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# Understanding the Relationship Between Christian Orthodoxy and Environmentalism

## The Mediating Role of Perceived Environmental Consequences

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The present study evaluated the hypothesis that people who strongly adhere to Christian orthodoxy may be less proenvironmental to the extent that they are less aware of the biospheric consequences of environmental problems (biospheric AC) but that they may be more proenvironmental than others to the extent that they are more aware of the egoistic and social-altruistic consequences of environmental problems (egoistic AC and social-altruistic AC, respectively). College students ( $N = 192$ ) completed measures of awareness of negative consequences (AC), Christian orthodoxy, and environmental behavior. Results showed that Christian orthodoxy negatively related to all measures of environmental behavior. Additionally, biospheric AC was a complete mediator in Christian orthodoxy's relationships with environmental intentions and willingness to pay for environmental protection and was a partial mediator in Christian orthodoxy's relationship with proenvironmental political behavior. Neither egoistic AC nor social-altruistic AC correlated with Christian orthodoxy, so their mediating properties were not assessed. Theoretical and practical implications are discussed.

**Keywords:** *environment; Christianity; environmental attitudes; proenvironmental behavior*

In 1967, Lynn White argued that Christianity is the root of the world's environmental problems. Understandably, White's thesis has sparked

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considerable controversy since its publication 40 years ago. The crux of White's argument is his interpretation that Genesis 1 implies that humans have dominion over nature and that nature exists solely for man's use (White, 1967). Scholars have had a difficult time directly testing White's theory because it is based on a historical account that does not easily lend itself to empirical examination. As a result, most researchers have relied on sociological and psychological research methods that have centered on investigating whether a relationship exists between Christian beliefs and environmentalism in the current population (Schultz, Zelezny, & Dalrymple, 2000).

Studies addressing this question have found mixed results. Early studies were hindered by the fact that they included only a few questions assessing proenvironmentalism that did not adequately measure proenvironmental attitudes or behavior (e.g., Greeley, 1993; Hayes & Marangudakis, 2001). This methodological concern is especially relevant in light of research that has found that the relationship between Christian beliefs and environmentalism is contingent on the way in which environmentalism is measured (Klineberg, McKeever, & Rothenbach, 1998).

In several environmental domains, Christianity has been shown to be negatively related to environmentalism. One consistent finding is that when environmentalism is framed in terms of a trade-off between economic interests and environmental interests, Christians, and specifically Biblical literalists, show less support for the environment than non-Christians, or those who do not believe the literal interpretation of the Bible (Eckberg & Blocker, 1996; Greeley, 1993; Hand & Van Liere, 1984; Kanagy, Humphrey, & Firebaugh, 1994; Klineberg et al., 1998). Additionally, people who strongly ascribe to Christian beliefs are more likely to agree that plants and animals exist for human use, that humans are not harming the environment and that people worry too much about global environmental issues (Klineberg et al., 1998). Christian beliefs have also been shown to predict fewer personal actions toward the environment and a reduced likelihood of being "culturally green" defined by a set of behaviors including eating organic produce, vegetarianism, and reducing driving (Eckberg & Blocker, 1996).

However, some research has shown that Christians are not less environmental on certain types of environmentalism. Specifically, Hayes and Marangudakis (2001) found no difference between Christians and non-Christians (after controlling for demographic factors and scientific knowledge) on a scale assessing attitudes toward nature. Similarly, Shultz et al. (2000) found no difference between biblical literalists and nonbiblical literalists in amount of prior proenvironmental behaviors performed. For some types of environmentalism, Christian beliefs actually positively relate

to proenvironmentalism. For example, Christian beliefs positively predicted belief that nature is sacred in Eckberg and Blocker's (1996) study.

For certain types of environmentalism, the picture is less clear. For example, when environmentalism is operationalized in terms of pollution, Klineberg et al. (1998) found that Biblical literalists do not differ from nonliteralists in their level of environmentalism, but Hand and Van Liere (1984) found that Christians were less concerned with pollution control than non-Christians. Overall, no consistent picture of the relationship between environmentalism and Christianity has been offered.

To sort out these inconsistent results, research is needed that moves beyond simply testing the Christianity–environmentalism relationship and instead investigates the mechanisms underlying this relationship. Although no direct research has been conducted to test the mediating mechanisms, other research areas provide clues as to what variables may underlie the relationship between Christian orthodoxy and environmental behavior. One relevant line of research centers on the types of values activated when considering different environmental issues.

Recently, Biel and Nilsson (2005) suggested that religious values may become more or less salient as a result of the type of environmental issue under consideration. Specifically, Biel and Nilsson found that when assessing environmental behavior in terms of perceived threat of general environmental problems, being Protestant (as opposed to atheist) did not explain additional variance above control variables (gender, age, education, income, conservatism, environmental attitudes, and trust in science) in environmental behavior. Yet when assessing environmental behavior in terms of perceived threat of genetically modified crops, being Protestant explained additional variance in environmental behavior. Biel and Nilsson (2005) concluded that the topic of genetically modified crops activated Protestants' religious values because genetically modifying crops could be equated with altering God's creation.

Religious values are not the only type of values found to predict environmental attitudes and behavior. Recently, Schultz et al. (2000) conducted a cross-national study of the religiosity–environmental attitude relationship in which they investigated the role of the environmental values of ecocentrism and anthropocentrism. Ecocentrism is the extent to which a person's proenvironmental attitude is based on a value for the intrinsic welfare of plants and animals and anthropocentrism is the extent to which a person's proenvironmental attitude is based on a value for the welfare of humans and the self (Thompson & Barton, 1994). Schultz et al. (2000) found that Christian beliefs were negatively related to ecocentrism and positively related to

anthropocentrism. They argued that endorsement of Christian beliefs led to more concern for the self and for other people, but less concern for animals and plants. Interestingly, Schultz et al. (2000) found no relationship between Christian beliefs and environmental behavior. In an effort to understand these conflicting findings, we turn to work done by Stern et al. (2000).

Stern, Dietz, and Kalof (1993) and Stern, Dietz, Kalof, and Guagnano (1995) have proposed that, in addition to the values underlying proenvironmental attitudes, awareness of the negative consequences (AC) of environmental conditions contributes to a person's motivation to act proenvironmentally. Specifically, they have differentiated between people's beliefs about the consequences for the self (egoistic AC), for human beings (social-altruistic AC), and the natural environment (biospheric AC). If a person values the biosphere, then awareness of the adverse consequences of pollution to the biosphere will motivate the person to curb pollution. Recently Stern (2000) synthesized his theorizing and formalized the Value-Belief-Norm (VBN) theory of environmental behavior. In this hierarchical model, values predict beliefs (including: ecological worldview, AC, and perceived responsibility to reduce threat). Beliefs, in turn, predict personal norms to act proenvironmentally (Stern, 2000). Finally, personal norms predict environmental behaviors (Stern, 2000). Many researchers have examined the predictive power of Stern and colleagues' extended norm activation theory (and its new conceptualization as the VBN) and have shown it to be an effective model in predicting proenvironmental behaviors (Garling, Fujii, Garling, & Jakobsson, 2003; Nordlund & Garvill, 2002; Steg, Dreijerink, & Abrahamse, 2005; Stern et al., 1993; Stern et al., 1995).

Stern and colleagues' (1993) norm-activation model was able to shed light on the inconsistent findings with regard to the relationship between gender and environmental behavior. Specifically, Stern et al. (1993) argued that women may be more proenvironmental in certain situations because they are more aware of the consequences of environmental problems to the self, to others, and to the biosphere. In fact, they were able to show that awareness of consequences mediated the relationship between gender and political environmental action and willingness to pay for the environment, such that women were more aware of consequences and thus more proenvironmental in these domains (Stern et al., 1993).

There is reason to believe that AC may similarly mediate the relationship between Christian orthodoxy and proenvironmental behavior and thus be able to account for inconsistent findings in this area as well. Stern and Dietz (1994) suggested that value orientations predispose people to seek out information about consequences to valued objects. If, as White (1967) has suggested and

Schultz et al. (2000) have found, Christians value the environment because of the benefit it provides to the self and humans, then they may be more apt to seek out information about the consequences of environmental problems on the self and other humans and thus will become aware of the consequences of environmental problems on the self and humans. Similarly, if Christians are less concerned about the ecocentric value of the environment, then they may be unlikely to seek out information about the consequences of environmental problems in the biosphere and may be less aware of the consequences of environmental problems in the biosphere. Awareness of consequences, in turn, has been shown to directly predict people's proenvironmental behavioral intentions (Stern et al., 1993; Stern et al., 1995).

Thus, we hypothesize that awareness of consequences of environmental problems will mediate the relationship between Christian orthodoxy and environmental behavior. Specifically, we predict that those who have strong Christian beliefs will be less aware of biospheric consequences and to that extent will be less proenvironmental. On the other hand, we expect that those who have strong Christian beliefs will be more aware of social-altruistic and egoistic consequences and in turn will be more proenvironmental than their counterparts.

## Method

### Participants and Procedure

General psychology students (113 women, 79 men) at a private Christian liberal arts university in the Northwest participated in this study in exchange for extra credit. All participants signed informed consent forms and then received the survey materials, which they completed outside of class. Participants returned the completed surveys to the next class period at which time they were debriefed. Most (87.5%) of the participants classified themselves as Caucasian, and their ages ranged from 17 to 59 years, with the majority (97.4 %) between the ages of 17 and 25 years and 5 participants older than 25 years.

### Scales

Participants' belief in Christianity was assessed with two scales. The Christian Orthodoxy Scale is a 24-item measure that assesses the extent to which people accept the central tenets of the Christian religion (Fullerton &

Hunsberger, 1982; Hunsberger, 1989). An example question is "God exists as Father, Son, and Holy Spirit." The Scriptural Literalism Scale is a 16-item measure that assesses the extent to which people accept a literal interpretation of the Bible (Hogge & Friedman, 1967). An example question is "The scriptures contain religious truths." Both scales are scored on a Likert-type scale of 1 (*strongly disagree*) to 7 (*strongly agree*). Higher scores on the scales correspond to higher levels of Christian orthodoxy and scriptural literalism, respectively. In the current study, all items from both scales were combined to form a single 40-item Christian Orthodoxy Scale (Cronbach's  $\alpha = .97$ ).

Next, participants' awareness of the consequences of environmental conditions was measured using items from the AC scales developed by Stern et al. (1995) and Stern et al. (1993), although the wording of several questions was adjusted and several new questions were added. Similar versions of the AC items used in the present study have been used recently in other studies (Garling, et al., 2003; Joireman, Lasane, Bennett, Richards & Solaimani, 2001). The revised AC scales consist of four items to measure biospheric AC (Cronbach's  $\alpha = .71$ ), five items to measure social-altruistic AC (Cronbach's  $\alpha = .69$ ), and four items to measure egoistic AC (Cronbach's  $\alpha = .54$ ). Example items are "Modern development threatens wildlife" (biospheric AC), "Environmental protection is beneficial to my health" (egoistic AC), and "Environmental protection will help people have a better quality of life" (social-altruistic AC). Publication of the entire revised versions of the AC scales used in this article can be found in Joireman et al. (2001). The AC scales are scored on a Likert-type scale of 1 (*strongly disagree*) to 7 (*strongly agree*).

Finally, environmental behavior was measured with three different scales: Willingness to Pay for Environmental Protection Scale, Proenvironmental Behavior Scale, and the Proenvironmental Intentions Scale. Participants' willingness to pay for environmental protection was measured with two items from Stern, Dietz, and Guagnano's (1998) Willingness to Sacrifice Scale. The items assessed the participants' willingness to pay taxes and higher prices to protect the environment (Cronbach's  $\alpha = .94$ ). The scale is scored on a Likert-type scale of 1 (*strongly disagree*) to 7 (*strongly agree*). Participants' proenvironmental intentions were assessed with the Stern et al. (1993) Political Action Scale with one additional item concerning participants' willingness to boycott the products of a company that pollutes (Cronbach's  $\alpha = .78$ ). An example item is "I would sign a petition in support of tougher environmental laws." The scale is scored on a Likert-type scale of 1 (*strongly disagree*) to 7 (*strongly agree*). Participants' proenvironmental political behavior was measured using Stern et al.'s (1998) six-item Political

**Table 1**  
**Descriptive Statistics and Intercorrelations Among Study Variables**

	Intent	WTP	PPB	C-Orth	BioAC	EgoAC	SocAC
Intent	(.78)						
WTP	.71**	(.94)					
PPB	.54**	.47**	(.66)				
C-Orth	-.16*	-.17*	-.22**	(.97)			
BioAC	.63**	.54**	.48**	-.15*	(.71)		
EgoAC	.64**	.44**	.34**	-.12	.55**	(.54)	
SocAC	.67**	.53**	.39**	-.10	.60**	.51**	(.69)
Mean	4.55	3.83	0.23	6.28	5.06	5.36	5.45
Standard deviation	1.16	1.63	0.25	0.85	1.11	0.90	0.92

Note:  $N = 183$ . Intent = proenvironmental intentions; WTP = willingness to pay for environmental protection; PPB = proenvironmental political behavior; C-Orth = Christian orthodoxy; BioAC = awareness of biospheric consequences; EgoAC = awareness of egoistic consequences; SocAC = awareness of social-altruistic consequences. Cronbach's alpha for each scale shown along the diagonal.

\* $p < .05$ . \*\* $p < .01$ .

Behavior Scale. The scale assessed whether or not participants had performed a list of various proenvironmental political behaviors (Cronbach's  $\alpha = .66$ ). An example item is "In the last five years, have you voted for a candidate in an election at least in part because he or she was in favor of strong environmental protection?" Each item on the scale was scored on a dichotomous scale, from 0 (*no*) to 1 (*yes*).

## Results

Table 1 displays the means and standard deviations for all scales as well as correlations among the scales. As can be seen, the Christian Orthodoxy Scale significantly negatively correlated with all three measures of environmental behavior, with the strongest correlation arising with proenvironmental political behavior. Christian orthodoxy was also negatively related to all the AC scales, but only the correlation with biospheric AC reached significance. In addition, the AC scales strongly correlated with each other, a finding which is in-line with that found by Stern et al. (1993). Each of the AC scales also significantly positively correlated with all three measures of proenvironmental behavior, with the strongest correlations among the AC

scales and proenvironmental intentions followed by willingness to pay for environmental protection and proenvironmental political behavior.

The mediation hypotheses were tested following the procedure outlined by Baron and Kenny (1986). According to Baron and Kenny, four qualifications must be met to demonstrate mediation. First, the independent variable (Christian orthodoxy) must correlate with the dependent variable (proenvironmental behavior: willingness to pay for environmental protection, proenvironmental political behavior, and intention to act). This requirement is met as Christian orthodoxy significantly negatively correlates with all measures of environmental behavior (see Table 1). Second, the independent variable (Christian orthodoxy) must correlate with the expected mediator (biospheric AC, egoistic AC, social-altruistic AC). As shown in Table 1, this qualification is only met for biospheric AC. Thus the mediation analyses for egoistic AC and social-altruistic AC cannot be conducted any further. As such, the remaining mediation analyses will focus solely on the mediating properties of biospheric AC on the Christian orthodoxy–environmental behavior relationship. Third, the expected mediator must correlate with the dependent variable. As is evident from Table 1, this relationship holds as biospheric AC is significantly correlated with each proenvironmental behavior measure. Finally, to demonstrate mediation, the significant relationship between the independent variable and the dependent variable must become nonsignificant or reduced significantly when the mediator is added to the regression equation (Baron & Kenny, 1986). For each mediation analysis, Christian orthodoxy was entered on Step 1 and biospheric AC was entered on Step 2 (see Tables 2, 3, and 4).

In the regression predicting proenvironmental intentions, when biospheric AC was added to the model in Step 2, Christian orthodoxy was no longer a significant predictor (see Table 2). A Sobel (1982) test confirmed that the Christian orthodoxy beta-weight reduced significantly when biospheric AC was added to the model,  $z = -2.06, p < .05$ . Thus, biospheric AC fully mediated the relationship between Christian orthodoxy beliefs and proenvironmental intentions. Overall, the model explained 40% of the variance in proenvironmental intentions.

For willingness to pay for environmental protection, a similar pattern emerged (see Table 3). When biospheric AC was added to the regression model, Christian orthodoxy was no longer a significant predictor. A Sobel (1982) test showed that the reduction in the Christian orthodoxy beta-weight significantly reduced when biospheric AC was added to the model,  $z = -2.03, p < .05$ . Thus, biospheric AC fully mediated the relationship between Christian orthodoxy beliefs and willingness to pay for environmental

**Table 2**  
**Multiple Regression Analysis Predicting**  
**Proenvironmental Intentions**

Predictor	<i>B</i>	Standard Error- <i>B</i>	$\beta$	<i>p</i>
Step				
C-Orth	-.22	.10	-.16	.026
Step 2				
C-Orth	-.09	.08	-.07	.240
BioAC	.65	.06	.62	.000

Note:  $N = 185$ . Step 1,  $R^2 = .03$ ; Step 2,  $\Delta R^2 = .38$  ( $p < .001$ ); C-Orth = Christian orthodoxy; BioAC = awareness of biospheric consequences.

**Table 3**  
**Multiple Regression Analysis Predicting Willingness to Pay for**  
**Environmental Protection**

Predictor	<i>B</i>	Standard Error- <i>B</i>	$\beta$	<i>p</i>
Step 1				
C-Orth	-.32	.14	-.17	.023
Step 2				
C-Orth	-.16	.12	-.09	.173
BioAC	.78	.09	.53	.000

Note:  $N = 185$ . Step 1,  $R^2 = .03$ ; Step 2,  $\Delta R^2 = .27$  ( $p < .001$ ); C-Orth = Christian orthodoxy; BioAC = awareness of biospheric consequences.

protection. Overall, the model explained 30% of the variation in willingness to pay for environmental protection.

In the regression predicting proenvironmental political behavior, a slightly different pattern emerged (see Table 4). When biospheric AC was added to the model, a significant drop in the beta-weight of Christian orthodoxy occurred ( $z = -2.00$ ,  $p < .05$ ), but Christian orthodoxy still remained a significant predictor of proenvironmental political behavior. Thus, biospheric AC partially mediated the relationship between Christian orthodoxy and proenvironmental political behavior. Overall, the model accounted for 20% of the variance in proenvironmental behavior.

## Discussion

In this study, we found that Christian orthodoxy beliefs were negatively correlated with three different measures of environmental behavior: behavioral

**Table 4**  
**Multiple Regression Analyses Predicting Proenvironmental Political Behavior**

Predictor	<i>B</i>	Standard Error- <i>B</i>	$\beta$	<i>p</i>
Step 1				
C-Orth	-.07	.02	-.22	.002
Step 2				
C-Orth	-.05	.02	-.16	.019
BioAC	.10	.02	.45	.000

Note:  $N = 183$ . Step 1,  $R^2 = .05$ ; Step 2,  $\Delta R^2 = .20$  ( $p < .001$ ); C-Orth = Christian orthodoxy; BioAC = awareness of biospheric consequences.

intention, willingness to pay for environmental protection, and proenvironmental political behavior. Our finding that Christian orthodoxy was negatively related to willingness to pay for environmental protection is in-line with previous research showing that those who have strong Christian beliefs are less likely to support spending for environmental protection (Kanagy et al., 1994; Klineberg et al., 1998). Additionally, our findings with regard to the negative relationship between Christian orthodoxy beliefs and prior environmental behavior converge with previous findings showing that people who endorse more orthodox Christian beliefs are less likely to perform proenvironmental behaviors similar to those measured in the current study, such as recycling and joining environmental organizations (Eckberg & Blocker, 1996; Klineberg et al., 1998).

But, unlike previous work on the religiosity–environmentalism relationship, we also examined the mechanisms underlying this inverse relationship. We found support for our hypothesis that the relationship between Christian orthodoxy beliefs and environmental behavior was mediated by awareness of consequences of environmental problems. For all measures of environmental behavior, Christian orthodoxy was negatively related to awareness of biospheric consequences, and this relationship accounted for the negative correlation between Christian orthodoxy and environmental behavior. Specifically, awareness of biospheric consequences fully mediated the relationships between Christian orthodoxy and proenvironmental intention and Christian orthodoxy and willingness to pay for environmental protection and partially mediated the relationship between Christian orthodoxy and proenvironmental political behavior.

Contrary to our predictions, we did not find the expected effect of egoistic AC and social-altruistic AC on Christian orthodoxy. Awareness of

egoistic and social-altruistic consequences did not significantly positively correlate with Christian orthodoxy, so the mediation analyses were not carried out. One possible explanation for this finding (as one reviewer pointed out) may be accounted for by the moderate reliabilities of Stern's scales in the present study. In particular, the egoistic AC scale's internal reliability of .54 may have reduced the possibility of finding a relationship between egoistic AC and Christian orthodoxy. Thus, our inability to show mediation of the Christian orthodoxy–environmental behavior relationship by egoistic AC may be due to measurement error and not a lack of egoistic AC's mediating properties. Reliability analyses showed that the Cronbach's alpha of the egoistic AC scale could not be improved by deleting any items. Although other studies have used the AC scales effectively (Garling et al., 2003; Joireman et al., 2001), recent research has suggested that Schultz's (2001) Environmental Concern (EC) scales may have stronger measurement properties in assessing biospheric, egoistic, and social-altruistic concern for valued objects (Snelgar, 2006). Specifically, the EC scales have been shown to have a clearer structure and increased reliability over the AC scales (Snelgar, 2006). Thus, future research on the mediating role of concern for valued objects in the Christian orthodoxy–environmentalism relationship may benefit by using Schultz's EC scales.

This set of findings has major implications for the interpretation of the relationship between endorsement of Christian beliefs and antienvironmentalism. In contrast to White's (1967) proposition that "Christianity is the most anthropocentric religion the world has seen" (p. 1205), in the current study, Christian orthodoxy actually negatively correlated (although not statistically significantly) with awareness of the social-altruistic and egoistic consequences of environmental problems. Our results suggest that the inverse relationship between Christian orthodoxy and environmentalism is not due to the fact that Christians are less aware of social-altruistic or egoistic concerns, but that they are less aware of biospheric consequences.

One possible way to increase Christians' awareness of biospheric consequences is to increase environmental education in churches. Some Christian leaders have already recognized this need and have implemented programs in their churches to increase awareness and concern for the environment (Holland & Carter, 2005). Recent research has shown that church leaders who supplement their sermons with additional materials to educate their congregations about environmental issues have congregations that perform more proenvironmental behaviors (Holland & Carter, 2005). Future studies in this arena should focus on designing supplemental sermon materials that focus on educating congregations about the adverse consequences of

environmental practices on the biosphere. Tests of the effectiveness of the biospheric AC materials would be a solid step toward applying the results of the current lab study to the field to determine their generalizability and practical applicability.

In addition to efforts by churches to provide environmental education to increase biospheric AC, church leaders' interpretation of the passages in Genesis 1 can potentially affect their congregations' proenvironmental behavior. As described earlier, White (1967) interprets Genesis 1 as prescribing that humans have dominion over nature and that nature exists solely for man's use. Others have argued that Genesis 1 dictates that humans have a stewardship relationship with nature and that humans should take care of and protect nature (Dobel, 1977/2008). Inherent in the dominion view is a primary concern for the value of human welfare, whereas the stewardship view values nature for its own sake. Theoretically, the stewardship view, with its focus on the value of nature, should result in higher biospheric AC than the dominion view, as we are predisposed to seek out information about things we value (Stern & Dietz, 1994). Although empirical research has not been conducted to test these propositions, some prominent church leaders are making the transition from the dominion toward the stewardship interpretation in hopes of increasing the proenvironmental behavior of their followers. For example, Pope John Paul II (1990), in his message on the World Day of Peace, summarized Genesis 1: "Adam and Eve were to have exercised their dominion over the earth (Gen 1:28) with wisdom and love." The Pope's addition of "with wisdom and love" is a clear indication of the move from a view of humans' relationship with nature as controlling to one of caring and concern. Research assessing the biospheric AC of congregations that follow the dominion versus the stewardship view could potentially point to another way to increase proenvironmental behavior of people who adhere to Christian orthodoxy.

### **Awareness of Consequences, Christian Orthodoxy, and Environmental Behavior**

In addition to our findings regarding the mediating role of biospheric AC, our focus on awareness of consequence beliefs led to another interesting finding. All three awareness of consequences variables were strongly correlated with our measures of proenvironmental behaviors. Thus, people's intentions to take proenvironmental actions, their willingness to pay for environmental protection, and their performance of political environmental behaviors are driven by their concern that adverse consequences will befall the biosphere, society as a whole, and themselves. Future research could take a longitudinal approach to investigate whether awareness of consequences can predict not

only prior environmental behavior and intention to commit future behaviors but also actual future proenvironmental behaviors.

## **Limitations and Suggestions for Future Research**

One benefit of using the strongly Christian sample in the present study was that we were able to investigate the mechanisms that determined why this population was less environmental. However, future research should use a sample that does not score as uniformly strong on Christian Orthodoxy Scale to determine whether lack of awareness of biospheric consequences mediates the relationship between Christian orthodoxy and environmentalism for more moderate Christians. Indeed, using a broader sample with more variability in Christian orthodoxy may show stronger relationships than we have uncovered in this study.

Additionally, although the present study focused only on the mediating role of awareness of consequences in the relationship between Christian orthodoxy and environmentalism, future research may benefit from simultaneously examining awareness of consequences and environmental values (cf. Stern et al., 1993). Stern and Dietz (1994) suggested that environmental values predispose people to attend to information about the consequences of environmental problems on valued objects. In the current study, we inferred environmental values indirectly through Christian orthodoxy in line with the results of Schultz et al. (2000). By simultaneously measuring environmental values, Christian orthodoxy, awareness of consequences and environmental behavior, the links between these variables can be assessed directly, and a more complete model of the relationship between Christian orthodoxy and environmentalism can be tested.

Finally, the results of this study suggest that Christians' lack of awareness of the biospheric consequences of environmental problems is responsible for their lack of proenvironmental behavior. As suggested above, future research can test this mediation model in a Church setting by manipulating awareness of biospheric consequences to determine the ability of this model to hold outside the laboratory.

## **Contributions**

This study is one of the first to directly examine the mediating mechanisms underlying the relationship between Christian orthodoxy and environmental behavior. Awareness of the biospheric consequences of environmental problems was a complete mediator in Christian orthodoxy's relationships with environmental behavioral intention and willingness to pay for environmental

protection and a partial mediator in Christian orthodoxy's relationship with proenvironmental political behavior. Thus, this study provides a much needed step toward solidifying our understanding of the reasons why Christians may be less environmental in certain situations. Future studies aimed at understanding how to change those beliefs would provide an important next step in this line of inquiry.

## References

- Baron, R. M., & Kenny, D. A. (1986). The moderator-mediator variable distinction in social psychological research: Conceptual, strategic and statistical considerations. *Journal of Personality and Social Psychology, 51*, 1173-1182.
- Biel, A., & Nilsson, A. (2005). Religious values and environmental concern: Harmony and detachment. *Social Science Quarterly, 86*, 178-191.
- Dobel, P. (2008). The Judeo-Christian stewardship attitude to nature. In L. P. Pojman & P. Pojman (Eds.) *Environmental ethics: Readings in theory and application* (5th ed., pp. 22-27). Belmont, CA: Thomson. (Reprinted from Patrick, D. J. (1977). Stewards of the Earth's resources: A Christian response to ecology. *The Christian Century, 94*, 906-909.)
- Eckberg, D. L., & Blocker, T. J. (1996). Christianity, environmentalism, and the theoretical problem of fundamentalism. *Journal for the Scientific Study of Religion, 35*, 343-355.
- Fullerton, J. T., & Hunsberger, B. E. (1982). A unidimensional measure of Christian orthodoxy. *Journal for the Scientific Study of Religion, 21*, 317-326.
- Garling, T., Fujii, S., Garling, A., & Jakobsson, C. (2003). Moderating effects of social value orientation on determinants of proenvironmental behavior intention. *Journal of Environmental Psychology, 23*, 1-9.
- Greeley, A. (1993). Religion and attitudes toward the environment. *Journal for the Scientific Study of Religion, 32*, 19-28.
- Hand, C. M., & Van Liere, K. D. (1984). Religion, mastery-over-nature, and environmental concern. *Social Forces, 63*, 555-570.
- Hayes, B. C., & Marangudakis, M. (2001). Religion and attitudes towards nature in Britain. *British Journal of Sociology, 52*, 139-155.
- Hogge, J. H., & Friedman, S. T. (1967). The scriptural literalism scale: A preliminary report. *Journal of Psychology, 66*, 275-279.
- Holland, L., & Carter, J. S. (2005). Words v. deeds: A comparison of religious belief and environmental action. *Sociological Spectrum, 25*, 739-753.
- Hunsberger, B. (1989). Short version of the Christian Orthodoxy Scale. *Journal for the Scientific Study of Religion, 28*, 360-365.
- Joireman, J. A., Lasane, T. P., Bennett, J., Richards, D., & Solaimani, S. (2001). Integrating social value orientation and the consideration of future consequences within the extended norm activation model of proenvironmental behavior. *British Journal of Social Psychology, 40*, 133-155.
- Kanagy, C. L., Humphrey, C. R., & Firebaugh, G. (1994). Surging environmentalism: Changing public opinion or changing publics? *Social Science Quarterly, 75*, 804-819.
- Klineberg, S. L., McKeever, M., & Rothenbach, B. (1998). Demographic predictors of environmental concern: It does make a difference how it's measured. *Social Science Quarterly, 79*, 734-753.

- Nordlund, A. M., Garvill, J. (2002). Value structures behind proenvironmental behavior. *Environment and Behavior, 34*, 740-756.
- Pope John Paul II. (1990). *Peace with all creation*. Retrieved September 8, 2008, from [http://conservation.catholic.org/ecological\\_crisis.htm](http://conservation.catholic.org/ecological_crisis.htm)
- Schultz, P. W. (2001). The structure of environmental concern: concern for self, other people, and the biosphere. *Journal of Environmental Psychology, 21*, 327-339.
- Schultz, P. W., Zelezny, L., & Dalrymple, N. J. (2000). A multinational perspective on the relation between Judeo-Christian religious beliefs and attitudes of environmental concern. *Environment and Behavior, 32*, 576-591.
- Snelgar, R. S. (2006). Egoistic, altruistic, and biospheric environmental concerns: Measurement and structure. *Journal of Environmental Psychology, 26*, 87-99.
- Sobel, M. E. (1982). Asymptotic confidence intervals for indirect effects in structural models. In S. Leinhardt (Ed.), *Sociological methodology* (pp. 290-312). San Francisco: Jossey-Bass.
- Steg, L., Dreijerink, L., & Abrahamse, W. (2005). Factors influencing the acceptability of energy policies: A test of VBN theory. *Journal of Environmental Psychology, 25*, 415-425.
- Stern, P. C., & Dietz, T. (1994). The value basis of environmental concern. *Journal of Social Issues, 50*, 65-84.
- Stern, P.C., Dietz, T., & Guagnano, G. A. (1998). A brief inventory of values. *Educational and Psychological Measurement, 58*, 984-1001.
- Stern, P. C., Dietz, T., & Kalof, L. (1993). Value orientations, gender, and environmental concern. *Environment and Behavior, 25*, 322-348.
- Stern, P. C., Dietz, T., Kalof, L., & Guagnano, G. A. (1995). Values, beliefs, and proenvironmental action: Attitude formation toward emergent attitudes objects. *Journal of Applied Social Psychology, 25*, 1611-1636.
- Stern, P. C. (2000). Toward a coherent theory of environmentally significant behavior. *Journal of Social Issues, 56*, 407-424.
- Thompson, S. C., & Barton, M. A. (1994). Ecocentric and anthropocentric attitudes toward the environment. *Journal of Environmental Psychology, 14*, 149-157.
- White, L., Jr. (1967). The historical roots of our ecological crisis. *Science, 155*, 1203-1207.

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