

A MULTINATIONAL PERSPECTIVE ON THE RELATION BETWEEN JUDEO-CHRISTIAN RELIGIOUS BELIEFS AND ATTITUDES OF ENVIRONMENTAL CONCERN

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ABSTRACT: Drawing on a recent multinational survey of environmental attitudes and behaviors, we examined the relation between religious beliefs and environmental concern. Measures included the revised New Environmental Paradigm (NEP), Thompson and Barton's ecocentrism and anthropocentrism scales, a 12-item proenvironmental behavior scale, a measure of biblical literalism, and a measure of religious importance. Data are reported from 2,160 university students from Argentina, Canada, Colombia, Costa Rica, the Dominican Republic, Ecuador, El Salvador, Mexico, Panama, Paraguay, Peru, Spain, the United States, and Venezuela. The data revealed a consistent pattern across countries. Respondents who expressed more literal beliefs in the Bible scored significantly lower on the NEP, lower on ecocentric environmental concerns, and higher on anthropocentric environmental concerns. No significant relation was found between biblical literalism and self-reported proenvironmental behavior.

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To what extent do religious beliefs predict attitudes about environmental issues? Almost all the research addressing this question has been guided by White's (1967) thesis. In short, White argued that Christian doctrines emphasize human supremacy over nature and that people who adhere to these doctrines tend to view nature as something to be dominated, conquered, and subdued. In fact, White suggested that these beliefs have permeated Western culture to such an extent that nearly everyone living in the West will share these values. Because of injunctions like Genesis 1—that humans should exercise “dominion” over the earth—White argued that the Judeo-Christian heritage has brought about our current ecological crisis. Indeed, White argued that Judeo-Christian religious beliefs are fundamentally antienvironmental. The purpose of this article is to examine the relation between environmental attitudes, proenvironmental behavior, and belief in the Bible among a diverse sample of English- and Spanish-speaking respondents.

White's (1967) thesis has stimulated considerable debate by theologians and social scientists, but only a handful of empirical studies have examined the relation between religious beliefs and environmental attitudes or behaviors. As Guth, Kellstedt, Smidt, and Green (1993) pointed out, most of the discourse has been on the reconciliation of Christian beliefs with environmentalism and not with testing White's theory (cf. Whitney, 1993). As Guth et al. (1993) wrote, “Very little research has explored how religious beliefs, attitudes, and practice influence lay opinion” (p. 374). The studies that have been conducted to assess the relation between Christian beliefs and environmental concern tend to support White's theory, although there is by no means a consensus among researchers. In general, the research shows that people who report membership in more fundamental religious groups (presumably, these people have stronger Judeo-Christian beliefs) tend to score slightly lower on measures of environmental concern (Guth, Green, Kellstedt, & Smidt, 1995; Hand & Van Liere, 1984; Hartwig, 1999). With respect to other measures of religious beliefs, the results are mixed, with most studies showing a small negative correlation between more fundamental Christian beliefs (e.g., beliefs that the Bible is the literal word of God) and environmental concern, although there are exceptions (Dietz, Stern, & Guagnano, 1998; Eckberg & Blocker, 1989, 1996; Greeley, 1993; Wolkomir, Futreal, Woodrum, & Hoban, 1997).

We propose that the inconsistency in research findings may be due, in part, to the type of environmental attitudes that are being assessed. Indeed, even though many passages in the Bible prescribe dominion over nature, scholars have looked for passages or translations of passages that advise “stewardship” and preservation of nature. For example, the Hebrew word *rada*, which has been translated to mean “to have dominion,” also has the connotation of responsible leadership or governorship (Barr, cited in Whitney, 1993). Similarly, Gen. 2:15 (New Revised Standard Version) states, “The LORD God took the man and put him in the garden of Eden to till it and keep it.” The translated Hebrew *abad* (to till) is also the root of the words “servant” or “slave,” and its literal meaning is “to serve.” The Hebrew word *shamar* (to keep) also has the meaning of “stewardship” or “trustee” (Gelderloos, 1992, p. 13). Other scholars have looked for passages of the Bible suggesting that violence against nature—which was created by God—is a sin. Consider Psalm 104:

O LORD, how manifold are your works! In wisdom you have made them all; the earth is full of your creatures. . . . These all look to you to give them their food in due season; when you give to them, they gather it up; when you open your hand, they are filled with good things. When you hide your face, they are dismayed; when you take away their breath, they die and return to their dust. When you send forth your spirit, they are created; and you renew the face of the ground. May the glory of the LORD endure forever.

Although several studies have used multiple measures of environmental attitudes (cf. Dietz et al., 1998; Eckberg & Blocker, 1996), none has distinguished between different types of environmental concerns. The studies to date have been conducted under the implicit assumption that concern for the natural environment is a unidimensional construct ranging from unconcerned to highly concerned. One surprising characteristic of this research, especially given the underlying assumption of unidimensionality, is the lack of studies using the New Environmental Paradigm (NEP) (Dunlap & Van Liere, 1978), the most widely used measure of general environmental concern among researchers of environmental attitudes. Instead, most of the studies have relied on unvalidated ad hoc scales or on single-item measures (often from the General Social Survey).

Recent research has shown that environmental attitudes are based on a person's more general set of values and that different values lead to different value-based attitudes (Schultz & Zelezny, 1998, 1999; Stern & Dietz, 1994; Thompson & Barton, 1994). Thompson and Barton developed a set of questions that are designed to measure two value-based environmental attitudes: *ecocentric* and *anthropocentric*. Ecocentric concerns center on the intrinsic value of plants and animals. In contrast, anthropocentric concerns are based on the effect that environmental damage will have on the quality of life for all humans. Note that anthropocentrism includes concerns both for self and for other people. Conceptually, both ecocentrism and anthropocentrism are positively associated with a desire for environmental protection—ecocentrism because nature is valued for its own sake, and anthropocentrism because nature is necessary for maintaining and enhancing the quality of life for humans. However, to date, the published studies using these items have shown a negative relation between anthropocentrism and proenvironmental behavior.

The research cited here suggests that Judeo-Christian beliefs are negatively related to general environmental concern. Recent theoretical developments about environmental attitudes suggest that concern for environmental issues has a value basis and that different bases lead to different concerns. Drawing on White's (1967) hypothesis and on the distinction between anthropocentric and ecocentric environmental concerns, we hypothesized that people who report a more literal belief in the Bible would score lower on ecocentrism, lower on the NEP, and higher on anthropocentrism. As White (1967) stated, "Christianity is the most anthropocentric religion the world has seen" (p. 1206). A brief comment regarding level of analysis is in order: White's theory is sociological, not psychological. However, it is our contention that at the psychological level of analysis, a person who has a literal belief in the Bible—someone who believes that the Bible is the literal word of God—will be more likely to adhere to Christian beliefs than someone who believes

that the Bible is the “inspired word of God” or that the Bible is only a book of “history and legends.”

Finally, we hypothesized that Christian beliefs should be positively related to anthropocentrism and negatively related to both NEP scores and ecocentrism, regardless of the cultural context. That is, using a multinational sample, we hypothesized that the relations between religious beliefs and environmental attitudes would be consistent across a variety of countries.

METHODOLOGY

PARTICIPANTS

Participants in this multinational study were undergraduates from colleges and universities in North, Central, and South America and in Spain. To produce a comparable multinational sample, all of the participants were enrolled in social or behavioral science courses (e.g., economics, political science, psychology, sociology). In all, a sample of 2,160 participants was obtained from 14 countries: Argentina ($n = 54$), Canada ($n = 96$), Colombia ($n = 149$), Costa Rica ($n = 213$), Dominican Republic ($n = 121$), Ecuador ($n = 201$), El Salvador ($n = 194$), Mexico ($n = 65$), Panama ($n = 100$), Paraguay ($n = 200$), Peru ($n = 224$), Spain ($n = 104$), the United States ($n = 245$), and Venezuela ($n = 194$).

MATERIALS

Survey measures included self-reported proenvironmental behaviors, ecocentric and anthropocentric environmental attitudes, belief in biblical literalism, importance of religion in the respondent’s life, and demographics. Self-reported proenvironmental behaviors were measured using temporal ratings of 12 past behaviors. Respondents were asked to indicate “how often you have done each of the following in the last year” on a scale of 1 (*never*), 2 (*rarely*), 3 (*sometimes*), 4 (*often*), or 5 (*very often*). Because of differences in the availability of various environmental programs across countries (e.g., community recycling), a *not applicable* option was provided for each of the behaviors; not applicable responses were excluded from the analyses. The 12 behavioral items were

- Looked for ways to reuse things
- Recycled newspapers
- Recycled cans or bottles
- Encouraged friends or family to recycle
- Purchased products in reusable or recyclable containers
- Picked up litter that was not your own
- Composted food scraps
- Conserved gasoline by walking or bicycling
- Wrote a letter supporting an environmental issue

- Voted for a candidate who supported environmental issues
- Donated money to an environmental group
- Volunteered time to help an environmental group or project

Environmental attitudes were measured using three scales. General concern was assessed with the 15-item revised NEP (Dunlap & Van Liere, 1978; Dunlap, Van Liere, Mertig, & Howell, 1992). Items were rated on a Likert-type scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). The same Likert-type response scale was used for 14 items drawn from Thompson and Barton's (1994) scales, which measure ecocentric (Items 2, 5, 7, 26, 30, 32, and 33) and anthropocentric (Items 4, 11, 14, 22, 24, 27, and 29) environmental attitudes.

Biblical literalism was measured with items adapted from Eckberg and Blocker (1989). Participants were asked, "Which of the following statements best describes your beliefs in the Bible?" Response alternatives were

- The Bible is the actual word of God and should be taken literally, word for word.
- The Bible is the inspired word of God, but it was written by men and women and contains some human errors.
- The Bible is an ancient book of history and legends; God had nothing to do with it.

Of the 2,160 questionnaires that were returned, 13% ($n = 286$) failed to answer the question about beliefs in the Bible. These participants were excluded from the analyses, yielding a working sample of 1,874 for analyses of biblical literalism.

Respondents also were asked to rate "How important is religion in your life?" on a 5-point scale, ranging from 1 (*not important*) to 5 (*very important*). Of the 2,160 respondents, 7% ($n = 141$) failed to answer this, yielding a working sample of 2,019. (Note that sample sizes vary slightly because of missing data in other variables.)

Demographic measures included age, socioeconomic status (SES), and gender. SES was measured on a Likert-type scale with the question "Relative to the people in your country, would you say that your family is . . . ," with responses ranging from 1 (*lower class*) to 10 (*upper class*). A more detailed description of the demographic characteristics of the sample, divided by country, can be found in Schultz & Zelezny (1999). To summarize, the samples tended to be more than 50% female, mid-20s in age (sample $M_s = 21$ -37 years), and middle class (sample $M_s = 3.37$ -6.31). They also tended to rate religion as moderately important in their lives (sample $M_s = 2.77$ -4.44).

DESIGN

A network of university professors in Spanish-speaking countries in Central and South America was developed. A packet of 100 to 200 surveys was sent to each contact who was responsible for distributing, collecting, and returning the completed surveys. A back-translation method was used to translate the survey into Spanish. All the surveys were mailed to the university contacts in a packet that contained a debriefing sheet and a postage-paid return envelope. In addition, undergraduates were sampled from universities in California and New York, and a Canadian sample was obtained from the province of Ontario.

RESULTS

Environmental concern was measured with three previously published scales, and internal reliability analyses were conducted separately by country for each scale. For the NEP scale, alpha reliabilities ranged from a low of .54 in Panama to a high of .81 in the United States, with an average across the 14 countries of .65. Item analyses revealed that none of the items detracted from the scale consistently across countries, although several of the items showed low item-total correlations in one or more of the samples. To keep the scale comparable across countries, none of the items were excluded.

A similar procedure was used to assess the reliabilities for the ecocentrism and anthropocentrism scales extracted from Thompson and Barton (1994). Alpha reliabilities for the seven-item ecocentrism scale ranged from .66 in Canada to .80 in El Salvador. The average alpha reliability across the 14 countries was .72. Alpha reliabilities for the anthropocentrism scale ranged from .64 in the Dominican Republic to .77 in the sample from Peru, and the average alpha level across the 14 countries was .71. None of the items detracted from the scale in any of the samples. Copies of the translated scale items are available from the authors.

Reliability analyses for the 12-item behavioral scale ranged from .66 in Paraguay to .84 in Panama. The overall alpha across the 14-country sample was .79. None of the items detracted from the scale. Scale scores for all measures were produced by averaging the items. Missing cases were excluded from the analysis on a listwise basis. Correlation coefficients were calculated between each of the four measures. Results showed that NEP scores correlated positively with self-reported environmental behavior ($r = .11$), positively with ecocentric environmental concerns ($r = .44$), and negatively with anthropocentric environmental concerns ($r = -.19$). Ecocentrism correlated positively with anthropocentrism ($r = .24$) and positively with self-reported behavior ($r = .10$). Anthropocentrism correlated negatively with self-reported behavior ($r = -.11$). Because of the large sample size ($N = 2,088$) for these analyses, all correlations were significant ($p < .001$).

Our first set of hypotheses predicted that biblical literalism would be positively related to

anthropocentric environmental concerns, negatively related to ecocentric environmental concerns, and negatively related to scores on the NEP scale. Because biblical literalism was categorized into three groups (literal word of God, inspired word of God, history and legends), analyses tested differences between each of these groups. A 14 (Country) X 3 (Biblical Literalism) multivariate analysis of covariance (MANCOVA) was performed, with follow-up univariate tests for each of the four dependent variables (anthropocentrism, ecocentrism, NEP, and self-reported proenvironmental behavior). Age, relative SES, and gender were used as covariates.

Results from the MANCOVA revealed a significant multivariate effect for country, Pillais = .15, $F(52, 7048) = 5.30, p < .001$; a significant multivariate effect for biblical literalism, Pillais = .03, $F(8, 3520) = 5.17, p < .001$; and a marginally significant Country X Biblical Literalism interaction, Pillais = .08, $F(104, 7048) = 1.41, p < .05$. The univariate effects following the significant multivariate interaction revealed nonsignificant interaction effects for ecocentrism, $F(24, 1685) = 1.26, p = .19$; for anthropocentrism, $F(26, 1762) = 1.39, p = .10$; or for the proenvironmental behavior scale, $F(26, 1762) = 1.24, p = .20$. However, a significant Country X Biblical Literalism interaction was found for the NEP scale, $F(26, 1762) = 1.90, p < .05$. Means and standard deviations for each of the dependent variables by country and by level of belief in biblical literalism are presented in Table 1.

To examine directly our prediction that people who have a literal belief in the Bible are more anthropocentric in their concerns for environmental issues, we tested the univariate differences in each of the four dependent variables across the three levels of biblical literalism. As is evident from Table 1, across the 14 countries, people who reported that the Bible was the literal word of God tended to score higher on the anthropocentrism scale than did people who reported that the Bible is stories and legends. Because there was not a significant Country X Biblical Literalism interaction for anthropocentrism, data were collapsed across country. Mean scores for the three levels of biblical literalism were compared, controlling for age, relative SES, and gender. The covariates showed that older respondents were more anthropocentric than younger respondents, $t = 2.24, p = .02$, and that people who rated themselves as higher SES, $t = -3.06, p = .002$, were less anthropocentric. Gender was not a significant covariate, $t = -.61, p = .55$. The overall difference between the anthropocentrism scores of the highest ($M = 3.68, SD = .66, n = 444$) and moderate levels of literalism ($M = 3.50, SD = .66, n = 1,277$) was statistically significant across the countries, $t = 3.60, p < .001$; Cohen's $d = .27$, as was the difference between the highest and lowest ($M = 3.11, SD = .72, n = 153$) levels of literalism, $t = 4.52, p < .001$, Cohen's $d = .84$.

A similar approach was used to analyze the ecocentrism, NEP, and proenvironmental behavior scale scores. Single degree of freedom tests comparing the three levels of biblical literalism on ecocentrism and controlling for age, relative SES, and gender were calculated. The covariates showed that women were more ecocentric than men, $t = 5.02, p < .001$; age, $t = -.07, p = .95$, and relative SES, $t = -1.70, p = .09$, were not significantly related to ecocentric environmental concerns. Results from the comparison of high ($M = 4.22, SD = .58, n = 444$) and medium ($M = 4.31, SD = .49, n = 1,277$) biblical literalism revealed a significant overall effect across the countries, $t = -2.63, p < .01$, Cohen's $d = .17$. However,

the highest and lowest ($M = 4.22$, $SD = .53$, $n = 153$) levels of biblical literalism did not differ significantly, $t = -1.22$, $p = .22$, Cohen's $d = .00$.

Analyses of the NEP scale scores revealed a significant overall difference between high ($M = 3.60$, $SD = .44$, $n = 444$) and medium levels ($M = 3.78$, $SD = .40$; $n = 1,277$) of biblical literalism across countries, $t = 2.74$, $p < .01$, Cohen's $d = .44$. Similarly, the highest and lowest ($M = 3.91$, $SD = .45$, $n = 153$) levels of biblical literalism were significantly different, $t = 5.50$, $p < .001$, Cohen's $d = .70$. Results from the three covariates showed that women tended to score higher than men, $t = 2.79$, $p = .006$; age, $t = .96$, $p = .34$, and SES, $t = -.55$, $p = .58$, were not significantly related to NEP scores. Because of the significant multivariate Country X Biblical Literalism interaction obtained in the omnibus MANCOVA reported previously, separate comparisons were made for each country. Significantly different means ($p < .05$) within each country are represented in Table 1 by differing superscripts. In 7 of the 14 countries, higher biblical literalism was associated with lower NEP scores. In six of the seven samples that did not show the predicted effect (Canada, Mexico, Panama, Paraguay, Peru, and Spain), the mean scores were in the expected direction but failed to reach statistical significance.

Analysis of the self-reported proenvironmental behavior scale showed nonsignificant differences between the high and moderate biblical literalism, $t = -.08$, $p = .94$. Similarly, a nonsignificant difference was found between the highest and lowest levels of biblical literalism, $t = -.69$, $p = .49$. Results from the three covariates showed age, $t = -1.48$, $p = .14$, to be unrelated to pro-environmental behavior, women tended to report more frequent proenvironmental behavior than did men, $t = 4.81$, $p < .001$, and higher SES respondents tended to report more proenvironmental behavior, $t = 2.51$, $p = .01$.

A second measure of religious beliefs was included in the survey: a Likert-type item that asked "How important is religion in your life?" with responses ranging from 1 (*not important*) to 5 (*very important*). A one-way analysis of variance showed that respondents with more literal beliefs in the Bible rated religion as more important in their lives, $F(2, 1855) = 355.02$, $p < .001$: actual word of God ($M = 4.58$, $SD = .83$, $n = 419$), inspired word of God ($M = 3.78$, $SD = 1.13$, $n = 1,180$), history and legends ($M = 1.96$, $SD = 1.34$, $n = 103$). Tukey post hoc comparisons showed that each of these groups differed significantly from the other. Partial correlation coefficients were calculated between religious importance and ecocentrism, anthropocentrism, NEP, and proenvironmental behavior, controlling for age, gender, and SES. Overall, religious importance was positively correlated with anthropocentrism ($r = .28$, $n = 2,019$, $p < .001$) and negatively correlated with NEP ($r = -.14$, $n = 2,017$, $p < .001$), but it was unrelated to ecocentrism ($r = .03$) or to proenvironmental behavior ($r = .01$). More detailed analyses examined the relation between anthropocentrism and religious importance separately for each level of biblical literalism. Results showed no differences in the strength or direction of the relation—for all three groups, the correlation coefficient was positive and did not differ significantly from the overall average of .28.

TABLE 1

NEP Scores, Ecocentrism, Anthropocentrism, and Self-Reported Proenvironmental Behavior by Belief in the Bible and Country

	<i>NEP</i>			<i>Ecocentrism</i>			<i>Anthropocentrism</i>			<i>Behavior</i>		
<i>Country</i>	M	SD	n	M	SD	n	M	SD	n	M	SD	n
Argentina												
Actual word	3.75	.24	10	4.01	.54	10	3.18	.52	10	2.09	.61	10
Inspired word	3.78	.37	21	4.29	.47	21	3.41	.52	21	1.99	.74	21
History	3.73	.50	11	4.09	.49	11	2.91	.52	11	2.45	.99	11
Canada												
Actual word	3.82	.44	12	4.00	.39	12	3.28	.48	12	3.12	.57	12
Inspired word	4.03	.40	66	4.38	.43	66	3.07	.63	66	2.90	.69	66
History	3.91	.32	10	4.21	.45	10	2.97	.48	10	2.71	.96	10
Colombia												
Actual word	3.67 ^a	.31	14	4.28	.41	14	3.55	.58	14	2.35	.74	14
Inspired word	3.85	.39	103	4.38	.57	103	3.56	.67	103	2.25	.59	103
History	4.01 ^b	.33	16	4.23	.54	16	3.19	.66	16	2.53	.56	15
Costa Rica												
Actual word	3.78 ^a	.45	33	4.31	.63	33	3.82	.75	33	2.50	.73	33
Inspired word	4.00 ^b	.40	132	4.34	.52	132	3.28	.70	132	2.55	.69	132
History	4.10 ^b	.52	20	4.40	.36	20	3.18	.83	20	2.80	.74	20
Dominican Republic												
Actual word	3.54 ^a	.36	35	4.29	.45	35	3.76	.62	35	2.14	.71	35
Inspired word	3.70 ^b	.34	50	4.28	.49	50	3.62	.61	50	2.15	.71	50
History	NA			NA			NA			NA		
Ecuador												
Actual word	3.43 ^a	.39	66	4.19	.52	66	3.83	.67	66	2.27	.81	66
Inspired word	3.73 ^b	.39	97	4.36	.43	97	3.78	.59	97	2.25	.72	97
History	NA			NA			NA			NA		
El Salvador												
Actual word	3.71 ^a	.33	66	4.41	.60	66	3.91	.69	66	2.29	.72	66
Inspired word	3.84 ^b	.44	95	4.33	.68	95	3.67	.70	95	2.32	.88	95
History	NA			NA			NA			NA		
Mexico												
Actual word	NA			NA			NA			NA		

	<i>NEP</i>			<i>Ecocentrism</i>			<i>Anthropocentrism</i>			<i>Behavior</i>		
<i>Country</i>	M	SD	n	M	SD	n	M	SD	n	M	SD	n
Inspired word	3.78	.32	25	4.11	.45	25	3.40	.79	25	2.15	.67	25
History	3.91	.31	16	3.87	.91	16	3.19	.19	16	2.01	.50	16
Panama												
Actual word	3.75	.33	27	4.48	.49	27	3.91	.51	27	2.19	.71	27
Inspired word	3.78	.36	56	4.41	.41	56	3.75	.65	56	2.20	.79	56
History	3.97	.34	12	4.75	.28	12	2.44	.86	12	1.71	.41	12
Paraguay												
Actual word	3.75	.40	39	4.27	.62	39	3.66	.65	39	2.23	.52	39
Inspired word	3.78	.36	137	4.42	.48	137	3.61	.65	137	2.40	.61	137
History	NA			NA			NA					
Peru												
Actual word	3.59	.38	19	4.17	.54	19	3.60	.76	19	1.94	.61	19
Inspired word	3.60	.35	172	4.21	.46	172	3.60	.59	172	2.03	.63	172
History	3.79	.47	15	4.33	.26	15	3.43	.65	15	1.92	.59	15
Spain												
Actual word	NA			NA			NA			NA		
Inspired word	3.70	.44	45	4.12	.42	45	3.16	.56	45	2.25	.72	45
History	3.87	.43	23	4.07	.38	23	3.19	.19	23	2.01	.50	23
United States												
Actual word	3.42 ^a	.59	88	3.99	.59	88	3.47	.53	88	2.62	.79	88
Inspired word	3.62 ^b	.42	128	4.12	.45	122	3.18	.57	128	2.76	.66	128
History	4.08 ^c	.42	18	4.34	.44	18	2.85	.55	18	3.06	.74	18
Venezuela												
Actual word	3.68 ^a	.36	26	4.25	.69	26	3.73	.70	26	2.39	.91	26
Inspired word	3.78	.38	137	4.39	.41	137	3.52	.62	137	2.16	.64	137
History	3.95 ^b	.34	12	4.52	.24	12	3.41	.59	12	1.87	.47	12

NOTE: Significantly different means ($p < .05$) within each country are represented by differing superscripts. NA indicates cells in which there were fewer than 10 re- spondents. NEP = New Environmental Paradigm.

DISCUSSION

Our results provide strong evidence for an association between Christian beliefs and an anthropocentric basis for environmental concern. The standardized difference (Cohen's d) between participants reporting high and low levels of biblical literalism was .84—a large effect (Cohen, 1992). This finding was consistent across our diverse 14-country sample. We propose that a literal belief in the Bible leads to a general concern for oneself and for other people but not necessarily to a concern for plants and animals. This is evidenced in the findings for both ecocentrism and the NEP, in which literalists tended to score lower. These findings are consistent with previous research and support White's (1967) argument.

However, we do not interpret these findings as evidence that Judeo-Christian beliefs are antienvironmental. Our results showed that people with more literal beliefs in the Bible tended to have more anthropocentric environmental concerns. It is not the case that people with a literal belief in the Bible are unconcerned about environmental degradation but instead that their concerns are rooted in the effects that this degradation will have for humans. Whereas the ecocentric is concerned about the effect of environmental damage on all living things, the anthropocentric is primarily concerned about the effect that environmental damage will have on people.

One issue that arises in this line of research is the distinction between direct and indirect effects. Indeed, the negative relation found in past research between Judeo-Christian beliefs and proenvironmental attitudes is often small (i.e., less than $-.30$), and, when least squares regression analysis is used to control for variables like age, SES, or denomination, the relation typically drops below statistical significance. For instance, Greeley (1993) argued that the negative relation between environmental concern and Christian beliefs is due to political and moral conservatism and not to religion. Using data from the 1988 General Social Survey, Greeley examined the relation between religious beliefs and the willingness to spend money to improve the environment. Results showed that biblical literalism was correlated negatively ($r = -.11$, $p < .05$) with environmental concern, as was Christian affiliation ($r = -.10$, $p < .05$). However, when political liberalism/conservatism and other demographics were statistically partialled out of the analysis, the correlations were no longer significant ($r = -.02$ and $r = -.04$, respectively). Greeley argued that belief in the Bible is not the cause of lower levels of concern, but rather it is the “moral rigidity” found in certain religions that leads to less environmental concern. Similar results were reported by Gardner and Stern (1996).

Because of these findings, we were careful to control for the variables of age, gender, and SES. Our results showed several significant moderators between biblical literalism and environmental concern: Age and SES moderated anthropocentrism, age and gender moderated ecocentrism, gender moderated NEP, and gender and SES moderated proenvironmental behavior. However, in none of the cases did the moderators negate an effect. This suggests that the relation between biblical literalism and environmental concern, although partially moderated, has a unique effect. Of course, it is possible that another variable that we did not include in this study would fully moderate the effects, but this question remains for future research. One such variable that would be important to consider is religious denomination. Our results speak to the issue of a literal interpretation of the

Bible—a variable that at face value seems to tap into the heart of “Christian beliefs.” Nevertheless, to more fully flush out the relation between religious beliefs and environmental concern, it will be important to examine religious denomination as well as biblical literalism.

One unique aspect of our study is the multinational sample. Our findings suggest that the relation between biblical literalism and environmental attitudes are consistent across cultures. For only one of our measures of environmental concern, the NEP, did we find a significant interaction between country and biblical literalism. However, it is important to note the limitation in our sample. Although we were successful in obtaining data from college students enrolled in social science courses in 14 countries, the participants in this study were not representative of the countries from which they were drawn, and, thus, our findings may not generalize beyond young, educated, middle- to upper-SES respondents. Despite this limitation, our results provide the first assessment of the relation between religious beliefs and environmental concerns across cultures.

To our knowledge, this article presents the first psychological assessment of the relation between religious beliefs and concern for the natural environment made at a multinational level. Our results provide strong evidence that a literal belief in the Bible is negatively related to ecocentric environmental concerns and positively related to anthropocentric concerns—regardless of country.

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