

Investigating the Relation between Empathy and Prosocial Behavior:

An Emotion Regulation Framework

Haley Gordon

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Lee D. Cooper

Angela Scarpa

Bradley A. White

Julie C. Dunsmore

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ABSTRACT

Little is known about the complex processes leading to prosocial behavior. However, theories suggest that empathy, empathic responding, and emotion regulation abilities, may all contribute to the presence or absence of prosocial behavior. While theoretical papers demonstrate relationships between these constructs, researchers to date have only focused on small aspects of this complex relationship (e.g., the relationship between sympathy and emotion regulation, the relationship between empathy and prosocial behavior). This study proposed a complex model whereby empathy was both directly related to prosocial behavior and indirectly related to prosocial behavior via sympathy or personal distress. Furthermore, this study proposed an emotion regulation framework for understanding the relation between empathy and prosocial behavior, suggesting that one's emotion regulation abilities would cause a differential presentation of empathic responses, leading to a potential increase or decrease in prosocial behavior. An adult sample was recruited. Analyses were completed using Structural Equation Modeling (SEM). Results indicate that hypothesized model adequately fit the data. All hypothesized associations between variables were significant. However, contrary to the hypothesis, emotion regulation ability did not alter the associations between study constructs. Strengths, limitations, and implications will be discussed.

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Introduction

Prosocial behavior is defined as behavior intended to help another person (Eisenberg, Fabes & Spinrad, 2006). This type of behavior has been theoretically and empirically linked to a variety of positive cognitive (Bierman, Torres, Domitrovich, Welsh, & Gest, 2009; Miles & Stipek, 2006) socioemotional (Carlo, Fabes, Laible, & Kupanoff, 1999; Fabes, Carlo, Kupanoff, & Laible, 1999), and psychological outcomes (Eron & Huesmann, 1984). However, little is known about the complex processes that may lead to prosocial behavior. While theories and some empirical studies suggests that empathy, empathic responding (i.e., sympathy, personal distress), and emotion regulation abilities, may all contribute to the presence or absence of prosocial behavior (Carlo and Randall, 2002; Eisenberg, Eggum, & Giunta, 2010; Eisenberg & Fabes, 1990; Lockwood, Seara-Cardoso, & Viding, 2014), researchers to date have only focused on select aspects of these complex relations (e.g., the association between sympathy and emotion regulation, the association between empathy and prosocial behavior).

The purpose of this study was to examine the simultaneous associations between the constructs of empathy, empathic responding (i.e., sympathy, personal distress), prosocial behavior, and emotion regulation. Specifically, this thesis tested an SEM model of empathy and prosocial behavior, whereby empathy was directly related to prosocial behavior and indirectly related to prosocial behavior via sympathy and personal distress. Furthermore, a secondary purpose of this study was to examine the role of emotion regulation on this model. It was hypothesized that emotion regulation would affect specific relations in the model, leading to positive or negative associations with prosocial behavior.

In the following sections, I first discuss the constructs of prosocial behavior, empathy, and empathic responses (i.e., sympathy, personal distress). I specifically discuss the definition of empathy used in this study, and the important distinction between empathy and sympathy. I then discuss the theoretical relationships between emotion regulation, empathic responding, and prosocial behavior. Afterwards, I discuss empirical evidence for associations between study constructs (e.g., sympathy and prosocial behavior). Furthermore, I discuss research limitations, as no published study has examined the interplay of empathy, sympathy, personal distress, prosocial behavior, and emotion regulation simultaneously. Lastly, I conclude the introduction by discussing the aims of the current study.

The Importance of Prosocial Behavior

Prosocial (helping) behavior has been theoretically and empirically linked to a number of positive personal and socioemotional variables including perspective taking, moral judgment, empathic responding, emotion regulation, positive emotionality, and positive peer and parental relationships (Carlo, Allen, & Buhman, 1999; Carlo, Fabes, Laible, & Kupanoff, 1999; Eisenberg et al., 2006; Fabes, Carlo, Kupanoff, & Laible, 1999). A longitudinal study of prosocial behavior found that prosocial behavior at age eight negatively predicted aggression, psychopathological behavior, and social failure twenty-two years later (Eron & Huesmann, 1984). Furthermore, prosocial behavior in children has been linked to a number of positive academic areas including school readiness (Bierman et al., 2009). In contrast, a lack of prosocial behavior has been associated with poor social adjustment (Crick, 1996), such as peer rejection. While it is clear that prosocial behavior is important for appropriate prosocial development and relationships, little is understood regarding the complex processes and mechanisms leading to the

absence of presence of prosocial behavior (Lockwood et al., 2014). However, theories suggest that empathy plays an important role (Eisenberg et al., 2010; Lockwood et al., 2014).

Defining Constructs: Differentiation Between Empathy & Empathic Responses

In order to better understand the relationship between empathy and prosocial behavior, it is first important to understand the construct of empathy, as researchers have proposed various definitions of this construct.

Empathy. There is no uniform definition of empathy because theorists disagree on a number of constructs. Specifically, some theorists postulate that empathy involves only recognizing emotion, others state that it involves experiencing it, while others state that empathy involves both labeling and vicariously experiencing emotion (Reniers, Corcoran, Drake, Shryane, & Vollm, 2011). Additionally, some researchers conceptualize sympathy as a component of empathy, while others conceptualize sympathy as an empathic response or reaction. This study will conceptualize empathy as an affective response that matches or is very similar to that of the distressed individual (Eisenberg et al., 2010). Those who feel empathy are cognizant to the feelings of others, and can vicariously experience these feelings (Reniers et al., 2011).

Sympathy. Reniers and colleagues (2011) suggest that sympathy is an “output of the empathic process, and not part of it.” Eisenberg and colleagues (2010) note that sympathy “often stems from empathy.” Based on these theories, in this study, sympathy is conceptualized as an empathic response, rather than a form of empathy. Sympathy is viewed as different than empathy in that empathy is vicariously feeling another’s emotions, while sympathy is an outward other-oriented wish for that person to feel better, demonstrated by feelings of concern or sadness for that individual (Eisenberg & Fabes, 1990; Eisenberg et al., 2010). In other words, feelings of

outward focused concern for the distraught individual, rather than the identical emotional response, would be an example of sympathy, rather than empathy. Current theories indicate that sympathy can develop from empathy and result in helping behaviors (Eisenberg et al, 2010).

Personal Distress. Personal distress is a self-oriented empathic response (Batson, 1987; Batson, Fultz, & Schoenrade, 1987). When someone vicariously experiences another's emotion (affective empathy), they can respond with sympathy, an other-oriented response, or distress, a self-oriented response (Batson, 1987; Batson, Fultz, & Schoenrade, 1987; Eisenberg & Fabes, 1990). Personal distress is an aversive emotional reaction, characterized by discomfort or anxiety, that arises from vicariously experiencing another's emotions (Eisenberg, 2000; Eisenberg et al., 2010). Personal distress and sympathy have been found to be distinct processes because they arise from opposing motivations to reduce distress (egoistic versus altruistic), and are conversely associated with prosocial behavior (Batson, 1987; Batson et al., 1987; Carlo, Hausmann, Christiansen, & Randall, 2003; Eisenberg, 2000).

Subtypes of empathy. Lastly, current theorists have postulated that there are two major types of empathy: *affective empathy* and *cognitive empathy* (Decety & Jackson, 2006; Reniers et al., 2011). Affective empathy, also known as emotional empathy, is conceptualized as "the ability to be sensitive to and vicariously experience the feelings of others" (Reniers et al., 2011). Cognitive empathy, which is sometimes termed perspective taking (Davis, 1980) or theory of mind (Blair, 2005), is conceptualized as the ability to identify and correctly label the emotional states of others (Reniers et al., 2011). Although definitions of empathy are mixed, there is clear support for a positive association between empathy/empathy related responses and prosocial behavior (Eisenberg et al., 2002; Carlo et al., 2003; Roberts & Strayer, 1996). For the purpose of this study, only affective empathy will be examined.

Theoretical Foundation Concerning the Relation Between Empathy & Prosocial Behavior:

Two guiding theories, postulated by two leaders in the field, Hoffman and Eisenberg, suggest that there is a clear relation between empathy and prosocial behavior. These theories are largely grounded in child development literature. Both acknowledge that the ability to engage in sympathy, an other-oriented helping response, is integral to prosocial behavior (Eisenberg et al., 1994; Hoffman, 1978, 2008). However, each proposes a different factor that allows for the differentiation between sympathy and personal distress. Hoffman (2008) suggests that perspective taking skills are integral to empathic responses and that a transition to other-oriented thinking through perspective taking results in sympathy, which may lead to prosocial behavior. Eisenberg and colleagues (Eisenberg et al., 1994; Eisenberg, Fabes, & Spinrad, 1996; Eisenberg & Eggum, 2009) postulate that the differentiation between sympathy and personal distress could also be due to a person's emotion regulation abilities, rather than their perspective takings skills. They hypothesize that good emotion regulators are able to engage in sympathy regardless of their emotional reactivity because they are able to regulate any personal distress feelings and proceed to engage in sympathy. In contrast, poor emotion regulators are more prone to personal distress because they cannot regulate their emotions (Eisenberg & Eggum, 2009). Eisenberg & Fabes (1990) note that individuals who become over-aroused and distressed when they see others in distress are less likely to engage in helping behaviors. Eisenberg and colleagues' theory will be evaluated in the present study.

Eisenberg and colleagues' theory is partially supported by a theoretical argument put forth by Decety and Jackson (2004). While Eisenberg and colleagues note that emotion regulation affects empathic responses, Decety and Jackson provide a new interpretation that emotion regulation is a component of empathy. They argue that empathy has three major

components: “affective sharing,” which is similar to affective empathy, “self-other awareness,” similar to perspective taking and thus, cognitive empathy, and “mental flexibility” and “self-regulation,” arguably components of emotion regulation and effortful control. Additionally, they argue that emotion regulation affects both cognitive and affective empathy: “Empathy necessitates some level of emotion regulation to manage and optimize introspective transactions between self and other” (Decety & Jackson, 2004). Furthermore, they postulate that emotion regulation is necessary, because without it people experience personal distress. While Eisenberg and colleagues’ theory mainly shows how emotion regulation leads to empathic responses, Eisenberg also proposed a theory regarding the association between emotion regulation and prosocial behavior. Eisenberg and Fabes (1992) postulated that individual differences in emotion regulation would be related to prosocial behavior and that those with poor emotion regulation skills would display less helping behaviors.

In summary, research indicates that persons may demonstrate different empathic responses (i.e., sympathy and personal distress) due to varying emotion regulation abilities. Eisenberg suggests that empathic responses arise from affective empathy, and can lead to the presence or absence of prosocial behavior (Eisenberg et al., 2010; Eisenberg & Eggum, 2009). Eisenberg and colleagues suggests that emotion regulation controls empathic responses, leading to sympathy in good emotion regulators and distress in people with poor emotion regulation skills. Because sympathy has been associated with prosocial behavior (Eisenberg & Fabes, 1992; Carlo & Randall, 2002), Eisenberg’s model can be extended to suggest that emotion regulation controls the display of empathic responses (e.g., sympathy versus distress) resulting in the presence or absence of prosocial behavior. However, to this author’s knowledge, empathy, emotion regulation, empathic responses (sympathy versus distress), and prosocial behavior have

not been investigated together in any study. While researchers hypothesize the above mentioned relations using a theoretical/conceptual framework, no study has looked at all components together. However, by understanding associations between each of the constructs, we can better understand how they interact to produce prosocial behavior.

The Relation between Empathic Responding & Emotion Regulation: Empirical Studies

Although no published works have looked at all major constructs together, there have been multiple studies on how regulation abilities affect empathic responding in children. Valiente and colleagues (2004) found that effortful control, a type of self-regulation, was positively related to sympathy and negatively related to personal distress in children ages 4.5 to 8 years of age. Similarly, Rothbart, Ahadi, and Hershey (1994) found that effortful control was significantly positively correlated with sympathy in a sample of children ages six and seven. Additionally, Rieffe, Ketelaar, & Wiefferink (2010) observed that in children ages 1 to 5 years, distress was associated with poor emotion regulation.

Literature on emotion regulation and empathic responding in adults is extremely limited. However, Okun, Shepard, & Eisenberg (2000) found that emotion regulation was associated with better sympathy and perspective taking, and less personal distress, in a diverse sample of adults (ranging from age 18 to over 50). Additionally, Eisenberg and Okun (1996) found a similar positive relationship between emotion regulation and sympathy, and negative relationship between emotion regulation and distress, in a study of older adults (mean age: 75-79).

The Relation between Empathic Responding & Prosocial Behavior: Empirical Studies

While empathic responding has been found to be associated with emotion regulation, it has also been found to be associated with prosocial behavior. In a study on adolescents, Carlo and colleagues (2003) found that empathic concern (i.e. sympathy) was related to compliant,

emotional, and direct prosocial behaviors. In a similar study on college students, Carlo and Randall (2002) found that sympathy was positively associated with not only compliant, emotional, and direct prosocial behaviors, but also anonymous and altruistic prosocial behaviors. In their review on prosocial behavior and empathic responses, Eisenberg and colleagues (2010) note that several studies have found dispositional measures of sympathy to be more-consistently related to specific types of prosocial behavior. That is, prosocial behavior that is other-oriented and private is more consistently related to sympathy than public prosocial behavior. This suggests the importance of recognizing the different types of prosocial behavior and that public and private prosocial behavior may have differential relations to empathic responding (Eisenberg et al., 2010; McGinley & Carlo, 2006; White, 2013).

Interestingly, the relationship between personal distress and prosocial behavior is less clear. While theory (Batson, 1987) indicates that personal distress would be negatively related to prosocial behavior, findings from empirical studies have been less consistent. For instance, Carlo and Randall (2002) found that personal distress was not significantly positively or negatively associated with prosocial behavior. However Carlo and colleagues (2003) found that personal distress was inversely related to altruistic prosocial behavior. Eisenberg and colleagues (2010) note that this pattern of inconsistent findings appears throughout the literature. Studies generally find that personal distress is either inversely or unrelated to prosocial behavior. Again, types of prosocial behavior may contribute to these differential findings.

The Relation between Emotion Regulation & Prosocial Behavior

Additionally, studies have investigated the associations between emotion regulation and prosocial behavior. Eisenberg, Fabes, and Karbon et al. (1996) studied how attentional regulation moderated the relation between negative emotionality and prosocial behavior in

children in elementary-school. They found gender moderated this relation. Girls who demonstrated good attentional regulation were regarded as more prosocial than girls with poor attention regulation, regardless of their levels of negative emotionality. Girls with low or moderate attentional regulation were regarded as more prosocial if they displayed less negative emotionality. This relation was different for boys. If boys were poor regulators, they were regarded as less prosocial, regardless of level of negative emotionality. Boys who were moderate or good regulators were only considered less prosocial if they exhibited high negative emotionality.

Gender Differences in Empathy, Empathic Responding and Prosocial Behavior

The literature on gender differences in prosocial behavior is unclear and contradictory. For instance, in a meta-analysis of adolescents and adults age fourteen and older, Eagly and Crowley (1986), found that men engaged in more prosocial behavior than women. However, in a meta-analysis of children and adolescents, Fabes and Eisenberg (1996) found that girls engaged in more prosocial behavior than boys. In a study of children ages five, nine, and thirteen, Roberts & Strayer (1996) found that gender moderated the relation between empathy (measured through vignettes) and prosocial behavior where empathy was a stronger predictor of prosocial behavior in males than females. Theorists (Carlo & Randall, 2002; Eagly & Crowley, 1986) hypothesize that gender differences in prosocial behavior are due to the type of prosocial behavior studied. Specifically, following social role theory, men may display more chivalrous prosocial behavior while women may display more relationally oriented prosocial behavior. Consistent with this hypothesis, and in a study of college students, Carlo and Randall (2002) found that women had higher scores of altruistic, compliant, emotional, and anonymous prosocial behaviors while men had higher public prosocial behavior scores.

The literature on gender differences on empathy and empathic responding is clearer. Females are generally seen as more empathic than males (Jolliffe & Farrington, 2006). This has been shown in work with children (Roberts & Stayer, 1996), and adults (Davis, 1980). Eisenberg and Lennon (1983) conducted a meta analysis of a wide range of studies from infants to adults and found that gender differences favoring females were strongest when self-report measures of empathy or sympathetic responding were used. Studies using the Interpersonal Reactivity Index, a commonly used self-report measure of empathic responses, have cited gender differences in empathy favoring women (Davis, 1980; DeCorte et al., 2007). However, some of the gender-differences found in self-report measures may be confounded by social desirability (Cialdini et al., 1987; Jolliffe & Farrington, 2006).

A Gap in the Literature

While an association between empathy and prosocial behavior has been empirically tested and theoretically discussed, many questions are left unanswered. Although theorists postulate that emotion regulation plays a role in the presentation of empathic responses, and research shows that sympathy leads to prosocial behavior while personal distress generally inhibits helping behaviors, studies on the interaction between these constructs do not exist. To the author's knowledge, at the beginning of this study, only one study had been conducted that studied emotion regulation, empathy, and prosocial behavior. However, this study (Bandura et al., 2003) examined perceived empathic self-efficacy, as well as perceived emotion regulation self-efficacy rather than actual empathy and emotion regulation. Nonetheless, this study found that empathic self-efficacy mediated the relation between emotion regulation self-efficacy and prosocial behavior. Lastly, as this literature review would suggest, studies of empathy are

predominately on children, and researchers have not examined whether models in the child literature can be extended to adult literature.

Specific Aims

The main objective of this study was to examine the potentially complex and simultaneous associations between empathy, empathic responses (i.e., sympathy, personal distress) and prosocial behavior. The second main objective was to determine if a hypothesized model demonstrating these complex associations was altered as a function of emotion regulation. Lastly, a subsequent aim was to examine whether relations between empathy, empathic responses, regulation, and prosocial behavior, which are mainly grounded in child literature, were consistent in adult samples, where these constructs are less frequently studied.

Structural equation modeling (SEM), which is referred to as a “second generation” multivariate technique (Fornell, 1982), was used to test study hypotheses. SEM has three major advantages (Walker & Madden, 2008). First, SEM analyses allow for the identification of both direct and indirect associations between variables. Unlike regression, SEM does not simply evaluate single regression equations. SEM can evaluate a system of regression equations simultaneously (Nachtigall, Kroehne, Funke, & Steyer, 2003). SEM allows one to not only evaluate the relationship between two or three constructs, but to evaluate the simultaneous associations between a number of variables in a model. It is concerned with how the overall global model, which can include many complex relationships between variables, fits the data. Second, SEM allows one to assess both manifest (observed) and latent (unobserved) constructs. Rather than simply using a total score as an indicator of a latent construct, one can examine the

combined effect of multiple variables to form a given construct. Third, measurement error of the latent variables is accounted for in SEM model analyses (Walker & Madden, 2008).

Hypotheses

The hypothesized model is depicted in **Figure 1**. Empathy and prosocial behavior are both depicted as latent variables, while the affective empathy and prosocial behavior subscales are depicted as manifest variables. It was hypothesized that empathy would be indirectly related to prosocial behavior through sympathy, and indirectly related to prosocial behavior through personal distress. Additionally, it was hypothesized that empathy would be directly related to prosocial behavior. All paths were hypothesized to be in the positive direction (per literature review), except for the path between personal distress and prosocial behavior. Based on literature review, it was also hypothesized that there would be between group differences in the causal beta paths of this model. In those with high emotion regulation abilities, it was hypothesized that affective empathy would be indirectly related to prosocial behavior via sympathy. However, in those with lower emotion regulation abilities, it was hypothesized that affective empathy would be indirectly negatively related to prosocial behaviors, via personal distress. Thus, it was hypothesized that the groups would differ in all causal (beta) paths, with the more regulated group having stronger beta coefficients on the paths involving sympathy, and the more dysregulated group having stronger beta coefficients on the paths involving distress. A multigroup analysis was conducted to determine whether the causal (beta) paths in this model significantly differ between groups with different emotion regulation abilities, suggesting a moderating effect of emotion regulation on this model.

Methods

Participants

Participants were recruited from a convenience sample at Virginia Tech. The final sample size for this study included 505 adults, ages 18 to 60 ($M_{age} = 20.911$, $SD = 4.278$). The sample was approximately 75.8% female and primarily Caucasian (79.6% White, 9.1% Asian, 5.1% Multiracial, 3.8% Latino, 2.2% African American and 0.2% Native American). The only requirement for participation in the study was that one must be eighteen or older. Participants were recruited via flyers posted throughout the Virginia Tech campus. Additionally, extra credit in psychology courses was offered to Virginia Tech students who complete the survey. Participants were given the option of providing their email addresses in order to be entered in a raffle to win one of five \$50 gift cards.

Procedures

An online survey, approved by the Virginia Tech Institutional Review Board (IRB), was created using Survey Monkey. When participants entered the study site, they read an introduction that described the purpose of the study. They then read an online consent form (see **Appendix A**). Completion of the survey indicated consent to participate in the study. The survey took approximately 30 minutes to complete in entirety. Each participant was given a de-identified subject number and no identifying information (e.g., name, birth date) was collected during the study.

Measures

The measures used in this study are all self-report measures. However, there have been multiple studies in the field that use solely self-report data to study these constructs when they

are viewed as dispositional, and trait-based. These self-report measures are deemed reliable and valid and have been used in self-report measure only studies.

Participants completed a brief demographic questionnaire (**Appendix B**) at the beginning of the online session, where they were asked about their age, gender, ethnicity, income, and year in college. In addition to demographic data, the following measures were included in the study:

Affective Empathy. Participants completed the Questionnaire of Cognitive and Affective Empathy (QCAE; Reniers et al., 2011, see **Appendix C**), a 31-item scale that measures cognitive and affective empathy on a 4-point Likert scale (1= “strongly disagree” to 4= “strongly agree”). The three affective empathy subscales of this measure were used as indicators of a latent empathy factor. *Emotional contagion* (4 items) measures whether a person automatically emulates another’s feelings (e.g., “It worries me when others are worrying and panicky” or “I am happy when I am with a cheerful group and sad when the others are glum”). *Proximal responsivity* (4 items) refers to one’s affective empathy in a social situation (e.g., “It affects me very much when one of my friends seems upset”). *Peripheral responsivity* (4 items) refers to affective empathic responses to films, movies, and plays (e.g., “I often get deeply involved with the feelings of a character in a film, play, or novel”). Reniers and colleagues (2011) provided support for subtest reliability, and convergent and construct validity. In this current study, Cronbach’s alpha was .58 for the emotional contagion scale, .69 for the proximal responsivity scale, and .67 for the peripheral responsivity scale.

The QCAE was created from items from the following previously validated and widely used empathy questionnaires: the Empathy Quotient (Baron-Cohen et al., 2003), Hogan Empathy Scale (Hogan, 1969), the Empathy subscales of the Impulsiveness-Venturesomeness-Empathy Inventory (Eysenck & Eysenck, 1978) and the Interpersonal Reactivity Index (Davis, 1980).

When creating the QCAE, two independent raters rated all questionnaire items as measuring affective empathy, cognitive empathy, or neither construct. Thus, all the items in this questionnaire have been rated as firmly measuring cognitive or affective empathy, and items have been excluded that measure other constructs, such as sympathy.

Empathic Responses. Participants completed the Interpersonal Reactivity Index (IRI; Davis, 1980, **Appendix D**) to measure sympathy and personal distress. Davis (1980) demonstrated that all subscales of the IRI have satisfactory test-retest reliabilities and internal consistency. For all subscales, participants rate each item on a 5-point Likert scale (0 = Does not describe me well to 4= Describes me very well).

Sympathy. The Empathic Concern subscale (6 items) of the Interpersonal Reactivity Index was used as a measure of sympathy. Although Davis (1980) conceptualized this scale as a measure of affective empathy, this subscale has been utilized in multiple studies as a measure of sympathy in adult populations (Eisenberg & Okun, 1996; Carlo, Allen, & Buhman, 1999; Carlo & Randall, 2002; Okun, Shepard, & Eisenberg, 2000). Example items include: “When I see someone being taken advantage of, I feel kind of protective toward them” and (reverse coded) “When I see someone being treated unfairly, I sometimes don’t feel very much pity for them”. Previous studies have reported Chronbach’s α for the empathic concern subscale ranging from .68 to .82 (Davis, 1980; Loudin, Loukas & Robinson, 2003). Davis (1980) demonstrated that the Empathic Concern subscale has satisfactory test-retest reliabilities and internal consistency. In the current study, Cronbach’s α for the Empathic Concern subscale was .81.

Personal Distress. The Personal Distress subscale (6 items) of the IRI was used to measure personal distress, or feelings of discomfort and anxiety resulting from observing another in an emotionally evocative situation. This subscale describes an inward focused personal-

response, rather than outward-focused sympathy. Example items include: “When I see someone who badly needs help in an emergency, I go to pieces” and “I sometimes feel helpless when I am in the middle of a very emotional situation”. Previous studies have observed Chronbach’s alpha for the Personal Distress subscale between .75 and .83 (Davis, 1980; Okun, Shepard, & Eisenberg, 2000). In the current study, Cronbach’s α for the Personal Distress subscale was .77.

Emotion Regulation. Participants completed the Difficulties in Emotion Regulation Scale (DERS; Gratz & Roemer, 2004, **Appendix E**). The DERS is a 36-item self-report measure that was developed to specifically measure emotion dysregulation. It assesses multiple areas of dysregulation including lack of emotion understanding/awareness, lack of acceptance of emotional responses, difficulties controlling impulsive behavior when confronted with negative emotions, difficulties engaging in goal directed behavior when dealing with negative emotions, and limited access to emotion regulation strategies. Previous studies have reported Chronbach’s α for the DERS Total Score ranging from .93 (Gratz & Roemer, 2004; Roemer et al., 2009) to .94 (Bardeen, Fergus, & Orcutt, 2012). In this study, Cronbach’s α for total score was .94. For study analyses, DERS total score was calculated and then median split to form two groups. It is important to note that the DERS is a measure of dysregulation. Thus, high scores on the DERS indicate more dysregulation (low emotion regulation) and low scores on the DERS indicate less dysregulation (high emotion regulation).

Prosocial Behavior. The Prosocial Tendencies Measure (PTM, **Appendix F**) is a 23-item questionnaire which includes six different types of prosocial behavior: altruistic, emotional, compliant, public, dire, and anonymous. Participants rate how much each statement describes them on a 5-point Likert scale (1= Does not describe me at all to 5 = Describes me greatly).

Carlo and Randall (2002) demonstrated that sympathy (as measured by the IRI empathic concern

subscale) was significantly correlated with all six types of prosocial behaviors. However, public was not included in the mode because it is negatively correlated with the other types of prosocial behavior. The altruism scale consists of 5 items and measures voluntary helping behavior, driven solely by concern for another individual. In this study, Chronbach's alpha is .77. The emotional subscale (4 items, $\alpha = .78$) measures helping behavior driven by an emotionally evocative situation. The dire subscale (3 items, $\alpha = .58$) measures helping behavior in emergency situations. The compliant subscale (2 items, $\alpha = .82$) measures helping when asked. The anonymous subscale (5 items, $\alpha = .82$) measures helping in situations where no one would know you helped. Carlo and Randall (2002) demonstrated that the PTM has adequate internal consistency, reliability, and construct validity.

Social Desirability. The Marlowe-Crowne Social Desirability Scale (Crowne & Marlowe, 1960; **Appendix G**) is a 33-item self-report measure which was utilized to control for social desirability. Participants answer true or false questions that measure a person's tendency to want to be perceived positively. Sample items include, "When I don't know something, I don't mind at all admitting it," and "If I could get into a movie without paying and be sure I was not seen, I would probably do it." This scale is commonly used in research (Ventimiglia & MacDonald, 2012). Previous studies have observed Chronbach's alpha ranging from .75 (Loo & Loewen, 2004) to .79 (Ventimiglia & MacDonald, 2012).

Data Analysis

Data Screening

Prior to analysis, the data was examined through SPSS (IBM, 2014) and LISREL (Jöreskog & Sörbom, 2006) and was screened for missing values, careless responding, and univariate and multivariate outliers. Only participants who completed all measured used in this

study were included in analyses. Thus, 5.9% of the original sample (n= 634) was excluded due to missing data.

Seven careless responding questions (See **Appendix H**), were added to the survey. These were modeled after questions in Meade and Craig (2012). Questions were interspersed into study measures. To smoothly integrate these questions into existing measures, most responses were in the same format of the measure they were included with. As a result of varying answer response options (e.g., “strongly agree to strongly disagree,” “true or false,” “does not describe me well to describes me very well,”) there were some interpretation flaws with some careless response items. For example, whether or not someone should be called a careless responder if they said “somewhat true” to “I am not working to my best abilities on this survey.” Thus, the three items which were worded to have a clear wrong answer were used to exclude careless responders. Using stringent criteria for careless responding, a participant was identified as a careless responder if they answered one of the following three items incorrectly: (1) “Please answer ‘true’ for this question.” (2) “Please select Answer 3 for this question.” (3) “Please select ‘often’ for this question.” Using this criteria, 4.4% of participants who completed all study measures were identified as careless responders. Notably, 71% of those identified as careless responders were identified on more than one careless responding question.

After screening for missing data and careless responding, the data was screened for high social desirability. This was included because study variables (e.g., empathy, prosocial behavior) may be influenced by social desirability (Berthoz, Wessa, Kedia, Wicker, & Grezes, 2008; Eisenberg et al., 1994). To control for excessive social desirability, respondents who scored 1.5 standard deviations above the mean on these items were excluded from the analyses. Thus, 7.2% of respondents with full data were excluded due to high social desirability. Andrews and Meyer

(2003) reported a pooled-mean ($M = 15.08$, $SD = 5.5$) for the Marlowe-Crowne Social Desirability Scale (Crowne & Marlowe, 1964), calculated from eleven non-forensic samples. After controlling for extreme social desirability, the sample mean ($M = 14.84$, $SD = 4.51$) for the present study was similar to the pooled mean published by Andrews and Meyer.

Lastly, the remaining cases were screened for univariate and multivariate outliers. Univariate outliers were examined using z-scores and 2.7% of the data was identified as a univariate outlier (z-score greater than $|3|$) and subsequently removed from analyses (Tabachnick & Fidell, 2001) Mahalanobis distances were also computed to test for multivariate outliers at $p < .01$, and 0.3% of cases were identified as multivariate outliers and subsequently removed from analyses. After screening for missing data, careless responding, social desirability, and univariate and multivariate outliers, the final sample size was 505. Lastly, there was no univariate skewness or kurtosis, or multivariate kurtosis in proposed model variables for either group (see **Table 1**).

Data Analysis

Hypotheses were tested using structural equation modeling in LISREL (Student Version 9.1; Jöreskog & Sörbom, 2013). Maximum likelihood (ML) estimation was used to test the proposed model (see Figure 1). Maximum likelihood estimation assumes that the variables are normal and continuous. While the variables in the study may be viewed as ordinal because they are measured on Likert scales, they are treated as continuous for these analyses. Multiple studies have established that Likert-scaled ordinal data with several categories can be treated as interval data (e.g., Babakus, Ferguson, & Joreskog, 1987; Johnson & Creech, 1983). Additionally, maximum likelihood estimation can be used with Likert scale data that is treated as continuous (Finney & Distefano, 2006; Mindrila, 2010), as long as there is not significant skewness or kurtosis. Cut off values of 2 for univariate skewness, 7 for univariate kurtosis, and 3 for

multivariate kurtosis were used (Finney & DiStefano, 2006; Mindrila, 2010; West, Finch & Curran, 1995). No variables within the proposed model met criteria for skeweness or kurtosis. The latent variable Empathy was measured by three indicators, specifically the three affective empathy subscales of the QCAE (Reniers et al., 2007). The latent variable of Prosocial Behavior, was measured by five indicators, specifically the direct, emotional, altruism, compliant, and anonymous subscales of the Prosocial Tendencies Measure (Carlos & Randall, 2002). The Sympathy and Personal Distress variables are measured by total scores on the Empathic Concern and Personal Distress subscales of the Interpersonal Reactivity Index (Davis, 1980).

Before conducting analyses, participants were artificially dichotomized into two groups based on emotion regulation ability. Groups were dichotomized based on a median-split of the DERS. Participants who scored above the median ($M=79$) were labeled as the low ER (more dysregulated) group, while participants who scored at or below the median were labeled as the high ER (more regulated) group. (As a reminder, the DERS is a measure of dysregulation. Thus, higher scores are indicative of less emotion regulation. Notably, t-tests confirmed that the low ER (more dysregulated) group ($M= 98.50, SD= 13.98$) had higher DERS scores than the high ER (more regulated) group ($M= 65.94, SD= 9.31$); $t(445.38) = 30.890, p < .01$). It is important to note that “high ER” in this study describes appropriate emotion regulation, while “low ER” describes poor emotion regulation abilities (i.e., heightened emotion dysregulation).

Analyses were completed in two steps. First, model fit for the hypothesized model was evaluated for each group. To begin analyses, model fit was first assessed for the hypothesized measurement model in each group. The measurement model was tested first, in order to make any necessary modifications before analyzing the full structural model. Essentially, a measurement model is a confirmatory factor analysis (CFA) model that depicts the links between

the latent variables and the measures that make up them (Byrne, 1998). Measurement models specifically take measurement error into account; thus, errors were fixed to the reliability of the measure, for single indicators of a given factor (i.e., personal distress and sympathy manifest variables). Additionally, when testing a measurement model, all latent constructs were made to covary freely (i.e., covariance paths were added between all possible combinations of latent constructs; Kline, 1998). The chi-square statistic, comparative fit index (CFI), and standardized root-mean-square residual (SRMR), were used to examine model fit. Hypothesized paths in the model were also examined to determine statistical significance. After model fit was deemed adequate for the measurement model in each group, the full structural model (which takes into account the causal relationships between latent constructs) was tested.

When estimating fit, Hu & Bentler (1998,1999) recommend a 2-index strategy which includes the SRMR or RMSEA and an incremental fit index (i.e., TLI, IFI, RNI, or CFI). Due to the relatively small sample size in each group, the SRMR and CFI indices were used as the main fit indices for evaluating model fit of the hypothesized structural model, as suggested by Hu and Bentler (1995). The SRMR is an absolute fit index that is very sensitive to model misspecification and is recommended when sample size is small. A cutoff of .10 or less was utilized with under .05 suggesting good fit and under .08 indicating adequate fit (Hu & Bentler, 1995). The SRMR is a “badness of fit” statistic, meaning that higher values indicate worse fit. A SRMR value of 0 would indicate that the model fit the data perfectly (Iacobucci, 2009). The CFI is an incremental fit index which compares fit to a baseline model. The CFI makes some adjustments for model complexity and parsimony because degrees of freedom are used in the calculation. Additionally, in contrast to the SRMR, it is a “goodness of fit” statistic, meaning that higher scores indicate better fit (Iacobucci, 2009). A cutoff of .90 was used for acceptable fit,

while a value of 0.95 or more indicates good fit (Hu & Bentler, 1999). Essentially, a value of .90 indicates that 90% of the covariation in the data can be reproduced by the given model. After model fit was found to be at least adequate in each group, a multigroup analysis was conducted to determine if the causal paths of the model varied, based on different levels of emotion regulation. Parameters were selectively constrained in a hierarchical fashion, ultimately resulting in the models being held equivalent in both groups. Chi-square difference testing was used to assess changes in fit between nested models. If chi-squared difference testing indicated a significant difference, the models were shown to vary between groups in one or more of the constrained parameters. The multigroup analysis was completed in several steps. First, a configural model was tested. A configural model tests both models together in the same analyses, with no constraints on any parameters. It is used as the baseline chi-square value. Metric invariance was then tested. Tests of metric invariance constrain the factor loadings across groups, allowing one to discern whether constructs are measured similarly in each group. Next residual invariance was tested. This determined whether the error variances and covariances were equal across groups. (Note that this test is generally deemed as exceptionally rigorous (Byrne, 2001) and that some variation in error variances and covariances is acceptable). Following, scalar invariance was tested. This determined whether the correlations between latent constructs were similar between groups.

Finally, once all aspects of the model were equated to be equal in each group, and it was ascertained that the constructs were measured similarly across groups, causal (beta) invariance was tested. Causal invariance testing determines whether the structural model (i.e., the causal relationship (beta paths, arrows) between latent constructs) is the same in each group. (Note: This is sometimes referred to as “structural invariance” in multigroup analysis studies of

structural models (e.g., Teo, Lee, Chai, & Wong, 2009). However, because “structural invariance” can have a different meaning in CFA models, it will be termed causal invariance in this study to eliminate confusion). Causal invariance was examined in order to determine whether emotion regulation ability affected the overall model. If chi-squared different testing indicated a significant difference, it could then be inferred that emotion regulation has a moderating effect on structural paths of the model. Multigroup analysis was conducted in this manner (hierarchically constraining the loadings, error variances and covariances, and correlations of the model) to specifically ascertain whether emotion regulation affected the structural paths, when all other components were constrained to be equal. Because LISREL does not include all fit indices (i.e., the SRMR) when running multi-group analyses, the CFI and RMSEA were examined for these analyses. However, Hugh & Bentler (1998, 1999) note that at small sample sizes, the RMSEA tends to over-reject true models, so this estimate is less preferred. Lastly, after testing all hypotheses, exploratory analyses were then conducted to further understand how emotion regulation affected study constructs.

Power Analysis

Power was determined through the N:q rule (Jackson, 2003; Kline, 2011) which suggests that an ideal sample size is 20:1 (ratio of cases: parameter). However, many researchers recommend a ratio of 10:1, and even indicate that a 5:1 ratio is acceptable, dependent on model complexity (Bentler & Chou, 1987). Thus, a total sample size of 600 persons was recruited. After conservative data screening, there was 249 people in the emotionally regulated group and 256 people in the poorly regulated group. Thus, the ratio was approximately 10:1, with 25 parameters estimated in the hypothesized full structural model. Additionally, each sample met criteria for a “typical” sample size of 200 subjects as described by Kline (2011).

Results

To test whether empathy was indirectly related to prosocial behavior (via sympathy and personal distress) and to test whether this model differed as a function of emotion regulation abilities, multigroup structural equation modeling was conducted using LISREL 9.1 (Joreskog & Sorbom, 2013). Maximum likelihood estimation (which assumes multivariate normality), was used to analyze variance-covariance matrices. No irregularities were noted in any analyses that were performed.

Descriptive Statistics

Descriptive statistics for both sample groups are included in **Table 1**. Bivariate correlations for both groups can be examined in **Table 2**. Notably, gender and age were correlated with multiple study variables. (For descriptive purposes, descriptive statistics for the full non-dichotomized sample are displayed in **Table 3**. Bivariate correlations for the whole sample are displayed in **Table 4**).

Gender was included in initial model analyses because it was highly correlated with multiple variables. Modifications to the hypothesized model, with gender included, are illustrated in **Figure 2**. Correlations were added to the model between gender and empathy, sympathy, and personal distress based on relations described in literature. Additionally, a beta path was added between gender and the outcome (PSB) to control for gender in the model. However, this path was not significant. Thus, to simply presentation, gender was not included in further analyses and the hypothesized model without gender was included. To confirm that the model without gender was superior to the model with gender, Akaike's informational criteria (AIC; Akaike, 1987) was calculated. The AIC allows researchers to compare two non-nested models. The lower the AIC, the better the model is said to fit the data (Kaplan, 2008). There are multiple formulas

used for the AIC (Maruyama,1998). Per, Kaplan (2008) the following formula was used : χ^2 model- 2df model (Joreskog& Sorbom, 1993). This established that the model without gender included was preferred over the model with gender.

Due to significant kurtosis (kurtosis >7) , age was not included in model analysis. Models with extreme kurtosis cannot be analyzed using maximum likelihood estimation due to assumptions of abnormality. Asymptotically Distribution Free (ADF) techniques are recommended with kurtotic variables because the weight matrix takes kurtosis into account and makes no assumptions of multivariate normality. Additionally, ADF methods in MPlus are recommended over other software programs (Newsom, 2012). However, a large sample is needed for stable estimates using ADF measures. West et al. (1995) recommends a sample size of at least 1000 for ADF techniques. Thus, LISREL's weighted least squares estimation (an ADF technique) was not used due to sample size limitations. Furthermore, age was not a variable of interest in the study and it was not expected that age should affect study variables. Thus, age was not included in further analyses.

Analysis of Model Fit of the Hypothesized Model

Before conducting a multigroup analysis, model fit was analyzed for both groups. All indicators loaded significantly onto the latent factors, thus only very minor modifications were made to the measurement model. Select correlated error residuals in the TE matrix were added for both models, based on modification indices. The revised model for each group is displayed in **Figure 3**. Error residuals can be correlated if this correlation is theoretically sound (Brown & Moore, 2012). Indeed, many studies commonly correlate error residuals to improve model fit (e.g., Byrd, Kahn, & Pardini, 2013). Factor loadings and squared multiple correlations for each group's measurement model and full-structural model may be examined in **Table 5**. Model fit

for the hypothesized full structural model, and then the revised full structural model for each group can be viewed in **Table 6**. The final full-structural model for the low-ER group demonstrated good fit, with SRMR= 0.052, CFI=0.969, RMSEA= 0.0685. The final full structural model for the high-ER group demonstrated acceptable fit; SRMR=0.070, CFI= 0.908, RMSEA= 0.098. As hypothesized, all paths were in the positive direction, except for the path between personal distress and prosocial behavior, which was hypothesized to be in the negative direction. Additionally, all hypothesized beta paths, displaying indirect and direct relationships between study variables, were significant. The final models with designated path values are displayed in **Figure 3**.

Multigroup Analysis Results

After determining that the hypothesized model was an adequate fit for both groups (after minor modifications) the multi-group analysis was conducted. Step by step results of the multi-group analysis are displayed in **Table 7**. When testing metric invariance, fit significantly worsened when all the factor loadings were constrained to be equivalent for each group. The chi-square difference of 16.155 with six degrees of freedom was statistically significant at $\alpha = .05$, indicating that the groups significantly differed in one or more factor loadings. Examination of modification indices confirmed that the “emotional” indicator of prosocial behavior loaded significantly differently in each group, and needed to be freely estimated. Once this parameter was freely estimated, the chi squared difference of 8.854 with five degrees of freedom was not statistically significant at $\alpha = .05$, indicating that the models were once again invariant and that partial metric invariance was supported. To test residual invariance, after equating all factor loadings (except for the emotional loading), all of the residual error variances were constrained. Given that the chi-squared difference of 8.596 with 9 degrees of freedom was not statistically

significant at $\alpha = .05$, residual invariance was supported. Lastly, tests of scalar invariance (which required equating all correlations between latent constructs) were performed. Similarly, the chi-squared difference of 2.664 with four degrees of freedom was not statistically significant at $\alpha = .05$, indicated the presence of scalar invariance.

Finally, after all components of the model were constrained, causal (beta-path) invariance was tested. These analyses were completed because it was hypothesized that the groups would significantly differ in all beta paths. Thus, when all beta paths were constrained, it was hypothesized that fit would significantly worsen, due to significant between-group differences in beta paths. However, the chi-square difference of 10.506 at five degrees of freedom was not significant at $\alpha = .05$. Thus, there is no significant difference between groups, demonstrating causal invariance. Overall, results from invariance testing suggests that prosocial behavior is measured slightly differently in good versus poor emotion regulators. However, once the constructs are captured uniquely for each group (i.e., emotional loading is allowed to vary), and the models are made invariant, the overall relationship between empathy, sympathy, personal distress and prosocial behavior remains the same for both groups. Contrary to the hypothesis, the groups did not significantly differ in their beta paths, indicating that the associations between study variables are not significantly altered by emotion regulation ability.

Exploratory Analyses

To better understand why emotion regulation did not affect the hypothesized model, exploratory analyses were conducted. First, the dichotomized groups were further evaluated, to discern if the low and high groups followed previously researched patterns of associations. Independent sample t-tests were conducted to determine if the groups differed in study variables.

The emotionally regulated (high ER) group had more sympathy ($M= 20.39, SD= 4.36$) than the dysregulated group ($M= 19.40, SD=4.53$); $t(503) = -2.516, p = .012$. Additionally, the emotionally regulated group engaged in more altruistic prosocial behavior ($M= 21.01, SD= 3.29$) than the dysregulated group ($M= 20.13, SD= 3.52$); $t(503) = -2.901, p <.01$. Similarly, the more regulated group engaged in more compliant prosocial behavior ($M= 7.95, SD= 1.50$) than the dysregulated group ($M= 7.59, SD=1.71$); $t(497.81) = -2.528, p = .012$. The dysregulated group demonstrated more personal distress ($M= 13.06, SD= 4.22$) than the well-regulated group ($M= 10.16, SD= 4.33$); $t(503) = 7.585, p <.001$. These findings concerning the associations with good regulation abilities and sympathy, and poor regulation abilities and personal distress, are consistent with prior literature (Okun, Shephard, & Eisenberg, 2000).

While the SEM analyses indicated that groups did not significantly differ in their beta paths, visual inspection of beta path parameters, as well as chi-squared significant testing, indicated that the path with the largest between-group difference was the path between sympathy and prosocial behavior. Exploratory analyses using PROCESS (Hayes, 2013) were conducted to determine if emotion regulation moderated the relationship between sympathy and prosocial behavior in this select path. Age and gender were included as covariates for analyses. Predictors were mean-centered before analyses. Multiple analyses were tested to determine moderation between each type of prosocial behavior because research indicated that the relation between sympathy and prosocial behavior could be dependent on type of prosocial behavior (e.g., Eisenberg et al., 2010). Analyses indicated that emotion regulation (still dichotomized) moderated the association between sympathy and compliant prosocial behavior: $\Delta R^2 = .02, F(1, 498) = 11.25, p < .001$. **Figure 4** depicts this moderation. Interestingly, a reverse fan pattern emerges whereby at low levels of sympathy, poor emotion regulators engage in less compliant

prosocial behavior. However, at higher levels of sympathy, persons engage in relatively similar amounts of compliant behavior, regardless of emotion regulation ability.

Moderation was also tested on the causal paths between empathy and sympathy and empathy and personal distress to confirm that emotion regulation did not moderate these associations. Analyses confirmed that these associations did not vary as a function of emotion regulation. These results were consistent with the very similar beta path coefficients in the multi-group analysis.

Lastly, as a final exploratory analyses, moderation of all beta paths was examined with emotion regulation viewed continuously, rather than dichotomously. This allowed for moderation analysis to consider low ER (one standard deviation below the mean), average ER (the mean) and high ER (one standard deviation above the mean). Similar to the dichotomous analyses, emotion regulation moderated the relationship between sympathy and compliant prosocial behavior: $\Delta R^2 = .02$, $F(1, 498) = 12.26$, $p < .001$. Additionally, emotion regulation moderated the relationship between sympathy and altruistic prosocial behavior $\Delta R^2 = .01$, $F(1, 498) = 5.45$, $p = .02$. Additionally, when viewed continuously, emotion regulation was found to moderate the association between total empathy and total prosocial behavior: $\Delta R^2 = .01$, $F(1, 498) = 5.66$, $p = .02$, as well as total empathy and altruistic prosocial behavior : $\Delta R^2 = .01$, $F(1, 498) = 5.27$, $p = .02$. Significant moderation graphs are depicted in **Figures 5-8**. Interestingly, all graphs displayed similar reverse fan patterns indicating that at low levels of empathy, well-regulated individuals displayed more prosocial behavior than the dystregulated groups. However, at high levels of sympathy or empathy, persons engage in similar levels of prosocial behavior regardless of their emotion regulation ability.

Overall, exploratory analyses discerned that the high and low emotion regulation groups did follow similar patterns based on the literature. However, when evaluating the moderating effect of emotion regulation, a possible “ceiling” effect was observed in some select associations. In general, at high levels of sympathy or empathy, all persons displayed similar amounts of prosocial behavior, regardless of emotion regulation ability.

Discussion

Overall, the purpose of this study was to investigate the relationship between empathy, empathic responding (i.e., sympathy and personal distress), prosocial behavior and emotion regulation. A structural equation modeling approach was taken whereby these complex associations between latent constructs could be examined simultaneously. Based on theoretical and empirically suggested relationships between constructs, a full structural model was proposed whereby empathy was both directly related to prosocial behavior, and indirectly related to prosocial behavior via sympathy and personal distress. In this model, it was hypothesized that the associations between latent constructs would change as a function of emotion regulation ability. Specifically, the emotionally regulated group was hypothesized to have stronger betas in the paths involving sympathy, while the poorly regulated group was hypothesized to have stronger betas in paths involving distress. Study findings, implications and future directions are discussed below.

The Hypothesized Model

Consistent with study predictions, the proposed model was found to demonstrate adequate fit in the high emotion regulation group and good fit in the low emotion regulated group. All hypothesized paths were significant, consistent with study predictions and the literature. Consistent with the findings of Carlo & Randall (2002), the five prosocial behavior

scales of the PTM were found to be good indicators of prosocial behavior, as indicated by significant factor loadings. Similarly, the three affective empathy subscales of the QCAE were found to be good indicators of affective empathy, as suggested by Reniers and colleagues (2011).

Moreover, in regards to relationships between latent constructs, all hypothesized causal paths in the model were significant, and consistent with study predictions. In both groups, empathy was both directly related to prosocial behavior, and indirectly related to prosocial behavior via sympathy and personal distress. Empathy was positively associated with sympathy, which in turn was positively associated with prosocial behavior. In contrast, empathy was positively associated with personal distress, which in turn was negatively associated with prosocial behavior. Importantly, personal distress was significantly related to prosocial behavior, and beta paths indicated that sympathy and personal distress were inversely associated with prosocial behavior, consistent with prior literature (Eisenberg et al, 2010, Carlo et al, 2003).

To the author's knowledge, this is the first study that has simultaneously tested the causal associations between empathy, sympathy, personal distress, and prosocial behavior. This lends further support to theories (Hoffman 1978, 2008; Eisenberg et al., 1994) indicating the importance of sympathy for engaging in prosocial behaviors. Furthermore, this model may allow researchers to better understand why there is sometimes only a very weak positive association between empathy and prosocial behavior (Eisenberg et al., 2010). It appears that this weak association may exist because sympathy and personal distress are simultaneously mediating the association between empathy and prosocial behavior. Lastly, because all beta paths were significant, this model provides further evidence that empirically and theoretically supported relationships between study variables, grounded mostly in child literature, are also present in

adult populations. Ideally, this will allow for further research on these constructs in adult populations.

Moderation of Emotion Regulation on the Hypothesized Model

Contrary to study predictions, the proposed model was not affected by emotion regulation ability. When the two nested models were constrained, whereby all loadings (except the emotional loading), variances, covariances, and residual error variances were made equivalent, equating the beta paths did not significantly worsen fit. Thus, the relationship between empathy, sympathy, personal distress, and prosocial behavior was not affected by emotion regulation ability. Once the constructs are captured uniquely for each group (i.e., emotional loading is allowed to vary, select residuals are covaried), and the models are made invariant, the overall relationship between empathy, sympathy, personal distress and prosocial behavior remains the same for both groups, regardless of emotion regulation ability. Thus, while prosocial behavior is measured slightly different between groups, the causal associations between variables does not change.

This finding (i.e., that emotion regulation did not affect the study model) is contrary to what would be expected based on the literature. According to Eisenberg and colleagues theory, emotion regulation should play a role in the relationship between empathy and empathic responses (i.e., sympathy and personal distress), leading to a differential presentation of prosocial behavior. However, moderation of the beta paths between empathy and sympathy, and empathy and personal distress, was disconfirmed in the SEM analysis, and exploratory moderation analyses. Yet, exploratory independent sample t-tests revealed that the artificially dichotomized high emotion regulation group had significantly more sympathy, and significantly less personal distress, than the low emotion regulation group. Thus, while the well-regulated group

demonstrated more sympathy, the positive association between empathy and sympathy was not moderated by emotion regulation ability.

It is possible that Hoffman's theory (Hoffman, 1978, 2008), which supports that role of perspective taking on the association between empathy and sympathy, may play a larger role than emotion regulation. It is possible that a strong positive association between empathy and sympathy is found in those with heightened perspective taking abilities rather than heightened regulation abilities. Perhaps one's ability to understand the perspectives of others, rather than manage one's own emotions, is more integral to the presentation of an appropriate empathic response. Future research could determine if perspective taking abilities, rather than emotion regulation, moderated the study model.

Interestingly, it appears that emotion regulation plays a larger role in the association between sympathy and prosocial behavior, than the association between empathy and empathic responses (sympathy and personal distress). It was hypothesized that all beta paths would differ, with the paths involving sympathy having stronger loadings in the well-regulated group, and the paths involving distress having stronger loadings in the poorly regulated group. This was mainly grounded in Eisenberg and colleagues' theory that emotion regulation abilities allowed for the presentation of sympathy, whereas poor regulation allowed for the presentation of personal distress. However, exploratory analyses discerned that emotion regulation moderated the relationship between sympathy and certain subtypes of prosocial behavior (i.e., compliant and altruism) but that emotion regulation did not moderate the association between empathy and sympathy. Interestingly, in the significant moderation analyses, those that were well-regulated were able to engage in more prosocial behavior, even at low levels of sympathy. However, at high levels of sympathy, persons engaged in similar amounts of prosocial behavior, regardless of

emotion regulation ability. Similar results emerged when studying the moderation of emotion regulation on the relationship between empathy and total prosocial behavior, as well as between empathy and altruistic prosocial behavior. It appears that a possible ceiling effect is occurring, whereby at high levels of sympathy and empathy, persons engage in similar prosocial behavior, regardless of regulation ability.

These findings concerning the role of emotion regulation are somewhat consistent with a newly published study (Lockwood, Seara-Cardoso, & Viding, 2014). Lockwood and colleagues examined the associations between affective and cognitive empathy and prosocial behavior, and whether this association was moderated by two types of emotion regulation strategies (i.e., cognitive reappraisal, expressive suppression). They utilized total score on the Prosocial Tendencies Measure and the affective empathy score on the QCAE, the same measures used in this study. Interestingly, they found that cognitive reappraisal moderated the association between affective empathy and prosocial behavior in those with low or average cognitive reappraisal. However, moderation was not significant in those with high cognitive reappraisal, generally seen as the most regulated. While those who engaged in high cognitive reappraisal displayed the most prosocial behavior in low empathy conditions, their prosocial behavior did not increase significantly in high empathy conditions. However, those who engaged in low cognitive appraisal (i.e., using emotion regulation strategies least frequently) engaged in more prosocial behavior in high empathy conditions (Lockwood, Seara-Cardoso, & Viding, 2014). Thus, similar to results of this study, at high levels of empathy, even those who are deemed poorly regulated displayed higher prosocial behaviors. In some conditions, they displayed more prosocial behavior than those who were deemed highly-regulated. This new study provides further evidence that the role of emotion regulation on the association between empathy and prosocial

behavior may be poorly understood. Contrary to theory (Eisenberg, Eggum, and Giunta, 2010) emotion regulation abilities do not moderate this relation in the expected manner. It is possible that emotion regulation abilities do not adversely affect one's ability to engage in prosocial behavior as long as one experiences heightened sympathy or empathy. When one is highly sympathetic, one may automatically engage in helping behavior, regardless of one's ability to maintain regulated.

Overall, exploratory analyses allow for one to better understand why emotion regulation abilities did not drastically alter the hypothesized model. Overall, moderation did not occur in any of the overall beta paths. Moderation did not occur between any of the latent variables, but only between select components of study constructs (i.e., specific types of prosocial behavior). Emotion regulation moderated the positive association between sympathy and compliant behavior, and sympathy and altruistic behavior. However, it did not significantly moderate the association between sympathy and the other types of prosocial behavior (anonymous, direct, emotional). Specifically, in the significant moderation analyses between sympathy and prosocial behavior, moderation occurs at each level of emotion regulation (i.e., high/low, low/medium/high). At high levels of sympathy, persons engaged in similar amounts of prosocial behavior, regardless of emotion regulation ability. Indeed, at the highest levels of sympathy, the low-regulated group engaged in the most compliant and altruistic prosocial behavior. For these exploratory analyses, emotion regulation abilities only appear to affect prosocial behavior when persons have low levels of sympathy.

Overall, high and low regulators did not differ in the associations between empathy and sympathy, and empathy and personal distress. In general, emotion regulation abilities did not significantly alter any of the causal associations. However, select individual associations

between facets (e.g., the association between sympathy and compliant prosocial behavior) were moderated by emotion regulation. In summary, this effect of emotion regulation is not clear enough for all types of prosocial behavior to meaningfully affect the overall model.

Consistent with others studies (e.g., Eisenberg et al, 2010), exploratory analyses for this study provide further evidence that specific facets of prosocial behavior are differentially related to study constructs. Although a full structural model is generally preferred over a path model, it may be important in future studies to examine the hypothesized model as a path model in order to test each type of prosocial behavior individually to better discern the individual associations between types of prosocial behavior, empathy, and empathic responses.

Strengths, Limitations, and Future Directions

The present study exhibits a number of theoretical and methodological strengths and implications. First, use of an SEM full-structural equation model allowed for the examination of simultaneous associations between empathy, sympathy, personal distress, and prosocial behavior. To the author's knowledge, it is the first study to examine the relationship between all four constructs simultaneously. This model has important implications as researchers in the field continue to debate the difference between sympathy and empathy. Results of this study demonstrate clear distinctions between sympathy and empathy. For instance, poorly-regulated and well-regulated groups did not significantly differ in empathy; however, they did significantly differ in empathic responses (sympathy, personal distress). Furthermore, the causal paths between sympathy and prosocial behavior were stronger than the causal paths between empathy and prosocial behavior, in both groups. Overall, these findings differentiate the role of sympathy and empathy in relation to emotion regulation and prosocial behavior. Ideally, these findings will

encourage others to not use “sympathy” and “empathy” interchangeably and differentiate empathy from empathic responding.

A second methodological strength within this study is the use of strict pre-screening criteria. Because the sample was strictly screened for social desirability and careless responding, results are more confidently interpreted. Lastly, another strength of this study, is that it adds to adult literature on the associations between empathy, empathic responses, and prosocial behavior. Theories on associations between these variables are mainly grounded in child literature and this study provides further empirical evidence for the presence of these associations in adults. Study findings have important developmental implications, demonstrating that relationships between variables discussed in early development, still exist in adult populations.

However, there are also several limitations to this study. First, the sample was fairly homogenous, and included a majority of college-women, reducing generalizability to a typical population. Future research will need to be conducted to discern if the hypothesized model generalizes to other samples (e.g., majority male, child, forensic). Second, only self-report measures were used, which means results could be influenced by shared method variance. Thus, future researchers could improve this study by adding observational, other report, or physiological measures (specifically of emotion regulation). Third, emotion regulation was artificially dichotomized to analyze between group differences. Fourth, though a relatively large sample was recruited, there were not enough participants to cross-validate findings.

Lastly, this study has important clinical implications. First, it demonstrates that persons with poor emotion regulation abilities can indeed engage in sympathy and prosocial behavior.

Furthermore, this study demonstrates the clear role that sympathy plays in the positive association between empathy and prosocial behavior. Additionally, exploratory analyses indicate that even for poorly regulated individuals, heightened sympathy results in more of specific types of prosocial behavior. It is possible that clinical interventions focused on increasing sympathy may help foster appropriate prosocial behavior in clinical populations associated with emotion dysregulation (e.g., persons with Bipolar, Borderline, or Autism Spectrum Disorder Diagnosis). Though this type of intervention is less frequently researched, there is some evidence in the child literature that interventions to increase sympathy can improve prosocial behavior (Feshbach and Feshbach, 1982). Evidence from the current study indicates that an intervention should focus on ways to improve sympathy. Additionally, as there is a lack of support for the role for emotion regulation in the presentation of sympathy, it is possible that the other theorized moderator (i.e., perspective taking skills, Hoffman, 2008) may help improve sympathy in these interventions.

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Table 1

Means, standard deviations, skewness, and kurtosis for study variables

<i>Measure</i>	Lower ER Group				Higher ER Group			
	<i>Mean</i>	<i>SD</i>	<i>Skewness</i>	<i>Kurtosis</i>	<i>Mean</i>	<i>SD</i>	<i>Skewness</i>	<i>Kurtosis</i>
	DERS score > 79; M:98.50, SD:13.98 Range: 80-146 N=256				DERS score ≤ 79; M:65.94, SD: 9.31 Range: 36-79 N= 249			
QCAE- Proximal Responsivity	12.281	2.235	-0.283	-0.326	12.201	2.163	-0.384	-0.270
QCAE- Emotion Contagion	12.297	1.894	-0.388	.048	12.061	1.882	-0.216	-0.111
QCAE- Peripheral Responsivity	11.316	2.319	-0.038	-0.169	11.088	2.359	-0.075	-0.223
IRI- Sympathy (IRI “Empathic Concern” scale)	19.398	4.526	-0.108	-0.602	20.394	4.358	-0.380	-0.299
IRI- Personal Distress	13.055	4.227	-0.082	-.087	10.165	4.335	0.125	-0.040
PTM- Dire	10.469	2.240	-.146	-.335	10.430	2.215	.036	-0.291
PTM-Emotional	13.867	3.051	-.275	-.089	14.048	3.077	-.054	0.094
PTM- Altruism	20.129	3.516	-.626	-.275	21.008	3.285	-0.403	.220
PTM-Compliant	7.590	1.708	-.309	-.646	7.952	1.499	-0.796	.092
PTM-Anonymous	13.879	4.138	-.040	-.209	14.402	4.182	-.605	-0.178

QCAE= Questionnaire of Cognitive and Affective Empathy (Reniers et al., 2011); IRI- Interpersonal Reactivity Index (Davis, 1980); Prosocial Tendencies Measure (PTM; Carlo & Randall, 2002), DERS= Difficulties in Emotion Regulation Scale (Gratz. & Roemer, 2004)

Table 2

Bivariate Correlations among Study Variables (Low ER group)

	Gender	Age	Dire	Emot.	Alt.	Comp.	Anon.	Emo.Cont.	Prox.Respons.	Peripher.Respos.	Symp.	PD
Gender	1											
Age	.002	1										
Dire	.146*	-.052	1									
Emot.	.151*	-.072	.640**	1								
Alt.	.252**	.176**	.065	.072	1							
Comp.	.202**	.057	.463**	.454**	.297**	1						
Anon	.022	.022	.221**	.091	.030	.124*	1					
Emo.Cont.	.315**	.033	.198*	.346**	.133*	.201**	-.008	1				
Prox.Respons.	.323**	.009	.398**	.532**	.175**	.407**	.032	.561**	1			
Peripher.Respos.	.305**	.034	.143*	.292**	.156*	.136*	-.039	.375**	.534**	1		
Symp	.355**	.106	.397**	.540**	.331**	.523**	.109	.365**	.567**	.374**	1	
PD	.239**	-.106	-.042	.128*	-.052	-.034	.049	.352**	.252**	.252**	.237**	1

Bivariate Correlations among Study Variables (High ER group)

	Gender	Age	Dire	Emot.	Alt.	Comp.	Anon.	Emo.Cont.	Prox.Respons.	Peripher.Respos.	Symp.	PD
Gender	1											
Age	.108	1										
Dire	.002	-.180**	1									
Emot.	.236**	-.308**	.463**	1								
Alt.	.135*	.125*	.014	-.063	1							
Comp.	.168**	-.186**	.346**	.442**	.086	1						
Anon	.098	.066	.410**	.210**	.127*	.158*	1					
Emo.Cont.	.247**	-.149*	.021	.252**	-.033	.183**	.036	1				
Prox.Respons.	.370**	-.144*	.186**	.505**	.050	.330**	.073	.505**	1			
Peripher.Respos.	.110	-.088	.104	.308**	.053	.123	.071	.210**	.340**	1		
Symp	.359**	-.030	.322**	.498**	.215**	.302**	.215**	.281**	.604**	.365**	1	
PD	.235**	-.117	-.154*	.136*	-.114	-.088	-.053	.457**	.297**	.109	.219*	1

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

Table 3

Means, standard deviations, skewness, and kurtosis for study variables (Full Sample)

<i>Measure</i>	<i>Mean</i>	<i>SD</i>	<i>Skewness</i>	<i>Kurtosis</i>
QCAE- Proximal Responsivity	12.242	2.198	-0.328	-0.303
QCAE- Emotion Contagion	12.180	1.890	-0.300	-.063
QCAE- Peripheral Responsivity	11.204	2.339	-0.059	-0.200
IRI- Sympathy (IRI “Empathic Concern” scale)	19.889	4.467	-0.242	-0.510
IRI- Personal Distress	11.630	4.514	-0.002	-.191
PTM- Dire	10.450	2.226	-.101	-.324
PTM-Emotional	13.956	3.062	-.337	-.017
PTM- Altruism	20.562	3.429	-.709	-.067
PTM-Compliant	7.769	1.617	-.463	-.358
PTM-Anonymous	14.137	4.164	.049	-.179

QCAE= Questionnaire of Cognitive and Affective Empathy (Reniers et al., 2011); IRI- Interpersonal Reactivity Index (Davis, 1980); Prosocial Tendencies Measure (PTM; Carlo & Randall, 2002), DERS= Difficulties in Emotion Regulation Scale (Gratz. & Roemer, 2004)

Table 4

Bivariate Correlations among Study Variables (Full Sample)

	Gender	Age	Dire	Emot.	Alt.	Comp.	Anon.	Emo.C ont.	Prox.Res pons.	Peripher .Respos.	Symp.	PD	Total DERS
Gender	1												
Age	.059	1											
Dire	.077	-.120**	1										
Emot.	.193**	-.197**	.552**	1									
Alt.	.199**	.152**	.040	.011	1								
Comp.	.188**	-.060	.406**	.448**	.215**	1							
Anon	.061	.048	.313**	.152**	.084	.146**	1						
Emo.Cont.	.279**	-.066	.112*	.297**	.046	.184**	.010	1					
Prox.Respons.	.344**	-.072	.296**	.518**	.113*	.367**	.045	.534**	1				
Peripher.Respos.	.208**	-.034	.124**	.298**	.099*	.123**	.013	.295**	.439**	1			
Symp	.358**	.038	.358**	.519**	.287**	.430**	.166**	.315**	.578**	.362**	1		
PD	.215**	-.118**	-.090*	.115**	-.118**	-.091	-.022	.402**	.288**	.186**	.179**	1	
Total DERS	-.006	-.096*	.001	.013	-.169**	-.095*	-.020	.140**	.055	.064	-.095*	.402**	1

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

Table 5a

Factor Loadings and Squared Multiple Correlations (Low ER Model)

	C.S. Factor Loading	S.M.C. (Measurement Model)	S.M.C (Structural Model)
Empathy			--
Emotional Contagion	0.629	0.396	
Proximal Responsivity	0.899	0.809	
Peripheral Responsivity	0.587	0.345	
Sympathy			0.492
IRI Sympathy	0.892	0.795	
Personal Distress			0.193
IRI Distress	0.842	0.709	
Prosocial Behavior			0.805
Dire	0.614	0.377	
Emotional	0.707	0.499	
Altruism	0.422	0.178	
Compliant	0.689	0.475	
Anonymous	0.140	0.020	

Table 5b

Factor Loadings and Squared Multiple Correlations (High ER Model)

	C.S. Factor Loading	S.M.C. (Measurement Model)	S.M.C (Structural Model)
Empathy			--
Emotional Contagion	0.567	0.329	
Proximal Responsivity	0.874	0.728	
Peripheral Responsivity	0.414	0.176	
Sympathy			0.559
IRI Sympathy	0.901	0.811	
Personal Distress			0.185
IRI Distress	0.885	0.784	
Prosocial Behavior			0.574
Dire	0.537	0.290	
Emotional	0.804	0.647	
Altruism	0.197	0.039	
Compliant	0.556	0.310	
Anonymous	0.285	0.082	

Table 6

Model Fit (Hypothesized Full Structural Model versus Final Revised Full Structural Model)

	<i>Models</i>	<i>RMSEA</i>	<i>CFI</i>	<i>SRMR</i>
Poor (low) ER Group	Hypothesized Structural Model	0.100	0.926	0.065
	Final Revised Full Structural Model (with minor measurement model modifications)	0.0685	0.969	0.052
Good (high) ER Group	Hypothesized Structural Model	0.118	0.860	0.081
	Final Revised Full Structural Model: (with minor measurement model modifications)	0.098	0.908	0.070

Table 7

Multigroup Analysis Results

Models	Chi Sq	df	RMSEA	CFI	Free Parameters	Model Comparisons	Chi Sq diff	DF diff	Significant Difference?
Model 0 : Configural Model	164.741	59	0.0849	0.944	51				
Model 1: Metric Invariance	180.896	65	0.0847	0.938	45	1 vs 0	16.155	6	Sig (Fit became worse with all loadings constrained)
Model 1A: unconstraining (freeing) select parameters to make model invariant) *partial metric invariance	173.595	64	0.0830	0.942	46	1A vs. 0	8.854	5	N.S. (Models are now invariant due to modifications; does not significantly differ from configural model).
Model 2: Residual Invariance	182.191	73	0.0776	0.942	37	2 vs. 1A	8.596	9	N.S. (Models remain invariant)
Model 3: Scalar Invariance	184.855	77	0.0749	0.943	33	3 vs. 2	2.664	4	N.S. (Models remain invariant)
Model 4: Causal Invariance (Beta)	195.361	82	0.0746	0.940	28	4 vs 3	10.506	5	N.S. (Models remain invariant)

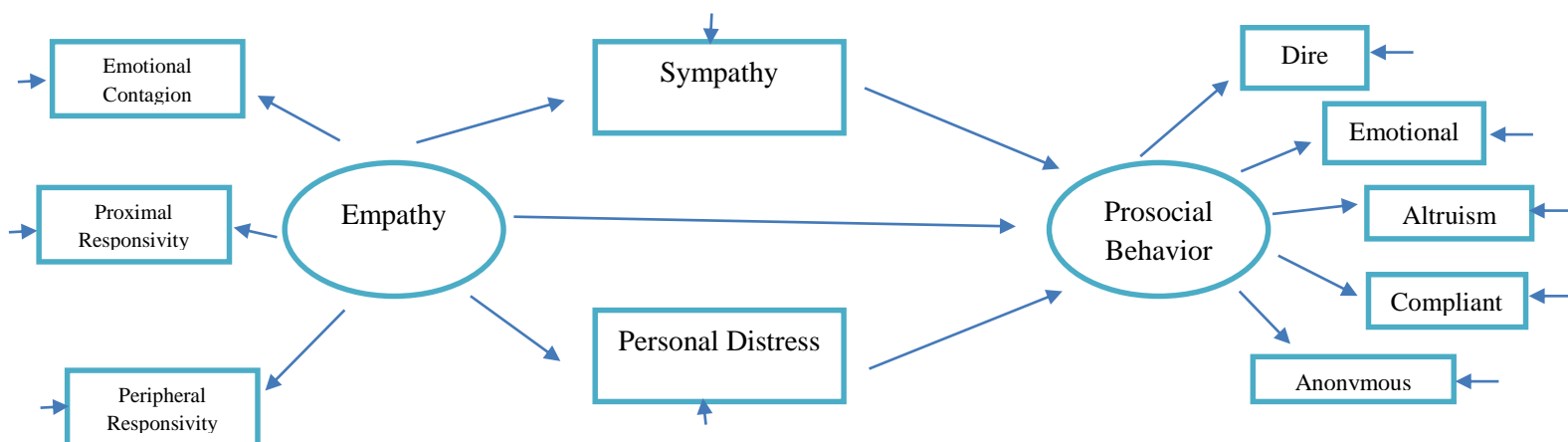


Figure 1. Hypothesized full structural model.

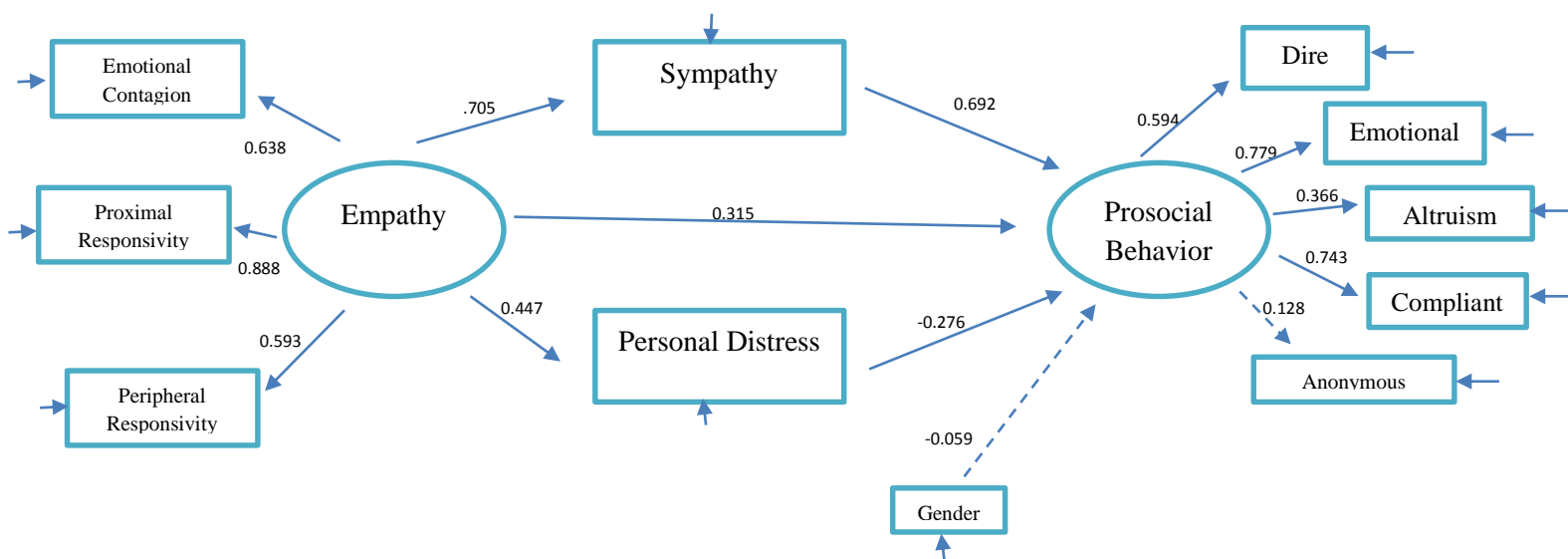


Figure 2a. Full structural model for the low ER (more dysregulated) group with gender added. All loadings and path values are completely standardized. All paths are significant, unless noted by a dotted line. In this model, the residuals (TE parameters) for dire and emotional, dire and altruism, and emotional and altruism, are correlated. (This was added due to modification indices in the measurement model). In this model, PSI paths (covariances between latent constructs) were added between gender and empathy, gender and sympathy, and gender and personal distress. The PSI path between gender and personal distress was not significant.

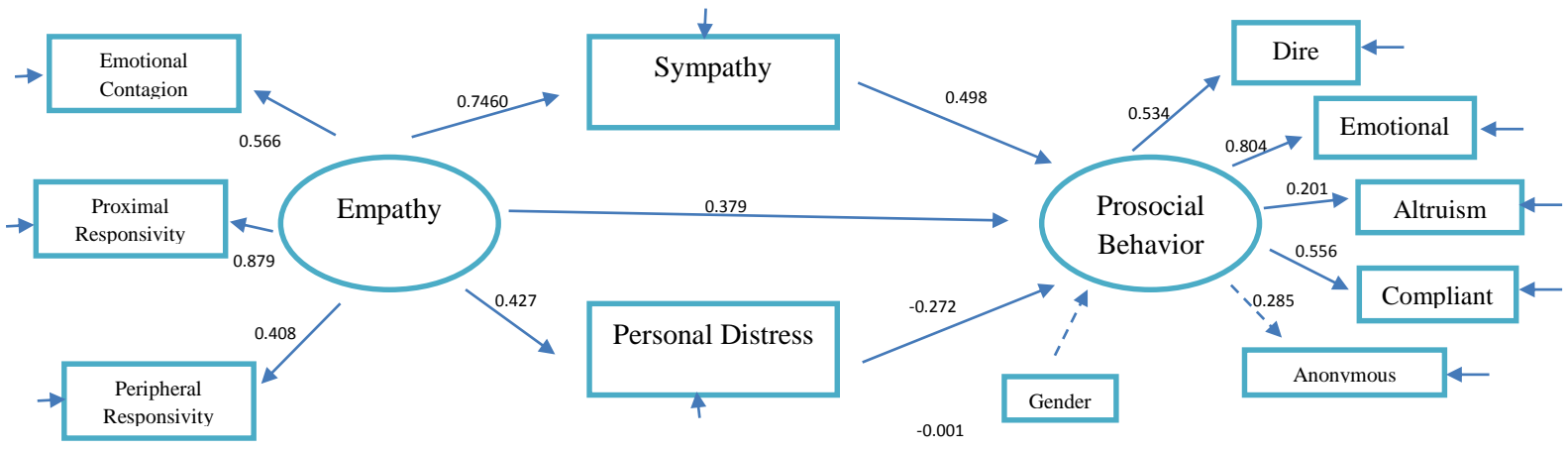


Figure 2b. Full structural model for the high ER (more regulated) group with gender added. All loadings and path values are completely standardized. All paths are significant, unless noted by a dotted line. In this model, the residuals (TE parameters) for dire and anonymous, and emotional and altruism, are correlated. (This was added due to modification indices in the measurement model). In this model, PSI paths (covariances between latent constructs) were added between gender and empathy, gender and sympathy, and gender and personal distress. The PSI path between gender and personal distress, and gender and sympathy, was not significant.

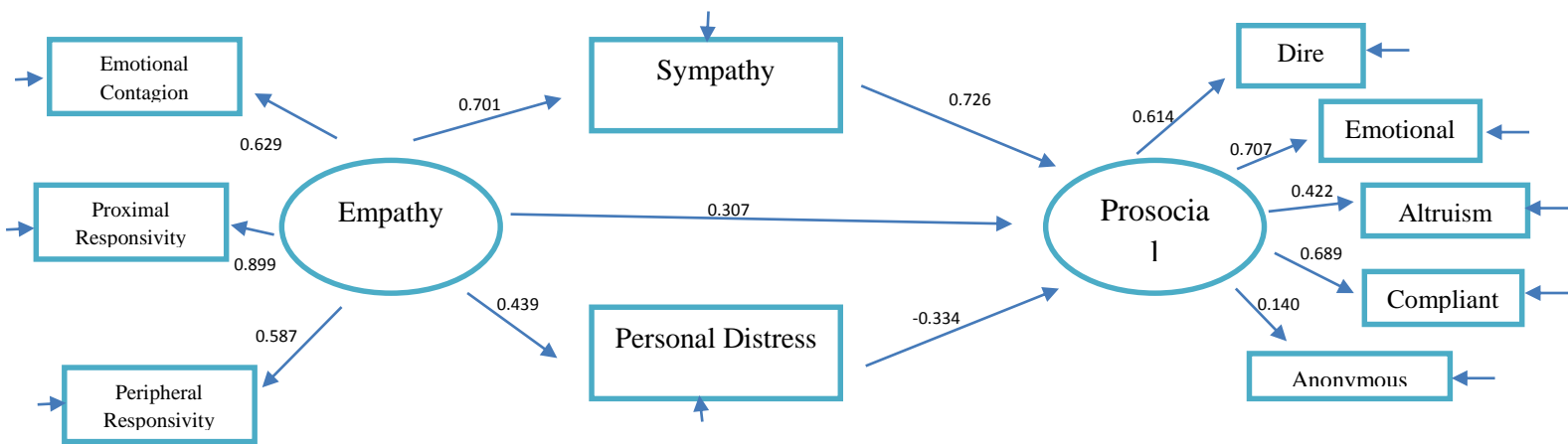


Figure 3a. Final full structural model for the low ER (dysregulated) group. All loadings and path values are completely standardized. All paths are significant. In this model, the error residuals (TE parameters) for dire and emotional, dire and altruism, and emotional and altruism, are correlated. (This was added due to modification indices in the measurement model).

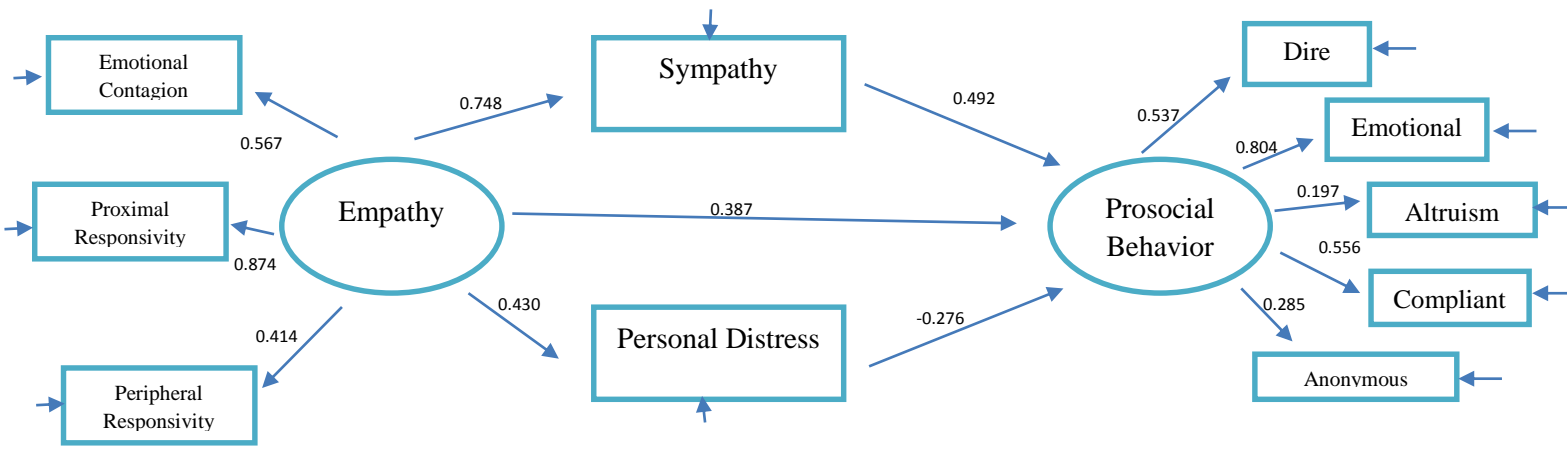


Figure 3b. Final full structural model for the high ER (more regulated) group. All loadings and path values are completely standardized. All paths are significant. In this model, the error residuals (TE parameters) for dire and anonymous, and emotional and altruism, are correlated. (This was added due to modification indices in the measurement model).

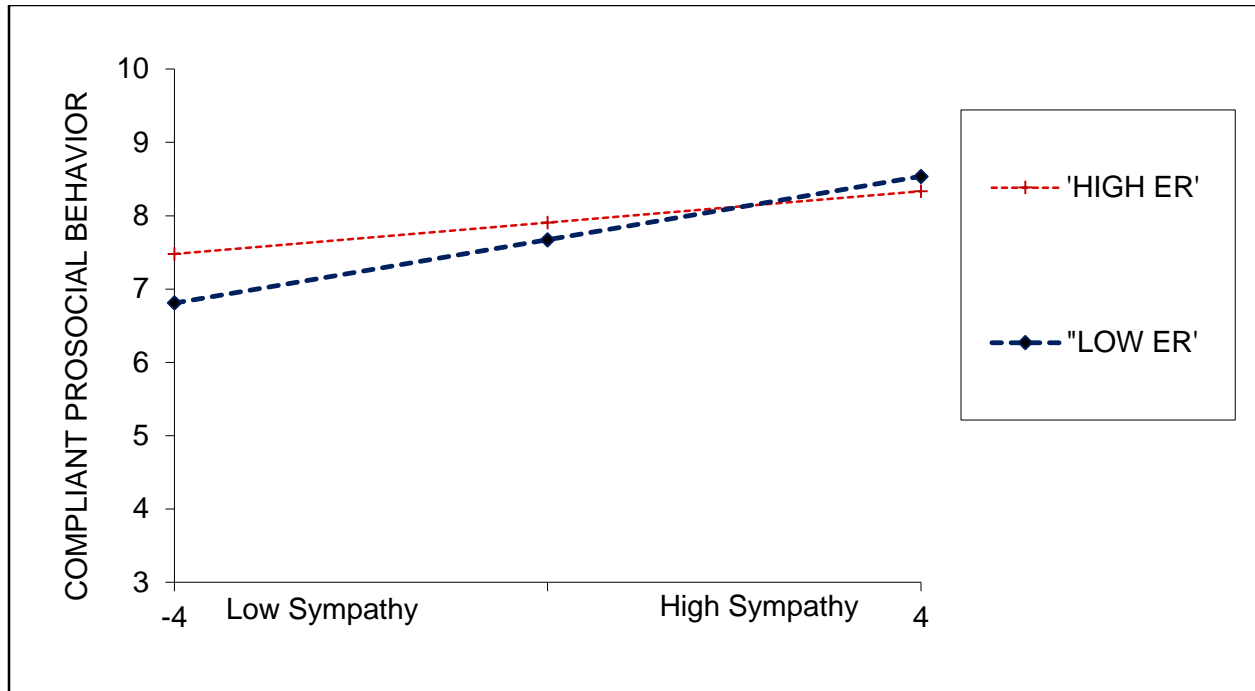


Figure 4. Moderation of emotion regulation (dichotomous) on the association between sympathy and compliant prosocial behavior

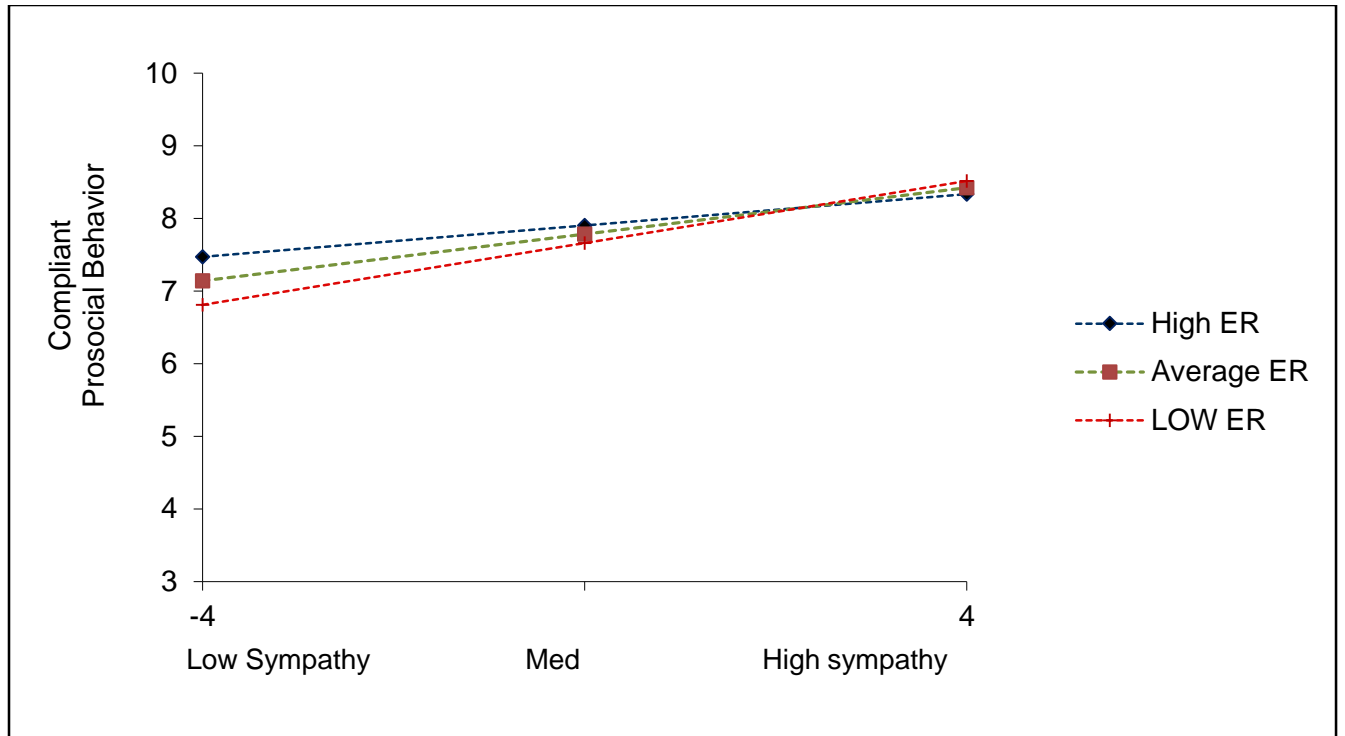


Figure 5. Moderation of emotion regulation on the association between sympathy and compliant prosocial behavior.

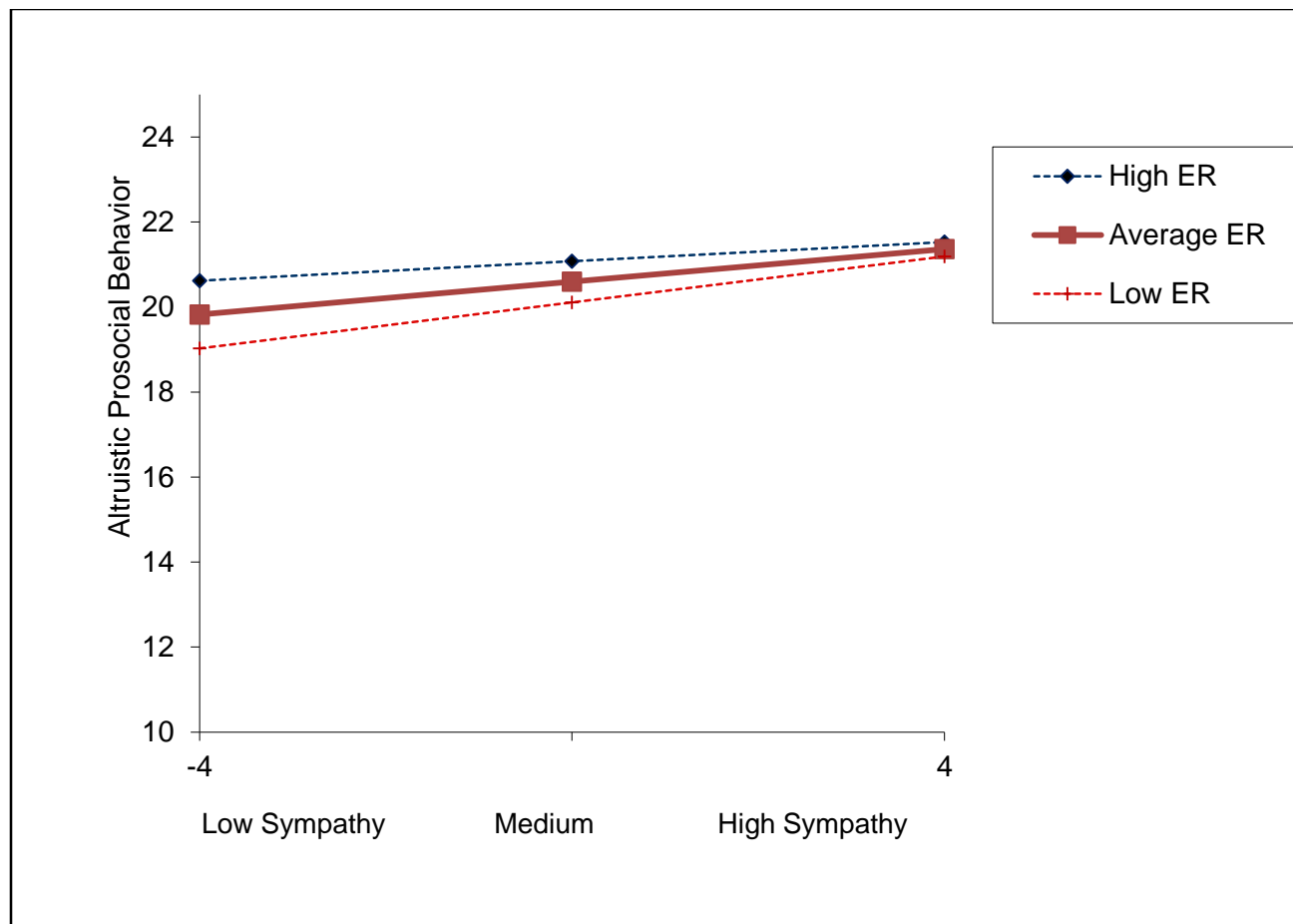


Figure 6. Moderation of emotion regulation on the association between sympathy and altruistic prosocial behavior

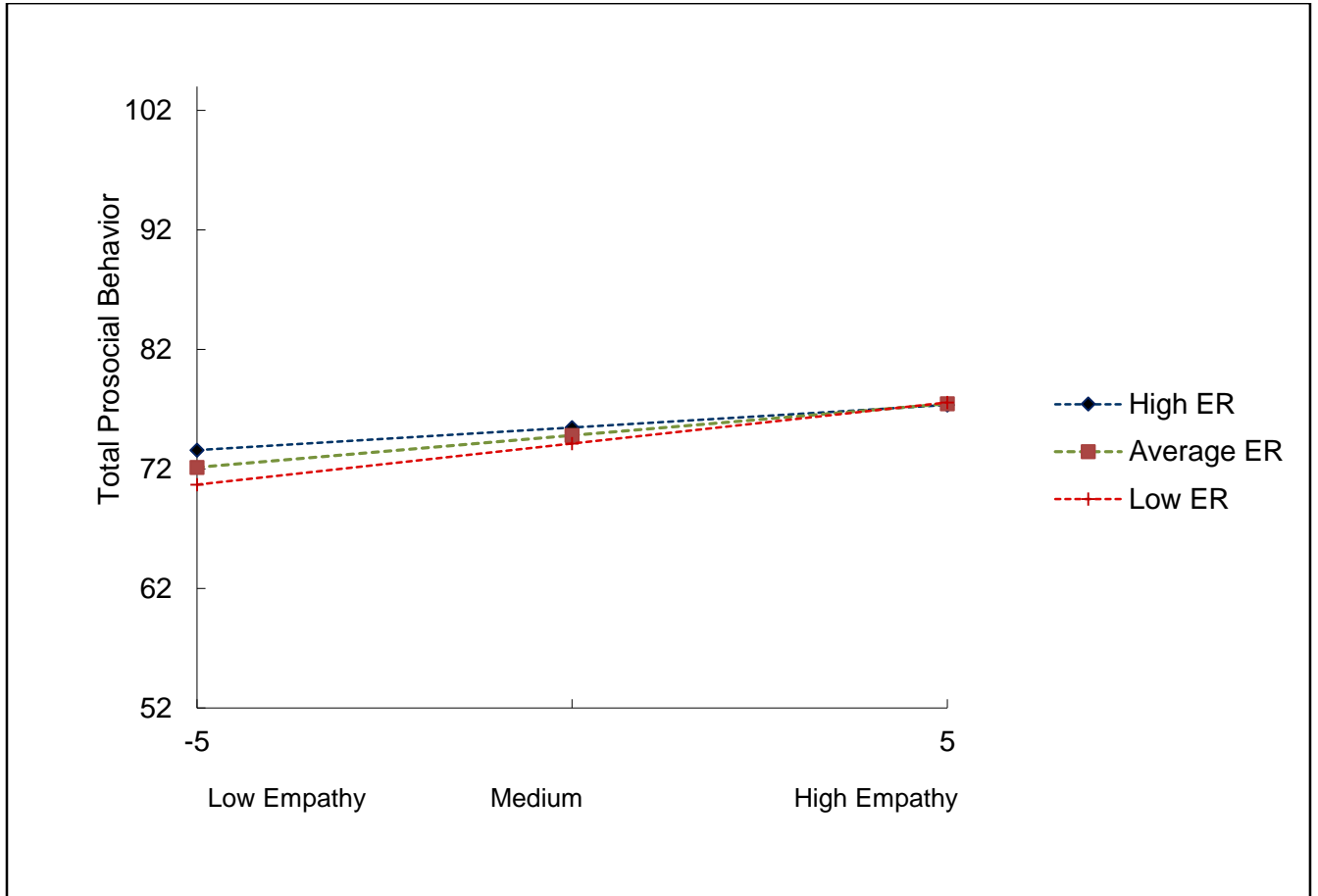


Figure 7. Moderation of emotion regulation on the association between total empathy and total prosocial behavior

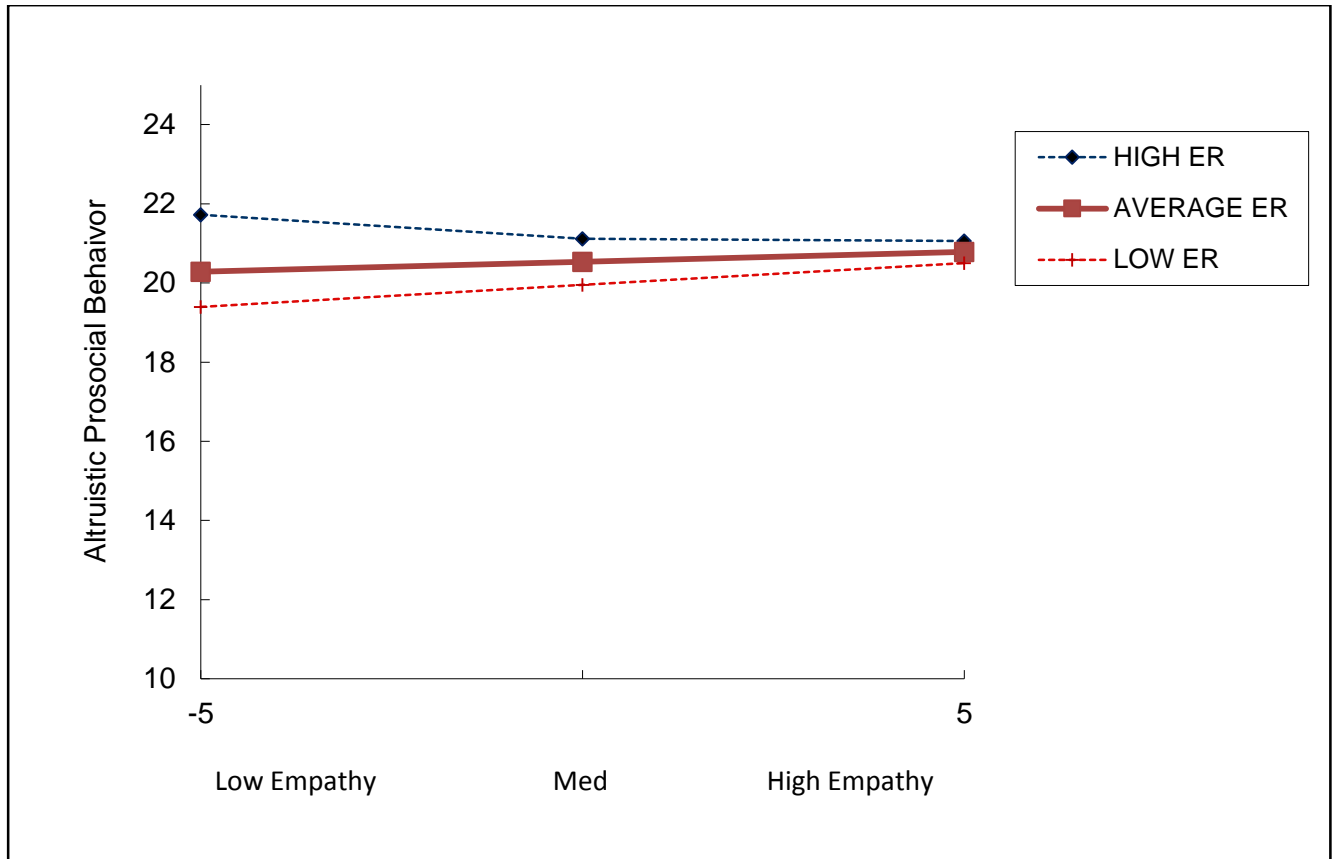


Figure 8. Moderation of emotion regulation on the association between total empathy and altruistic prosocial behavior Note: Moderation was only significant for low ER.

Appendix A: Informed Consent

Consent Form: Emotional Responding Survey

Investigators

Principal Investigator: Lee Cooper, PhD

Co-Investigator: Haley Gordon, Graduate Student

Psychology Department, Virginia Tech

Purpose

The purpose of this study is to assess how emotion regulation abilities and perspective taking skills affect concern and helping behaviors.

Procedure

You will be asked to complete a series of questions about your feelings, thoughts, behaviors, and experiences. Please read each question carefully and answer to the best of your ability. The survey will take approximately 30 minutes to complete. If you choose to participate in this study, you will be directed to a secure website to complete the survey.

Risks and Benefits

There is minimal risk to completing this study. It will only take approximately twenty-five minutes to complete, but that does require you to allocate your time to this activity, rather than other activities. Additionally, there is a possibility that some questions in the survey may make you uncomfortable as they inquire about how you feel when other's experience distress. If any questions are too distressing, you can always stop the survey at any time.

Virginia Tech Psychology students will receive extra credit for completing this survey. There is no immediate and/or direct benefit to others for completing this survey.

Costs and Payment for Participation

There is no cost for participating in this survey, nor is any payment offered for completion.

Confidentiality

No identifying information (e.g., name, birthdate) are asked to ensure confidentiality. Your survey will be assigned a subject number for data storage. All answers will be kept confidential.

If you would like to contact a member of the research team or the lab that is sponsoring this study, you are welcome to do so. Contact information is at the bottom of this document.

It is possible that the Institutional Review Board (IRB) may view this study's collected data for auditing purposes. The IRB is responsible for the oversight of the protection of human subjects involved in research. If you would like to contact the graduate student conducting this study or her advisor, you are welcome to do so. Contact information is at the bottom of this page.

You do not have to participate in this survey and if you choose to participate, you can stop at any time.

Any identifiable information that is obtained in connection with this study will remain confidential and will be disclosed only with your permission or as required by U.S. or State law.

Questions/Contact Information

If you have any questions about the protection of human research participants regarding this study, you may contact Dr. David Moore, Chair Virginia Tech Institutional Review Board for the Protection of Human Subjects, telephone: (540) 231-4991; email: moored@vt.edu; address: Office of Research Compliance, 2000 Kraft Drive, Suite 2000 (0497), Blacksburg, VA 24060 or David W. Harrison, PhD, Chair Departmental Institutional Review Board, telephone: (540) 231-4422 ; e-mail: dwh@vt.edu.

If you would like to speak with a member of this research team, email Haley Gordon at hgordon2@vt.edu

Your completion of this online survey will indicate that you consent to participate in this study.

We appreciate your input and thank you for your time and help in this study!

Appendix B. Demographic Form

Demographic Form

1. Age: _____
2. Gender:
 - a. Male
 - b. Female
 - c. Transgender
3. Race/Ethnicity: (Check all that apply)
 - a. African American
 - b. Asian
 - c. Caucasian/European American
 - d. Latino/Hispanic
 - e. Native American
 - f. Other please specify: _____
4. Year in College:
 - a. 1st year undergraduate
 - b. 2nd year undergraduate
 - c. 3rd year undergraduate
 - d. 4th year undergraduate
 - e. 5th year undergraduate
 - f. Graduate student
5. Geographic Location of Your University
 - a. South-East
 - b. North-East
 - c. Mid-Atlantic
 - d. Mid-West
 - e. North-West
 - f. South-West
6. Current Income
 - a. Under 5,000
 - b. 5,000-10,000
 - c. 10,000-20,000
 - d. 20,000-30,000
 - e. 30,000- 40,000
 - f. 40,000-50,000
 - g. Over 50,000

Appendix C. Questionnaire of Cognitive and Affective Empathy (Reniers et al., 2011)

Rate these items by indicating to what degree the statement applies to you

- | | | | | |
|--|----------------|----------------|-------------------|-------------------|
| 1. I sometimes find it difficult to see things from the “other guy’s” point of view. | 1 | 2 | 3 | 4 |
| | Strongly agree | Slightly agree | Slightly disagree | Strongly disagree |
| 2. I am usually objective when I watch a film or play, and I don’t often get completely caught up in it. | 1 | 2 | 3 | 4 |
| | Strongly agree | Slightly agree | Slightly disagree | Strongly disagree |
| 3. I try to look at everybody’s side of a disagreement before I make a decision. | 1 | 2 | 3 | 4 |
| | Strongly agree | Slightly agree | Slightly disagree | Strongly disagree |
| 4. I sometimes try to understand my friends better by imagining how things look from their perspective. | 1 | 2 | 3 | 4 |
| | Strongly agree | Slightly agree | Slightly disagree | Strongly disagree |
| 5. When I am upset at someone, I usually try to “put myself in his shoes” for a while | 1 | 2 | 3 | 4 |
| | Strongly agree | Slightly agree | Slightly disagree | Strongly disagree |
| 6. Before criticizing somebody, I try to imagine how I would feel if I was in their place. | 1 | 2 | 3 | 4 |
| | Strongly agree | Slightly agree | Slightly disagree | Strongly disagree |
| 7. I often get emotionally involved with my friends’ problems. | 1 | 2 | 3 | 4 |
| | Strongly agree | Slightly agree | Slightly disagree | Strongly disagree |
| 8. I am inclined to get nervous when others around me seem to be nervous. | 1 | 2 | 3 | 4 |
| | Strongly agree | Slightly agree | Slightly disagree | Strongly disagree |
| 9. People I am with have a strong influence on my mood. | 1 | 2 | 3 | 4 |
| | Strongly agree | Slightly agree | Slightly disagree | Strongly disagree |
| 10. It affects me very much when one of my friends seems upset. | 1 | 2 | 3 | 4 |
| | Strongly agree | Slightly agree | Slightly disagree | Strongly disagree |
| 11. I often get deeply involved with the feelings of a character in a film, play, or novel. | 1 | 2 | 3 | 4 |

Strongly agree	Slightly agree	Slightly disagree	Strongly disagree
12. I get very upset when I see someone cry.			
1	2	3	4
Strongly agree	Slightly agree	Slightly disagree	Strongly disagree
13. I am happy when I am with a cheerful group.			
1	2	3	4
Strongly agree	Slightly agree	Slightly disagree	Strongly disagree
14. It worries me when others are worrying and panicky.			
1	2	3	4
Strongly agree	Slightly agree	Slightly disagree	Strongly disagree
15. I can easily tell if someone else wants to enter a conversation.			
1	2	3	4
Strongly agree	Slightly agree	Slightly disagree	Strongly disagree
16. I can pick up quickly if someone says one thing but means another.			
1	2	3	4
Strongly agree	Slightly agree	Slightly disagree	Strongly disagree
17. It is hard for me to see why some things upset people so much.			
1	2	3	4
Strongly agree	Slightly agree	Slightly disagree	Strongly disagree
18. I find it easy to put myself in someone else's shoes.			
1	2	3	4
Strongly agree	Slightly agree	Slightly disagree	Strongly disagree
19. I am good at predicting how someone will feel.			
1	2	3	4
Strongly agree	Slightly agree	Slightly disagree	Strongly disagree
20. I am quick to spot when someone in a group is feeling awkward or uncomfortable.			
1	2	3	4
Strongly agree	Slightly agree	Slightly disagree	Strongly disagree
21. Other people tell me I am good at understanding how they are feeling and what they are thinking.			
1	2	3	4
Strongly agree	Slightly agree	Slightly disagree	Strongly disagree
22. I can easily tell if someone else is interested or bored with what I am saying.			
1	2	3	4
Strongly agree	Slightly agree	Slightly disagree	Strongly disagree

23. Friends talk to me about their problems as they say that I am very understanding.

1	2	3	4
Strongly agree	Slightly agree	Slightly disagree	Strongly disagree

24. I can sense if I am intruding, even if the other person does not tell me.

1	2	3	4
Strongly agree	Slightly agree	Slightly disagree	Strongly disagree

25. I can easily work out what another person might want to talk about.

1	2	3	4
Strongly agree	Slightly agree	Slightly disagree	Strongly disagree

26. I can tell if someone is masking their true emotion.

1	2	3	4
Strongly agree	Slightly agree	Slightly disagree	Strongly disagree

27. I am good at predicting what someone will do.

1	2	3	4
Strongly agree	Slightly agree	Slightly disagree	Strongly disagree

28. I can usually appreciate the other person's viewpoint, even if I do not agree with it.

1	2	3	4
Strongly agree	Slightly agree	Slightly disagree	Strongly disagree

29. I usually stay emotionally detached when watching a film.

1	2	3	4
Strongly agree	Slightly agree	Slightly disagree	Strongly disagree

30. I always try to consider the other fellow's feelings before I do something.

1	2	3	4
Strongly agree	Slightly agree	Slightly disagree	Strongly disagree

31. Before I do something I try to consider how my friends will react to it.

1	2	3	4
Strongly agree	Slightly agree	Slightly disagree	Strongly disagree

Appendix D. Interpersonal Reactivity Index (Davis, 1980)

The following statements inquire about your thoughts and feelings in a variety of situations. For each item, indicate how well it describes you by choosing the appropriate letter on the scale at the top of the page: A, B, C, D, or E. When you have decided on your answer, fill in the letter on the answer sheet next to the item number. **READ EACH ITEM CAREFULLY BEFORE RESPONDING.** Answer as honestly as you can. Thank you.

ANSWER SCALE:

A	B	C	D	E
DOES NOT				DESCRIBES ME
DESCRIBE ME				VERY
WELL				WELL

1. I daydream and fantasize, with some regularity, about things that might happen to me. (FS)
2. I often have tender, concerned feelings for people less fortunate than me. (EC)
3. I sometimes find it difficult to see things from the "other guy's" point of view. (PT) (-)
4. Sometimes I don't feel very sorry for other people when they are having problems. (EC) (-)
5. I really get involved with the feelings of the characters in a novel. (FS)
6. In emergency situations, I feel apprehensive and ill-at-ease. (PD)
7. I am usually objective when I watch a movie or play, and I don't often get completely caught up in it. (FS) (-)

8. I try to look at everybody's side of a disagreement before I make a decision. (PT)
9. When I see someone being taken advantage of, I feel kind of protective towards them. (EC)
10. I sometimes feel helpless when I am in the middle of a very emotional situation. (PD)
11. I sometimes try to understand my friends better by imagining how things look from their perspective. (PT)
12. Becoming extremely involved in a good book or movie is somewhat rare for me. (FS) (-)
13. When I see someone get hurt, I tend to remain calm. (PD) (-)
14. Other people's misfortunes do not usually disturb me a great deal. (EC) (-)
15. If I'm sure I'm right about something, I don't waste much time listening to other people's arguments. (PT) (-)
16. After seeing a play or movie, I have felt as though I were one of the characters. (FS)
17. Being in a tense emotional situation scares me. (PD)
18. When I see someone being treated unfairly, I sometimes don't feel very much pity for them. (EC) (-)
19. I am usually pretty effective in dealing with emergencies. (PD) (-)
20. I am often quite touched by things that I see happen. (EC)

21. I believe that there are two sides to every question and try to look at them both. (PT)
22. I would describe myself as a pretty soft-hearted person. (EC)
23. When I watch a good movie, I can very easily put myself in the place of a leading character. (FS)
24. I tend to lose control during emergencies. (PD)
25. When I'm upset at someone, I usually try to "put myself in his shoes" for a while. (PT)
26. When I am reading an interesting story or novel, I imagine how I would feel if the events in the story were happening to me. (FS)
27. When I see someone who badly needs help in an emergency, I go to pieces. (PD)
28. Before criticizing somebody, I try to imagine how I would feel if I were in their place. (PT)

Appendix E. Difficulties in Emotion Regulation Scale (DERS; Gratz and Roemer, 2004)

Response categories:

- 1 Almost never (0-10%)
- 2 Sometimes (11-35%)
- 3 About half the time (36-65%)
- 4 Most of the time (66 – 90%)
- 5 Almost always (91-100%)

Difficulties in Emotion Regulation Scale (DERS)

1. I am clear about my feelings.
2. I pay attention to how I feel.
3. I experience my emotions as overwhelming and out of control.
4. I have no idea how I am feeling.
5. I have difficulty making sense out of my feelings.
6. I am attentive to my feelings.
7. I know exactly how I am feeling.
8. I care about what I am feeling.
9. I am confused about how I feel.
10. When I'm upset, I acknowledge my emotions.
11. When I'm upset, I become angry with myself for feeling that way.
12. When I'm upset, I become embarrassed for feeling that way.
13. When I'm upset, I have difficulty getting work done.
14. When I'm upset, I become out of control.
15. When I'm upset, I believe that I will remain that way for a long time.
16. When I'm upset, I believe that I'll end up feeling very depressed.
17. When I'm upset, I believe that my feelings are valid and important.
18. When I'm upset, I have difficulty focusing on other things.
19. When I'm upset, I feel out of control..

20. When I'm upset, I can still get things done.
21. When I'm upset, I feel ashamed with myself for feeling that way.
22. When I'm upset, I know that I can find a way to eventually feel better.
23. When I'm upset, I feel like I am weak.
24. When I'm upset, I feel like I can remain in control of my behaviors.
25. When I'm upset, I feel guilty for feeling that way.
26. When I'm upset, I have difficulty concentrating.
27. When I'm upset, I have difficulty controlling my behaviors.
28. When I'm upset, I believe there is nothing I can do to make myself feel better.
29. When I'm upset, I become irritated with myself for feeling that way.
30. When I'm upset, I start to feel very bad about myself.
31. When I'm upset, I believe that wallowing in it is all I can do.
32. When I'm upset, I lose control over my behaviors.
33. When I'm upset, I have difficulty thinking about anything else.
34. When I'm upset, I take time to figure out what I'm really feeling.
35. When I'm upset, it takes me a long time to feel better.
36. When I'm upset, my emotions feel overwhelming.

Appendix F. Prosocial Tendencies Measure (Carlo & Randall, 2002)

Below are a number of statements that may or may not describe you. Please indicate HOW MUCH EACH STATEMENT DESCRIBES YOU.

1. I can help others best when people are watching me.

1	2	3	4	5
Does not describe me at all	Describes me a little	Somewhat describes me	Describes me well	Describes me greatly

2. It is most fulfilling to me when I can comfort someone who is very distressed.

1	2	3	4	5
Does not describe me at all	Describes me a little	Somewhat describes me	Describes me well	Describes me greatly

3. When other people are around, it is easier for me to help needy others.

1	2	3	4	5
Does not describe me at all	Describes me a little	Somewhat describes me	Describes me well	Describes me greatly

4. I think that one of the best things about helping others is that it makes me look good.

1	2	3	4	5
Does not describe me at all	Describes me a little	Somewhat describes me	Describes me well	Describes me greatly

5. I get the most out of helping others when it is done in front of others.

1	2	3	4	5
Does not describe me at all	Describes me a little	Somewhat describes me	Describes me well	Describes me greatly

6. I tend to help people who are in a real crisis or need.

1	2	3	4	5
Does not describe me at all	Describes me a little	Somewhat describes me	Describes me well	Describes me greatly

7. When people ask me to help them, I don't hesitate.

1	2	3	4	5
Does not describe me at all	Describes me a little	Somewhat describes me	Describes me well	Describes me greatly

8. I prefer to donate money anonymously.

1	2	3	4	5
Does not describe me at all	Describes me a little	Somewhat describes me	Describes me well	Describes me greatly

9. I tend to help people who hurt themselves badly.

1	2	3	4	5
Does not describe me at all	Describes me a little	Somewhat describes me	Describes me well	Describes me greatly

10. I believe that donating goods or money works best when it is tax-deductible.

1	2	3	4	5
Does not describe me at all	Describes me a little	Somewhat describes me	Describes me well	Describes me greatly

11. I tend to help needy others most when they do not know who helped them.

1	2	3	4	5
Does not describe me at all	Describes me a little	Somewhat describes me	Describes me well	Describes me greatly

12. I tend to help others particularly when they are emotionally distressed.

1	2	3	4	5
Does not describe me at all	Describes me a little	Somewhat describes me	Describes me well	Describes me greatly

13. Helping others when I am in the spotlight is when I work best.

1	2	3	4	5
Does not describe me at all	Describes me a little	Somewhat describes me	Describes me well	Describes me greatly

14. It is easy for me to help others when they are in a dire situation.

1	2	3	4	5
Does not describe me at all	Describes me a little	Somewhat describes me	Describes me well	Describes me greatly

15. Most of the time, I help others when they do not know who helped them.

1	2	3	4	5
Does not describe me at all	Describes me a little	Somewhat describes me	Describes me well	Describes me greatly

16. I believe I should receive more recognition for the time and energy I spend on charity work.

1	2	3	4	5
Does not describe me at all	Describes me a little	Somewhat describes me	Describes me well	Describes me greatly

17. I respond to helping others best when the situation is highly emotional.

1	2	3	4	5
Does not describe me at all	Describes me a little	Somewhat describes me	Describes me well	Describes me greatly

18. I never hesitate to help others when they ask for it.

1	2	3	4	5
Does not describe me at all	Describes me a little	Somewhat describes me	Describes me well	Describes me greatly

19. I think that helping others without them knowing is the best type of situation.

1	2	3	4	5
Does not describe me at all	Describes me a little	Somewhat describes me	Describes me well	Describes me greatly

20. One of the best things about doing charity work is that it looks good on my resume.

1	2	3	4	5
Does not describe me at all	Describes me a little	Somewhat describes me	Describes me well	Describes me greatly

21. Emotional situations make me want to help needy others.

1	2	3	4	5
Does not describe me at all	Describes me a little	Somewhat describes me	Describes me well	Describes me greatly

22. I often make anonymous donations because they me feel good.

1	2	3	4	5
Does not describe me at all	Describes me a little	Somewhat describes me	Describes me well	Describes me greatly

23. I feel that if I help someone, they should help me in the future.

1	2	3	4	5
Does not describe me at all	Describes me a little	Somewhat describes me	Describes me well	Describes me greatly

Appendix G. Marlowe-Crowne Social Desirability Scale (Crowne & Marlowe, 1960)

Directions: Read each item and decide whether it is true (T) or false (F) for you.

1. Before voting I thoroughly investigate the qualifications of all the candidates.
T F
2. I never hesitate to go out of my way to help someone in trouble.
T F
3. It is sometimes hard for me to go on with my work if I am not encouraged.
T F
4. I have never intensely disliked anyone.
T F
5. On occasions I have had doubts about my ability to succeed in life.
T F
6. I sometimes feel resentful when I don't get my way.
T F
7. I am always careful about my manner of dress.
T F
8. My table manners at home are as good as when I eat out in a restaurant.
T F
9. If I could get into a movie without paying and be sure I was not seen, I would probably do it.
T F
10. On a few occasions, I have given up something because I thought too little of my ability.
T F
11. I like to gossip at times.
T F
12. There have been times when I felt like rebelling against people in authority even though I knew they were right.
T F
13. No matter who I'm talking to, I'm always a good listener.
T F
14. I can remember "playing sick" to get out of something.

- | | T | F |
|---|---|---|
| 15. There have been occasions when I have taken advantage of someone. | T | F |
| 16. I'm always willing to admit it when I make a mistake. | T | F |
| 17. I always try to practice what I preach. | T | F |
| 18. I don't find it particularly difficult to get along with loudmouthed, obnoxious people. | T | F |
| 19. I sometimes try to get even rather than forgive and forget. | T | F |
| 20. When I don't know something I don't mind at all admitting it. | T | F |
| 21. I am always courteous, even to people who are disagreeable. | T | F |
| 22. At times I have really insisted on having things my own way. | T | F |
| 23. There have been occasions when I felt like smashing things. | T | F |
| 24. I would never think of letting someone else be punished for my wrong-doings. | T | F |
| 25. I never resent being asked to return a favor. | T | F |
| 26. I have never been irked when people expressed ideas very different from my own. | T | F |
| 27. I never make a long trip without checking the safety of my car. | T | F |
| 28. There have been times when I was quite jealous of the good fortune of others. | T | F |
| 29. I have almost never felt the urge to tell someone off. | T | F |

30. I am sometimes irritated by people who ask favors of me.

T

F

31. I have never felt that I was punished without cause.

T

F

32. I sometimes think when people have a misfortune they only got what they deserved.

T

F

33. I have never deliberately said something that hurt someone's feelings.

T

F

Appendix H. Careless Responding Questions.

1. Please answer “true” for this question.
2. Please select answer 3 for this question.
3. Please select “often” for this question.
4. While going through this survey I am in a hurry and answering randomly.
5. I am bored during this survey and am responding carelessly.
6. I consider each of the responses before selecting my answer.
7. While going through this survey, I am not being careful about the responses I select.
8. I am not working to the best of my abilities on this survey.