statistically significant if the bootstrap confidence interval did not include zero. Effect sizes for indirect effects were calculated as completely standardized indirect effects (ab_{CS} ; Preacher and Kelley 2011). The model was controlled for gender and age. All models were tested using IBM SPSS Amos, version 26.0 (Arbuckle 2019).

3.2. Preliminary Analysis

Table 1 presents descriptive statistics, bivariate correlations, and reliability coefficients for the study variables. The centrality of religiosity was positively correlated with impartial beneficence but was unrelated to instrumental harm. The centrality of religiosity was

positively related to all moral foundations except for fairness. All moral foundations were positively related to impartial beneficence. Care, fairness, and purity were negatively related to instrumental harm, authority was positively related to instrumental harm, and loyalty was not related to instrumental harm. Moral foundations were positively related to each other, except for the relationship between care and authority foundations, which was insignificant. Regarding the relationships between the predictors, the highest VIF value (3.00) was noted for the purity foundation. Since no VIF values exceeded 5, the multicollinearity problem was not likely to exist for our data.

Table 1. Descriptive Statistics, Internal Consistency, and Bivariate Correlations Between Variables.

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
(1) Religiosity	–									
(2) Imp. beneficence	0.26 ***	–								
(3) Instrumental harm	−0.08	−0.02	–							
(4) Care	0.13 *	0.24 ***	−0.21 ***	–						
(5) Fairness	−0.01	0.19 ***	−0.16 **	0.63 ***	–					
(6) Loyalty	0.37 ***	0.23 ***	0.07	0.21 ***	0.27 ***	–				
(7) Authority	0.43 ***	0.19 ***	0.13 *	0.08	0.12 *	0.64 ***	–			
(8) Purity	0.70 ***	0.24 ***	−0.14 **	0.29 ***	0.23 ***	0.51 ***	0.63 ***	–		
(9) Gender	0.04	0.06	−0.16 **	0.26 ***	0.16 **	−0.04	0.00	0.05	–	
(10) Age	0.00	−0.11 *	−0.06	−0.08	−0.11 *	−0.06	0.01	−0.02	0.02	–
<i>M</i>	3.10	3.96	2.97	4.87	4.63	3.66	3.50	4.00	49.88 ^a	22.44
<i>SD</i>	1.23	1.10	1.22	0.71	0.68	0.83	0.86	1.16	–	1.94
Range	1–5	1–7	1–7	1–6	1–6	1–6	1–6	1–6	–	19–26
Cronbach's α	0.97	0.68	0.71	0.64	0.63	0.67	0.62	0.80	–	–
McDonald's ω	0.97	0.69	0.71	0.71	0.68	0.67	0.66	0.81	–	–

Note. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. *M* = mean; *SD* = standard deviation. Imp. beneficence = impartial beneficence. ^a The value represents the percentage of men in the sample. Gender was dummy-coded (0 = man, 1 = woman).

3.3. Mediation Model

The multiple mediation model results are shown in Figure 1. The model fits the data well: $\chi^2(11) = 18.43$, $p = 0.07$, $\chi^2/df = 1.68$, CFI = 0.993, TLI = 0.972, GFI = 0.991, SRMR = 0.035, and RMSEA = 0.041, 90% CI [0, 0.073]. The direct effect of the centrality of religiosity on impartial beneficence was significant ($b = 0.22$, $p = 0.002$; $\beta = 0.24$). This relationship was mediated by the care foundation ($b = 0.02$, 95% CI [0.004, 0.038]). Specifically, the centrality of religiosity was positively associated with care foundation ($b = 0.07$, $p = 0.011$; $\beta = 0.12$), which, in turn, was linked to higher impartial beneficence ($b = 0.22$, $p = 0.025$; $\beta = 0.14$). The effect size of the indirect effect was small, which was suggested by the value of ab_{CS} at 0.02 (95% CI [0.004, 0.042]). The total effect of the centrality of religiosity on impartial beneficence was significant ($b = 0.24$, $p = 0.001$; $\beta = 0.26$).

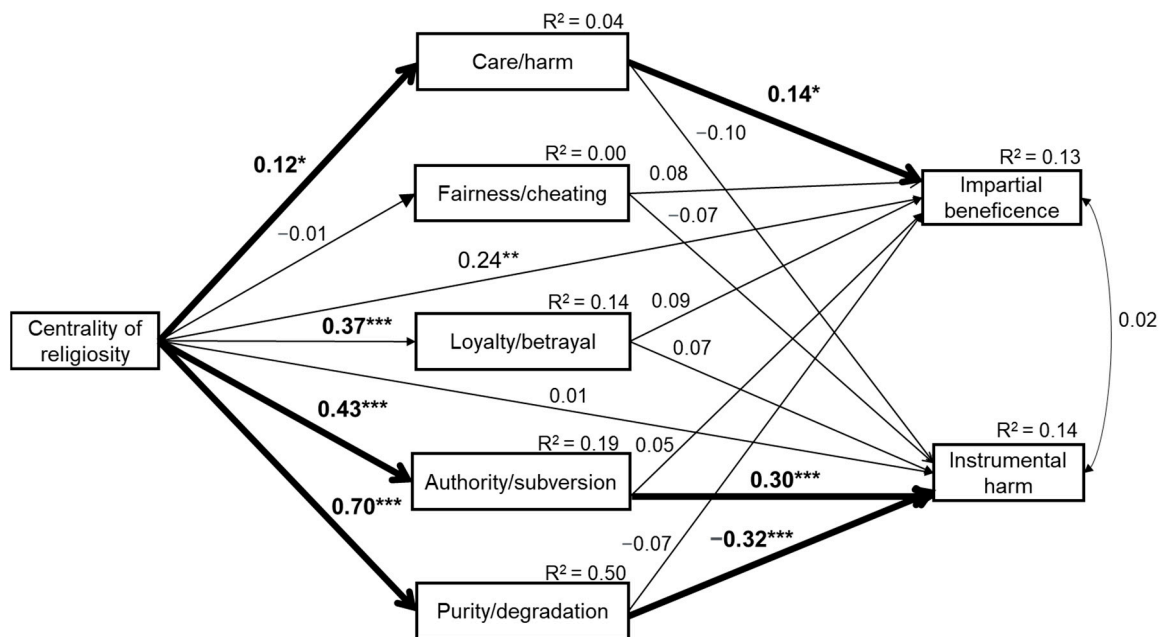


Figure 1. Multiple Mediation Model. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. The regression coefficients are displayed in a standardized form. Significant indirect effect pathways and estimates are presented in bold. The control variables (i.e., gender and age), residuals, and correlations between the residuals of moral foundations are omitted for legibility. $N = 401$.

The direct effect of the centrality of religiosity on instrumental harm was insignificant ($b = 0.01$; $p = 0.849$). By contrast, bootstrapping results indicated two significant indirect effects through purity ($b = -0.22$, 95% CI $[-0.333, -0.133]$) and authority ($b = 0.13$, 95% CI $[0.075, 0.185]$) foundations. More specifically, centrality of religiosity was positively associated with purity ($b = 0.66$, $p < 0.001$; $\beta = 0.70$) and authority ($b = 0.30$, $p < 0.001$; $\beta = 0.43$). However, purity was negatively linked to instrumental harm ($b = -0.34$, $p < 0.001$; $\beta = -0.32$), whereas authority was positively associated with this outcome ($b = 0.42$, $p < 0.001$; $\beta = 0.30$). These results indicated that those two indirect effects acted in opposite directions. The effect sizes for indirect effects can be regarded as medium-large for purity ($ab_{CS} = -0.23$ (95% CI $[-0.335, -0.133]$) and low-medium for authority ($ab_{CS} = 0.13$ (95% CI $[0.075; 0.186]$). The total effect of the centrality of religiosity on instrumental harm was insignificant ($b = -0.07$, $p = 0.180$). The multiple mediation model accounted for 13% and 14% of the explained variance in impartial beneficence and instrumental harm, respectively.

4. Discussion

An ever-growing body of empirical research has shed light on the perennial question of the relationship between religion and morality (Krok 2016; McKay and Whitehouse 2015; Tatala et al. 2017; Zarzycka et al. 2020), particularly people's endorsement or rejection of utilitarian tendencies. Previous studies have found significant relationships between religiosity and the rejection of utilitarian decisions (Saroglou and Craninx 2020). However, they focused mainly on instrumental harm in the traditional approach of measuring moral dilemmas (Foot 1967; Thomson 1976), which was broadly criticized (e.g., Conway et al. 2018; Gawronski et al. 2017; Kahane 2015). The preliminary evidence suggests that religiosity may be related to impartial beneficence (Kahane et al. 2018). While instrumental harm is a negative dimension of utilitarianism, which refers to the preference to accept harming other people to help more people, impartial beneficence is a positive dimension of utilitarianism, which reflects the preference to maximize the happiness of as many people as possible.

In this study, we aimed to address the limitations of prior empirical research (Kahane et al. 2018) and the limitations of studying the relationship between morality and religion in

general (McKay and Whitehouse 2015). We examined the relationship between religiosity (operationalized as the centrality of religiosity) and the two dimensions of utilitarianism through the five moral foundations. We supported our hypothesis about the positive relationship between religiosity and the positive dimension of utilitarianism as the centrality of religiosity predicted impartial beneficence, which is in line with the preliminary findings of Kahane et al. (2018). The direct effect of religiosity on instrumental harm was not significant, as opposed to most previous findings, which showed that religiosity was negatively correlated with non-consequentialism (Saroglou and Craninx 2020). It might be related to the fact that most previous studies used a different measure of instrumental harm. While they used responses to unrealistic moral dilemmas to measure instrumental harm, such as a trolley dilemma (Foot 1967), we used a scale with general ethical views (Kahane et al. 2018). The participants could reflect on them and decide to what extent they agree with that statement. Making decisions on unrealistic problems is substantially different from expressing general ethical beliefs. Limitations of using unrealistic problems in research have already been discussed in the literature (e.g., Gawronski et al. 2017; Schein 2020; Bostyn et al. 2018).

When we tested whether moral foundations mediated the relationship between religiosity and impartial beneficence, we found that the care foundation was a significant mediator of this relationship, just as we expected. This result is consistent with the theory: the care foundation involves empathy and compassion toward others (Graham et al. 2011) and is present in many religions (Lampert 2005). Moreover, it aligns clearly with the concept of impartial beneficence: the impartial promotion of others' well-being, even at a cost to oneself or loved ones.

As expected, we found indirect effects of religiosity on instrumental harm through purity (negative) and authority (positive) foundations. Purity, formerly known as sanctity, is perhaps the most relevant foundation for religious beliefs, referring to a propensity to exhibit disgust in response to incorrect behavior towards the sacredness of values. The foundation of authority is related to a preference for hierarchical social interactions and feeling respect for, or fear of, people in a higher social position. It is a foundation positively related to religiosity (based on hierarchical structures) (Saroglou and Craninx 2020), and it is related to instrumental harm (even OUS items directly refer to hurting some individuals to save others, which might be indirectly related to the obedience of the authorities). We did not find the expected indirect effect through the last binding foundation, loyalty, despite the fact that loyalty was positively related to religiosity.

Although our findings provide more compelling evidence regarding the relationships between religiosity and utilitarianism than previous studies, it seems appropriate to acknowledge a few limitations. One of the limitations of our studies is that we used a cross-sectional design. As such, we cannot exclude other directions of the relationship between religiosity, moral foundations, and utilitarianism. Nevertheless, we based our predictions about the directions of the relationships on the theoretical premises and empirical findings of previous studies (Graham et al. 2011; Everett and Kahane 2020; Saroglou and Craninx 2020). Another drawback is related to the sample characteristics, which limits the generalizability of our findings to other types of religions and nationalities. Thus, further studies involving different samples (e.g., different religious denominations) are warranted. In addition, although the majority of participants declared to be Catholic (71.8%), 5% of the sample were people of different faiths than Catholicism, and about one out of five participants were declared atheists, which could impact our results to some extent.

Although the internal consistency of the MFQ and OUS subscales was acceptable (i.e., Cronbach's $\alpha > 0.6$), it was relatively low, which may be related to the abstract and general content of the items. Moreover, as Graham et al. (2011) argue, the somewhat low internal consistency of the MFQ may be the price for the high content validity of this measure (i.e., the ability of a scale to measure a concept exhaustively). It is worth noting in this context that the preference for moral foundations can be measured in other ways, e.g., Moral Foundations Vignettes (Clifford et al. 2015), and the moral foundations theory is only

one of the possible ways to describe the mechanisms underlying the relationship between religiosity and utilitarianism (Schein and Gray 2018; Curry et al. 2019). Therefore, we recommend conducting future studies focusing on other possible moral mediators between utilitarianism and religiosity.

5. Conclusions

Since morality is about more than harm and fairness (Graham and Haidt 2012), we claim that religiosity is about more than deontology. Clearly, religiosity consists of many rules and norms, and it was related to deontological preferences in many studies. However, we showed that religiosity is also related to utilitarianism: directly and indirectly to impartial beneficence (through the care foundation) and indirectly to instrumental harm (through the authority and purity foundations). The results of our study indicate that the relationships between religiosity and utilitarianism are more nuanced and complex than previous research suggested.

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Informed Consent Statement: Informed consent was obtained from all subjects involved in the study.

Data Availability Statement: The data are publicly available at https://osf.io/g64ys/?view_only=None 15 November 2022.

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