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## Trait Conscientiousness and Agreeableness in Relation to Positive and Negative Mood Self-Perceived Altruism

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**TRAIT CONSCIENTIOUSNESS AND AGREEABLENESS IN RELATION TO  
POSITIVE AND NEGATIVE MOOD SELF-PERCEIVED ALTRUISM**

A Master's Thesis

Presented to

The Graduate College of  
Missouri State University

In Partial Fulfillment

Of the Requirements for the Degree

Master of Science, Clinical Psychology

By

Justin Robertello

August 2020

# **TRAIT CONSCIENTIOUSNESS AND AGREEABLENESS IN RELATION TO POSITIVE AND NEGATIVE MOOD SELF-PERCEIVED ALTRUISM**

Clinical Psychology

Missouri State University, August 2020

Master of Science

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## **ABSTRACT**

While much research has been done on altruism and people's perceptions of the altruistic tendencies of others, perception of altruism as it relates to self, especially in relation to the influence of internal states, lacks similarly extensive investigation. This study aims to explore how the stable internal states of personality and the fluid states of mood play a role in our own perceptions of our altruistic tendencies. Participants were provided with a personality questionnaire and exposed to image sets designed to induce positive or negative mood. The Positive and Negative Affect Schedule (PANAS) was administered post mood induction to verify successful change in affective state. Participants were provided with a questionnaire presenting altruistic behaviors subjects might hypothetically engage in, and were asked how often they believe they would engage in the behaviors in the near future. Lastly subjects were asked if they would be willing to participate in another study as a means of acquiring an explicit altruism measure. It is hypothesized agreeableness and conscientiousness will impact self-perceived altruism, while emotional states (positive and negative) will have a negligible impact.

**KEYWORDS:** personality, conscientiousness, agreeableness, mood induction, altruism

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In the interest of academic freedom and the principle of free speech, approval for this thesis indicates the format is acceptable and meets the academic criteria for the discipline as determined by the faculty that constitute the thesis committee. The content and views expressed in this thesis are those of the student-scholar and are not endorsed by Missouri State University, its Graduate College, or its employees.

## **ACKNOWLEDGEMENTS**

I would like to thank Amber Abernathy, Ph.D., in the psychology department at Missouri State University for recommendations regarding the content of this document.

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## INTRODUCTION

Altruism has been defined in many ways. One definition could be articulated as a motivational state with the goal of increasing another's welfare. This is contrasted by psychological egoism, a motivational state with the goal of increasing the welfare of oneself (Darity, 2008). From an evolutionary perspective, altruism is defined as behaviors that increase the fitness of another organism (Bell, 2008). It is important to note the term fitness in the evolutionary sense does not refer specifically to physical health but can be thought of as reproductive power (Brown et al., 1993), or the probability of reproduction (Smith, 1998). Fitness sacrificing is a term used to describe evolutionary altruism as “behaving in a way that advances another individual's reproductive fitness at the expense of one's own reproductive fitness” (Joyce, 2007). Using an evolutionary perspective, one puzzle is how does care for others and altruistic behaviors emerge in an organism that one could expect to primarily care about its own reproduction and survival, provided genes replicate without concern for consequence (Dawkins, 2016). Research has investigated the usefulness of altruism from an evolutionary perspective. Inclusive fitness, as discovered by W.D. Hamilton, is where natural selection would favor behaviors by organisms that increase fitness of kin if the cost to the altruist is less than the overall benefit as it pertains to degree of genetic relatedness (Hamilton, 1964a) (Hamilton, 1964b). Again, this may be done even when it appears detrimental to the organism itself. From a game theory perspective, organisms engaging in kin selection would benefit from the altruism of organisms that engage in universal altruism, though the opposite could not be said. Over time this would allow the inclusive fitness strategy to out-compete universal indiscriminate altruistic

behaviors in most contexts (Dawkins, 1979). Although altruism has been studied from a variety of perspectives, it regularly involves the same types of behavior and outcomes. Richard Joyce defines altruism as “acting with the intention of benefiting another individual, where this is motivated by a non-instrumental concern for his or her welfare” and describes the words helping, cooperation, and pro-social behavior as “referring to behavior in a way that benefits another individual” (Joyce, 2007).

### **Evolutionary Explanations of Altruistic Behaviors**

Cooperative and helping behavior can emerge as a consequence of punishment and ecological constraint, where not being the member of a group is so risky toward one's survival (Young et al., 2005). Organisms with more advanced nervous systems capable of storing and recalling previous behaviors may grow to develop reciprocal altruistic proclivities, a “tit for tat” or “I scratch your back, you scratch mine” strategy (Trivers, 1971).

Cooperative behaviors can also be seen in the form of honest signals. These are real (honest) displays of information that are sent out to a receiver, often involving a decreased probability of cheating or deception (Zahavi, 1977). These cooperative behaviors may serve to signal to other in-group members a willingness to participate and cooperate, and not to exploit the group for one's sole benefit, cheat, and deceive. However, the handicap principle suggests honest signals may be altruistic but can come at a price in certain contexts when advertising motivation to collaborate with the group may decrease social prestige (Zahavi, 1995).

Another possible, though controversial, explanation is Multilevel Selection Theory posited by theorists such as David Sloan Wilson (Wilson & Wilson, 2008). This theory argues



some characteristics differentiate competitive advantage based on the individual versus group level. For example, organisms of high aggression and low cooperation may out-compete organisms of low aggression and high cooperation when in 1 versus 1 conflict, however, groups of high aggression low cooperation organisms may be out-competed by groups of low aggression high cooperation organisms due to infighting experienced by the high aggression low cooperation organisms. This is not to be mistaken for the claim that organisms act with the intent of benefiting the species (Lorenz, 2002).

### **Further Explanations of Altruistic Behaviors**

Theorists differentiate egoistic motivations, those motivations which are self-interested, from altruistic motivations, those motivations which are absent of self-interest (Lozada, 2016). For example, if someone states they are altruistic because it feels good to help people or they enjoy seeing people smile, the ultimate motivation is for personal emotional well-being and sense of fulfillment, suggesting an egoistic motivation. If someone states they are altruistic because others deserve to be helped, this does not reveal any conscious personal gain on the part of the altruist, suggesting an altruistic motivation. In contest with this, some theorists posit it may be impossible for an altruistic act to be separated entirely from an egoistic component as it inevitably functions as an extension of oneness (Cialdini et al., 1997). For example, when “imagining yourself in someone else's shoes”, your sense of self is extended to that other individual, thus your altruism is driven by an abstract helping of oneself.

This pertains to critical self-reflection, or the desire to know oneself, and by extension self-perceived altruism which involves an individual's self-concept regarding what they think

about their altruistic proclivities and potential for manifesting an altruistic act (Batson et al., 1987). This potential for manifesting an altruistic act is influenced by both external and internal factors. External factors may include the altruist being in a hurry (Batson et al., 1978), if the altruist can escape the situation (Stocks et al., 2008), and the presence of stimulus overload (Sherrod & Downs, 1974). It would be reasonable to speculate that some of the environment's influence on the emergence of altruistic behaviors is due to changing emotional states. While much literature has studied the relation between empathy and altruism (Batson et al., 1991), negative states such as embarrassment, shame, and guilt have been hypothesized to be related to moral behaviors (Eisenberg, 2000). Some research has shown shame to be correlated with more destructive motivations, whereas guilt is more associated with relationship-enhancing motivations (Tangney, 2001). However, the external factors can only override internal characteristics. Internal factors such as personality itself serve as predictors of the emergence of altruistic behaviors often above environmental contexts.

Personality is defined as relatively enduring styles of thinking, feeling, and acting that characterize an individual (Costa & McCrae, 1995). Personality almost always includes an explicit or implicit reference to traits (Hofstee, 1994). McCrae and Costa, in their paper *Trait Explanations in Personality Psychology*, describe traits as “dimensions of individual differences in tendencies to show consistent patterns of thoughts, feelings, and actions”, though concede there is considerable confusion among personality psychologists as to an agreed upon definition of traits (McCrae & Costa, 1995). One of the more empirically formidable models of personality traits is the Five Factor Model, or FFM (Goldberg, 1990). The FFM is a taxonomy of characteristics discovered through the combination of statistical and lexical approaches

(Goldberg, 1992). A factor analysis (statistical approach) was conducted of descriptive terms found within many languages. The lexical approach of trait theory posits any consistent behavioral pattern will inevitably have a word created for it in a language, and the more words for the behavior in the language the more important the behavior must be. The FFM of personality is utilized in personality tests having strong psychometric properties such as the NEO Personality Inventory (NEO-PI) created by Robert McCrae and Paul Costa, Jr (Costa & McCrae, 1995). These assessment tools test for Big Five traits and corresponding subscales/facets are used for research and practical application such as predicting ideal careers for individuals.

The Big Five Personality traits in the FFM consist of Openness to experience, the trait involved in interest in aesthetics and intellectual curiosity; Conscientiousness, the trait involved in self-discipline and tendency to be orderly and dependable; Extraversion, the trait involved in sensitivity to positive emotions and stimulation-seeking; Agreeableness, the trait involved in the proclivity to be cooperative; and Neuroticism, the trait involved in sensitivity to negative emotions and tendency to be prone to psychological distress (Goldberg, 1993). Personality traits, as measured by the FFM are relatively enduring and stable overtime, even in the presence of adverse employment, health, or family events (Cobb-Clark & Schurer, 2011). Some theorists have divided each of these traits into two separate aspects: Openness and Intellect for trait Openness to experience, Industriousness and Orderliness for trait Conscientiousness, Enthusiasm and Assertiveness for trait Extraversion, Politeness and Compassion for trait Agreeableness, and Volatility and Withdrawal for trait Neuroticism (DeYoung et al., 2007), but for the purposes of this study the traits themselves are analyzed and not the aspects.

## **Personality and Altruism**

Several personality traits have been linked to altruism. Openness has been found to predict altruism toward strangers (Oda et al., 2014), while extraversion has been found to predict altruism independent of donor/receiver relationship (Oda et al.) and relate to empathic concern via studying the neural activity in key brain regions involved in theory of mind and empathy (Haas et al., 2015). Agreeableness has been found to predict altruism towards friends and acquaintances (Oda et al.), and is similarly found much like extraversion to relate to empathic concern (Haas et al.). Conscientiousness has been found to predict altruism toward family members (Oda et al.).

Within the framework of the aforementioned NEO personality inventory, one of the facets of Conscientiousness is Dutifulness. As also hinted by the prior evidence connecting Conscientiousness with altruism toward family members (Oda et al., 2014), Dutifulness as it pertains to civic duty or in-group conformity might connect conscientiousness with altruistic proclivities or even personal sacrifice. On the opposing end of altruism, low Conscientiousness and low Agreeableness both correlate with psychopathy with its defining characteristics of parasitic and predatory lifestyle (Paulhus & Williams, 2002). It is possible, however, Conscientiousness plays a role in psychopathy only to the extent of contributing to impulsivity as opposed to parasitic lifestyle (Lynam et al., 2005).

Personality also appears to play a role in susceptibility to mood induction, which may in turn impact altruistic behaviors. Mood induction involves researchers finding ways to reliably elicit emotional states in research settings. Moods can be specific to emotions such as anger or fear, but can also be broadened to categories such as positive moods and negative moods.

Techniques for mood induction vary, such as participants being presented with picture sets, videos, music, and verbal feedback. One of the more common techniques in mood induction is the Velten Mood Induction Procedure, which induces elated or depressed mood by having subjects read statements that are related to those emotional states (Velten, 1968). The Open Affective Standardized Image Set (OASIS) also serves as a useful mood induction tool, utilizing picture sets that take advantage of a strong visual component to induce various emotional states (Kurdi et al., 2016). Impacts of the attempted mood induction technique can be verified a variety of ways, from self-report questionnaires such as the Positive Affect and Negative Affect Scale (PANAS) to physiological responses such as skin conductance (Fakhrhosseini & Jeon, 2017). There is evidence to suggest that just as Extraversion is defined by a sensitivity to positive emotion and Neuroticism as a sensitivity to negative emotion, higher levels of Extraversion result in greater sensitivity to positive mood induction and higher levels of Neuroticism result in greater sensitivity to negative mood induction correspondingly (Larsen, 1989). Traits conscientiousness and agreeableness have also been linked to susceptibility to mood changes, such as individuals with a high tendency toward positive mood improvement and negative mood deterioration with high conscientiousness related to energetic arousal decrease (Marszał-Wiśniewska & Nowicka, 2017) and agreeableness relating to the number of positive vs. negative moods experienced by mothers in the context of daily hassles (Belsky et al., 1995).

While the sensitivity to positive emotion associated with Extraversion and the sensitivity to negative emotion associated with Neuroticism may relate to the explicit altruism measure, these traits were not considered in hypotheses because it was difficult to justify a connection to self-perceived altruism, relative to Conscientiousness and differing moral intuitions or

Agreeableness and the proclivity for conflict avoidance. Trait Openness was also not considered as while there may be differing proclivities for introspection linked to Openness, it may require an analysis at the level of aspects as opposed to traits, for which this study does not account for.

## **Mood and Altruism**

Mood has been conceptualized as possessing a horizontal pleasure-displeasure dimension as well as a vertical arousal dimension (Russell, 2003). Some studies have suggested negative mood increases altruistic tendencies while others suggest it decreases them, while others have found that younger individuals are least influenced by negative mood and with older individuals the reverse (Cialdini & Kenrick, 1976). Research has revealed the negative state relief hypothesis (negative moods increase altruism to reduce distress of the altruist) and the mood maintenance hypothesis (positive moods increase altruism to sustain positive mood) both account for an increase in altruism when the consequences toward the altruist are pleasant, but serve to inhibit altruism if the consequences toward the altruist are unpleasant (Shaffer & Graziano, 1983). Provided evidence of mood influencing altruism, personality influencing altruism, and personality influencing susceptibility to mood induction, it would be reasonable to suggest personality traits may impact the mood of an individual and in turn impact altruistic behaviors.

## **Hypothesis**

The predictions of this study can be described through three hypotheses. First, it is predicted that high agreeableness will impact self-perceived altruism. Second, it is predicted that high conscientiousness will impact self-perceived altruism. Thirdly, it is predicted that both

positive and negative mood will have negligible impact on self-perceived altruism. While there exists evidence of influence on mood on explicit altruism (Cialdini & Kenrick, 1976), the third hypothesis is informed by evidence of differing justifications for individuals' actions (Lozada, 2016), suggesting there may be a different impact on self-perceived altruism relative to explicit altruism.

## **METHODS**

### **Participants**

This study was approved by the Institutional Review Board for the use of human subjects on March 13, 2020; see Appendix A. Two-hundred thirty-six participants in various undergraduate psychology courses at Missouri State University were recruited via a SONA system which rewards credits for participation in research. Participants were tested via online administration using Qualtrics. Two-hundred Thirty-six subjects participated in the study; 56% were female and 44% were male. Of these participants, 84.3% indicated themselves as White, 6.4% as Black, 3.8% as Asian, 4.2% as Latino or Hispanic, 0.4% as Native American, and 0.8% as Other/Unknown. Participants were between 18-45 years of age.

### **Materials**

The materials utilized consisted of Goldberg's Big Five Factor Markers obtained from the IPIP database used to obtain personality information. The tool has a ten item and twenty item scale for each of the traits within the Five Factor Model, with the ten item tool being utilized in the study. See Appendix B for information regarding the alpha levels for each of the scales. Given comparable alpha levels, the ten item scales were utilized.

Images from the Open Affective Standardized Image Set (OASIS) were used to induce positive and negative moods (Kurdi et al., 2016). The negative moods were induced through pictures that are particularly social in nature, implying injury to humans or human suffering. The positive moods were induced through pictures that suggest human cooperation, flourishing, or



achievement. The OASIS inter-rater reliability for valence and arousal were excellent as  $R_{val} = .984$  and  $R_{aro} = .929$  respectively. See Appendix C for the OSF link to images used as well as corresponding valence and arousal scores.

The Positive and Negative Affect Schedule (PANAS) was administered after images of mood induction procedures to assess mood induction effectiveness. The PANAS possesses high internal consistency reliabilities with alpha levels between .86 and .90 for positive affect and .84 to .87 for negative affect (Watson et al., 1988). Appendix D provides the PANAS tool utilized.

The final tool that was utilized is an edited version of the Rushton self-report altruism scale. The original scale targeted the construct of self-reported prior explicit altruistic acts. The original tool was created by J. P. Rushton, while the adapted version was made by Peter Witt and Chris Boleman (Rushton et al., 1981; Witt & Boleman, 2009). The edits made by Peter Witt and Chris Boleman reworded relevant items, changing the emphasis from prior explicit altruistic acts to individuals' self-perception of how they think they would act in future contexts. While this change served the interests of this study, there was no indication of time constraint for how often participants believed they might engage in a future altruistic act. The phrase “Consider the upcoming month. If given the opportunity, how often would you be willing to engage in these behaviors?” was added to preface the behavior statements. This is to decrease the likelihood of subjects mistaking the questions for asking how often in the past they had performed these behaviors, and to provide a time frame to reference so that answers such as “once” become less unrealistic options. In Rushton's study introducing the tool, they revealed a Cronbach's alpha suggesting an internal consistency of 0.89, with coefficient alpha for five samples at 0.84, 0.83, 0.78, 0.87, and 0.86 respectively. The original study found the tool was able to predict altruism

scores at  $r = +0.40$  (Rushton et al., 1981). Validity was assessed by correlating results with peer ratings, the correlations of the SRA-scale with peer-rated SRA-scale altruism and peer-rated-global-altruism were raised to  $r(78) = 0.56$  and  $r(78) = 0.33$  respectively. Appendix E provides the edited version of Rushton's Self-Report Altruism Scale that was utilized in this study. An example of a future hypothetical behavior includes “I would give directions to someone I did not know”, with the options of “Never”, “Once”, “More Than Once”, “Often”, and “Very Often”.

## **Procedures**

Participants signed up for the online study via time slots, wherein a consent form informed them of the tasks of answering various questions about themselves and looking at pictures. Subjects were not informed as to the purposes of these questions or images so as to avoid decreasing the validity of the results. Upon consenting to their role in the study, each participant was administered the 10-items scales of the Goldberg Big Five Factor Marker inventory. Upon completion of the inventory, participants were shown either the 20 positive mood inducing-images or 20 negative mood-inducing images from the Open Affective Standardized Image Set (OASIS). The images were shown in order of increasing positive/negative mood inducing images corresponding with valence and arousal scores. Each image was shown for six seconds, the time frame taken from a study analyzing comparisons of various forms of emotional elicitation (Uhrig et al., 2016). Upon viewing all 20 images, each participant completed the PANAS and concluded with the future-oriented hypothetical statements adapted from the Rushton self-report altruism scale. A final follow up question asking if the subject would be willing to participate in another study was provided, for an explicit

measure of altruism.

## **Design**

This study utilized a between-subjects design. The independent variables consist of positive and negative mood, with additional factors considered being trait agreeableness and trait conscientiousness in the final analysis. Traits refer to stable and enduring characteristics or patterns of behavior whilst mood involves temporary states. The dependent variable consists of self-perceived altruism scores. The data consisted of ordinal Likert scale values and intervallic/ratio data. It was predicted that high agreeableness and high conscientiousness would impact self-perceived altruism, but that both positive and negative mood would have negligible impact on self-perceived altruism. Validity of this procedure was analyzed by assessing levels of success in achieving mood induction via the PANAS.

## RESULTS

### Primary Analysis

Assumptions of linearity, normality, homogeneity, and homoscedasticity were met. Using Mahalanobis at the  $p < .001$  level, one participant was found to be an outlier in the amount of time taken to complete the assessment and was subsequently removed from the analysis. To assess the efficacy of mood induction, an omnibus test in the form of a 2x2 mixed factorial ANOVA was conducted. The between-groups factor consisted of positive or negative mood induction and the within-groups factor consisted of the positive and negative mood PANAS subscales. A significant main effect was found for the subscales [ $F(1, 233) = 11.97, p < .001$ ]. A significant interaction for subscales and mood induction condition was also found [ $F(1, 233) = 65.25, p < .001$ ]. Two post hoc two-tailed paired t-tests were used to compare positively mood induced participants' total positive emotion PANAS scores with their negative emotion PANAS scores, and negatively mood induced participants' total positive emotion PANAS scores with their negative emotion PANAS scores. Results suggested mood induction was successful in positive mood induction conditions with the mean of positive PANAS scores ( $M = 24.28, SD = 9.91$ ) greater than the mean of negative PANAS scores ( $M = 15.51, SD = 7.00$ );  $t(117) = 7.94, p < .001; d = 1.02$ . Negative mood induction conditions were also significant with the mean of negative PANAS scores ( $M = 22.91, SD = 9.21$ ) greater than the mean of positive PANAS scores ( $M = 19.36, SD = 7.25$ );  $t(116) = 3.41, p < .001; d = 0.4$ .

Four linear regressions were used to compare agreeableness, conscientiousness, positive mood induction PANAS scores, and negative mood induction PANAS scores to self-perceived

altruism scores. First, a linear regression was calculated to predict self-perceived altruism scores based on agreeableness. A significant regression equation was found ( $F(1, 233) = 21.74, p < .001$ ), with an  $R^2$  of .08. Higher agreeableness predicted more self-perceived altruism, with self-perceived altruism changing 0.48 units for each unit of change in agreeableness.

A linear regression was calculated to predict self-perceived altruism scores based on conscientiousness. A non-significant regression equation was found ( $F(1, 233) = .94, P = .33$ ), with an  $R^2$  of .004.

A linear regression was calculated to predict self-perceived altruism scores based on positive mood induction PANAS scores. A significant regression equation was found ( $F(1, 116) = 4.82, p < .05$ ), with an  $R^2$  of .04. Greater positive mood predicted more self-perceived altruism, with self-perceived altruism changing 0.16 units for each unit of change in positive mood induction PANAS scores.

A linear regression was calculated to predict self-perceived altruism scores based on negative mood induction PANAS scores. A significant regression equation was found ( $F(1, 115) = 6.64, p < .05$ ), with an  $R^2$  of .05. Greater negative mood predicted more self-perceived altruism, with self-perceived altruism changing 0.2 units for each unit of change in negative mood induction PANAS scores.

### **Supplemental Analysis**

Supplemental statistics were used in the form of binomial logistic regressions to compare five variables to a binary dependent variable. This dependent variable was a “yes” or “no” response, coded as 1 and 0 respectively, to being asked if the participant would be willing to

participate in another study. The purpose of this was to obtain data targeting the construct of explicit altruism. A binomial logistic regression analysis to investigate if there is a relationship between self-perceived altruism scores and an explicit altruism measure was conducted. The full model was not significant;  $\chi^2(45, N = 235) = 52.15, p = .21$ .

A binomial logistic regression analysis to investigate if there is a relationship between agreeableness and an explicit altruism measure was conducted. The full model was significant;  $\chi^2(25, N = 235) = 41.6, p < .05$ . The predictor variable, agreeableness, in the regression analysis was found to contribute to the model. The unstandardized Beta weight for the constant;  $B = (-1.98), SE = 1.00, Wald = 3.91, p < .05$ . The unstandardized Beta weight for the predictor variable:  $B = .08, SE = .02, Wald = 10.06, p = .002$ . The odds ratio suggests every unit increase of agreeableness predicts an increase in likelihood of engaging in the explicit altruism measure by a magnitude of 1.08;  $\text{Exp}(B) = 1.08, 95\% \text{ CI } (1.03, 1.13)$ .

A binomial logistic regression analysis to investigate if there is a relationship between conscientiousness and an explicit altruism measure was conducted. The full model was not significant;  $\chi^2(34, N = 235) = 21.01, p = .96$ .

A binomial logistic regression analysis to investigate if there is a relationship between positive mood induction PANAS scores and an explicit altruism measure was conducted. The full model was significant;  $\chi^2(42, N = 118) = 64.58, p < .05$ . The predictor variable, positive mood induction PANAS scores, in the regression analysis was found to not contribute to the model. The unstandardized Beta weight for the constant;  $B = (.89), SE = .71, Wald = 1.58, p = .20$ . The unstandardized Beta weight for the predictor variable:  $B = .003, SE = .02, Wald = .04, p = .83$ .  $\text{Exp}(B) = 1.00, 95\% \text{ CI } (.97, 1.04)$ .

A binomial logistic regression analysis to investigate if there is a relationship between negative mood induction PANAS scores and an explicit altruism measure was conducted. The full model was not significant;  $\chi^2(38, N = 117) = 46.05, p = .17$ .

Appendix F provides links to view all graphs pertaining to analyses.

## DISCUSSION

Differences between the positive and negative PANAS subscales in the positive mood induction condition revealed a larger effect size than the differences in subscales in the negative mood induction condition. This is surprising as one might expect the negative mood induction images to be more effective provided research on the negativity bias. One explanation for this might be that provided digital media, individuals are more desensitized to negative imagery, though this is only speculation and not a definitive claim.

Provided the results, it appears agreeableness is a significant predictor of self-perceived altruism. Agreeableness was also significant in its prediction of the likelihood an individual would engage in the explicit altruism measure, answering “yes” to the question “Would you be willing to participate in another study?”. While this might be explained by a genuine perception of the likelihood to help due to agreeableness being linked to altruistic acts and empathic concern (Oda et al., 2014) (Haas et al., 2015), agreeableness is also involved in the proclivity to be cooperative (Goldberg, 1993). Provided the absence of statistical significance in the full model pertaining to self-perceived altruism and explicit altruism, it is possible priming occurred. Considering participants' responses to agreeing or disagreeing to participate in another study was prefaced by hypothetical scenarios targeting altruism, priming may have interacted with high agreeableness and the proclivity to be cooperative. If we assume an ulterior motivation that deviates from genuine concern, individuals high in agreeableness who do not genuinely think they would help might self-report they would as a means to avoid conflict or appear cooperative. The possibility of priming may then extend this to explicit altruism itself, which also might



explain the significance between agreeableness and the explicit altruism measure even if we assume deviation from the expected motivation.

Trait conscientiousness was negligible in both the domains of self-perceived altruism and the explicit altruism measure. Provided previous literature suggesting higher conscientiousness correlates with political conservatism (Hirsh et al., 2010) and that individuals who are more politically conservative put greater emphasis on authority, in-group loyalty, and purity in their moral intuitions (Haidt & Graham, 2007), it seemed reasonable to expect that individuals who were higher in conscientiousness would have different moral intuitions that would play out at the conscious level and influence their self-perception. There exists the possibility that the content to which participants were exposed to in the study was not seen as relevant to these different moral intuitions. It is also important to consider that provided the sample was entirely of university students, higher conscientiousness predicts greater academic success in high school and correspondingly access to higher education (Conrad & Patry, 2012). This may even compound with the possibility of overestimation in levels of conscientiousness when self-reporting.

Both positive and negative mood were significant for self-perceived altruism, yet interestingly were not significant for predicting the explicit altruism measure. Research on the negative state relief hypothesis and mood maintenance hypothesis (Shaffer & Graziano, 1983) is largely inspired by the idea that altruism may serve a hedonistic function. Provided the various self-reported motivations for engaging in altruistic acts (Lozada, 2016), while it is certainly possible for a hedonistic motivation to be in conscious awareness, it also seemed likely that if altruism is always serving some form of hedonistic function that it could also either be beneath conscious awareness or rationalized post hoc with a different self-reported motivation. For this

reason, while evidence in prior studies suggested ties to explicit altruism (Shaffer & Graziano, 1983), there was little evidence to suggest a link to self-perceived altruism. It is important to note that while the mood induction was successful, this study did not control for environmental confounds due to the online administration. It might be worth putting greater emphasis on studying mood as it pertains to self-perceived altruism and explicit altruism.

## **Limitations**

For explicit altruism, the responses were unevenly divided in the binary measure with 182 participants agreeing to participate in another study and 54 refusing. This disparity may lead to differing results compared to a more balanced response pool. This high skew in “yes” responses might be attributable to the question being last and the influence of priming. It is also possible provided participants understood they would be rewarded with research credits that they similarly answered this question with the thought of obtaining more credits. Including in the question the statement that the study would not provide additional research credits would have increased validity.

The study does not account for the aspect orderliness of trait conscientiousness and its relationship with disgust sensitivity and out-group perception (Druschel & Sherman, 1999; Xu et al., 2019; Buckels & Trapnell, 2013). The indication of this is that higher sensitivity to the emotion of disgust predicts how hostile the views of an individual are towards perceived out-group members. To this extent, whether images of people suffering in the negative mood induction condition are perceived as in-group or out-group members may prove a confound for those who are extremely high in the aspect orderliness of trait conscientiousness. The study itself

may not have been sensitive enough to conscientiousness from the beginning, as the images may not have been oriented toward the differing moral intuitions predicted by higher levels of conscientiousness: in-group loyalty, respect for authority, and purity.

Second, self-knowledge was not discernible within the context of this study, thus the capacity to infer how accurate one's perceived altruism is compared to their actual altruistic tendencies is negligible. The techniques of convenience and snowball sampling also limit the generalizability of findings. While online administration increased sample size, the data likely will not be as valid given the confound of unknown environmental stimuli impacting mood induction and thus this data might best be considered preliminary.

The participants were exclusively students in undergraduate psychology courses who were awarded research credits for participation. This does risk harming the generalizability of whatever results are obtained. However, several of the tools that were utilized in this study were tested on undergraduates, thus the results may very well generalize at least to undergraduate students and can be extrapolated further in replications from researchers who possess greater funding and resources.

## **Future Research**

Future studies may benefit from an explicit altruism measure that emphasizes physicality, such as a confederate dropping papers. If an explicit altruism measure in question format is utilized, counterbalancing may prove useful wherein certain subjects are provided the question at different designated times throughout the questionnaire.

With the goal of more acutely targeting the possible relationship between self-perceived

altruism and trait conscientiousness, further attention might need to be directed towards utilized mood induction techniques and their sensitivity to the moral intuitions of in-group loyalty, respect for authority, and purity.

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## APPENDICES

### Appendix A. Human Subjects IRB Approval

Date: 6-29-2020

IRB #: IRB-FY2020-548

Title: Trait Conscientiousness and Agreeableness in Relation to Positive and Negative Mood Self-Perceived Altruism

Creation Date: 2-12-2020

End Date:

Status: **Approved**

Principal Investigator: Amber Abernathy

Review Board: MSU

Sponsor:

#### Study History

Submission Type	Initial	Review Type	Expedited	Decision	<b>Approved</b>
Submission Type	Modification	Review Type	Expedited	Decision	<b>Approved</b>

#### Key Study Contacts

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## Appendix B. Big-Five Inventory

### Factor I (Surgency or Extraversion)

- 10-item scale ( $\text{Alpha} = .87$ )**
- + keyed    Am the life of the party.  
              Feel comfortable around people.  
              Start conversations.  
              Talk to a lot of different people at parties.  
              Don't mind being the center of attention.
- keyed    Don't talk a lot.  
              Keep in the background.  
              Have little to say.  
              Don't like to draw attention to myself.  
              Am quiet around strangers.
- 
- 20-item scale ( $\text{Alpha} = .91$ )**
- + keyed    Am the life of the party.  
              Feel comfortable around people.  
              Start conversations.  
              Talk to a lot of different people at parties.  
              Don't mind being the center of attention.  
              Make friends easily.  
              Take charge.  
              Know how to captivate people.  
              Feel at ease with people.  
              Am skilled in handling social situations.
- keyed    Don't talk a lot.  
              Keep in the background.  
              Have little to say.  
              Don't like to draw attention to myself.  
              Am quiet around strangers.  
              Find it difficult to approach others.  
              Often feel uncomfortable around others.  
              Bottle up my feelings.  
              Am a very private person.  
              Wait for others to lead the way.

## Factor II (Agreeableness)

- 10-item scale ( $\text{Alpha} = .82$ )**
- + keyed    Am interested in people.  
              Sympathize with others' feelings.  
              Have a soft heart.  
              Take time out for others.  
              Feel others' emotions.  
              Make people feel at ease.
- keyed    Am not really interested in others.  
              Insult people.  
              Am not interested in other people's problems.  
              Feel little concern for others.
- 20-item scale ( $\text{Alpha} = .88$ )**
- + keyed    Am interested in people.  
              Sympathize with others' feelings.  
              Have a soft heart.  
              Take time out for others.  
              Feel others' emotions.  
              Make people feel at ease.  
              Inquire about others' well-being.  
              Know how to comfort others.  
              Love children.  
              Am on good terms with nearly everyone.  
              Have a good word for everyone.  
              Show my gratitude.  
              Think of others first.  
              Love to help others.
- keyed    Insult people.  
              Am not interested in other people's problems.  
              Feel little concern for others.  
              Am not really interested in others.  
              Am hard to get to know.  
              Am indifferent to the feelings of others.

### Factor III (Conscientiousness)

- 10-item scale ( $\text{Alpha} = .79$ )**
- + keyed    Am always prepared.  
Pay attention to details.  
Get chores done right away.  
Like order.  
Follow a schedule.  
Am exacting in my work.
- keyed    Leave my belongings around.  
Make a mess of things.  
Often forget to put things back in their proper place.  
Shirk my duties.
- 20-item scale ( $\text{Alpha} = .88$ )**
- + keyed    Am always prepared.  
Pay attention to details.  
Get chores done right away.  
Like order.  
Follow a schedule.  
Am exacting in my work.  
Do things according to a plan.  
Continue until everything is perfect.  
Make plans and stick to them.  
Love order and regularity.  
Like to tidy up.
- keyed    Leave my belongings around.  
Make a mess of things.  
Often forget to put things back in their proper place.  
Shirk my duties.  
Neglect my duties.  
Waste my time.  
Do things in a half-way manner.  
Find it difficult to get down to work.  
Leave a mess in my room.

## Factor IV (Emotional Stability)

- 10-item scale ( $\text{Alpha} = .86$ )**
- + keyed    Am relaxed most of the time.  
Seldom feel blue.
- keyed    Get stressed out easily.  
Worry about things.  
Am easily disturbed.  
Get upset easily.  
Change my mood a lot.  
Have frequent mood swings.  
Get irritated easily.  
Often feel blue.
- 20-item scale ( $\text{Alpha} = .91$ )**
- + keyed    Am relaxed most of the time.  
Seldom feel blue.  
Am not easily bothered by things.  
Rarely get irritated.  
Seldom get mad.
- keyed    Get stressed out easily.  
Worry about things.  
Am easily disturbed.  
Get upset easily.  
Change my mood a lot.  
Have frequent mood swings.  
Get irritated easily.  
Often feel blue.  
Get angry easily.  
Panic easily.  
Feel threatened easily.  
Get overwhelmed by emotions.  
Take offense easily.  
Get caught up in my problems.  
Grumble about things.

## Factor V (Intellect or Imagination)

- 10-item scale (Alpha = .84)***
- + keyed    Have a rich vocabulary.  
              Have a vivid imagination.  
              Have excellent ideas.  
              Am quick to understand things.  
              Use difficult words.  
              Spend time reflecting on things.  
              Am full of ideas.
- keyed    Have difficulty understanding abstract ideas.  
              Am not interested in abstract ideas.  
              Do not have a good imagination.
- 20-item scale (Alpha = .90)***
- + keyed    Have a rich vocabulary.  
              Have a vivid imagination.  
              Have excellent ideas.  
              Am quick to understand things.  
              Use difficult words.  
              Spend time reflecting on things.  
              Am full of ideas.  
              Carry the conversation to a higher level.  
              Catch on to things quickly.  
              Can handle a lot of information.  
              Love to think up new ways of doing things.  
              Love to read challenging material.  
              Am good at many things.
- keyed    Have difficulty understanding abstract ideas.  
              Am not interested in abstract ideas.  
              Do not have a good imagination.  
              Try to avoid complex people.  
              Have difficulty imagining things.  
              Avoid difficult reading material.  
              Will not probe deeply into a subject.

## Appendix C. OASIS Images OSF Link

Images used - <https://osf.io/tpz73/>

## Appendix D. PANAS

### The PANAS

This scale consists of a number of words that describe different feelings and emotions. Read each item and then mark the appropriate answer in the space next to that word. Indicate to what extent you feel this way right now, that is, in the present moment. Use the following scale to record your answers.

1.	2.	3.	4.	5.
Very slightly or not at all	A little	Moderately	Quite a bit	Extremely

_____	Interested
_____	Distressed
_____	Excited
_____	Upset
_____	Strong
_____	Guilty
_____	Scared
_____	Hostile
_____	Enthusiastic
_____	Proud

_____	Irritable
_____	Alert
_____	Ashamed
_____	Inspired
_____	Nervous
_____	Determined
_____	Attentive
_____	Jittery
_____	Active
_____	Afraid



## Appendix E. Edited Rushton Altruism Scale

### Self-Report Altruism Scale - Adapted Version

<b>Consider the upcoming month. If given the opportunity, how often would you be willing to engage in these behaviors?</b>	Never	Once	More than once	Often	Very Often
1. I would give directions to someone I did not know.					
2. I would make change for someone I did not know.					
3. I would give money to a charity.					
4. I would donate clothes or goods to a charity.					
5. I would help carry belongings of someone I did not know.					
6. I would delay an elevator and hold the door for someone I did not know.					
7. I would allow someone I did not know to go in front of me in line.					
8. I would point out a clerk's error in undercharging me for an item.					
9. I would let a neighbor I did not know well borrow an item of value to me.					
10. I would help a classmate who I did not know well with a homework assignment when my knowledge was greater than his or hers.					
11. I would voluntarily look after a neighbor's pet or children without being paid.					
12. I would offer to help a handicapped or elderly person across the street.					
13. I would offer my seat on a train or bus to someone who was standing.					
14. I would help an acquaintance move houses.					

Scoring: Sum all item ratings together. A higher score indicates greater self-perceived altruism.

## **Appendix F. Visuals for Stats OSF Links**

**Appendix F-1.** Linearity - <https://osf.io/pjgms/>

**Appendix F-2.** Normality - <https://osf.io/h3289/>

**Appendix F-3.** Homogeneity and Homoscedasticity - <https://osf.io/as3wm/>

**Appendix F-4.** 2x2 mixed factorial ANOVA - <https://osf.io/xb8gq/>

**Appendix F-5.** Agreeableness Scatterplot - <https://osf.io/98p7k/>

**Appendix F-6.** Conscientiousness Scatterplot - <https://osf.io/gmya9/>

**Appendix F-7.** Positive Mood Scatterplot - <https://osf.io/6kq4j/>

**Appendix F-8.** Negative Mood Scatterplot - <https://osf.io/n53ea/>