

EXTENDING THE DUAL-MOTIVE PATHWAY OF SCAPEGOATING BY INCORPORATING AGE, PERSONALITY AND NEED FOR CLOSURE

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Abstract

Scapegoating, (i.e., blaming an individual or group for a negative outcome that is largely the result of other causes) has led to several negative outcomes in the past and will probably as well in the future. Prior research (Rotschild et al., 2012) proposed the dual-motive model of scapegoating to explain the underlying motives of this concept. The first is based on minimizing guilt to maintain personal moral, the second one on increasing personal control by acquiring an explanation for an otherwise inexplicable negative outcome. The current study aimed to replicate this framework and integrate age, personality and need for closure. A between-subjects design with three conditions was used wherein the cause for climate change was manipulated. Data was collected through an online questionnaire. It was hypothesized that when participants' own generation or unknown human causes were blamed as the cause for climate change, participants would scapegoat more. It was also hypothesized that older participants would score higher on need for closure, and that NFC would increase scapegoating scores in the control threat condition, but no significant effect was found. Lastly, it was hypothesized that participants in the value threat condition would score lower on environmental advocacy and that this effect would be moderated by personality. No significant effects were found, except the positive effect of agreeableness and openness on environmental advocacy. Due to some limitations, the result of this study must be interpreted with caution. Theoretical and practical implications for the findings are proposed together with limitations and suggestions for future research.

Nederlandstalige vertaling

Scapegoating (i.e., een individu of groep beschuldigen voor een negatieve uitkomst die voor een groot deel het gevolg is van andere oorzaken) heeft in het verleden tot verschillende negatieve uitkomsten geleid en zal dat in de toekomst waarschijnlijk ook doen. Eerder onderzoek (Rotschild et al., 2012) stelde het dual-motive model van scapegoating voor om de onderliggende motieven van dit concept te verklaren. Dit raamwerk specificeert twee motieven die ten grondslag liggen aan scapegoating. Het eerste is gebaseerd op het verminderen van schuld om de persoonlijke moraal te handhaven, het tweede is gebaseerd op het vergroten van de gepercipieerde persoonlijke controle door het verkrijgen van een verklaring voor een anders onverklaarbare negatieve uitkomst. Het doel van de huidige studie was het repliceren van dit tweeledige motief van scapegoating en het integreren van leeftijd, persoonlijkheid en need for closure. Er werd gebruik gemaakt van een between-subject design met drie condities (bedreiging van controle, bedreiging van persoonlijk moraal en geen dreiging als controle conditie) waarin de oorzaak voor de klimaatverandering werd gemanipuleerd. De gegevens werden verzameld via een online vragenlijst.

De hypothese was dat wanneer deelnemers' eigen generatie (waarde bedreiging) of onbekende menselijke oorzaken (controle bedreiging) als oorzaak voor klimaatverandering werden beschreven in een krantenartikel, zij meer aan scapegoating zouden doen dan in de controle conditie waarin een andere generatie werd beschuldigd. Er werd ook verondersteld dat oudere deelnemers hoger zouden scoren op need for closure, en dat NFC de scores op scapegoating zou verhogen in de conditie waarin gepercipieerde controle bedreigd werd, maar er werd geen significant effect gevonden. Ten slotte werd verondersteld dat deelnemers in de conditie waarin hun persoonlijk moraal bedreigd werd lager zouden scoren op een korte vragenlijst rond milieubelangen en dat dit effect zou worden gemodereerd door persoonlijkheid. Er werden geen significante effecten gevonden, behalve het positieve effect van agreeableness en openness op milieubelangen. Vanwege enkele beperkingen moeten de resultaten van deze studie met de nodige voorzichtigheid worden geïnterpreteerd. Theoretische en praktische implicaties voor de bevindingen worden voorgesteld, samen met beperkingen en suggesties voor toekomstig onderzoek.

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This study is a joint thesis, written together with Simon van Loo. Parts of the corpus that are indicated with ‘joint’ are written in consultation and collaboration, and consequently identic to the thesis of Simon van Loo.

“The goat will carry all their iniquities into a desolate land, and the man will release it there” (Leviticus, 16:22).

It all started long ago in a Bible story when ancient Israelites displaced their sins on a goat and let them go into the desert to relieve themselves of their sins. But scapegoating i.e., “... the act of blaming and often punishing a person or a group for a negative outcome that is due, at least in large part, to other causes” (Rotschild et al, 2012, p. 1148) is timeless. There are plenty of examples: in the 14th to 18th century approximately 40 000 - 100 000 women were executed for being ‘witches’ (Roy, 2020), the Nazi’s blaming Jews for the German misery that followed World War I and therefore started the Holocaust (Allport, 1948), and the list goes on. Even in the global COVID-19 pandemic, after numerous historical examples of what harm it can do, some people are scapegoating and blaming different groups (e.g., homosexuals (Greenhalgh, 2020)) for the outbreak of the virus.

It appears that humans feel a need to blame others for negative outcomes in their lives, even when this blame is unjustified. Often this scapegoating is based on false assumptions that a certain group is responsible for this bad outcome, which is often called ‘conspiracy theories’. Rationally, they do not make any sense, but still a lot of people believe in them. Because this way of thinking can affect human behaviour, it can lead to very harmful outcomes. Recent research by Zagefka (2020) found that humans who could blame an outgroup for the COVID-19 pandemic had less intentions to help poor countries where COVID-19 had struck hard. The concept of scapegoating has already received a lot of attention and Rotschild et al., (2012) made an integrative and generative empirical framework that attempts to explain why and when people scapegoat. In the study on scapegoating by Rotschild et al., (2012) blame for climate change was used as a manipulation. Today, this is still a topic for which a lot of diverse groups are blamed. For example, the movement of adolescents and young adults, inspired by Greta Thunberg have been blaming older generations for the climate problems for the last couple of years (Loria, 2018). In return, older generations accuse them of being hypocrites and blame them for not putting their words into action (Clarkson, 2019; Dupont, 2019). Others, like Glen Peters (research director of the Center for International Climate and Environment Research in Oslo) believe that blame for climate change is useless. In an interview with Timperley (2020) he said that blaming people who are not yet engaging for stronger positive climate action is not a highly effective way to get them to care. Because this finger-pointing will not stop global warming, it is important to gain insight in what the effect is of blaming others on humans’ environmental behaviour. Considering the replication crisis in psychology (Asendorpf, 2012), this study aims to

replicate the dual-motive model of scapegoating and expand the theoretical framework by Rotschild et al. (2012), by integrating other important interindividual differences into the original study to find out how people deal with blame and scapegoating, and to examine the effects on environmental advocacy.

Literature review

Blame

People have blamed others and have been blamed by others for centuries and will probably do so for the rest of time. But why do humans blame and how does it make them feel? Blame is a well-studied concept of moral psychology. Malle, Guglielmo and Monroe (2014) composed an extensive theory of Blame based on previous literature. The key point of this theory is their Path model of Blame. To clarify this path model, they first define what blame is and is not. Their proposed definition of blame is:

We propose that it is a unique type of moral judgment and has four properties: It is both cognitive and social; it regulates social behaviour; it fundamentally relies on social cognition; and, as a social act, it requires warrant. These four properties allow us to distinguish blame from several other phenomena, such as anger, event evaluation, and wrongness judgments. (Malle et. al, 2014, p. 147)

According to them, the first attribute of blame is the fact that it has a cognitive and a social side. The cognitive, private side of blame entails the processes that lead to a judgment of blame. When blame is expressed to another person, this is the social, public side of blame. The relationship between the two sides was often only described as social blame expressing cognitive blame (Beardsley, 1970; Zaibert, 2005), but Malle and colleagues (2014) propose a more reciprocal relation. Cognitive blame is not only expressed by social blame, it is also constrained by it and its properties can be derived from it. The second attribute of blame is the fact that it leads to social regulation. People sometimes need to be motivated to act accordingly to cultural expectations for sharing, appreciation of others' rights and vulnerabilities, self-control and cooperation. Opposed to behaviours motivated by only intrinsic social desires (Baumeister & Leary, 1995). This cultural morality regulates the behaviour of our community members by implementing norms and values (Sripada & Stich, 2006; Sunstein, 1996; Thierry, 2000). Blaming others for their acts is a crucial mechanism to implement systems of social and cultural regulation (Cushman, 2013). Consequently, blame is a judgment of a person. Therefore, it relies on social cognition, the set of ideas and

processes that people use to understand human behaviour (Malle et al, 2014). This dependency is the third property of blame. The last characteristic is that it requires warrant. A blame judgment can be detrimental for the person who is blamed. For that reason, blaming judgments similarly have social norms, meaning that the blamer must be able to justify why the defendant deserves blame (Coates & Tognazzini, 2012).

To understand the concept of blame better Malle et. al, (2014) also defined what blame is not. Although blame judgments are regularly accompanied by anger, this is not necessary. Anger can be provoked by an impersonal event, it can occur without warrant and is not an effective tool of social regulation, unlike blame. As discussed before, blame is a judgment of a person who violated social norms (e.g., Scanlon, 2008; Sher, 2006). Because it is directed at an agent (and not behaviour) and because it requires warrant, it is not merely a wrongness judgment.

The Path model of Blame

Malle et al. (2014) presented the Path Model as a depiction of the cognitive architecture of the construct. This model postulates that blame judgements are made within a conceptual structure. Concepts involved are cause, agent, intentionality and reasons. To check if blame has aroused and to which degree, one must check whether some criteria are met. If the perceiver feels that an event or outcome violated a norm and the blamer perceives that the event was caused by an agent who acted intentionally, there is blame. The degree of blaming depends on the reasons for acting. Minimal blame if the agent can justify the behaviour, maximum blame if they cannot. If the first criteria (event detection and agent causality) are met, but the agent acted unintentionally, the perceiver examines the obligation of the agent i.e., if they should have avoided the event. If they did not, there is no blame or low blame. Otherwise, it depends on the capacity i.e., whether they could have prevented the event. If they could, there is blame, otherwise not. Even though all these criteria are met for the perceiver, blame is not always rational. Agent causality can be perceived by one person, when in fact these beliefs are wrong. An example of this kind of blaming is scapegoating.

Scapegoating

Gordon Allport did research on prejudice in 1948. He made a continuum of social relationships among human groups. At one end of this continuum, it starts with friendly. It ends on the other side with hostile. Scapegoating was situated at the most extreme end of being hostile. In his book *The ABC's of Scapegoating* (1948) he defined it as: “a phenomenon wherein some of the aggressive energies of a person or group are focused upon another individual, group, or object; the amount of aggression and blame being either partly or wholly

unwarranted.” His theory on scapegoating was based on two different psychological approaches (Glick, 2005). The first one was grounded in Freudian theory and based on psychodynamic views. The other one in later drive-reduction models, namely the frustration-aggression view. Despite his beliefs in these approaches, Allport later gave extensive critique on the theory, partly based on limitations revealed by Zawadzki (1948). Different theoretical developments that were found in the last decades can be combined into a new model of scapegoating. Glick (2005) introduced an ideological model of scapegoating. In this model the role of culturally shared beliefs, stereotypes, and ideologies are emphasized. It sees ordinarily adaptive cognitive tendencies and motives as the cause of scapegoating and sees it as a collective process.

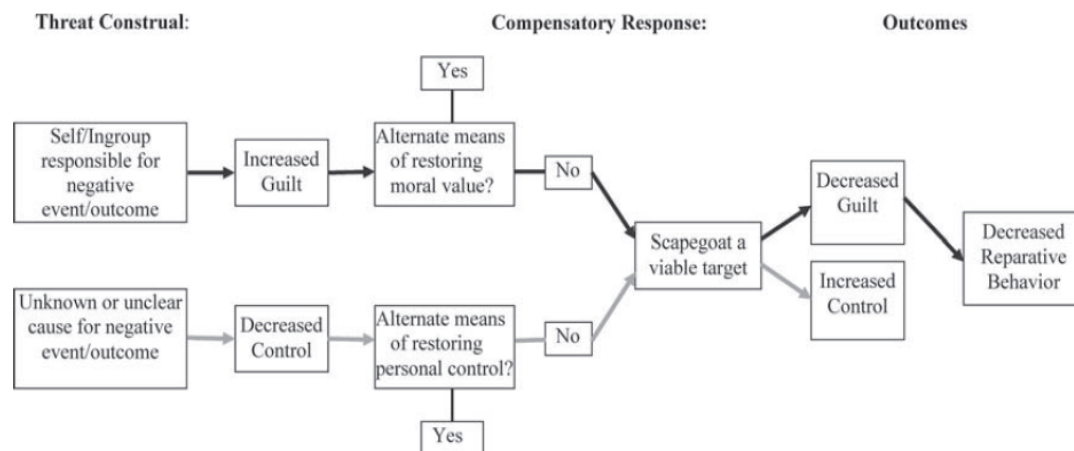
A dual-motive model on scapegoating

Later in 2012, Rothschild, Landau, Sullivan, & Keefer tried to fill a gap in the research about scapegoating after the extensive attention it got in the 1940s and 1950s. They established a dual-motive model that tries to implement an empirical framework to understand when people are most likely to scapegoat, and which psychological motives are the basis of this behaviour at the individual level. See figure 1 for a conceptual overview of the model.

Previous research on the topic initiated two different grounds for scapegoating. The first one concentrates on the motive to think of the self as morally valuable. Because of the Biblical background, Allport (1948) believed that a person could maintain the personal moral by projecting negative characteristics onto scapegoats. Adorno (1950) similarly suggested that scapegoating was motivated by suppressed hostility motivated by unrelated childhood conflicts. His psychoanalytic way of thinking did not get empirical support (e.g., Gollwitzer, 2004), and was disapproved. Later, other findings (Douglas, 1995) suggested that scapegoating is a strategy to minimize guilt by displacing blame to another individual or group. The study of Rothschild et al., (2012) tested and confirmed the claim that people blame a target outgroup for a negative outcome, so they can minimize their feelings of guilt coming from their potential responsibility in that outcome.

This view of scapegoating is able to explain scapegoating in some situations, however it is harder when individuals do not perceive themselves as culpable for the negative outcome. For example, people who are blaming Bill Gates for the COVID-19 crisis (because they believe he is installing microchips in vaccines to track everyone down (Bell, 2021)) are unlikely to believe they are responsible for the start of the COVID-19 pandemic. So, their personal moral is still intact and yet they are scapegoating. To explain situations like this Rothschild et al.

(2012) proposed another path. This is the path of scapegoating to maintain perceived personal control. Research (Leotti et al., 2010) suggests that perceived control is necessary for an individual's wellbeing. Negative outcomes with no clear or understandable cause can threaten this perceived control. Kay et al., (2009) proposed that when someone's perception of control is endangered, people can protect it by ways of compensatory control. Rotschild et al., (2012) believed that displacing blame from unclear and impersonal forces onto a scapegoat could serve as such a strategy, because now the negative outcomes can be understood. This hypothesis was confirmed in their study. The pathway consisting of maintaining perceived personal is supported by several theories. Allport suggested in 1948 that the act of scapegoating could help individuals to maintain the idea that the world is organized, stable and easy to foretell. When Staub examined genocide in 1989, he came to the conclusion that it is to a large extent powered by the offender's aspiration to find a scapegoat that can be held responsible for negative outcomes that are hard to explain. When Glick (2002) did research on the choice of scapegoats, he suggested that ideologies that provide a clear explanation for extensive negative outcomes are attractive to humans, together with an easy solution to restore personal control, namely rejecting or disciplining the scapegoat. In this study he found as well that to succeed in restoring control, the scapegoat target must be perceived as viable. To be viable a scapegoat must possess some characteristics. It must not solely be able to cause the detrimental outcome, it must have the intent to cause damage as well. By revealing that groups seen as malevolent and capable of causing harm are more likely to be pointed out as scapegoats, he proved this point.

Figure 1*Conceptual Overview of the Dual-Motive Model of Scapegoating*

Note. From “A Dual-Motive Model of Scapegoating: Displacing Blame to Reduce Guilt or Increase Control” by Z.K. Rotschild, M.J. Landau, D. Sullivan, and L.A. Keefer, 2012, *Journal of Personality and Social Psychology*, 102 (6), p. 1150 ([https://doi:10.1037/a0027413](https://doi.org/10.1037/a0027413)). Copyright [2022] by Zachary Rotschild.

Guilt

One of the pathways in the dual-motive model (Rotschild et al., 2012) is based on people feeling blamed or feeling responsible for a negative outcome, resulting in guilt. But research by Parkinson and Illingworth (2009) proved that being responsible for a negative outcome is not a necessary precedent for guilt. In their study participants even felt guilty for something they did not do. When Tilghman-Osborne and colleagues (2010) noticed that research on the relation of guilt and psychopathology was highly inconsistent, they started to review 23 theory-based definitions and 25 measures of guilt. Based on this review of the literature, they proposed a definition for guilt.

In our view, guilt is a complex construct that, at its core, has both affective and cognitive components (Kubany, 1995; Watson & Clark, 1991). Guilt involves moral transgressions (real or imagined) in which people believe that their action (or inaction) contributed to negative outcomes. . . . A sense of responsibility and painful feelings of remorse are part of the guilt experience; . . . We do not regard guilt as inherently trait-like; rather, it is a collection of thoughts and feelings that occurs in response to a specific circumstance for reasons that likely have both trait-like and state-like

characteristics. Finally, borrowing heavily from Tangney (Tangney et al., 1992; Tangney & Dearing, 2002) and Janoff-Bulman (1979), we regard guilt as involving behavioural but not necessarily characterological self-blame. In guilt, individuals blame themselves for something they have done or not done. Guilt does not involve the more generalized characterological self-blame, which is more central to the concept of shame. (Tilghman-Osborne et al., 2010, p. 544)

Some aspects that were mentioned in previous definitions were not included in this one because they were not universal. For example, redemption or reparations following guilt, because this is probably moderated by personal characteristics and environmental factors. The same goes on for emotional or behavioural problems, they might occur, but they are not guaranteed.

Collective guilt

In the definition of guilt by Tilghman-Osborne and colleagues (2010) it is proposed that to feel personal guilt, an individual needs to perceive that his actions or inactions resulted in a negative outcome. Intergroup emotions theory (Mackie et al., 2009) on the other hand suggests that even though people did not participate in a particular conflict, they still can have emotions based on their ingroup's actions during the conflict. Therefore, people can feel guilty, even though they did not personally do something wrong, e.g., Americans who feel guilty about the harm their ancestors did to Native Americans. Despite the fact that the feeling of collective emotions is comparable to the feeling of individual emotions, they are still different, because the antecedents and consequences are derived from a shared ingroup identity instead of a personal identity (Ferguson & Branscombe, 2014). Research has examined three antecedents for collective guilt (Ferguson & Branscombe, 2014). The first is collective identity. To feel collective guilt, individuals must self-categorize as a member of the group that caused harm. The second condition for someone to feel collective guilt is harm responsibility. Meaning that when the ingroup is considered responsible for destructive outcomes, people are more likely to feel collective guilt for the group's part in those outcomes. The last antecedent is harm illegitimacy. Collective guilt is stimulated when an ingroup's behaviour against an outgroup is perceived as illegitimate. This study also enumerates consequences of collective guilt. These are: more positive attitudes toward the harmed group, general support for reparation as well as for specific types of reparation. In the current study collective guilt will be provoked by framing the ingroup as the cause of climate change.

Because (collective) guilt is an unpleasant emotional state, people try to reduce this feeling. Reparative actions are one way to do it, but these are often costly, and acknowledgment of the wrongdoing is needed. Therefore, individuals frequently go for alternative means to reduce guilt. One of these coping mechanisms can be scapegoating.

Current study

The study by Rotschild and colleagues (2012) focuses on constructing two pathways and substantiating them empirically. Interpersonal differences have not been considered. Gender was first included as a between-subjects variable, but no significant main effects or interaction effects involving gender were observed. Even though no significant effects of gender were found in this study, older research (Benetti-McQuoid & Bursik, 2005; Bybee, 1998) did find gender differences in the amount of guilt and blame. As individual differences in the tendency to feel some emotions can be discovered, these might be observed for guilt and blame as well (Gill & Cerce, 2021; Perdighe et al., 2015). Therefore, besides just replicating the study of the dual-motive pathway on scapegoating (Rotschild et al., 2012), the purpose of this study is to extend it and implement individual differences to investigate their impact on scapegoating.

Personality and Environmental Advocacy

In their study, Rotschild et al. (2012) found that when a participant could blame a viable scapegoat their guilt decreased as well with their reparative measured by environmental advocacy. Because our personality determines a lot of our values (Czerniawska & Szydło, 2021) and our behaviour (Stankov, 2007), the current study wanted to examine if personality also influenced environmental advocacy after scapegoating.

The Big Five personality traits examined by Costa & McCrae (1992), are considered to represent much of the personality domain. The five constructs are openness to experience, conscientiousness, extraversion, agreeableness and neuroticism. Individuals scoring high on extraversion are believed to be more sociable, communicative, assertive, and active. The trait neuroticism, when reverted, emotional stability is linked to traits such as anxiousness and feelings of depression, being angry, embarrassed and insecure. Traits associated with agreeableness are being flexible, trustworthy, cooperative and tolerant. Conscientiousness is associated with being responsible, organized, hard-working, and perseverance. The last factor in the big five model is openness to experience and is linked to traits such as imagination, curiosity, intelligence and broad-mindedness (Barrick & Mount, 1991).

A study on ecological consumer behaviour by Fraj and Martinez (2006) showed that extraversion, openness and conscientiousness are characteristics of an ecological consumer.

Also, research by Hirsch (2010) revealed that stronger environmental concern was linked to higher levels of agreeableness and openness, with smaller positive effects of neuroticism and conscientiousness.

Research by Milfont and Sibley (2012) on the link between the big five personality traits and environmental engagement found evidence of conscientiousness, agreeableness and openness to experience being predictors of environmental engagement. A review of the literature on the personal and social factors that influence pro-environmental (Gifford & Nilsson, 2014) concluded that openness to experience, agreeableness and extraversion were most strongly linked to environmental engagement. They found that neuroticism was linked as well, but to a lesser extent. Research by Hopwood et al. (2021) found that increases in environmental concern were related to increases in the personality traits neuroticism and openness to experience when getting older.

Because different relations between personality traits and environmentalism have been found, the current study analyses the effects of all big five personality traits on environmental advocacy.

Age

The blaming of generations towards each other concerning climate change (Clarkson, 2019; Dupont, 2019; Loria, 2018) is a hot topic right now. The concept ‘generation’ and its research originate in sociology where Karl Mannheim (1952) introduced it. He viewed consciousness of certain shared historic processes as essential for generations. Edmunds et al. (2002) build further on this sociologic tradition, in which members of a generation are assumed to be part of the same generation due to the fact that they experience historic events from an equal point of view. Research on differences between generations has been affected by the “identification problem”. To examine potential effects, it is important that the research design is capable of observing generation-effects. A methodological issue considering this, is distinguishing the effects of age, period and generation or cohort (Stassen, Anseel & Leveque, 2016) and these variables being intertwined (Yang & Land, 2008). An age effect is when change is due to physical growth, progress in development phases and amassing experience. A period effect is when variation is peculiar to historic events that take place in a specific moment in time (e.g., war). A cohort effect is due to experiences shared by the same age group at the same period (Kowske et al., 2010). Rhodes (1983) believed that for distinguishing these effects sequential cohort design research is necessary, i.e., a combination of cross-sectional, longitudinal, and time-lag design. Considering these methodological issues, a lot of generational studies must be interpreted with caution.

Taking these difficulties into account, generations in this study will be seen as a cultural construct and will merely be used for the manipulation to determine the ingroup. For the analyses age will be assessed as a continuous variable.

Need for cognitive Closure (NFC)

One of the pathways by Rothschild and colleagues (2012) focuses on a decrease in perceived personal control which leads to higher levels of scapegoating. In the current study decreased personal control is provoked by describing a negative situation of which the cause is unknown. This could result in uncertainty and ambiguity, what can cause the participant to want to reduce this uncertainty to recover perceived control. In this case an option to establish this is scapegoating.

Based on Allport's ideas of a general motivated cognitive style at the basis of prejudice (1979), Kruglanski and Webster (1994) composed the need-for-closure theory (NFC). NFC has been defined as "the desire for *an* answer on a given topic, *any* answer, . . . compared to confusion and ambiguity" (Webster & Kruglanski, 1994, p. 1049). The theory presumes that two inclinations to think in a certain way are effectuated when people make judgments and construct knowledge (Roets & Van Hiel, 2011). The first tendency is based on urgency and relates to the desire one must get definite answers fast. This results in a propensity to seize accessible information. The second one, the permanence tendency, refers to the phase in which an individual with high need for closure will persevere or freeze their judgement obtained in the previous seizing phase. This results in them being closed to contradictory information to protect their acquired knowledge (Kruglanski et al., 1993).

Contemporary psychological research has found evidence for a motivated cognitive style that underlies all forms of prejudice. There is also a conceptual fit between Allport's prejudiced personality and NFC. Recent research supports the role of NFC as a basis for prejudice, based on gender and race. Build on these findings, Roets & Van Hiel (2011) believe that NFC is a counterpart of the motivated cognitive style, first constructed by Allport, and that it therefore underlies all forms of prejudice (although more research on other forms of prejudice besides racial and gender prejudice is suitable). Considering the individual differences in the need for closure and the gap in the literature on other forms of prejudiced, it is valid to examine the differences in scapegoating. Because NFC is manifested through, among others, preference for order and structure and discomfort with ambiguity (Webster & Kruglanski, 1994) it is likely that the effect of NFC on scapegoating will be stronger when perceived personal control is threatened. Research has confirmed the effects of NFC on prejudice (De Keersmaecker et al., 2017; Roets & Van Hiel, 2011; Theodorou & Kotic,

2021), yet for this literature review no studies on scapegoating specifically were found. Therefore, the current study wants to fill this gap in research and assess the effects of NFC on scapegoating.

In research from Cornelis et al. (2009) a clear increase of NFC was found over age groups. Research by Kossowska et al. (2012) also indicated that older participants had higher levels of NFC. Consequently, it can be hypothesized that older participants will scapegoat more as a result of higher levels of NFC. A feasible explanation for this effect could be that older people have less cognitive capacity and possibly tend to use more cognitive structuring (Kossowska et al., 2012).

Conceptual model

Figure 2 gives an overview of all the variables considered in this study. As it is an extension of the dual-motive model of scapegoating (Rotschild et al., 2012) the similarities with figure 1 are indisputable. The variables with a dotted line are moderations added to the current study. Based on the literature review, the hypotheses listed below are constructed.

Considering the dual-motive model of scapegoating (Rotschild et al., 2012), participants who feel a decrease in perceived control (control threat condition) or an increase of guilt (value threat condition) will scapegoat more than when these factors are not present.

H1. Participants in the value threat condition and control threat condition will score higher on scapegoating than those in the no threat condition.

Following that NFC is defined as the desire for an answer in contrast with ambiguity (Webster & Kruglanski, 1994), it is expected that in a situation without clear cause for a negative outcome, scapegoating scores will be higher for participants with high scores on NFC.

H2. Participants in the control threat condition who score high on NFC, will have higher scores of scapegoating than those low on NFC.

Since research (Cornelis et al., 2009; Kossowska et al., 2012) indicated that older participants had higher levels of NFC, age will have a positive moderating effect on the relation between NFC and scapegoating.

H2b: Older participants will score higher on NFC, so there will be a positive moderating effect of age on the effect of NFC on scapegoating in the control threat condition.

Based on the model implemented by Rotschild et al. (2012) a decrease in reparative behaviour is only a consequence of decreased guilt and therefore only applies on the value threat condition.

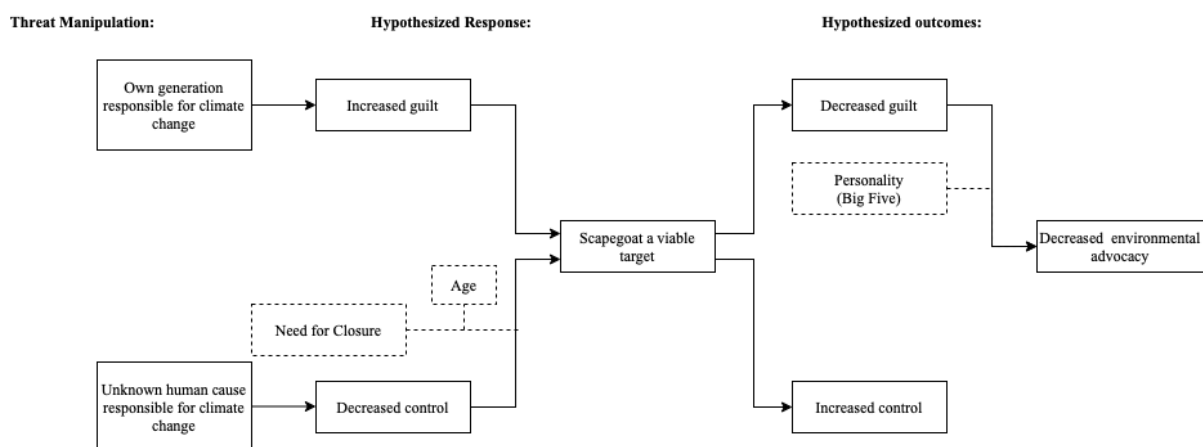
H3. Participants in the value threat condition will have lower scores on environmental advocacy than those in the control threat and no threat condition.

As research showed that particular personality traits (conscientiousness, extraversion, openness to experience, agreeableness and neuroticism) positively affect environmentalism. It is hypothesized that the decreased reparative behaviour in the value threat condition will be attenuated by these traits.

H3b. This decrease in environmental advocacy (see H3) will be attenuated by conscientiousness, extraversion, openness to experience (post-hoc), agreeableness (post-hoc), and neuroticism (post-hoc).

Figure 2

Overview of the conceptual model of the current study



Note. Adapted from “A Dual-Motive Model of Scapegoating: Displacing Blame to Reduce Guilt or Increase Control” by Z.K. Rotschild, M.J. Landau, D. Sullivan, and L.A. Keefer, 2012, *Journal of Personality and Social Psychology*, 102 (6), p. 1150 ([https://doi:10.1037/a0027413](https://doi.org/10.1037/a0027413)). Copyright [2022] by Zachary Rotschild.

Method (joint)

Sample

Participants were approached both directly and via social media and asked to complete an online questionnaire. For this sample people had to be at least eighteen years old and agree to an informed consent document (see appendix) before they were able to participate in the study. All participants were informed the data would be strictly used for scientific research and were guaranteed anonymity and confidentiality. A total of 358 unique responses were collected ($M_{\text{Age}} = 35.2$, $\text{Male} = 153$), however 32 were removed because their data was incomplete. Another 25 responses were withheld from the final dataset with the reason being the duration of these responses was either too short or too long, making it impossible for the manipulation to have worked. In order to statistically substantiate this, the mean and standard deviation of duration ($M = 446.88$, $SD = 176.11$) was calculated and all datapoints further than two standard deviations were withheld. This led to a total of 301 unique responses included in the following study ($M_{\text{Age}} = 35.8$, $\text{Male} = 130$).

Design

The purpose of this study was to replicate the study by Rotschild et al. (2012) examining the dual-motive model of scapegoating. Because the study was done in Flanders the questionnaire was entirely set up in Dutch. This study chose to use quantitative research to obtain a significant sample size and examine the hypotheses. Parallel to the original study two motives were manipulated, on the one hand personal control and on the other hand increased guilt. A questionnaire with three conditions was established with each a different manipulation. The start of the survey was equal for all conditions and began with an informed consent form, if participants agreed to the form, they got randomly assigned to one of the conditions.

Following the informed consent, a fictitious, manipulated article, supposedly published by a Flemish quality newspaper, discussing the negative effects of global warming was shown. The first paragraph was equal across conditions, the second paragraph explaining the cause for climate change, differed across conditions. In the value threat condition, the ingroup, so

the own generation was blamed. Dependent on the year the participant was born in, they got assigned to a certain generation (Gen Z:1996-2004, Gen Y: 1995-1977, Generation X: - 1965-1976, Boomer generation:1946-1964, Silent Generation: 1921-1945). These years were mentioned in the article so the participant would feel like a part of this generation. By making the participants identify themselves with the generational in-group, it was hypothesized that the in-group being blamed would result in increased feelings of guilt, which would lead to more scapegoating. In the control threat condition, the cause for climate change is said to be unknown to scientists. With this manipulation personal control was meant to decrease. In the no threat condition, another generation than the one the participant is part of, is blamed. To ensure this condition was similar for all participants, the generation before the one of the participants was blamed. The same years per generation as described above were used and mentioned in the article as well, so the participant would not feel blamed. For instance, when the participant is part of the Millennial-generation, Generation X was blamed. This manipulation served as a control condition. To prevent dropout the study was shortened compared to the study by Rotschild et al. (2012). As the manipulation of the article was similar, no manipulation check for guilt or personal control was added to the survey. The value threat condition and the control threat condition assumed relatively increased guilt and decreased personal control.

After reading the article, the survey was equal for all participants. In this part scapegoating, need for closure, environmental advocacy, personality and some demographics (age and sex) were measured by means of self-report scales.

Instruments

To collect the data an online questionnaire was composed with Qualtrics and included a set of questions to measure the different variables included in the study. To achieve this goal all variables were introduced using empirically validated questionnaires which were translated into Dutch by use of the back translation method. Furthermore, all the items were randomized to eliminate order effects. Each scale showed a good internal consistency. Additionally considering the sensitivity of Cronbach's Alpha to the number of items in a test, McDonalds's omega was also conducted, confirming the internal consistency (Sijtsma K., 2009). Table 1 provides an overview of the reliability scales among the variables included in this study. All instruments and articles can also be consulted in the appendix.

Table 1

Frequentist Scale Reliability Statistics among the variables across the study

Variables	Chronbach's α	McDonald's ω
1. Scapegoating	.865	.866
2. Need for Closure	.838	.846
3. Environmental Advocacy	.740	.744
4. Conscientiousness	.750	.756
5. Extraversion	.788	.792
6. Openness	.589	.573
7. Agreeableness	.756	.756
8. Neuroticism	.739	.746

Age

Each participant had to fill in their age in years in the questionnaire. For the manipulation they got assigned to a certain generation, but for the analyses their exact age was used. Age was defined as a variable on continuous measurement level.

Scapegoating

To measure scapegoating, the translated questionnaire of Rotschild et al., (2012) was used. The questionnaire consisted of five items (e.g., To what extent do you believe that oil companies are responsible for the destruction of the environment?). All items were scored on a 5-point Likert scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*) and were averaged to form composite scapegoating scores.

Need For Closure

To quantify need for closure (NFC) the questionnaire included a 15-item scale (e.g., “I feel like an organized and structured life fits my nature”) developed by Roets and Van Hiel (2011). All items were also scored on a 5-point Likert scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*).

Personality

To calculate the scores on the Big 5 Personality traits, the mini-IPIP scale by Oswald et al., (2006) is used. This scale is a 20-item short form of the 50-item International Personality Item Pool and measures openness, conscientiousness, extraversion, agreeableness and neuroticism. All items were scored on a 5-point Likert scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). Because only openness, conscientiousness, agreeableness and extraversion were further analysed, only these reliability measures are reported.

Environmental Advocacy

Four items of the Ferguson's (2009) Environmental Advocacy scale were chosen to measure environmental advocacy. The following four items were chosen to extend the questionnaire to all participants and not only students: "To what extent would you be willing to learn more about global warming by reading, watching television or using the internet?"; "To what extent would you be willing to add your name and email address to the online march against global warming?"; "To what extent would you be willing to encourage your family and friends to watch a documentary about global warming?"; "To what extent would you be willing to encourage your family and friends to watch a documentary about global warming?". The items were scored on a 5-point Likert scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*) and averaged to form a composite scale for environmental advocacy.

Procedure of Analysis

In this study a between-subject design is established with three conditions: no threat, control threat and value threat. Based on the hypotheses these relations were statistically analysed. After the data collection, the literature review in this study was revised, resulting in some post hoc findings that were tested to expand the current research and strengthen future research. These relations are marked.

- 1) Effect of increased guilt on scapegoating (value threat condition)
- 2) Effect of decreased control on scapegoating (control threat condition)
- 3) Moderating effect of NFC on the relation between decreased control and scapegoating
- 4) Effect of age on NFC
- 5) The effect of decreased guilt after scapegoating (in the value threat condition) on environmental advocacy
- 6) The moderating effect of conscientiousness on the effect between decreased guilt and environmental advocacy
- 7) The moderating effect of extraversion on the effect between decreased guilt and environmental advocacy

- 8) Post-hoc: The moderating effect of openness on the effect between decreased guilt and environmental advocacy
- 9) Post-hoc: The moderating effect of agreeableness on the effect between decreased guilt and environmental advocacy

To test these relations, all hypotheses were assessed using frequentist statistics and the Bayesian analyses are also included wherever this was preferable. Bayesian statistics help interpreting the probabilities of hypotheses and while some statisticians are still struggling over the argument whether the Bayesian or frequentist model is preferable (Bayarri & Berger, 2004), other researchers believe the concepts of subjective and objective probability can certainly coexist in a way (Wilson, 2003). All tests were done using the statistical program JASP Team (2022). To test the hypotheses using Bayesian statistics, a Bayes factor (BF_{10}) is used (van Doorn et al., 2020). This factor is defined as the ratio of the likelihood of the data under the null hypothesis and under the alternative hypothesis (Stefan et al., 2019). BF_{10} is in favour of the alternative hypothesis and shows how much more likely it is in comparison to the null hypothesis. When BF_{10} is smaller than one, the data is in favour of the null hypothesis. In these cases, the interpretation of BF_{01} is reported to improve comprehensibility. It must be noted that all Bayes factors are specific for this dataset. When a Bayesian counterpart was assessed, default prior distributions were used ($P(M) = .50$).

For the first and second relation (hypothesis 1) an ANOVA with scapegoating as dependent variable and condition as predictor was performed. Before performing the test, the basic assumptions were checked. Performing a Shapiro-Wilk test showed a deviation of normality in the data, but it was still considered valid to use ANOVA. A more comprehensive explanation of all the assumption checks included in the study can be found in the appendix.

To examine the hypothesized relation between decreased control, scapegoating and the moderating effect of need for closure (hypothesis 2), a linear regression was conducted on the data of all participants assigned to the control threat condition.

In this regression scapegoating was defined as dependent variable and NFC as predictor. The relation between age and need for closure and the subsequent effect on scapegoating scores (hypothesis 2b) were examined using a multiple linear regression.

In this regression scapegoating was defined as the dependent variable, age and NFC as predictors, with an interaction between age and NFC added to model.

The proposed negative effect of decreased guilt on environmental advocacy as a reparative behaviour in the value threat condition (hypothesis 3) was examined using ANOVA with environmental advocacy as the dependent variable and condition as the predictor.

Finally, the 6th, 7th, 8th and 9th effect (hypothesis 3b, 3c, 3d) of the moderating capabilities of personality traits on the dependent variable environmental advocacy were analysed with a multiple linear regression and interaction effect of conscientiousness, extraversion, agreeableness and openness with the value threat condition. To reduce multicollinearity, all independent variables in the multiple regressions were mean centred. To assess the regression with an interaction effect of the personality traits and condition, dummy coding was used with the control group (no threat condition) as a reference group. The dummy variables were defined as covariates for statistical reasons, this was validated by an ANCOVA. All assumptions were met for this linear regression (see appendix).

Results (joint)

Hypothesis 1: *Participants in the value threat condition and control threat condition will score higher on scapegoating than those in the no threat condition.*

A one-way between subjects ANOVA (table 2) was conducted to compare the predicted effect of increased guilt (value threat condition) and decreased control (control threat condition) on scapegoating in comparison with the no threat control condition (hypothesis 1). There was no significant effect of condition on scapegoating on the .05 alpha level [$F(2,298) = 0.70, p = 0.497$]. The BF_{10} of .068 (table 7) suggests the data is 14.74 times more likely under the null model, than under the model incorporating condition. This yields strong evidence for the conclusion that hypothesis 1 is not supported by the data.

Table 2: ANOVA results

ANOVA: Effect of condition on scapegoating

Cases	Sum of Squares	df	Mean Square	F	p
Condition	0.753	2	0.377	0.701	0.497
Residuals	160.038	298	0.537		

Note. Type III Sum of Squares, $R^2 = 0.138$, $R^2_{adj} = 0.019$

Hypothesis 2: *Participants in the control threat condition who score high on NFC, will have higher scores of scapegoating than those low on NFC.*

To assess whether a positive relation could be found between need for closure and scapegoating in the control threat condition, a linear regression was conducted with NFC and scapegoating (table 3). The results demonstrated a small positive relation in the dataset; however, this was not significant at the .05 mark for reliability ($p = .180$). A BF_{10} of .479 (table 7) suggests the data is 2.09 times more likely under the null model, providing anecdotal evidence of hypothesis 2 not being supported in the data.

Table 3

Regression coefficients for the effect of Need for Closure on Scapegoating

Model		Unstandardized	Standard Error	Standardized	t	p
H ₀	(Intercept)	3.548	0.069		51.730	< .001
H ₁	(Intercept)	2.993	0.417		7.177	< .001
	Need for Closure	0.176	0.130	0.138	1.350	0.180

Note. $R^2 = 0.138$, $R^2_{adj} = 0.019$

Hypothesis 2b: *Older participants will score higher on NFC, so there will be a positive moderating effect of age on the effect of NFC on scapegoating in the control threat condition.*

The hypothesis that age has a positive relation with need for closure and moderates scapegoating scores in the control threat condition was tested by a linear regression between NFC and age, a linear regression between NFC and scapegoating and a multiple linear regression with NFC and age as the predictors and scapegoating as the dependent variable (table 4). In the data collected for the control threat condition, age did not predict a higher need for closure ($p = .380$). need for closure was also not found to be a significant predictor for scapegoating when incorporating age as a variable to the model ($p = .887$). Finally, the interaction between age and need for closure was also not significant in the control threat condition ($p = .422$). Calculating the Bayesian factor for the relation between age and need for closure in the control condition showed moderate evidence to conclude the hypothesis is not supported in the data with $BF_{10} = .302$ (table 7) indicating the data is 3.311 times more likely under the null model.

Table 4*Regression coefficients for the effect of Need for Closure and Age on Scapegoating*

Model		Unstandardized	Standard Error	Standardized	t	p
H ₀	(Intercept)	3.548	0.069		51.730	< .001
H ₁	(Intercept)	3.819	1.007		3.790	< .001
	age	-0.024	0.026	-0.609	-0.928	0.356
	Need for Closure	-0.045	0.315	-0.035	-0.143	0.887
	Age * NFC	0.007	0.008	0.574	0.806	0.422

Note. $R^2 = 0.182$, $R^2_{adj} = 0.033$

Hypothesis 3: *Participants in the value threat condition will have lower scores on environmental advocacy than those in the control threat and no threat condition.*

The effect of decreased guilt in the value threat condition on environmental advocacy, predicted in hypothesis 3, was assessed by an ANOVA (table 5). There was no significant effect of condition on environmental advocacy [$F(2,298) = 0.006$, $p = 0.994$]. The BF_{10} of 0.07 (table 7) indicates that the data is 27.7 times more likely under the null model than under the alternative hypothesis. Providing strong evidence that hypothesis 3 is not supported by the data.

Table 5*ANOVA: Effect of condition on Environmental Advocacy*

Cases	Sum of Squares	df	Mean Square	F	p
Condition	0.008	2	0.004	0.006	0.994
Residuals	190.896	298	0.641		

Note. Type III Sum of Squares

Hypothesis 3b: *This decrease in environmental advocacy (see H3) will be attenuated by conscientiousness, extraversion, openness to experience (post-hoc), agreeableness (post-hoc) and neuroticism (post-hoc).*

Extending on this hypothesis, the attenuating effect of the big five personality components (conscientiousness, extraversion, openness, neuroticism and agreeableness) on the relation between decreased guilt on environmental advocacy was also predicted. As it was

hypothesized that personality would affect the decrease of reparative behaviour in the value threat condition, a multiple linear regression with an interaction effect of each personality trait and the value threat condition was used to assess this hypothesis (table 6). There was no moderation effect of extraversion ($p = .743$), conscientiousness ($p = .667$), openness ($p = .333$), agreeableness ($p = .426$), or neuroticism ($p = .06$) with condition on scapegoating. There were significant effects of agreeableness ($\beta = .301$, $p < .001$) and openness ($\beta = .311$, $p < .001$) on environmental advocacy regardless of condition.

Table 6

Regression coefficients for the effects of condition and personality on Environmental Advocacy

Model		Unstandardized	SE	Standardized	t	p
H ₀	(Intercept)	3.531	0.046		76.790	< .001
H ₁	(Intercept)	3.534	0.075		47.426	< .001
	control threat	0.015	0.109	0.009	0.143	0.887
	value threat	-0.025	0.109	-0.014	-0.226	0.822
	Conscientiousness	-0.099	0.068	-0.098	-1.447	0.149
	Extraversion	-0.087	0.071	-0.087	-1.227	0.221
	Openness	0.309	0.090	0.241	3.451	< .001
	Agreeableness	0.296	0.086	0.231	3.467	< .001
	Neuroticism	0.086	0.073	0.082	1.174	0.241
	value threat * Conscientiousness	0.033	0.135	0.017	0.244	0.808
	value threat * Extraversion	-0.013	0.125	-0.007	-0.106	0.915
	value threat * Openness	-0.129	0.159	-0.057	-0.812	0.417
	value threat * Agreeableness	-0.086	0.170	-0.033	-0.506	0.614
	value threat * Neuroticism	-0.247	0.134	-0.129	-1.848	0.066

Note. $R^2 = 0.351$, $R^2_{adj} = 0.123$

Table 7

Results Bayesian analyses

Model	BF ₁₀
ANOVA: Condition & Scapegoating	0.068
Regression: NFC & Scapegoating	0.479
Regression: Age*NFC & Scapegoating	0.302

Model	BF ₁₀
ANOVA: Condition & Environmental Advocacy	0.070

Discussion

In this study the main findings of the dual-motive model of scapegoating by Rothschild et al. (2012) were studied and individual differences were implemented in this framework. Based on their model it was hypothesized in the current study that participants in the value threat condition and the control threat condition would scapegoat more than in the no threat condition, because of respectively increased guilt and decreased control. No significant effect was found, contradicting the dual-motive model of scapegoating (Rotschild et al., 2012). To obtain increased guilt and decreased control, a manipulation of an article about the cause of climate change was used, with the cause adjusted depending on condition and ingroup of the participant. The lack of significant results could be due to problems with the manipulation. For the value threat condition participants' generations were blamed for climate change. For participants to consequently feel guilty after reading the article, three antecedents must be met (Ferguson & Branscombe, 2014). One of these antecedents is collective identity. This means that participants need to self-categorize as a member of the group that caused harm. The article blamed the participants' generation and then reported the birth years of which it consisted between brackets. The time that participants spend reading the article was not tracked. It can thus be speculated that participants did not take their time to read the article with their full attention, read over these years and did not categorize themselves as part of the generation. This would imply that it was impossible for participants to feel collective guilt. Consequently, they would not feel the need to maintain moral value and decrease guilt, so scapegoating scores are not higher than in the no threat condition in which they were not blamed. For the control threat condition climate change was, similar to the original study, ascribed to unknown causes. To enhance credibility, it was modified to unknown *human* causes. The study of Rothschild was completed ten years ago. People were already aware of climate change back then, but interest has risen a lot over the past decade, both in research (Baggio, 2021) and in our society. In the Eurobarometer of 2011 climate change was mentioned by three percent of the participants as one of the most important issues facing the EU, whereas in 2021 this was 25% (European Commission, 2021). Also, research by Milfont et al. (2021) showed that for all age categories an increase in human causation of climate change has happened. This increase in belief and knowledge of the causes of climate change

may have caused the manipulation to not have the same effects as ten years ago, causing the lack of significant results on scapegoating scores. This is only speculated, as no manipulation checks were performed.

The second hypothesis of this study incorporated need for cognitive closure (NFC) into the pathway consisting of the preservation of personal control as a motive of scapegoating. No significant strengthening effect of a higher NFC on scapegoating of participants in the control threat condition was found in this study. This hypothesis was built on the premise of scapegoating considered as a form of prejudice. Research has confirmed the effects of NFC on prejudice (De Keersmaecker et al., 2017; Theodorou & Kotic, 2021), however these studies focus on prejudice based on ethnicity, potentially explaining the lack of significant results in the current study. Roets et al. (2015) examined what processes in NFC lead to prejudice. As the urgency tendency of NFC describes, individuals with high NFC feel the need to search for quick and definite answers. According to their research, these individuals have recourse to essentialist thinking and authoritarian ideologies to meet this need. It can be speculated that these concepts have stronger links to prejudice based on ethnicity such as racism, than on scapegoating. Potentially explaining the lack of significant results in this study. Another explanation is the lack of manipulation checks. As established before, the first hypothesis was not supported as no significant differences in scapegoating were found. This means that oil companies were blamed for climate change approximately identical in all three conditions. This might imply that participants did not blame the viable scapegoat (oil multinationals) as a form of scapegoating, but out of a general belief. This is just a speculation as no control checks have been conducted measuring pre-existing belief on the causes of climate change.

It was hypothesized as well that older participants would have a higher score on NFC and that this interaction between age and NFC would strengthen scapegoating scores of participants in the control threat condition, but no significant results were found. Our dataset has an age range from 18 to 87 years but reached mostly younger participants. More than 50% of our data consisted of participants under the age of 28. So, it might be hard to draw conclusions as the distribution of age is not equally distributed.

No evidence was found to support the third hypothesis. Meaning, no significant differences between conditions were found in the degree of environmental advocacy after scapegoating as was established by Rotschild et al. (2012). This was hypothesized considering that the pathway of scapegoating to maintain personal control did not have effects on environmental advocacy, in contrast to the pathway for maintaining moral value.

An explanation for the similarities in environmental advocacy across conditions could stem from the different proposed cause for climate change in the control threat condition in the current study in comparison to the study by Rothschild et al. (2012). In their study the cause of climate change was unknown, resulting in a decrease of personal control leading to scapegoating (see figure 1). Once a participant scapegoated the perceived personal control increased. In the current study unknown *human* causes were blamed. It is conceivably that this manipulation too threatened participants' moral value when they categorize 'humans' as their ingroup. Resulting in similar scores on environmental advocacy in the control threat and value threat condition. An alternative explanation for all groups in this dataset having very similar mean scores ($M_{\text{control threat}}=3.523$ $M_{\text{no threat}}=3.535$, $M_{\text{value threat}}=3.533$) that were rather high, is the increase in concern about the environment. Participants might want to protect the environment despite not feeling responsible for climate change. A subsequent explanation could be social desirability bias. Since environmental engagement is socially desirable, participants might have had the propensity to answer more positive regardless of their actual feelings of environmental advocacy.

The hypothesized effect of personality on decreased environmental advocacy in the value threat condition was not confirmed. As seen in figure 1, in the study by Rothschild and colleagues (2012) a decrease in reparative behaviour was only found when scapegoating was a result of decreasing guilt to maintain moral value. It is unclear if the manipulation in the current study to establish the different pathways has worked, which could explain the lack of significant results. As in previous research (Gifford & Nilsson, 2014; Milfont and Sibley 2012) a significant main effect of some personality traits, regardless of the condition, was found. Both agreeableness and openness have a positive effect on environmental advocacy in the current study in the overall dataset. However, construing causal inferences is unwarranted considering the use of cross-sectional data. Prior research has studied the relation between personality traits and personal values. Both agreeableness and openness have been linked to the higher-order personal value of self-transcendence (Olver & Mooradian, 2002). This construct has been posited by Frankl (1966) as an essential part to create meaning and reflects a stronger sense of relatedness with past and future generations (Levenson, 2005). A study by Schultz et al. (2005) showed self-transcendence values to predict general concern for environmental issues in a positive way. It does need to be considered though that the relationships between the personality traits and self-transcendence were modest, implying that positive personality traits cannot account for self-transcendence alone (Levenson et al., 2005). Both traits are related to greater levels of empathy (Melchers et al., 2016) as well.

Research by Schultz (2005) indicated that perspective-taking, a characteristic of empathy, could manipulate environmental concerns, this might mean that greater empathy leads to greater environmental concern. Additionally, research on altruism (Furnham et al., 2014) found that subdimensions of agreeableness and openness (respectively interpersonal sensitivity and inquisitiveness) were related to self-reported altruism. Which is commonly implied to be behaviour that advantages others at cost of the individual (Kerr et al, 2004). Overall, individuals who score lower on agreeableness are inclined to be more egotistic, and care less about the wellbeing of others (Hirsch, 2010). Openness on the other hand is linked with greater cognitive abilities and flexibility in information processing and exploration of the environment (DeYoung, Peterson, & Higgins, 2005), conceivably making individuals high on openness capable of seeing the need for environmental advocacy.

Limitations (and guidelines for further research)

The current study aimed to replicate the findings of the study by Rotschild et al., (2012) on scapegoating and extend upon it with the effects of individual differences. Most hypotheses were not confirmed, providing no evidence in support of prior findings. However, these results must be interpreted with caution as this study has some limitations. First of all, as the questionnaire was filled in online, there was no control over how participants filled it in, e.g., background noise can make participants lose their focus. On top of that, there were no manipulation checks done. This study is based on previous studies (Rotschild et al., 2012) and assumed that the manipulation of the article would provoke increased guilt or decreased perceived personal control. The unclear circumstances under which the participants filled in the questionnaire and the lack of manipulation checks make it hard to be certain that the manipulation has worked. A check to see if participants read the whole article attentively followed by a clear inquiry of feelings of guilt and personal control are necessary in future research to monitor if the manipulation has worked.

In this study individual differences were added to an existing model of scapegoating. No control checks of other variables were considered. As a result, it is hard to determine if the found effects can be attributed to the studied variables. In future research considering environmental advocacy it is recommended to control for personal and social factors that could have influenced the effects such as knowledge and education, childhood experience and values, political views and worldviews. (Gifford & Nilsson, 2014).

This study was based on a self-reported questionnaire. One of the main issues with this kind of data collection are response biases such as responding socially desirable (Furnham, 1986). As engaging in pro-environmental practices is appraised as positive by most of human

society, participants might have felt the urge to answer the environmental advocacy items more positive. Vesely and Klöckner (2020) concluded that social desirability cannot be completely disregarded in self-reports of environmentally relevant behaviour. Additionally, research (Sheeran, 2002) has shown that the intention to a certain behaviour does not always corresponds to the actual behaviour. Despite the effects of agreeableness and openness to experience on environmental advocacy, we cannot just claim that these personality traits have an effect on actual green behaviour.

Another limitation of distributing the questionnaire online is the high participant dropout. The questionnaire was very accessible and there was a high click ratio, but a rather low completion rate of 51%. Research (Nestler et al., 2015) showed that some personality traits i.e., openness, agreeableness, conscientiousness could influence completing online questionnaires. With high scores on these traits meaning that someone had a higher probability of continuing the online survey. This could result in the data sample not being generalizable. An additional problem for the generalizability is the distribution of age. Figure 3 and figure 4 show the skewed distribution to the right for age, indicating the lack of older participants.

Figure 3

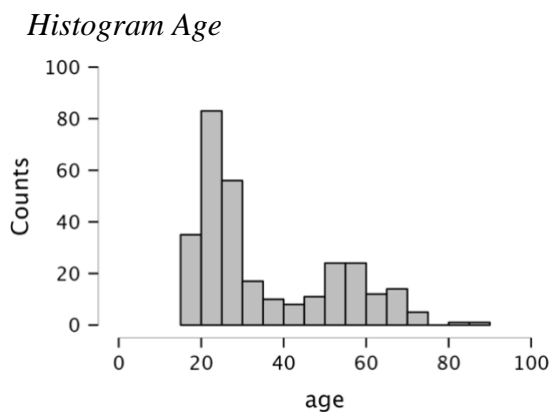
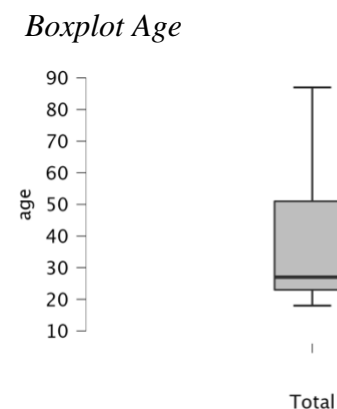


Figure 4



The cross-sectional design is another drawback. This type of research cannot distinguish between cohort and age effects, nor does it allow for causal inferences to be made. A suggestion for future research is to use longitudinal designs to assess the effects of age.

Practical implications

Many of the environmental problems encountered today are caused by human activities. To counter climate change, interventions at multiple levels of society are necessary to be effective. One of these levels is the behaviour of individuals. Countries are already trying to

convince their inhabitants to act greener, but they do not always succeed. As people have different attitudes toward environmental issues (Hirsch, 2010) not everyone seems to care. If countries want to change the behaviour and attitudes of their society it is necessary to understand what drives people, as different approaches may motivate different people. One of the tendencies that underly behaviour is personality. This study and prior findings show that personality affects environmental concern and behaviour. As the traits agreeableness and openness are based on different dimensions, it might imply that people are concerned about the environment for diverse reasons e.g., someone scoring high on agreeableness is concerned about the environment out of concern for others, while someone scoring high on openness is concerned out of an aesthetic sensitivity and wants to keep the earth beautiful. This might imply that basing interventions on personal values and concerns might enhance individuals' motivation to act greener. A review (Anagnostopoulou et al., 2018) of studies on technologies to persuade people into sustainable mobility shows that people are sensitive to different persuasive strategies. This suggests that personalized interventions might be more persuasive than 'one-size fits all'-interventions. An even better understanding of how personality affects environmental behaviour could help to determine which approaches work best in the future.

Conclusion

This study found its basis in the dual-motive model of scapegoating. It aimed to replicate this framework and implement age, degree of need for closure and personality to see the effects of these variables on scapegoating and environmental advocacy. The hypothesis that participants in the value threat and control threat condition would scapegoat more to maintain respectively moral value and perceived personal control was not supported, implying that the dual-motive model could not be replicated in our dataset. Nevertheless, due to limitations in this study readers must interpret this result with caution.

Further, based on previous findings on need for closure and prejudice, an effect of need for closure on scapegoating was expected in the condition based on decreased personal control. Prior research found that NFC increases when getting older, but in the current study this effect was not found, nor the effect of NFC on scapegoating. Again, further longitudinal research with more reliable measures on the effects of age and NFC on scapegoating is suggested.

The effect of scapegoating on reparative behaviour was studied as well. It was hypothesized that in the value threat condition scapegoating would lead to lower scores on environmental advocacy, but no significant effects were found. At last, the influence of

personality on environmental advocacy was studied. It was hypothesized that personality would affect environmental advocacy, so that in the value threat condition the proposed decrease would be attenuated. The effect of personality regarding condition was not found. Though, a positive effect of the personality traits agreeableness and openness on environmental advocacy was found. These findings contribute to prior literature on the link between personality and environmental engagement.

Even though the current study did not find the hypothesized results, research about scapegoating, its underlying motives and which individual differences affect these is still highly recommended. Scapegoating has led to devastating behaviour in the past. Comprehending why humans do it and if there are differences between individuals in the amount and motives for scapegoating, will be helpful to diminish this type of prejudice. Especially as scapegoating can lead to misconduct, as in this case, less environmental advocacy. The findings that show the link between personality and environmental advocacy can set a possible path for personalizing sustainability interventions.

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Appendix (joint)

Included articles

Value threat condition (5 versions dependent on age)

...- 1945

1946-1964

Nieuw klimaatrapport: het aandeel van elke generatie

In het laatste rapport van het VN-klimaatpanel IPCC zijn onderzoekers opnieuw tot dezelfde vaststelling gekomen: de negatieve veranderingen in ons klimaat zijn hoofdzakelijk door de mens veroorzaakt. Naar aanleiding van dit rapport onderzochten Britse onderzoekers van de Universiteit van Cambridge hoe groot de impact van een mensenleven op het klimaat is. Uniek aan deze studie is dat ze de impact over de volledige levensduur van mensen doorheen de tijd weten te modelleren. Generaties naast elkaar plaatsen is vaak moeilijk, maar vermits onderzoekers nu de invloed van de mens op het klimaat doorheen de laatste eeuw hebben kunnen berekenen, heeft men hier een opvallende vaststelling bij kunnen maken.

Deze resultaten leren ons nu dat de stille generatie (mensen geboren in 1945 of eerder) een grotere impact op het klimaat hebben gehad dan de generaties voor én achter hen. Grote factoren hierbij zijn volgens de onderzoekers de explosie van de zware industrie en de verwoestende impact van WOI en WOII op ons milieu. Deze bevinding van de Britse onderzoekers werd laatst gepubliceerd in het gerenommeerde tijdschrift 'Science'.

Nieuw klimaatrapport: 'Code rood voor Babyboomers'

In het laatste rapport van het VN-klimaatpanel IPCC zijn onderzoekers opnieuw tot dezelfde vaststelling gekomen: de negatieve veranderingen in ons klimaat zijn hoofdzakelijk door de mens veroorzaakt. Naar aanleiding van dit rapport onderzochten Britse onderzoekers van de Universiteit van Cambridge hoe groot de impact van een mensenleven op het klimaat is. Uniek aan deze studie is dat ze de impact over de volledige levensduur van mensen doorheen de tijd weten te modelleren. Generaties naast elkaar plaatsen is vaak moeilijk, maar vermits onderzoekers nu de invloed van de mens op het klimaat doorheen de laatste eeuw hebben kunnen berekenen, heeft men hier een opvallende vaststelling bij kunnen maken.

De resultaten tonen aan dat babyboomers (mensen geboren tussen 1946 en 1964) op het einde van hun leven een grotere impact op het klimaat zullen hebben gehad dan de generaties die voor én achter hen komen. Eén van de grote factoren is het massale gebruik van wegwerp-producten en sterk vervuilende wagens die door deze generatie na WOII werden gebruikt. Deze bevinding van de Britse onderzoekers werd laatst gepubliceerd in het gerenommeerde tijdschrift 'Science'.

1965-1976

Nieuw klimaatrapport: 'Code rood voor Gen X'

In het laatste rapport van het VN-klimaatpanel IPCC zijn onderzoekers opnieuw tot dezelfde vaststelling gekomen: de negatieve veranderingen in ons klimaat zijn hoofdzakelijk door de mens veroorzaakt. Naar aanleiding van dit rapport onderzochten Britse onderzoekers van de Universiteit van Cambridge hoe groot de impact van een mensenleven op het klimaat is. Uniek aan deze studie is dat ze de impact over de volledige levensduur van mensen doorheen de tijd weten te modelleren. Generaties naast elkaar plaatsen is vaak moeilijk, maar vermits onderzoekers nu de invloed van de mens op het klimaat doorheen de laatste eeuw hebben kunnen berekenen, heeft men hier een opvallende vaststelling bij kunnen maken.

De resultaten tonen aan dat generatie X of Gen X (mensen geboren tussen 1965 en 1976) op het einde van hun leven een grotere impact op het klimaat zullen hebben gehad dan de generaties die voor én achter hen komen. Eén van de grote factoren is het massale gebruik van wegwerpproducten en sterk vervuilende wagens door deze generatie. Deze bevinding van de Britse onderzoekers werd laatst gepubliceerd in het gerenommeerde tijdschrift 'Science'.

1977-1995

Nieuw klimaatrapport: 'Code rood voor Gen Y'

In het laatste rapport van het VN-klimaatpanel IPCC zijn onderzoekers opnieuw tot dezelfde vaststelling gekomen: de negatieve veranderingen in ons klimaat zijn hoofdzakelijk door de mens veroorzaakt. Naar aanleiding van dit rapport onderzochten Britse onderzoekers van de Universiteit van Cambridge hoe groot de impact van een mensenleven op het klimaat is. Uniek aan deze studie is dat ze de impact over de volledige levensduur van mensen doorheen de tijd weten te modelleren. Generaties naast elkaar plaatsen is vaak moeilijk, maar vermits onderzoekers nu de invloed van de mens op het klimaat doorheen de laatste eeuw hebben kunnen berekenen, heeft men hier een opvallende vaststelling bij kunnen maken.

De resultaten tonen aan dat generatie Y of Gen Y (mensen geboren tussen 1995 en 1977) op het einde van hun leven een grotere impact op het klimaat zullen hebben gehad dan de generaties die voor én achter hen komen. Eén van de grote factoren is het feit dat meer mensen luxueuzer zijn gaan leven dan hun grootouders. Zo was er de opkomst van de wegwerpmajestatie en gingen steeds meer mensen internationaal reizen op een vervuilende manier. Deze bevinding van de Britse onderzoekers werd laatst gepubliceerd in het gerenommeerde tijdschrift 'Science'.

1996-2010

Control threat condition

Nieuw klimaatrapport: 'Code rood voor Gen Z'

In het laatste rapport van het VN-klimaatpanel IPCC zijn onderzoekers opnieuw tot dezelfde vaststelling gekomen: de negatieve veranderingen in ons klimaat zijn hoofdzakelijk door de mens veroorzaakt. Naar aanleiding van dit rapport onderzochten Britse onderzoekers van de Universiteit van Cambridge hoe groot de impact van een mensenleven op het klimaat is. Uniek aan deze studie is dat ze de impact over de volledige levensduur van mensen doorheen de tijd weten te modelleren. Generaties naast elkaar plaatsen is vaak moeilijk, maar vermits onderzoekers nu de invloed van de mens op het klimaat doorheen de laatste eeuw hebben kunnen berekenen, heeft men hier een opvallende vaststelling bij kunnen maken.

De resultaten tonen aan dat generatie Z of Gen Z (mensen geboren tussen 1996 en 2010) op het einde van hun leven een grotere impact op het klimaat zullen hebben gehad dan de generaties die voor én achter hen komen. Eén van de grootste factoren is het vroeger en vaker reizen met het vliegtuig. Verder gebruikt deze generatie op jongere leeftijd reeds smartphones en laptops. De batterijen van deze toestellen bevatten vaak zeldzame grondstoffen zoals lithium, die bij het opgraven milieuschade veroorzaken. Deze bevinding van de Britse onderzoekers werd laatst gepubliceerd in het gerenommeerde tijdschrift 'Science'.

VN klimaatpanel stelt nieuw rapport voor

Het VN klimaatpanel IPCC heeft in augustus 2021 hun nieuw rapport uitgebracht. Het rapport toont opnieuw aan dat de klimaatopwarming een urgent probleem is aangezien men de laatste vijf jaar een duidelijke toename van extreme weersomstandigheden zoals hittegolven en overstromingen opmerkt. Indien ons klimaat verder zou stijgen met een temperatuur van 0,5 graden Celsius, zullen deze weerfenomenen enkel maar intenser worden en nog grotere delen van de wereld treffen, waarschuwen de auteurs van het rapport. Het is echter niet de eerste keer dat onze planeet klimaatschommelingen ervaart. Zo liep ongeveer 10.000 jaar geleden de laatste Ijstijd af. Ook daarvan is men het nog altijd niet eens wat de precieze oorzaken hiervan zijn. Opvallend is dat de onderzoekers ook nu geen eenduidig antwoord kunnen geven over welke menselijke activiteiten nu exact de drijvende krachten zijn onderliggend aan de klimaatopwarming. Dat inzicht is echter cruciaal om gericht te kunnen ingrijpen. Als er geen actie wordt ondernomen ziet het er naar uit dat we ook in België binnenkort deze extreme weersomstandigheden zullen moeten ondergaan.

Informed consent

Ik, ondergetekende, verklaar hierbij dat ik, als proefpersoon bij een studie aan de vakgroep Werk, Organisatie en Samenleving aan de faculteit Psychologie van de Universiteit Gent,

- (1) volledig uit vrije wil deelneem aan het wetenschappelijk onderzoek
- (2) mij de mogelijkheid wordt geboden om bijkomende informatie te verkrijgen
- (3) de toestemming geef aan de proefleiders om mijn resultaten op anonieme wijze te bewaren, te verwerken en te rapporteren
- (4) op de hoogte ben van de mogelijkheid om mijn deelname aan het onderzoek op ieder moment stop te zetten en dit zonder opgave van reden
- (5) weet dat UGent de verantwoordelijke eenheid is m.b.t. persoonsgegevens verzameld tijdens het onderzoek. Ik weet dat de data protection officer me meer informatie kan verschaffen over de bescherming van mijn persoonlijke informatie. (privacy@ugent.be)
- (6) meerderjarig ben
- (7) bij vragen of opmerkingen terecht kan bij de onderzoekers via Simon.Vanloo@ugent.be en Laura.Sambaer@ugent.be .

Ik heb het bovenstaande formulier gelezen en begrepen, en geef toestemming tot deelname.

Instruments

Translated questionnaires used in the survey

Scapegoating questionnaire of Rothschild, Landau, Sullivan, Keefer and Lucas (2012)

In welke mate bent u het eens met volgende stellingen:

	Helemaal oneens	Oneens	Neutraal	Eens	Helemaal eens
Oliemultinationals (Total, Lukoil, BP,...) verantwoordelijk zijn voor de vernietiging van het milieu?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Oliemultinationals (Total, Lukoil, BP,...) de schuld dragen van de effecten van de verwoesting van de natuur?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Oliemultinationals (Total, Lukoil, BP,...) schuldig zijn aan de gevolgen van milieuschade?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Oliemultinationals (Total, Lukoil, BP,...) schuldig zijn aan het maken van ernstige schade aan het milieu?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Oliemultinationals (Total, Lukoil, BP,...) gestraft zouden moeten worden voor hun bijdrage aan de vernietiging van de natuur?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Mini-IPIP Scales by Donnellan, M. B., Oswald, F. L., Baird, B. M., & Lucas, R. E. (2006)

Ik...

	Helemaal oneens	Oneens	Neutraal	Eens	Helemaal eens
ben iemand die leven in de brouwerij brengt.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
praat niet veel.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
praat met veel verschillende mensen op feestjes.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
houd mezelf op de achtergrond.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
ben begripvol voor anderen hun emoties.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
ben niet geïnteresseerd in anderen.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
voel anderen hun emoties aan.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
ben niet echt geïnteresseerd in anderen hun zorgen of problemen.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
werk klusjes meteen af	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
vergeet vaak zaken terug op hun juiste plaats te leggen.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
houd van orde.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
maak er een zootje van.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
heb vaak stemmingswisselingen.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
ben meestal ontspannen.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
raak snel van streek.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
voel me zelden ongelukkig.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
heb een levendige fantasie.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
ben niet geïnteresseerd in abstracte ideeën.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
heb moeite met het begrijpen van abstracte ideeën.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
heb geen goede verbeelding.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Need for Closure Scale developed by Roets and Van Hiel (2011)

Beantwoord in welke mate u akkoord gaat met deze stellingen.

	Helemaal oneens	Oneens	Neutraal	Eens	Helemaal eens
Ik houd niet van onzekere situaties.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ik houd niet van vragen die op veel verschillende manieren beantwoord kunnen worden.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ik vind dat een goed geordend leven met regelmatige uren bij mij past.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ik voel me ongemakkelijk als ik de reden niet begrijp waarom een gebeurtenis in mijn leven plaatsvond.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ik voel me geïrriteerd wanneer een persoon niet akkoord gaat met wat de rest van de groep gelooft.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ik houd er niet van om in een situatie te komen zonder te weten wat ik ervan kan verwachten.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Wanneer ik een beslissing heb genomen, voel ik me opgelucht.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Wanneer ik geconfronteerd word met een probleem, moet ik zo snel mogelijk een oplossing vinden.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ik zou snel ongeduldig en geïrriteerd worden als ik niet onmiddellijk een oplossing voor een bepaald probleem vind.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ik ben niet graag bij mensen die tot onverwachte acties in staat zijn.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ik houd er niet van als een uitspraak van iemand meerdere betekenissen kan hebben.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ik vind dat een consistente routine ontwikkelen ervoor zorgt dat ik meer van mijn leven kan genieten.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Ik houd ervan om een duidelijke en gestructureerde manier van leven te hebben.

☐ ☐ ☐ ☐ ☐

Ik raadpleeg meestal niet veel anderen hun mening voor ik die van mezelf vorm.

☐ ☐ ☐ ☐ ☐

Ik houd niet van onvoorspelbare situaties.

☐ ☐ ☐ ☐ ☐

The four selected items from Ferguson's Environmental Advocacy scale (2009)

Beantwoord in welke mate u akkoord gaat met onderstaande stellingen.

	Helemaal niet	Eerder niet	Neutraal	Eerder wel	Zeker en vast
In hoeverre zou u bereid zijn om meer te leren over de opwarming van de aarde door te lezen, televisie te kijken of te internetten?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
In hoeverre zou u bereid zijn om uw naam en e-mailadres toe te voegen aan de online petitie tegen de opwarming van de aarde?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
In hoeverre zou u bereid zijn uw familie en vrienden aan te moedigen om een documentaire over de opwarming van de aarde te bekijken?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
In hoeverre zou u bereid zijn uw familie en vrienden aan te moedigen om energieverbruik terug te schroeven en zo broeikasgassen te verminderen?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Assumption checks

Assumption checks *H1*

The Levene's test for Equality of Variances showed homoscedasticity $F(2,298) = .488$, $p = .614$. Observations are independent of each other. But according to the Shapiro-Wilk test the data deviates from a normal distribution ($W = .964$, $p < .001$). Research by Kozak and Piepho (2017) on the other hand showed that residual plots are better for checking ANOVA assumptions than statistical tests. When checking the QQ-plot (figure 5) and histogram (figure 6) of the standardized residuals, it can be concluded that the residuals do not deviate too much from a normal distribution, so it is plausible to use an ANOVA.

Figure 5

Q-Q Plot: Normality (assumption is met)

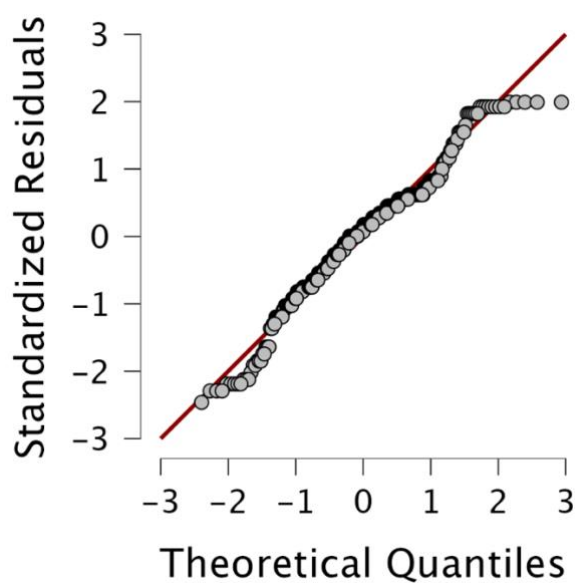
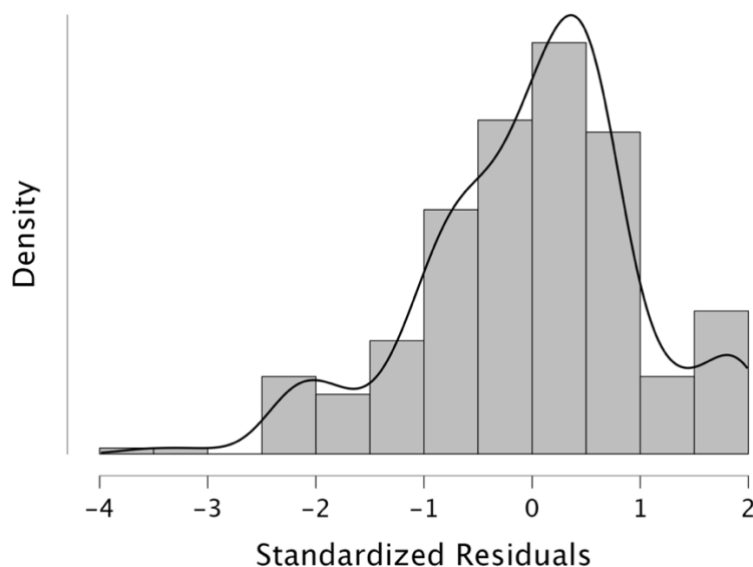


Figure 6

Standardized Residuals Histogram



Assumption checks H2

The second hypothesis was tested using a linear regression with need for closure as a predictor variable and scapegoating as the outcome variable. To ensure all assumptions were met the following checks were done: a preliminary correlation check, homogeneity and linearity, a normal distribution of the dependent variable, Shapiro-Wilk test, standardized residuals, independence of observations and an elliptical relation between the standardized and predicted residual. As can be seen in table 8, NFC and scapegoating showed a small positive correlation but not significant on the .05 alpha level.

Table 8

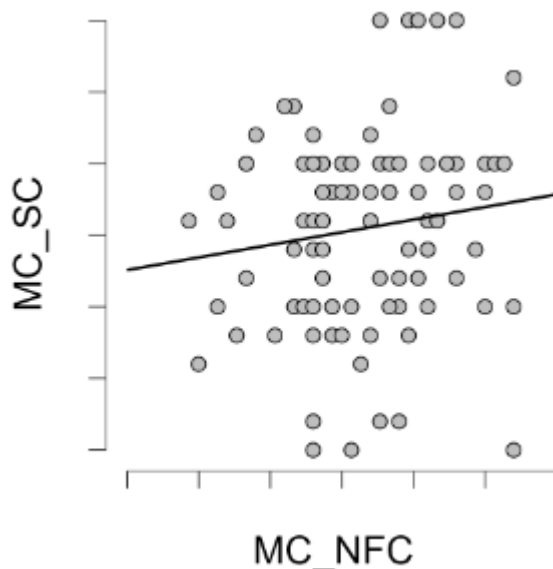
Pearson's correlations between Need for closure and Scapegoating

Pearson's Correlations				
			Pearson's r	p
MC_NFC	-	MC_SC	0.138	0.180

Thereafter, a scatter plot was checked with need for closure and scapegoating (figure 7) scores to examine the homogeneity and linearity in the data.

Figure 7

Scatterplot of Need for Closure and Scapegoating

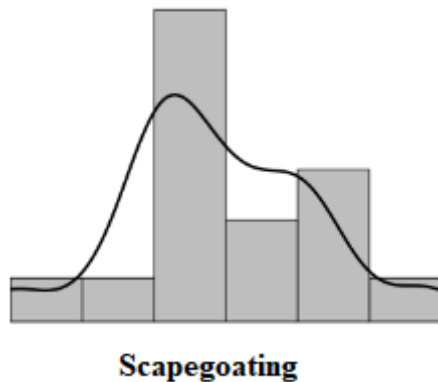


In regression the dependent variable needs to be normally distributed. For this a histogram was plotted and the resulting histogram (figure 8) showed a roughly normally

distributed dependent variable scapegoating. There is no assumption of normality for the predictor variables.

Figure 8

Histogram of scapegoating scores



Subsequently a Shapiro-Wilk test was also added to confirm the normality assumption, because the p-value is non-significant ($p = .219$), the assumption is also confirmed using this check. This satisfies the assumption of normality

Overall, for this hypothesis these data looked good, and the study could proceed with the analysis. Before beginning to interpret the outcome however, some more assumptions needed to be checked.

Since regression is very sensitive for outliers, we could check outliers by examining the residuals statistics. More specific this study looked at the standardized residuals statistics, which because they are standardized, can be interpreted like a z-score. The minimum and maximum values for the standardized residuals should not exceed -3.29 and 3.29 . The values that were reported in this study were -2.659 and 2.152 so no outliers were identified.

Thereafter a check was performed for independence of observations which was done by examining a check for independence of errors using the Durbin-Watson test. The Durbin-Watson statistics is supposed to be between 1 and 3. The reported statistic is 1.731 so the assumption of independence of observations has also been met.

The last assumption that needed to be checked was normality. This was done by adding a histogram (figure 9) and a QQ-plot (figure 10) for the standardized residuals. In the histogram these residuals are roughly normally distributed and none of the values exceed -3 and 3 which

confirms that there are no problems with outliers. In the QQ-plot, the dots generally line up along the 45-degree line, which confirms there is normality of residuals.

Figure 9

Histogram of the standardized residuals for Need for Closure and Scapegoating

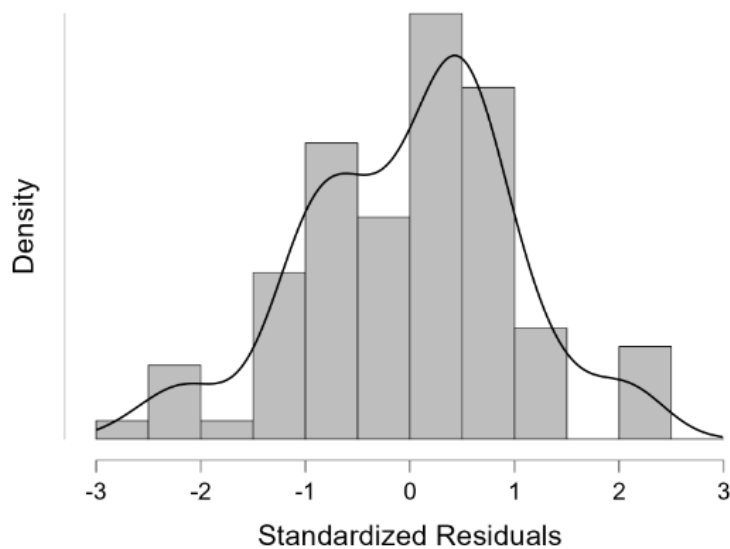
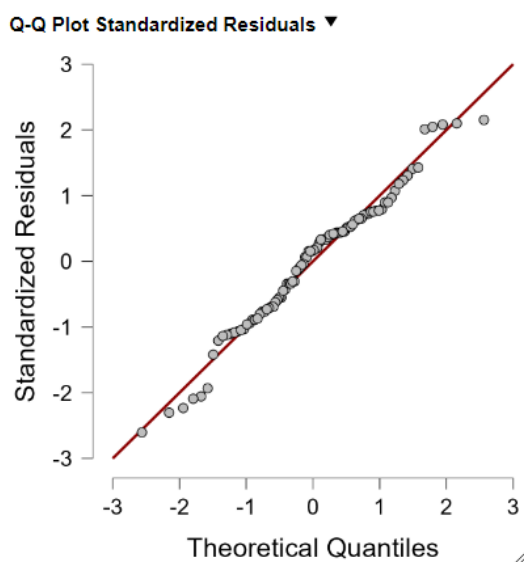


Figure 10

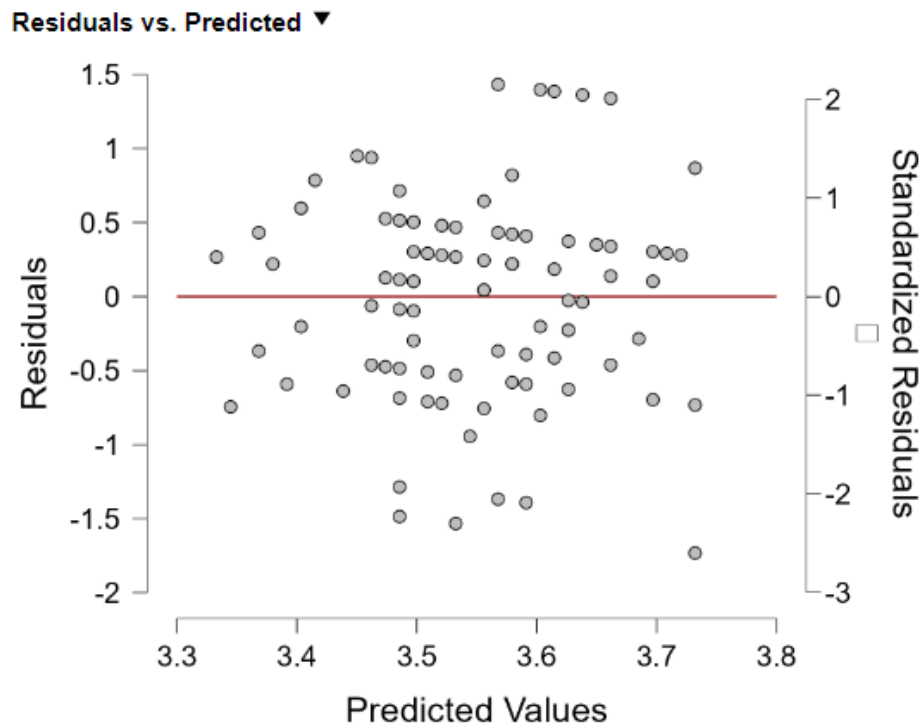
QQ-plot of the standardized residuals for Need for Closure and Scapegoating



By examining the residuals vs. The predicted values, the resulting scatter plot of the Standardized residuals vs the predicted values are elliptical, as it should be.

Figure 11

Scatter plot of the Standardized residuals vs the predicted



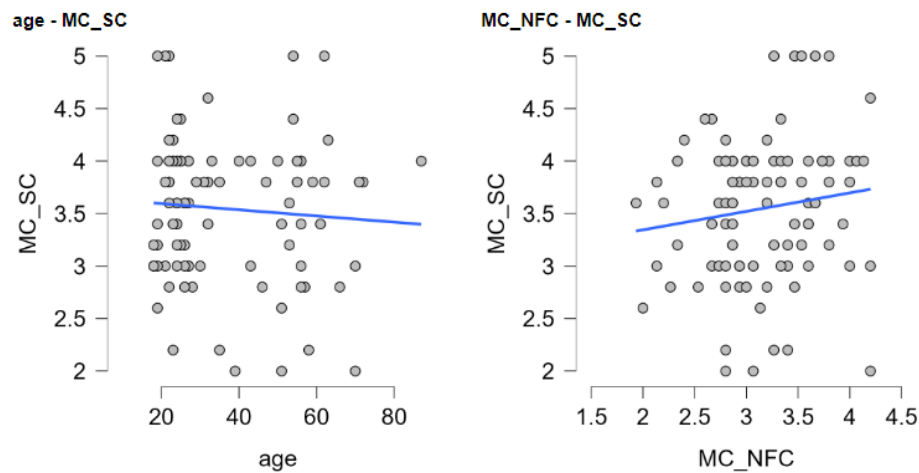
Assumption checks H2B

To examine a possible relation between age and need for closure and the subsequent effect on scapegoating scores (hypothesis 2b) a multiple linear regression was conducted. Again, several assumption checks were tested beforehand to ensure interpretations of the results were valid. For this the following checks were conducted: A visual inspection of the scatterplots for linearity, normal distribution of the residuals, no or little multicollinearity, independence of observations and homoscedasticity

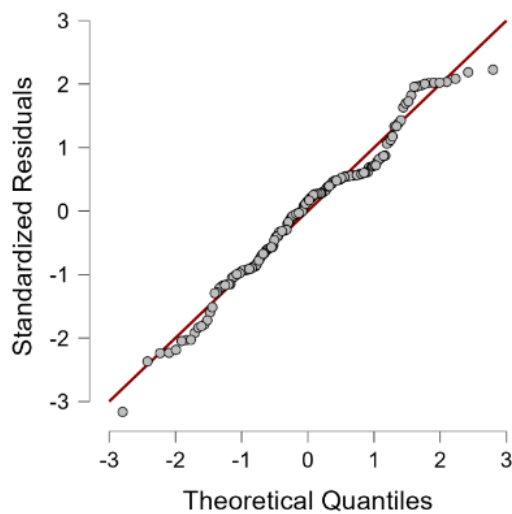
First, the linear relationship between the dependent variable and each of the independent variables was visually inspected using scatterplots (figure 12). Visually examining these relations showed a small positive linear relation for scapegoating scores and Need for Closure and a small negative linear relation for age and scapegoating scores.

Figure 12

Scatterplots of Scapegoating and Age, and Scapegoating and Need for Closure



Thereafter the assumption of multivariate normality requires residuals of the model are normally distributed. Multivariate normality was first examined by use of a Shapiro-Wilk test, showing significant p-values for scapegoating and age, which means these are not normally distributed. Parallel to the normality assumption in hypothesis 1, a visual inspection of the QQ-plot (figure 13) was subsequently added. In line with the previously mentioned research by Kozak and Piepho (2017) preference was given to the interpretation of the QQ-plot to check the multivariate normality. This QQ-plot led to concluding it was feasible to test the hypothesis using a multiple linear regression.

Figure 13*QQ-plot standardized residuals hypothesis 2b*

Thereafter the data should not show any or very little multicollinearity, which occurs when the independent variables are highly correlated. High correlations between the independent variables will be problematic for figuring out the specific variable that contributes to the variance in the dependent variable. Multicollinearity was checked in this study by using the variance inflation factor method. Considering this included the testing of an interaction between continuous variables, need for closure was centred to avoid multicollinearity issues, since these could affect model convergence and/or inflate the standard errors. The values reported below all show there is close to no correlation among the predictors, confirming this assumption is met.

Table 9*Regression coefficients and multilinearity checks for hypothesis 2b*

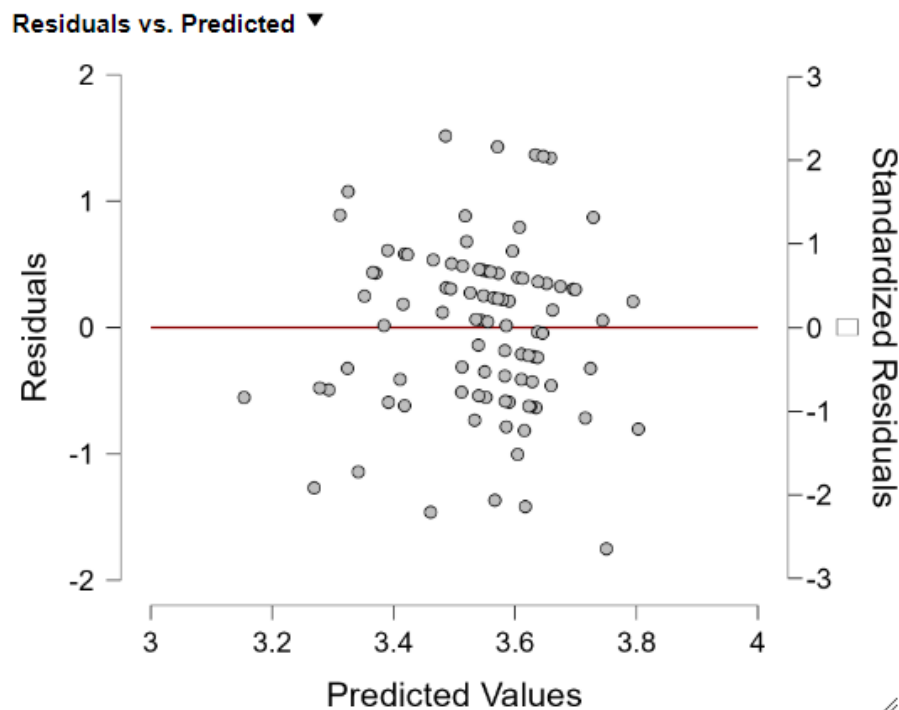
Coefficients							Collinearity Statistics	
Model		Unstandardized	Standard Error	Standardized	t	p	Tolerance	VIF
H ₀	(Intercept)	3.605	0.042		85.439	< .001		
H ₁	(Intercept)	3.605	0.042		84.987	< .001		
	MC_AGE	-0.002	0.003	-0.042	-0.713	0.476	0.984	1.017
	Mean centered_NFC	0.032	0.078	0.024	0.412	0.681	0.994	1.006
	MC_AGE * Mean centered_NFC	0.002	0.005	0.027	0.460	0.646	0.983	1.017

The assumption that observations should be independent of one another was tested using the Durbin Watson statistic. This model assumes that the values of residuals are independent and require a value between 1 and 3 to be acceptable, ideally reporting a value close to 2 which means there is no autocorrelation. The reported score of 1.771 shows a small positive autocorrelation but is within the required range to be accepted.

At last, multiple linear regression assumes that the amount of error in the residuals is similar at each point of the linear model, also called homoscedasticity. To analyse this, the standardized residuals were plotted against the predicted values to determine if the points are distributed fairly across all the values of the independent variables. The requested scatter plot (figure 14) shows constant variance at every point in the linear model and thus confirms this last assumption is also met.

Figure 14

Scatterplot of residuals vs predicted for hypothesis 2b



Assumption checks H3

The Levene's test for Equality of Variances showed homoscedasticity $F(2,298) = .534, p = .587$. Observations are independent of each other. According to the Shapiro-Wilk test the data deviates from a normal distribution in all conditions (control threat: $W = .964, p < .05$; no threat: $W = .972, p < .05$; value threat: $W = .969, p < .05$). As research by Kozak and Piepho (2017) supports, checking the QQ-plot (figure 15) is a valid way to conclude that the residuals do not deviate too much from a normal distribution (figure 16), so it is still plausible to use an ANOVA.

Figure 15

Q-Q Plot – ANOVA H3

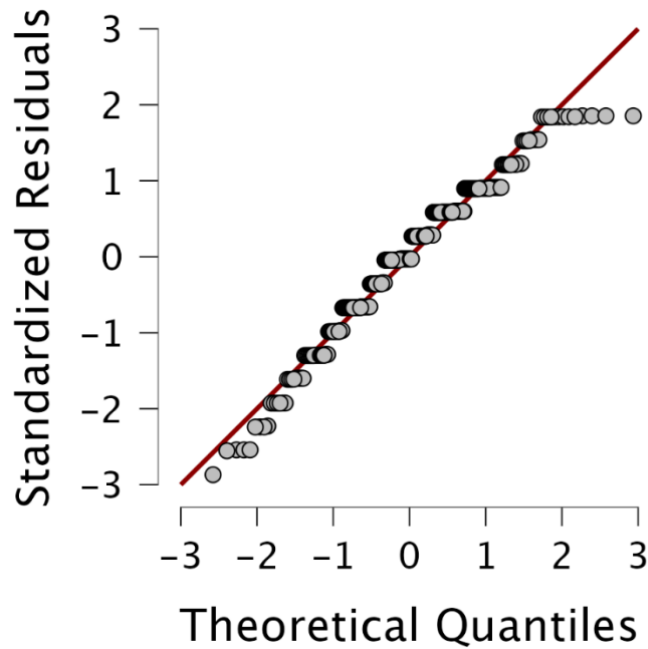
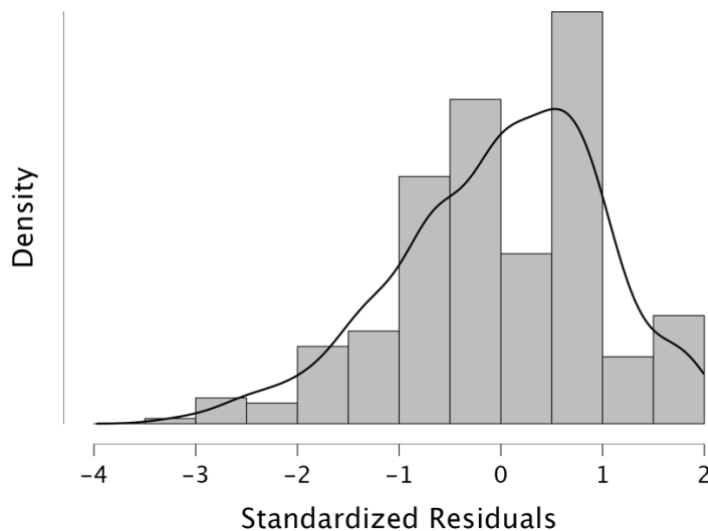


Figure 16

Standardized Residuals Histogram



Assumption checks H3B

The plot of residuals and predicted residuals (figure 17) shows that assumptions of both linearity and homoscedasticity are met. A QQ-plot (figure 19) and histogram (figure 18) of the standardized residuals demonstrate normality of the residuals, so this assumption is met as well. Tests to see if the data met the assumption of collinearity indicated that multicollinearity was not a problem (see table 9). The assumption that the values of the residuals are independent is also met, so there is no autocorrelation (*Durbin Watson* = 1.978).

Figure 17

Residuals vs. Predicted

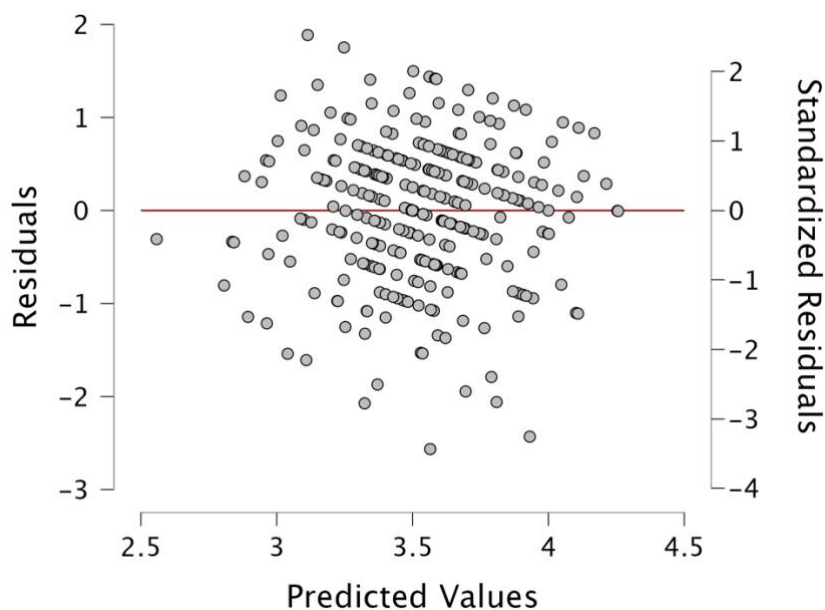
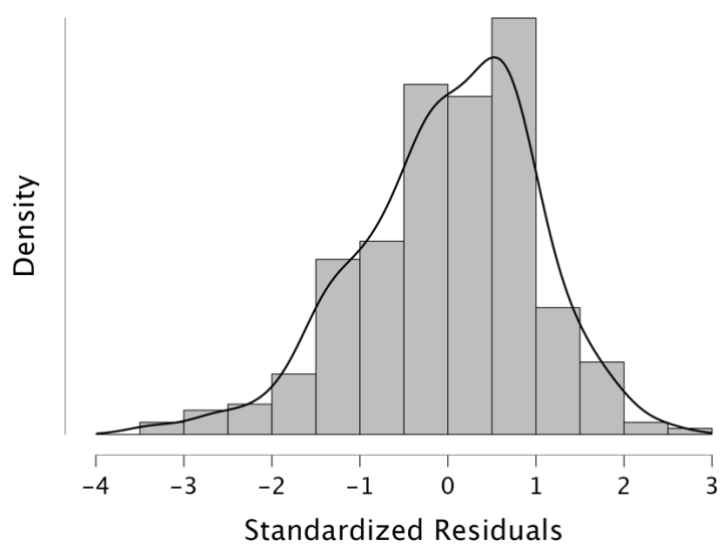
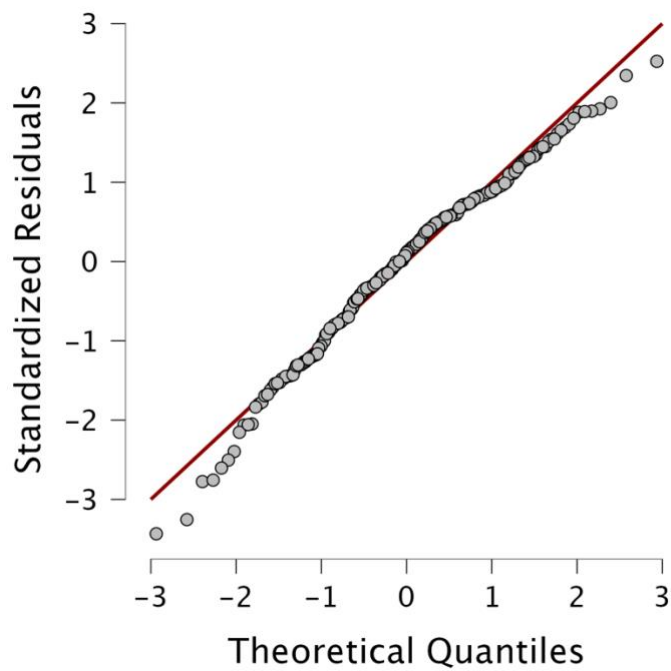


Figure 18

Standardized Residuals Histogram

**Figure 19**

Q-Q Plot Standardized Residuals

**Table 9**

Regression coefficients and collinearity statistics for the regression of Personality and Condition on Environmental Advocacy

Coefficients

Model		Unstandardized	SE	Standardized	t	p	Collinearity Statistics	
							Tolerance	VIF
H ₀	(Intercept)	3.531	0.046		76.790	< .001		
H ₁	(Intercept)	3.534	0.075		47.426	< .001		
	control threat condition	0.015	0.109	0.009	0.143	0.887	0.753	1.328
	value threat condition	-0.025	0.109	-0.014	-0.226	0.822	0.742	1.348
	Conscientiousness	-0.099	0.068	-0.098	-1.447	0.149	0.659	1.516
	Extraversion	-0.087	0.071	-0.087	-1.227	0.221	0.610	1.640
	Openness	0.309	0.090	0.241	3.451	< .001	0.627	1.595
	Agreeableness	0.296	0.086	0.231	3.467	< .001	0.684	1.462

Table 9

Regression coefficients and collinearity statistics for the regression of Personality and Condition on Environmental Advocacy

Coefficients

Model	Unstandardized	SE	Standardized	t	p	Collinearity Statistics	
						Tolerance	VIF
Neuroticism	0.086	0.073	0.082	1.174	0.241	0.624	1.603
Conscientiousness	0.033	0.135	0.017	0.244	0.808	0.663	1.507
value threat * Extraversion	-0.013	0.125	-0.007	-0.106	0.915	0.618	1.619
value threat * Openness	-0.129	0.159	-0.057	-0.812	0.417	0.612	1.635
value threat * Agreeableness	-0.086	0.170	-0.033	-0.506	0.614	0.712	1.405
value threat * Neuroticism	-0.247	0.134	-0.129	-1.848	0.066	0.622	1.607