

GOD WILL TAKE CARE OF IT: HOW BELIEF IN AN INTERVENING GOD DECREASES
CONCERN FOR CLIMATE CHANGE

BY

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THESIS

Submitted in partial fulfillment of the requirements
for the degree of Master of Arts in Psychology
in the Graduate College of the
University of Illinois at Urbana-Champaign, 2015

Urbana, Illinois

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ABSTRACT

What is the relationship between religious belief and attitudes toward the environment? The present research discusses how one aspect of religion, belief in an intervening God (BIG), reduces concern for climate change. In Study 1, BIG was negatively correlated with belief in climate change and biocentric views of nature. In Study 2, participants who were presented with information about the existence of an intervening God reported decreased moralization of pro-environmental behaviors and decreased biocentric views of nature. Findings from Study 1 and 2 provide preliminary evidence that belief in divine intervention can have negative consequences on attitudes towards climate change. Study 3 examined whether individuals are motivated to use BIG as a compensatory resource to cope with the threat of climate change. If so, exposure to dire climate change messages should increase self-reported BIG. However, Study 3 does not find evidence for this hypothesis. The implications of the results are discussed, including the importance of viewing climate change as a moral issue to promote action.

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CHAPTER 1 INTRODUCTION

A central belief in most religious faiths is a God who acts in human affairs. Supernatural agents who exist outside of the natural world and transcend the physical (e.g., death, illness) are the cornerstones of most major religions. Although religions differ in their specific beliefs about God, the notion that God is an all-powerful, supernatural force is ubiquitous and pervasive across cultures and religions (Atran & Norenzayan, 2004). Importantly, regardless of whether someone actually believes in God, individuals within a society are constantly exposed to images and ideas related to God. Viewing God as an intentional agent who has the power to intervene in the physical world may have important consequences for how individuals respond to events in their environment. The present research examines how belief in an intervening God may affect attitudes towards one of our greatest problems as a species – climate change. Specifically, viewing God as an agent who has things “under control” will decrease climate change mitigation and concern for nature.

Previous research has shown that different concepts of God can be a powerful influence on individuals’ attitudes and behaviors. For example, concepts of God as authoritarian (controlling, commanding, punishing) increase negative social behaviors, such as aggression, whereas concepts of God as benevolent (helping, forgiving, protecting) promote positive social behaviors, such as water conservation and volunteering (Johnson, Li, Cohen, & Okun, 2013). Research has also shown that concepts about God can affect how individuals choose to cooperate in their society. For example, societies with resource scarcity were more likely to believe in a punitive, morally concerned God in order to promote the prosocial use of their natural resources. By believing in a punitive God who will punish greedy or immoral, people are less likely to engage in selfish behaviors and act more cooperatively (Snarey, 1993). Furthermore, studies have found that individuals who endorse an anthropomorphic God concept are more likely to consider actions prohibited by their religion to be more severe moral transgressions (Morewedge & Clear, 2008). Research has demonstrated that differing concepts of God can influence both positive and negative social behaviors and can also affect moral judgments.

In this paper, I investigate how the concept of God as omnipotent and having the power to intervene decreases concern for climate change. I first begin with a brief review on the relationship between religious beliefs and attitudes towards the environment. I then present three

experiments that investigate whether belief in an intervening God causes decreased climate change action.

1.1 Religion and the environment

Many scholars have claimed that environmental concern is rooted in religious beliefs and values (White, 1967; Sherkat & Ellison, 2007; Biel & Nillson, 2005). Considering that many religious texts contain scriptures about nature and man's connection to nature, it is unsurprising that individuals may use their religious values to form opinions about the environment.

In Christianity, for example, the Bible contains scriptures that focus on nature and its relationship to both humans and God. Historian Lynn White (1967) proposed that before Christianity people practiced pagan animism and associated nature with spirits. Each spring, hill, and mountain had its own guardian spirit that needed to be respected, especially when using it for personal needs. However, Christianity swept this idea away by introducing an all-powerful God who created the Earth and all of the creatures, including humans. However, He specifically created humans in the likeness of His own image and gave them rule over the creatures on the earth. In Genesis 1:28 it is written "And God blessed them and God said unto them, be fruitful and multiply, and replenish the Earth, and subdue it and have dominion over the fish of the sea and over the fowl of the air, and over every living thing that moveth the Earth." According to this theory, Western Christian worldview has led to the degradation of the environment and an anthropocentric view of nature (White, 1967).

However, other scholars have proposed that Christian beliefs can promote a stewardship orientation where Christians feel a personal responsibility to care for nature (Tuan, 1971; Fackre, 1973; Glacken, 1967; Kanagy & Willits, 1993). Scriptures from Genesis can be interpreted as God ordering humans to take care of and protect (but not rule) His creation. Indeed, since the mid-1990s, there has been more focus on what has been called the "greening of Christianity" in the United States (Hizthusen, 2007; Wilkinson, 2010). Some prominent Christian figures and organizations have attempted to integrate environmental values with Christian values. Pope Francis, for instance, has made environmental conservation one of his top concerns and has openly spoken out against the "sin" of exploiting the Earth. Furthermore, Christian organizations (e.g., Evangelical Environmental Network, National Religious Partnership for the Environment) have recently formed in order to promote "creation care" and to mobilize other Christians to preserve the Earth.

A relationship between religion and concern for the environment definitely seems to exist. However, there has been little clear and consistent evidence investigating which aspects of religion can either increase or decrease concern for the environment (e.g., Eckberg & Blocker, 1989, 1996; Hand & Van Liere, 1984; Kanagy & Nelsen, 1995; Wolkomir, Futreal, Woodrum, & Hoban, 1997a, 1997b). However, I propose that one aspect of religion, belief in an intervening God, may help to explain the negative relationship between religious beliefs and concern for the environment.

1.2 Belief in an intervening God

There are two reasons to believe that belief in an intervening God may lead to decreased concern for climate change. First, belief in an intervening God may decrease concern for nature because individuals may “outsource” personal responsibility to God. People may feel less responsible for a global problem and diffuse their responsibility to an external agent (i.e., an intervening God), which would decrease their concern for climate change. Second, people may be *motivated* to use the idea of divine intervention as a strategy to cope with potentially threatening events beyond their personal control. Previous research has found that individuals use external agents of control (e.g., a controlling God) as a substitutable psychological resource to avoid perceptions of randomness and chaos (Laurin, Kay, & Moskovitch, 2008). Therefore, in order to deal with the threatening consequences of climate change, people may be more likely to endorse their belief in an intervening God and lessen their concern for climate change.

Importantly, we would expect different outcomes depending on the hypotheses. If individuals use divine intervention as a strategy to cope with the threat of climate change, I would expect people to endorse the existence of an intervening God *after* being threatened by climate change information. That is, people would be motivated to affirm their sense of control by endorsing an external agent (e.g., an intervening God). However, if individuals are instead outsourcing their personal responsibility to God, they wouldn’t need to affirm an external agent of control. Instead, people would report feeling less personal responsibility in mitigating climate change.

1.2.1 God and Personal Responsibility

Belief in an intervening God may cause decreased climate change action because individuals are outsourcing personal responsibility to God. If one holds a view of God as an all powerful being who actively intervenes in earthly affairs, then the responsibility for stopping climate change may seem to be under God’s control, God’s responsibility, God’s job. This is a kind of

ultimate social loafing (Karau & Williams, 1993; Sheperd, 1993), where individuals exhibit a decrease in climate change concern by believing that a powerful agent exists in the world. Research on social loafing has shown that individuals exert less effort on a task if they perceive their effort as less instrumental in accomplishing a task. Therefore, because individual efforts to mitigate climate change are difficult to observe, people may be more likely to engage in this form of social loafing.

Studies have shown that individuals who perceived God as omnipotent and all-powerful being were less likely to distribute punishment and to engage in active goal pursuit (Laurin, Shariff, Henrich, & Kay, 2012; Laurin, Kay, & Fitzsimons, 2011). Individuals who perceived God as a powerful agent with the ability to distribute punishment were less likely to punish norm violators themselves. In addition, the concept of an omnipotent God undermined individuals' motivation to pursue their own goals. Individuals who believed that external factors could influence their future performed less well on goal pursuit task than those who rejected the influence of external factors. Similarly, idea of an intervening God could undermine climate change action by allowing individuals to believe that God is there to take care of the environment.

1.2.2 God as a compensatory resource

Alternatively, individuals could be motivated to endorse belief in an intervening God because of the threat of climate change. Individuals have a fundamental need to believe that the world operates in an orderly and structured way rather than one that operates randomly or unpredictably (Kelly, 1955; Seligman, 1975, 1976; Skinner, 1995). When individuals perceive the world as less orderly than desired, they attempt to relieve these feelings of disorder, which are known to cause anxiety and stress (Kruglanski, 1989; Landau et al., 2004). Compensatory control theory has shown that there are two pathways individuals may use to maintain the perception of order: personal control and external control (Rothbaum, Weisz, & Snyder, 1982; Kay et al., 2008). Importantly, these two systems of control operate in a hydraulic fashion. When one source of order (e.g., personal control) is threatened, people are more motivated to affirm an alternative source of order (e.g., external control).

Therefore, individuals may use an external agent of control (e.g., an intervening God) to cope with the scary and threatening idea of climate change. Considering that climate change is framed as the greatest threat to humankind, people perceive climate change as a negative event that is

beyond their personal control. Research has shown that this results in climate change helplessness, a motivational barrier that prevents people from changing their environmental behavior (Solomon, Preston, & Tannenbaum, 2015). It is possible that individuals may use the concept of an intervening God as a compensatory resource in order to cope with these feelings of helplessness.

1.3 Present Research

In my present research, I examined whether belief in an intervening God decreases concern for climate change. I began with a correlational study (Study 1) to measure the relationship between different facets of religiosity and environmental attitudes. I predicted that belief in an intervening God (BIG) would be negatively correlated with intentions to stop climate change, moralization of consumption use, and biocentric views of nature. In Study 2, I manipulated belief in an intervening God by presenting participants with information that suggested the existence of an intervening or non-intervening God. I predicted that the possibility of an intervening God would, again, reduce intentions to stop climate change, moralization of consumption use, and biocentric views of nature. Study 3 examined whether individuals endorse the existence of an intervening God as a compensatory resource in order to cope with the threat of climate change. I presented participants with an article about the dire threat of climate change or the promising future of solar energy, and I predicted that participants who felt threatened by climate change would report greater belief in divine intervention. However, I did not find evidence for this hypothesis.

CHAPTER 2

STUDY 1

2.1 Overview

Study 1 examined how different facets of religion are associated with environmental concern. In a correlational design, I administered six measures to assess different facets of religiosity and four measures to assess attitudes towards the environment. In this study, I predicted that belief in an intervening God would be negatively correlated with environmental attitudes, including climate change intentions, moralization of consumption use, and biocentric worldviews.

2.2 Method

2.2.1 Participants

Two hundred and thirty eight participants (135 men, 102 female, $M_{\text{age}} = 33.86$, 51.3% Christian, 42.6% no affiliation, and 6.1% other) were recruited on Amazon Mechanical Turk to participate in a 15-minute survey for \$.75. Four additional participants were tested but their data was excluded for duplicate or non-US IP addresses.

2.2.2 Procedure

Participants first completed six measures to assess religious beliefs and attitudes. They then completed four scales that measured environmental attitudes. Participants finished by filling out demographic information on gender, religious affiliation, race, age, political beliefs (1= “strongly liberal”, 7= “strongly conservative”), and education level. Finally, participants were probed for suspicion and debriefed.

2.2.2.1 Religious Measures

Participants began by completing six different religious measures, all measured on a respective 7-point scale (1= “strongly disagree”, 7 = “strongly agree”). First, participants were given a 7-item General Religiosity scale (Preston & Ritter, 2013) that measured their broad religious beliefs and how these religious beliefs relate to their personal beliefs (Appendix A). Second, participants completed a 9-item Religious Fundamentalism scale that asked participants to rate their attitudes toward fundamental truths and teachings (Appendix A; Altemeyer & Huntsberger, 2004). Third, participants completed a ten-item Intrinsic/Extrinsic measure, (Appendix A; Gorsuch & McPherson, 1989) that assessed their use of religion for extrinsic or intrinsic reasons. Fourth, participants completed a 6-item measure of Quest religious orientation to assess their openness to facing complex, existential questions (Appendix A; Batson &

Schoenrade, 1991). Fifth, participants completed a 13-item Spiritual Transcendence Scale (Appendix A; Piedmont, 1999) to evaluate their attitudes towards spiritual ideas. Sixth, participants completed a 6-item Belief in Divine Intervention Scale (Appendix A; Degelman, D. & Lynn, D, 1995) to measure their belief in an intervening God.

2.2.2.2 Environmental Concern Measures

Participants were then administered four measures to assess environmental attitudes, which were measured on a 7-point scale (*1 = strongly disagree; 7 = strongly agree*). First, participants completed the 9-item Revised New Ecological Paradigm (NEP) to assess ecological worldviews, along with environmental attitudes, beliefs, and values (Appendix B; Dunlap, Liere, Mertig, & Jones, 2000). Second, participants completed the 7-item Climate Change Beliefs scale (Appendix B; adapted from Sinatra, Kardash, Taasobshirazi, & Lombardi, 2011) that measured their beliefs in human-caused climate change. Third, participants completed the 12-item Climate Change Intentions scale that assessed their intentions to engage in pro-environmental behaviors (Appendix B). Fourth, participants were administered a 10-item Climate Change Moralization scale that measured their moral attitudes towards the environment and energy conservation (Appendix B).

2.3 Results

Means and internal reliabilities were calculated for the religious measures: General Religiosity ($\alpha = .97$), Fundamentalism ($\alpha = .95$), Intrinsic ($\alpha = .55$), Extrinsic ($\alpha = .564$), Quest ($\alpha = .52$), Spiritual Transcendence ($\alpha = .90$), and Belief in Divine Intervention ($\alpha = .96$). I also calculated means for each participant for the environmental measures: NEP ($\alpha = .82$), Climate Change Beliefs ($\alpha = .92$), Climate Change Intentions ($\alpha = .88$), and Climate Change Moralization ($\alpha = .92$). Because the NEP, Climate Change Intentions, and Climate Change Moralization were all highly correlated with one another, I collapsed across and created an Environmental Attitudes scale ($\alpha = .94$). Climate Change Beliefs was excluded because the scale measures factual belief in human-caused climate change; whereas, the Environmental Attitudes scale measures individuals' opinions towards nature and the environment.

Table 1 presents intercorrelations between environmental and religious measures. Political ideology, which was measured on a 7-point Likert scale (1 = strongly liberal", 7 = "strongly conservative"), was strongly correlated with both the religious and environmental measures. Previous research has shown that religious beliefs can influence political beliefs and

political participation (Driskell, Embry, & Lyon, 2008; Wilcox, 1990). In addition, political ideology can strongly influence support for environmentalism (Dunlap, Xiao, & McCright, 2011; Buttel & Flinn, 1978). Therefore, in order to examine the unique relationship between religion and environmental concern, I controlled for political ideology in Table 2. All further reports of correlations control for political ideology.

2.3.1 Standard Religious Questions

The Standard Religious Questions scale was negatively correlated with belief in climate change ($r = -.19, p = .003$) and negatively correlated with the NEP scale ($r = -.12, p = .08$), although this was only marginally significant. However, the scale was positively correlated with Climate Change Intentions ($r = .14, p = .03$) and positively correlated with Climate Change Moralization ($r = .12, p = .06$), although this was marginally significant.

2.3.2 Religious Fundamentalism

Religious fundamentalism was strongly negatively correlated with Climate Change Beliefs ($r = -.32, p < .001$), the NEP scale ($r = -.22, p < .001$). However, religious fundamentalism was not significantly correlated with Climate Change Intentions ($r = -.01, p > .05$) or Climate Change Moralization ($r = -.01, p > .05$).

2.3.3 Belief in Divine Intervention

Belief in divine intervention was negatively correlated with belief in climate change ($r = -.30, p < .001$) and negatively correlated with the NEP scale ($r = -.16, p = .016$). However, it was not significantly correlated with Climate Change Intentions ($r = .01, p > .05$) or Climate Change Moralization ($r = .07, p > .05$).

2.3.4 Intrinsic/Extrinsic Religiosity

The intrinsic/extrinsic measure is composed of three different factors: intrinsic, extrinsic social, and extrinsic personal. Intrinsic items measure how much people believe in their religion and attempt to live their lives according to what their religion preaches. Extrinsic social items assess a person's use of religion for social purposes, and extrinsic personal items measure how much a person uses religion for their own benefit.

Intrinsic religiosity was negatively correlated with Climate Change Beliefs ($r = -.20, p = .002$) and the NEP scale ($r = -.16, p = .016$). However, it was not significantly correlated with Climate Change Moralization ($r = -.02, p > .05$). Extrinsic Social was not significantly correlated with any of the environmental measures. Extrinsic personal was significantly positively

correlated with Climate Change Beliefs ($r = .02, p = .02$), Climate Change Intentions ($r = .18, p < .001$), and Climate Change Moralization ($r = .23, p < .05$).

2.3.5 Quest Religiosity

Quest orientation was not significantly correlated with any of the environmental measures: Climate Change Beliefs ($r = -.02, p > .05$), NEP Scale ($r = .04, p > .05$), Climate Change Intentions ($r = .03, p > .05$), or Climate Change Moralization ($r = .08, p > .05$).

2.3.6 Spirituality

Spirituality was positively correlated with Climate Change Intentions ($r = .24, p < .001$) and Climate Change Moralization ($r = .18, p = .007$). However, it was not significantly correlated with Climate Change Belief ($r = -.06, p > .05$) or the NEP scale ($r = .08, p > .05$).

2.3.7 Predicting Environmental Measures

Linear regression analysis was used to predict the collapsed Environmental Attitudes measure from the six religious measures. The six predictors explained 15.8% of the variance ($R^2 = .158, F(8,227) = 5.02, p < .0001$). It was found that belief in an intervening God ($\beta_s = -.322, p = .01$), religious fundamentalism ($\beta_s = -.354, p = .004$), extrinsic personal ($\beta_s = .293, p = .007$), and spirituality ($\beta_s = .181, p = .05$) were the only significant predictors in the model.

2.4 Discussion

Study 1 found that belief in an intervening God is negatively associated with environmental measures, specifically the New Ecological Paradigm and belief in climate change. However, belief in an intervening God was not associated with climate change moralization, as predicted. These findings provide preliminary evidence that belief in divine intervention is negatively associated with certain aspects of climate change concern. This study is limited in that the design was correlational. Study 2 extends these findings by manipulating belief in an intervening God.

CHAPTER 3

STUDY 2

3.1 Overview

Study 1 found that belief in divine intervention was negatively correlated with the New Ecological Paradigm and belief in global warming, while controlling for political ideology. Study 2 extends this idea by manipulating belief in the existence of an intervening God or a non-intervening God. I hypothesized that presenting participants with the idea of an intervening God would decrease climate change intentions, participants' moralization of climate change, and biocentric worldviews. By presenting the concept of an intervening God, individuals should be less willing to mitigate climate change.

3.2 Method

3.2.1 Participants

Two hundred and thirty one participants were recruited on Amazon Mechanical Turk to participate in a 15-minute survey for \$.75 (106 male, 125 female, mean age = 35.4, 53.9% Christian, 39.1% no affiliation, and 7% other). Five additional participants were tested but their data was excluded for duplicate or non-US IP addresses.

3.2.2 Procedure

Participants were told that the study was about social issues and that they would read an article from a well-known news outlet. Participants were then randomly assigned to receive either an article about the possibility of an intervening or non-intervening God (adapted from Kay, Gaucher, McGregor, & Nash, 2010). In the intervening God condition, the article explained that certain laws of physics have changed over time and that each of these changes was necessary for life to exist. However, there has been evidence that these changes are a result of God intervening in the universe to adjust conditions for life. The article ended with the possibility that God could even change other outcomes in the universe. In the non-intervening God condition, the article explained that an intelligent being had set certain laws of physics at the beginning of the universe. These laws provide humans with the perfect conditions for life and any change to these laws would result in a dire outcome. The article ended with the idea that God cannot alter the course of the universe or intervene in ongoing human affairs without destroying the universe.

3.2.2.1 Measures

As a manipulation check, participants were asked, “To what extent do you think that God, or some type of higher power, intervenes in the universe?” and “To what extent do you think that God, or some type of higher power controls the events that happen in our universe?”. Participants were then administered the same four environmental measures from Study 1: Climate Change Beliefs, Climate Change Moralization, Climate Change Intentions, and NEP. Participants were also administered four religious measures: General Religiosity scale, Fundamentalism scale, Spiritual Transcendence scale, and Belief in an Intervening God scale. Participants then filled out demographic information about their gender, religious affiliation, race, age, political beliefs ($1 = strongly liberal$, $7 = strongly conservative$), and education level. Finally, participants were probed for suspicion and debriefed.

3.3 Results

3.3.1 Manipulation Check

The two Intervening God manipulation check items were highly correlated ($r(237) = .949, p < .001$) so a mean of the two items was computed. An independent t-test was performed to test whether the articles manipulated people’s perceptions of an intervening God. As expected, participants who read the intervening God article ($M = 4.19, SD = 2.30$) were more likely to endorse the idea that God could intervene in the Universe compared to those who read the non-intervening article ($M = 3.48, SD = 2.16$), $t(229) = 2.4, p = .017, 95\% CI [.13, 1.28]$, indicating that the manipulation was successful.

3.3.2 Environmental Concern Measures

As in Study 1, means were created for the environmental measures: Climate Change Beliefs ($\alpha = .91$), NEP ($\alpha = .83$), Climate Change Moralization ($\alpha = .87$), and Climate Change Intentions ($\alpha = .91$). As in Study 1, I collapsed Climate Change Moralization, Climate Change Intentions, and NEP to form an Environmental Attitudes scale ($\alpha = .93$).

I predicted that providing participants with the idea of an intervening God would decrease climate change intentions, climate change moralization, and biocentric views of nature (NEP). Using the collapsed Environmental Attitude measure, I conducted an independent t-test and found that participants in the intervening condition ($M = 4.47, SD = 1.03$) reported decreased environmental attitudes compared to participants in the non-intervening condition, although this was only marginally significant ($M = 4.71, SD = 1.04$), $t(229) = -1.819, p = .07, 95\% CI [-.52, .02]$.

The following analyses analyze the 4 environmental measures individually. Participants in the intervening condition ($M = 4.39$, $SD = 1.28$) reported decreased climate change moralization compared to the non-intervening condition ($M = 4.73$, $SD = 1.27$), $t(229) = -2.03$, $p = .03$, 95% CI [-.67, -.01], as expected. Participants in the intervening condition ($M = 4.47$, $SD = 1.20$) scored lower on the NEP scale than in the non-intervening condition ($M = 4.76$, $SD = 1.06$), $t(229) = -1.95$, $p = .06$, 95% CI [-.58, .00], although this was only marginally significant. However, participants in the intervening God condition did not show decreased climate change intentions ($t(229) = -1.07$, $p = .29$) or decreased climate change beliefs ($t(229) = -.98$, $p = .33$).

3.3.3 Religious measures

Means were created for the religious measures: General religiosity (.97), Fundamentalism ($\alpha = .95$), Spirituality ($\alpha = .92$), and Belief in Divine Intervention ($\alpha = .96$). To examine any effect of religiosity, scores from the Environmental Attitudes scales were submitted to a one-way ANCOVA on condition with general religiosity, fundamentalism, and spirituality as covariates. The effect of the condition remained significant $F(1, 232) = 6.58$, $p = .004$. Fundamentalism ($F(1, 232) = 22.23$, $p < .0001$) was significantly negatively related to environmental attitudes, and spirituality ($F(1, 232) = 26.04$, $p < .0001$) was positively related to environmental attitudes. Climate Change Moralization scores were also submitted to a one-way ANOVA on condition with general religiosity, fundamentalism, and spirituality as covariates. The effect of the condition remained significant $F(1, 232) = 8.16$, $p = .005$. Fundamentalism ($F(1, 232) = 14.75$, $p < .001$) was, again, negatively related to moralization, and spirituality ($F(1, 232) = 21.94$, $p < .001$) was positively related to spirituality. Scores from the NEP scale were also submitted to a one-way ANOVA while controlling for general religiosity, fundamentalism, and spirituality. The effect from the manipulation remained significant ($F(1, 232) = 5.40$, $p = .02$). Fundamentalism was negatively related to the NEP scale ($F(1, 232) = 14.85$, $p < .001$) and spirituality ($F(1, 232) = 11.70$, $p < .001$) was positively related to the NEP scale.

3.4 Discussion

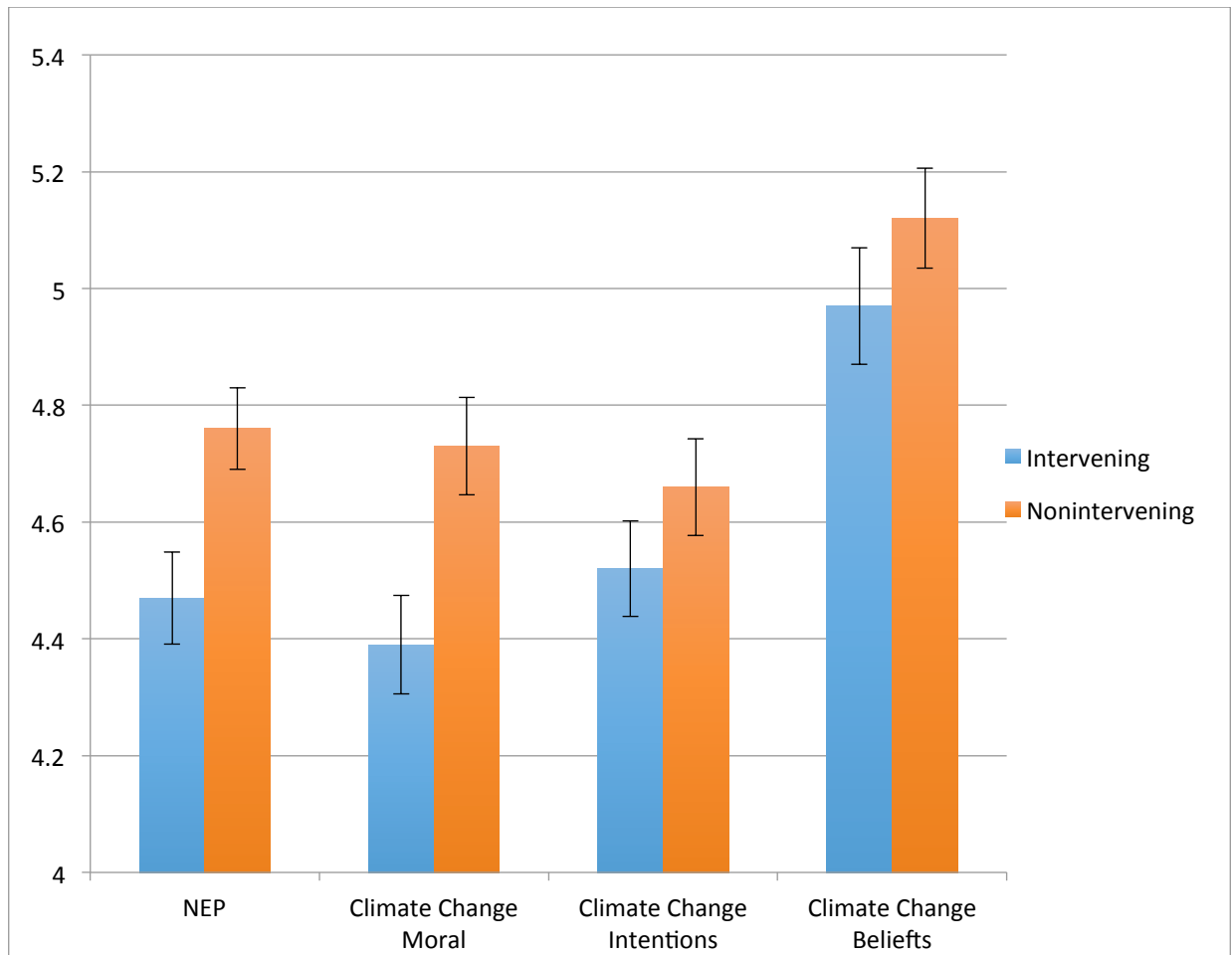
In Study 2, participants who read the article about the concept of an intervening God were more likely to endorse belief in divine intervention, indicating that the manipulation worked. When analyzing their general environmental attitudes, I found some evidence, although it was only marginally significant, that belief in an intervening God decreases pro-environmental attitudes. When analyzing the 4 environmental measures individually, individuals in the

intervening God condition were also less likely to moralize consumption use and more likely to endorse anthropocentric ecological worldviews. However, participants did not differ in their belief in climate change or intentions to mitigate climate change.

There could be a possibility that because the article was somewhat implausible, it created a demand characteristic where participants changed their responses to fit our hypothesis. However, it is unlikely that participants would have made the connection between belief in divine intervention and environmental attitudes. The article didn't mention climate change or other natural-disaster related information. Instead, it discussed how God can or cannot alter the laws of physics that He had originally established in the universe.

In sum, study 2 provides evidence that belief in an intervening God decreases participants' view of climate change as a moral issue and increases anthropogenic views of nature. However, it does not affect intentions to stop climate change or belief in climate change. In Study 3, I examine whether environmental attitudes can have an affect on religious beliefs; specifically, whether the threatening idea of climate change can cause individuals to endorse the existence of divine intervention as a result of feelings of low personal control.

Figure 1. Means of environmental measures from Study 2



CHAPTER 4

STUDY 3

4.1 Overview

Thus far, Study 1 and 2 provide evidence that religious beliefs can affect environmental attitudes; specifically that belief in divine intervention can decrease concern for the environment. Study 1 found correlational evidence that belief in divine intervention is negatively associated with belief in climate change and biocentric views of nature. Study 2 manipulated the idea of the existence of an intervening or non-intervening God and found that the idea of an intervening God decreased moralization of consumption use and biocentric views of nature.

However, in Study 3, I examine whether environmental attitudes can affect religious beliefs. I hypothesize that individuals may use the idea of divine intervention to increase their feelings of control over climate change. According to compensatory theory, individuals will endorse an external agent of control (e.g., God, government) when they feel that they have low personal control. Therefore, participants may endorse the existence of an intervening God in order to cope with threatening information about climate change. I tested this hypothesis by presenting participants with an article about the threat of climate change or an article about the promising future of solar energy. By reminding participants of the dangerous and irreversible consequences of climate change, I predicted that individuals would feel less personal control, which would motivate them to endorse an external agent of control (i.e., existence of an intervening God). However, when participants' personal control was not threatened, I predicted that they would not feel motivated to endorse belief in an intervening God.

4.2 Method

4.2.1 Participants

Two hundred and thirty participants were recruited on Amazon Mechanical Turk to participate in a 15-minute survey for \$.75 (119 male, 121 female, mean age = 46.1, 46.1% Christian, 46.1% no affiliation, 7.8% other). Fifteen additional participants were tested but their data was excluded for duplicate or non-US IP addresses.

4.2.2 Method

Participants were told that the study was about how individuals respond to science articles in the media. They were then instructed to read a science article and to answer questions related to the article. Participants were randomly assigned to receive an article about the threat of

climate change or an article about the promising future of solar energy. The dire climate change article discussed how climate change is responsible for the recent increases in severe weather and continued emission of greenhouse gasses will result in pervasive and irreversible for humans and ecosystems. The solar energy article discussed the promising technological advances in the field of energy storage, which could transform the solar power energy into a multi-billion dollar industry.

4.2.3 Measures

Immediately after reading the article, participants were asked to select the best title for the article that they had just read. For the climate change article, the three options were: “Climate Change Report Delivers Hopeful Messages”, “Climate Change Report Delivers Grim Warnings”, or “Climate Change Report Delivers Inconsistent Findings.” For the solar energy article, the three options were: “Uncertain Future Ahead for Solar Power”, “Sunny Future Ahead for Solar Power”, or “Grim Future Ahead for Solar Power.” Participants were then asked, “According to the article, how severe is the threat of climate change (a solar energy crisis)?” and “According to the article, how promising is the future with climate change (solar power)?” These three items served as a manipulation check to test their understanding of the article. Participants were told to respond to a series of questions about their personal beliefs and opinions. Participants completed an Intervening God scale, which measured their belief in God’s ability to intervene and control events, and a general religiosity scale (from Study 1). Next, they rated how scary, severe, threatening, and worrisome climate change is on 7-point scale (*1 = not at all scary, severe, threatening, worrisome; 7 = very scary, severe, threatening, worrisome*). Participants then completed three environmental measures from Study 2: Climate Change Moralization, Climate Change Intentions, and New Ecological Paradigm (NEP). Participants also rated their agreement with two items about belief in human-caused climate change. Participants filled out demographic information about their gender, religious affiliation, race, age, political beliefs (*1 = strongly liberal, 7 = strongly conservative*), and education level. Finally, participants were probed for suspicion and debriefed.

4.3 Results

As in Study 1 and 2, means were created for Intervening God Scale ($\alpha = .94$), General Religiosity Scale ($\alpha = .98$), Climate Change Moralization ($\alpha = .90$), Climate Change Intentions ($\alpha = .81$), and NEP ($\alpha = .78$). The four items measuring negative emotion towards climate change

were highly correlated with one another so a mean was computed to form Climate Change Emotions scale ($\alpha = .96$). The two items measuring belief in human-caused climate change were also highly correlated with another so a mean was created ($\alpha = .88$) to form Climate Change Belief scale.

4.3.1 Manipulation Checks

Six participants chose an incorrect title for the article they had read so their data was excluded from the analyses, leaving 224 participants. Independent t-tests were conducted to measure participants' understanding of the article content. Participants in the climate change condition rated the threat of climate change ($M = 5.68, SD = .54$) as significantly higher than participants in the solar power condition ($M = 1.83, SD = .99$) rated the threat of a solar power crisis ($t(222)=35.75, p < .001, 95\% CI [3.63, 4.06]$). Participants in the solar power condition ($M = 5.74, SD = .48$) rated the future of solar power as more promising than participants in the climate change condition rated the future with climate change ($M = 1.75, SD = .77$), ($t(221) = -46.54, p < .001, 95\% CI [-4.16, -3.82]$).

4.3.2 Intervening God Scale

I predicted that when participants read an article about the threat of climate change, they would be more likely to endorse the existence of an intervening God. I conducted an independent t-test and found no mean differences between participants in the climate change ($M = 3.05, SD = 3.10$) and solar power conditions ($M = 3.10, SD = 1.79$) ($t(222) = -.210, p > .05, 95\% CI [-.52, .42]$).

4.3.3 Environmental Measures

I conducted independent t-tests to measure the effect of condition on the environmental measures. I found that participants in the climate change condition ($M = 4.75, SD = .99$) reported greater pro-environmental attitudes compared to participants in the solar article condition, although this was only marginally significant ($M = 4.50, SD = 1.00$), $t(222) = 1.85, p = .066, 95\% CI [-.02, .51]$.

When analyzing the environmental attitudes individually, I found that participants in the climate change condition ($M = 5.37, SD = 1.55$) reported climate change as more scary, threatening, worrisome, and severe than participants in the solar energy condition ($M = 4.75, SD = 4.75$), ($t(222) = 2.75, p < .01, 95\% CI [.17, 1.06]$). Additionally, the climate change article ($M = 4.63, SD = 1.27$) increased participants' moralization of climate change compared to the solar

energy article ($M = 4.26$, $SD = 1.29$), ($t(222) = 2.18$, $p < .05$, 95% CI [.04, .71]). The climate change article also increased participants' climate change intentions ($M = 5.15$, $SD = 1.21$) compared to the solar power article ($M = 4.81$, $SD = 1.30$), ($t(222) = 2.06$, $p < .05$, 95% CI [.01, .68]). However, the climate change article ($M = 5.67$, $SD = 1.43$) did not affect climate change beliefs compared to the solar power article ($M = 5.36$, $SD = 1.62$), ($t(222) = 1.46$, $p > .05$, 95% CI [-.10, .70]). The climate change article ($M = 4.62$, $SD = 1.06$) also did not affect scores on the NEP scale compared to the solar power article ($M = 4.57$, $SD = 1.04$), ($t(222) = .31$, $p > .05$, 95% CI [-.23, .32]).

4.4 Discussion

Study 3 aimed to test whether individuals use the concept of an intervening God as a compensatory resource to cope with the threat of climate change. I did not find evidence for this hypothesis. Individuals who were presented with threatening information about climate change did not endorse greater belief in divine intervention. However, the threat of climate change did increase participants' pro-environmental attitudes, specifically their moralization of consumption use and intentions to mitigate climate change.

Participants may have reported increased environmental attitudes because of increased fear of climate change. Research within the fear appeal literature has found evidence that strong fear appeals motivate adaptive control actions such as message acceptance and behavior change (Witte & Allen, 2000). Considering that participants in the climate change condition reported climate change to be more threatening and worrisome, the increase in pro-environmental attitudes may have been driven by their fear of climate change. However, even though participants reported that they felt more threatened and worried about climate change, this did not lead them to endorse an external agent of control, as predicted.

CHAPTER 5

GENERAL DISCUSSION

Study 1 and 2 provide evidence that belief in an intervening God decreases concern for climate change. In Study 1, belief in divine intervention was negatively correlated with belief in human-caused climate change and biocentric views of nature. Study 2 manipulated belief in an intervening God and found that the concept of divine intervention decreased moralization of climate change and marginally decreased biocentric views of nature. Study 3 aimed to find whether individuals are motivated to use the idea of divine intervention to cope with the threat of climate change. However, I did not find evidence for this hypothesis.

The findings from Study 1 and 2 suggest that the concept of an omnipotent, intervening God can have negative effects on social attitudes towards the environment. Importantly, when belief in an intervening God was manipulated individuals reported decreased moralization of climate change and biocentric views of nature. This suggests that the concept of divine intervention influences whether individuals see climate change as a *moral* issue. Knowing that a higher power is present to intervene causes individuals to view their consumption as behavior that doesn't have harmful consequences. However, viewing climate change as a moral issue may help individuals to increase their "green" behaviors. Research by Solomon, Preston, & Tannenbaum (2015) found that individuals who moralized climate change were more motivated to take action and support social policies that would mitigate climate change. Importantly, they found that efficacy messages helped individuals to see climate change as a moral issue.

Further research should be conducted to explore the causal mechanism of why belief in divine intervention leads to decreased concern for climate change. I hope to follow up these three studies by contrasting individuals' personal responsibility with responsibility that they attribute to external agents. If individuals are outsourcing feelings of responsibility to cope with the threat of climate change, I would expect individuals to believe that other external agents are more responsible for mitigating climate change than themselves. Future studies may also wish to address whether different concepts of God (e.g., malevolent, benevolent, punishing) could either increase or decrease concern for climate change. For example, believing in a punishing God may increase intentions to mitigate climate change if individuals are afraid to act selfishly.

Christian organizations and churches that advocate for creation care may benefit by discussing the impact of viewing God as an intervening agent. In order to increase moralization

of climate change, it may help to advocate for environmental stewardship and to care for God's earth. If we want to prevent harmful outcomes of climate change, it may help to promote action among one of the largest groups, the religious population.

Table 1. Correlation Matrix of Environmental and Religious Measures

Measures	1	2	3	4	5	6	7	8	9	10	11	12
<i>1. Standard Religious Questions</i>	-											
<i>2. Fundamentalism Scale</i>	.80	-										
<i>3. Intervening God Scale</i>	.84	.76	-									
<i>4. Intrinsic Average</i>	.85	.79	.74	-								
<i>5. Extrinsic Social Scale</i>	.24	.13	.14	.11	-							
<i>6. Extrinsic Personal</i>	.74	.54	.72	.53	.30	-						
<i>7. Quest Average</i>	.19	-.07	.21	.01	.24	.40	-					
<i>8. Spiritual</i>	.65	.42	.61	.50	.16	.67	.36	-				
<i>9. New Ecological Paradigm</i>	-.20	-.31	-.23	-.23	-.01	-.02	.07	.03	-			
<i>10. Global Warming Beliefs</i>	-.31	-.44	-.40	-.31	-.10	-.22	.04	-.13	.57	-		
<i>11. Global Warming Intentions</i>	.05	-.01	.01	.02	.04	.13	.06	.18	.42	.48	-	
<i>12. Global Warming Moral</i>	.04	-.01	.00	-.09	.09	.17	.11	.13	.46	.47	.64	-
<i>13. Environmental Attitudes</i>	-.02	.19	-.11	-.10	.05	.13	.09	.15	.71	.60	.87	.86
<i>14. Political Identity</i>	.33	.42	.32	.32	.07	.21	-.13	.19	-.27	-.43	-.22	-.21

Table 2. Correlation Matrix of Environmental and Religious Measures, controlling for political identity

Variable	<i>NEP</i>	<i>CC Belief</i>	<i>CC Intent</i>	<i>CC Moral</i>	<i>General Environmental</i>
1. <i>Standard Religious Questions</i>	-.12	-.19**	.14*	.12	-.02
2. <i>Fundamentalism</i>	-.22**	-.32**	-.01	-.01	-.15*
3. <i>Intervening God</i>	-.16*	-.30**	.00	.01	-.01
4. <i>Intrinsic</i>	-.16**	-.20**	.09	-.02	-.06
5. <i>Extrinsic Social</i>	.03	-.08	.06	.10	.05
6. <i>Extrinsic Personal</i>	.04	-.15*	.18**	.23**	.13
7. <i>Quest</i>	.03	-.02	.03	.08	.04
8. <i>Spirituality</i>	.08	-.06	.24**	.18*	.16

*controlling for political ideology

* $p < .01$, ** $p < .001$

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APPENDIX A

General religiosity scale used in Experiments 1, 2, 3, and 4 (Preston & Ritter, 2013). Items were rated on a 7-point scale (1-strongly disagree, 7-strongly agree).

- 1) My personal religious beliefs are very important to me.
- 2) My religion or faith is an important part of my identity.
- 3) If someone wanted to understand who I am as a person, my religion or faith would be very important in that.
- 4) I believe strongly in the teachings of my religion or faith.
- 5) I believe in God.
- 6) I consider myself a religious person.

Fundamentalism scale used in Experiment 1, 2, and 3 (Altemeyer, B. & Hunsberger, B. (2009). Items were rated on a 7-point scale (1-strongly disagree, 7-strongly agree).

- 1) God has given humanity a complete, unfailing guide to happiness and salvation, which must be totally followed.
- 2) No single book of religious teachings contains all the intrinsic, fundamental truths about life (R).
- 3) It is more important to be a good person than to believe in God and the right religion.
- 4) When you get right down to it, there are basically only two kinds of people in the world: the Righteous, who will be rewarded by God; and the rest, who will not.
- 5) Scriptures may contain general truths, but they should NOT be considered completely, literally true from beginning to end (R).
- 6) To lead the best, most meaningful life, one must belong to the one, fundamentally true religion.
- 7) Whenever science and sacred scripture conflict, *science* is probably right (R).
- 8) *All* of the religions in the world have flaws and wrong teachings. There is *no* perfectly true, right religion (R).

- 9) The fundamentals of God's religion should never be tampered with, or compromised with others' beliefs.

R = reverse-coded

Intrinsic/Extrinsic scale from Study 1 (Gorsuch & McPherson, 1989). All items were measured on a 7-point scale (1- strongly disagree, 7 – strongly agree)

- 1) I enjoy reading about my religion (I).
- 2) I go to church because it helps me to make friends (Es).
- 3) It doesn't much matter what I believe so long as I am good (I, R)
- 4) It is important to me to spend time in private thought and prayer (I).
- 5) I try hard to live all my life according to my religious beliefs (I).
- 6) What religion offers me most is comfort in times of trouble and sorrow (Ep).
- 7) Although I am religious, I don't let it affect my daily live (I,R)
- 8) I go to church mostly to spend time with my friends (Es).
- 9) I go to church mainly because I enjoy seeing people I know there (Es).
- 10) Although I believe in my religion, many other things are more important in life (I,R)

I = Intrinsic Item

Ep= Extrinsic personal

Es= Extrinsic Social

R = Reverse Coded

Quest Scale from Study 1 (Batson & Schoenrade, 1991). All items were measured on a 7-point scale (1- strongly disagree, 7 – strongly agree).

- 1) I was not very interested in religion until I began to ask questions about the meaning and purpose of my life.
- 2) I have been driven to ask religious questions out of a growing awareness of the tensions in the my world and in my relation to my world.
- 3) My life experiences have let me to rethink my religious convictions.
- 4) God wasn't very important for me until I began to ask questions about the meaning of my own life.

- 5) It might be said that I value my religious doubts and uncertainties.
- 6) For me, doubting is an important part of what it means to be religious.
- 7) I find religious doubts upsetting (R).
- 8) Questions are far more central to my religious experience than are answers.
- 9) As I grow and change, I expect my religion also to grow and change.
- 10) I am constantly questioning my religious beliefs.
- 11) I do not expect my religious convictions to change in the next few years (R).
- 12) There are many religious issues on which my views are still changing.

Spirituality Scale from Study 1, 2, and 3 (Piedmont, 1999). All items were measured on a 7-point scale (1-strongly disagree, 7 – strongly agree).

- 1) I feel that on a higher level all of us share a common bond.
- 2) All life is interconnected.
- 3) There is a plane of consciousness or spirituality that binds all people.
- 4) I am a link in the chain of my family's heritage, a bridge between past and future.
- 5) I am concerned about those who will come after me in life.
- 6) I have been able to step outside of my ambitions and failures, pain and joy, to experience a larger sense of fulfillment.
- 7) I believe that there is a larger meaning in life.
- 8) I find inner strength and/or peace from my prayers and meditations.
- 9) I believe that death is a doorway to another plane of existence.
- 10) I believe there is a larger plan to life.
- 11) Although there is good and bad in people, I believe that humanity as a whole is basically good.
- 12) There is an order to the universe that transcends human thinking.
- 13) I believe that on some level my life is intimately tied to all humankind.

Belief in an intervening God scale from Study 1,2, 3, and 4 (Degelman & Lynn, 1995).

- 1) God sometimes directly intervenes to heal individuals of diseases like cancer.
- 2) God sometimes communicates directly with individuals.

- 3) God does not intervene directly in our lives (R).
- 4) God sometimes directly intervenes to change the course of damaging weather conditions like hurricanes.
- 5) Real miracles of healing from God do not occur today.
- 6) God sometimes uses dreams to communicate with us.

APPENDIX B

Climate Change Beliefs Scale from Study 1 and 2 (Sinatra, G. M., Kardash, C. M., Taasobshirazi, G., & Lombardi, D., 2011)

Rate the degree to which you agree with the following statements [1 – strongly disagree; 7 – strongly agree]:

1. Scientific evidence points to a warming trend in global climate.
2. Human activity has been the driving force behind the warming trend over the last 50 years.
3. The release of CO₂ (carbon dioxide) from human activity (such as smoke stacks and car emissions) has played a central role in raising the average surface temperature of the earth (R).
4. The likelihood that emissions are the main cause of the observed warming trend of the last 50 years is between 90 and 99%.
5. Natural phenomena such as solar variations combined with volcanic activity are the real cause of the warming effect (R).
6. Humans have very little effect on climate temperature (R).
7. It is arrogant to assume that humans can influence climate temperature (R).

Climate Change Moralization Scale from Study 1, 2, 3, and 4

Rate the degree to which you agree with the following statements [1 – strongly disagree; 7 – strongly agree]:

1. Preventing global warming decreases suffering in others.
2. Preventing global warming protects others' rights.
3. Recycling is morally good.
4. Using disposable shopping bags is morally good.
5. Cutting down trees is morally wrong.
6. Using excessive heat in one's home is morally wrong.
7. Using too much energy is morally wrong.
8. Reducing energy consumption is morally good.

9. Putting recyclable goods in the regular trash is morally wrong.
10. Using a clothesline instead of the dryer is morally good.

NEP Scale from Study 1, 2, 3, and 4 (Dunlap, Liere, Mertig, & Jones, 2000)

Rate the degree to which you agree with the following statements [1 – strongly disagree; 7 – strongly agree]:

1. We are approaching the limit of the number of people the earth can support.
2. Humans have the right to modify the natural environment to suit their needs (R).
3. Human ingenuity will insure that we do NOT make the earth unlivable (R).
4. Plants and animals have as much right as humans to exist.
5. The balance of nature is strong enough to cope with the impact of modern industrial nations (R).
6. Humans are meant to rule over the rest of nature (R).
7. Humans will eventually learn enough about how nature works to be able to control it (R).
8. If things continue on their present course, we will soon experience a major ecological catastrophe.

Climate Change Intentions Scale from Study 1, 2, 3, and 4

Please read each item carefully and rate how strongly you intend to take the action described **in the next year** (1- strongly disagree, 7 – strongly agree).

1. I intend to replace light bulbs in my home with more energy efficient bulbs.
2. I intend to set my thermostat/heater no higher than 65 degrees F in the winter.
3. I intend to set my thermostat/air conditioning low lower than 75 degrees F in the summer.
4. I intend to use the washing machine only when I have a full load.
5. I intend to use a clothesline instead of a dryer when possible.
6. I intend to recycle at home.
7. I intend to buy recycled paper.
8. I intend to drink tap water over bottled beverages when possible.
9. I intend to use a reusable or recycled shopping bag instead of disposable bags.
10. I intend to drive less/not at all.
11. I intend to vote for politicians who support environmental initiatives.
12. I intend to write to my representatives about environmental concern.