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# How Do Boys and Girls Help? Validation of a Multidimensional Measure of Prosocial Behavior

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How Do Boys and Girls Help? Validation  
of a Multidimensional Measure  
of Prosocial Behavior

Matthew Glade Nielson

A thesis submitted to the faculty of  
Brigham Young University  
in partial fulfillment of the requirements for the degree of  
Master of Science

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## ABSTRACT

### How Do Boys and Girls Help? Validation of a Multidimensional Measure of Prosocial Behavior

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The study of prosocial behavior is growing increasingly multidimensional in the way that it considers whom is helped and how. One area of concern is the effect of gender on prosocial behavior. Is masculine behavior more physically oriented, and if so, are measures neglecting these behaviors and biasing results toward more feminine prosocial behaviors? The current study sought to answer these questions by creating and validating a new multidimensional measure of prosocial behavior that includes behaviors more common to males. An EFA was performed on a sample of 463 adolescents and emerging adults from Amazon Turk (US citizens, 16-25, 60% male, 69% Caucasian). The results indicated a three-factor solution for family that was similar across gender, but different scales for males and females for friend and stranger oriented prosocial behavior. CFA analyses were performed on a sample of 453 adolescents and emerging adults (16-21, 60% female, 61% European American) from the Flourishing Families Project. Results indicated that all five measures had good model fit and internal reliability and validity of all three factors were established. Measurement invariance as a function of gender was established for the family scale. Discussion focuses on the implications of this measure on prosocial research including higher levels of masculine prosocial behavior for multidimensional types of prosocial behavior.

Keywords: prosocial behavior, gender difference, masculinity, adolescence, emerging adulthood

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## **How Do Boys and Girls Help? Validation of a Multidimensional Measure of Prosocial Behavior**

The urge that humans feel to help each other – to give of their time and resources with no expectation of reward or personal gain – is a fascinating and fruitful field of inquiry. These helpful actions have been defined as prosocial behavior by social science researchers (Eisenberg, Spinrad & Knafo, 2015) and they are studied according to type (Carlo & Randall, 2002), target, and effect of the behavior (Padilla-Walker & Christensen, 2011), as well as by the motivations and demographics of those who help others (Malti, Gummerum, Keller, & Buchmann, 2009). Prosocial behavior has been observed in people of all ages, from toddlers who instinctively help researchers pick up dropped objects, to elders pushing others' wheelchairs in nursing homes. The ways that people help, as well as the amount of help offered, generally increases from childhood to adulthood (Eisenberg & Fabes, 1998), though there are fluctuations over the lifespan (Padilla-Walker, Dyer, Yorgason, Fraser, & Coyne, 2015). While traditional prosocial research focused heavily on the prosocial behavior of children or mixed-age samples, in the recent decades many researchers have become interested in prosocial changes that occur during adolescence (Bryant, 1982; Carlo & Randall, 2002).

Adolescence is a period when many things are changing, including the way that males and females are expected to behave. The gender intensification theory (Hill & Lynch, 1983) states that as males' and females' bodies mature, they are increasingly expected to follow cultural gender norms. In American culture, males are expected to be emotionally reserved and to avoid appearing feminine, which often prohibits showing others that they care about them. Consequently, prosocial behavior levels that were more equal between genders during the first few years of life become increasingly segregated, and boys describe themselves as less prosocial

than girls in the majority of studies throughout later childhood and adolescence (Eisenberg & Fabes, 1998). However, this outcome is not ubiquitous across studies; different methods yield different levels of prosocial behavior for boys. In self-report, girls consistently have higher levels, but when behavior is observed, or physiological data monitored, few if any, prosocial gender differences are revealed (Eisenberg & Lennon, 1983). Commenting on this trend, Hastings, McShane, Parker, and Ladha (2007) noted that rather than boys being less prosocial than girls, perhaps they are just prosocial in different ways. They proposed that masculine prosocial behavior might appear more active, agentic, and physical than the ways that girls help each other – more in-line with cultural masculine standards of behavior. Subsequent studies have generated masculine prosocial items in male focus groups (Bergin, Talley, and Hamer, 2003) and explored gender-typing in prosocial behavior (Hine and Leman, 2014), but these new insights have not yet been actualized in an improved measure of prosocial behavior. Are boys naturally less prosocial than girls (as per traditional findings), or are those findings based on bias in measurement? Can “masculine prosocial behavior” be measured by these instrumental items, or is it structurally different from “feminine prosocial behavior”? Can existing items be rephrased in such a way that they are more relatable to teenage boys? The purpose of this study is to answer these questions by creating and validating a multidimensional measure of prosocial behavior suited to both boys and girls, to compare it with existing prosocial measures, and to build upon previous ideas about the ways boys help others.

## **Literature Review**

### **Theoretical Justification**

Prosocial behavior is defined as voluntary behavior primarily aimed at benefitting another (Eisenberg et al., 2015). Studies conceptualize prosocial behavior as altruism (Carlo,

2006), helping (Chapman, Zahn-Waxler, Cooperman, & Iannotti, 1987), caring (Hoffman, 2000), sharing (Janssens & Dekovic, 1997), and donating (Grusec, Kuczynski, Rushton, & Simutis, 1978). Although some authors have debated including items that define prosocial behavior as the absence of aggression (Bergin, Talley, & Hamer, 2003), I conclude that prosocial behavior is more than the absence of aggression; it must be a calculated effort to help another.

An essential question in the study of prosocial behavior is *why* people might make “calculated effort to help another”. Bowlby (1969) theorized that human behavior is motivated by the desire to survive, and one’s experience with influential others informs their perception of the world, a world in which they must connect with others emotionally to survive. He reasoned that a person develops a particular pattern of relational expectations, emotions, and behavior toward others based on the experience they have with relationships during childhood and adolescence. In this model, children who experience responsive parenting can form a positive world view that motivates them to learn socially competent interaction styles which includes prosocial behavior (Eberly & Montemayor, 1998; Hastings et al. 2007; Lewis, 2014). Another influential theory regarding prosocial motivations is Social Learning Theory. Social Learning Theory explains how children likely model their own prosocial interactions after the prosocial interactions of family members and influential others (Bandura, 1977; Cui, Conger, Bryant, & Elder, 2002). Thus, if parents are prosocial, children will be more prosocial.

The third relevant theoretical basis is that of hegemonic masculinity proposed by Carrigan, Connell, and Lee (1985). The masculine culture in the US can be thought of as the rules of masculinity that one must live by in order to be considered manly. Important rules in this code of behavior include not showing emotional sensitivity, being physically hard/strong, and displaying obvious heterosexuality (Pollack, 1999). These rules are important to live by because

infractions are related with a loss of masculinity. Masculinity is establishing who and what is male/masculine in opposition to who and what is female/feminine; masculine thus becomes the opposite of anything feminine (Kimmel, 1997). It is easier to say what real men do *not* do (cry, ask for help, show physical weakness) than what real men do, and because of this, masculinity becomes very idealized and unattainable for most men (Carrigan, Connell, & Lee, 1985). Goffman (1963) wrote " there is only one complete unblushing male in America: a young, married, white, urban, northern, heterosexual Protestant father of college education, fully employed, or good complexion, weight and height, and a recent record in sports" (p. 128). Although all of the attainment of all these characteristics is the ideal, many others strive to achieve as many of these as they can in order to create "masculine capital" (de Visser, 2009) or to receive a piece of the "patriarchal dividend" (Connell & Messerschmidt, 2005).

Patriarchal dividend is an important phrase that supplies the motive behind the drive for masculinity and subsequent separation from femininity and women. Men want to be like men and not like women, because in a patriarchal culture, men have more rights and power than women do (Carrigan, Connell, & Lee, 1985). In order to partake of the privileges associated with being male, one must assert and maintain their masculinity. Hegemonic masculinity therefore is the process of men maintaining dominance over women (Connell & Messerschmidt, 2005). Boys and men accordingly become gender police, to ensure the worthiness of those who are to be called men, and those who fail to live up to the masculine standard are penalized in order to enforce adherence to masculine rules (Kimmel, 1997).

Important tenets of Hegemonic Masculine theory include that the masculine ideal is abstract (Connell & Messerschmidt, 2005). An interesting outcome of thinking about masculinity in this way is that there are few, if any, men who fit the ideal mold. Thus, although this form of

masculinity is not all that common, "Hegemony involves persuasion of the greater part of the population, particularly through the media, and the organization of social institutions in ways that appear 'natural,' 'ordinary,' and 'normal'" (Donaldson, 1993, p. 5). The abstractness of the masculine ideal has been a critique of the Hegemonic Masculine theory, because it can lead to contradictory ideal masculinities (Arnold Schwarzenegger's waxed and tanned image vs. the Marlboro Man vs. Leonardo DiCaprio) (Demetrio, 2001). However, the second tenet of masculinity is that masculinity is localized, meaning that different places will have different masculine ideals, and masculinity can be analyzed on a local level, regional level, global level, or throughout time (Connell & Messerschmidt, 2005).

A third tenet of Hegemonic Masculine theory is that of hierarchical masculinities, which seeks to show how men and women influence each other as groups, along with why men hold a superior position (Connell & Messerschmidt, 2005). Hegemonic Masculine theory has been critiqued as under-estimating the influence of women, but when the theory was reformulated to include hierarchical masculinities, it included insights on how women experience and perpetuate masculinity as well (Connell & Messerschmidt, 2005), like when a mother instructs her son on what boys do and do not do in order to prevent his being teased at school.

Of key concern to this paper is the masculine tenet of avoiding emotional sensitivity because the majority of the items comprising current prosocial measures indicate emotional sensitivity. Teenage boys wishing to strengthen their masculine image and to avoid the punishments for breaking them are not likely to want to relate themselves to "feminine" characteristics of concern and empathy. Indeed, Hine and Leman (2014) found that when boys aged 12-13 were made to choose between "acting prosocially" and "acting like a man," they were more likely to choose the manly option. Of course, the definition of prosocial behavior as

cited above is “any voluntary behavior meant to benefit another” (Eisenberg et al., 2015), thus, along with emotional sensitivity items, it can encompass a wider range of behaviors, including those which teenage boys may relate to more easily.

Finally, the gender intensification theory explains an increase in the pressure that teens likely feel from hegemonic masculine culture as they go through adolescence. This theory posits that as boys and girls age, gender differences in psychological, behavioral, and attitudinal processes increase, and this increase is due to heightened social pressure to conform to established gender stereotypes (Hill & Lynch, 1983). Consequently, the differences in the gendered education that boys and girls receive will continue to increase throughout adolescence (Hill & Lynch, 2003). Key to this paper, prosocial behavior is a social interaction that is likely affected by pressure to conform to cultural gender stereotypes. Eisenberg et al. (2006) found that when girls were aware they were being assessed and they knew what they were being assessed on, they projected a socially desirable image of themselves. That is, the respondents knew that their society valued girls who are sweet, helpful, and kind, so they modified their answers accordingly. Unsurprisingly, the same results were not found for male respondents because hegemonic masculine gender roles mandate that males be emotionally aloof rather than emotionally sensitive (Jaffee & Hyde, 2000), thus male respondents would not feel the same pressure to live up to expectations of sweetness and kindness that have been the focus of traditional prosocial measures. Rather, they would be encouraged to help in ways that adhere to the hegemonic masculine code: less overtly emotional and more physically involved (Hastings et al., 2007).

As a structural functional theory, hegemonic masculinity seeks to explain how society functions to perpetuate patriarchal systems. We see the structural functional imperatives of

latency and adaptation expressed in the hegemonic masculine tenets of the abstract masculine ideal and hierarchical masculinity. Therefore, although boys and girls may have the same models for prosocial behavior, they are likely being instructed (both innately and intentionally) in intricately different gendered ways (Crouter, Whiteman, McHale, & Osgood, 2007; Hastings et al., 2007). This study is consequently designed to capture these potential differences; males and females will be constrained to a similar construction of prosocial behavior and then allowed to vary according to differences in the male and female data. The process that explains the most variation in the data will be used in the final analyses.

### **How Prosocial Behavior Is Studied**

While many of the conceptualizations and empirical explorations of prosocial behavior have treated this behavior as a general, unidimensional construct, more recent studies have begun to hone in on the multidimensional nature of this complex set of behaviors (Padilla-Walker & Carlo, 2014). This multidimensional approach to studying prosocial behavior has emphasized different types of prosocial behavior (Carlo & Randall, 2002), as well as how prosocial behavior differs as a function of the target of the behavior (e.g., strangers, friends, and family; Padilla-Walker & Christensen, 2011), the effect of relational and dispositional influences on prosocial behavior, and gender differences in prosocial behavior (Eisenberg et al., 2014). Although each of these dimensions is an important aspect of prosocial behavior, it is unlikely that any one study could incorporate all of them. The following aspects of prosocial research that are utilized in this study will be covered in more detail.

**Targets of prosocial behavior.** A key outcome of multidimensional prosocial research is that a person's willingness to help others is likely to be affected greatly by their relationship with the recipient. The same task that might be performed for a sibling or parent without a second

thought might cause consternation if it were for a stranger (Eisenberg, 1983). Prosocial research has evolved to the point that basic mechanisms are understood, and researchers are able to ask and answer detailed questions about motivations and outcomes (Padilla-Walker & Carlo, 2014). Separating prosocial outcomes according to whether targets are family, friend, or strangers yields increasingly different outcomes for identical behaviors (Padilla-Walker & Christensen, 2011).

There is a strong argument for studying prosocial behavior aimed at family members because prosocial behavior generally begins in the family where babies and young children spend the majority of their time. They instinctively help those around them and are further instructed by family members on how to prosocially interact with others (Garner, 2003). Prosocial behavior toward family members is impacted greatly by the quality of the relationship and the character of relational interactions. It is easy to believe that a child will be more likely to help a family member if their help was received positively in the last interaction, if there have been no recent fights between both people, or if the child is motivated to please the other person in order to strengthen the relationship. In this way, prosocial behavior engenders positive familial interactions as readily as positive interactions engender prosocial behavior; prosocial behavior is a bidirectional, ongoing cycle (Kuczynski, 2003).

There is an equally strong argument for studying prosocial behavior aimed at friends, because adolescents report helping friends more than any other target (de Guzman, Rosario, Carlo, & Edwards, 2008; Güroğlu, van Den Bos, & Crone, 2014). Padilla-Walker, Fraser, Black, and Bean (2015) discussed the ability that friends have to enable adolescent perspective taking and provide positive prosocial role-models above and beyond that of parents. The impact of friends is particularly important during adolescence when teens are spending increasingly longer amounts of time with them (Giordano, 2003). Relationship preserving/maintaining efforts appear

to be a great motivator of prosocial behavior because people of all ages are more likely to help friends and family than strangers (Bryant, 1982; Costin & Jones, 1992; Fujisawa, Kutsukake, & Hasegawa, 2008; Padilla-Walker & Christensen, 2011).

While prosocial behavior toward family and friends is supported theoretically, much of the traditional prosocial research focuses on behavior towards strangers, although strangers are the least common target of adolescent prosocial behavior. Despite this, there is still utility in studying prosocial behavior aimed at strangers because stranger-oriented prosocial behavior (where relational rewards are unlikely) is likely motivated from a prosocial disposition whereas helping in relationships is complicated by relational factors (Staub & Sherk, 1970). In addition, prosocial behavior toward strangers has been found to be the most directly protective (as compared to prosocial toward family and friends) against risk behaviors such as aggression and delinquency (Padilla-Walker, Carlo, & Nielson, 2015). As the case is strong to look at prosocial behavior toward each of these targets, this study utilized three separate models with prosocial behavior directed at three different targets: family, friend, and stranger.

**Types of prosocial behavior.** In the late 90's and early 2000's researchers became interested in isolating effects of different types of prosocial behaviors. Carlo and Randall (2002) created the Prosocial Tendencies Measure (PTM) that identified six different types of prosocial behavior, along with their unique outcomes. The six types they identified include: "the tendency to help when requested (compliant), in emotionally evocative contexts (emotional), in crisis situations (dire), in front of others (public), without others' awareness (anonymous), and without expectation of self-reward (altruistic)" (Carlo et al., 2014, p. 4). Since the creation of the PTM over ten years ago, the original paper has been cited 246 times (according to Google Scholar), and many researchers have begun to look at the kind of prosocial behavior that is displayed,

along with the amount. In line with the theoretical basis of hegemonic masculinity, social learning, and gender intensification, the types of prosocial behavior included in this research move beyond emotional helping to describe behaviors that might be more native to the ways that adolescent boys think about and perform prosocial actions. Along with emotional attentiveness, the measure included in this study additionally contained four potential types of prosocial behavior that might be more common among adolescent males than females including defending behavior, inclusion, physical helping, and sharing.

**Gender differences in prosocial behavior.** As the amount of prosocial research grows, an increasing number of articles highlight gender differences in the amount of prosocial behavior between boys and girls, though patterns and replicability are weak. Many studies show that girls display more empathy (Zahn-Waxler, Radke-Yarrow, Wagner, & Chapman, 1992), more kindness (Hastings, Utendale, & Sullivan, 2007) and more desire to help others (Eisenberg et al., 2006), yet Eisenberg et al.'s (2015) most recent meta-analysis of prosocial behavior shows gender differences in prosocial behavior fluctuating over time and across prosocial constructs. Although girls were higher on most indicators of prosocial behavior, these results were clearest when self-report measures were used (Chapman et al., 2006). These results are not surprising given the feminine stereotype of care and the masculine stereotype of stoicism. These deeply ingrained stereotypes are difficult to avoid and likely color the measurement taken by impartial observers; observers from within this culture tend to interpret participant actions according to their gendered expectations, with actions of girls regarded as more prosocial than actions of boys (Shigetomi, Hartmann, & Gelfand, 1981). Indeed, Gretarsson and Gelfand (1988) found that people see girls as intrinsically caring and prosocial, whereas boys are prosocial as the result of careful socialization. Interestingly, these differences also increase with age (Eisenberg & Fabes, 1998;

Eisenberg, 1991), as per the gender intensification theory. Physiological data tells a different story: Michalska and colleagues (2013) found that although girls *reported* feeling more upset than boys when viewing others that were hurt, there were no differences in neurological response between gender.

Several studies have raised the question of a potential bias that is created by using primarily empathic/feminine items in traditional measurements used to capture prosocial behavior (Bergin et al., 2003; Carlo & Randall, 2002; Zabatany et al., 1985). “Feminine” prosocial items measure caring behaviors like tending to another’s needs (Skoe et al., 2002), kindness (Söchting, Skoe, & Marcia, 1994), and emotional sensitivity (Gretarsson & Gelfand, 1988) from which many boys are trying to disassociate themselves. Eagly (2009) proposed that masculine prosocial behavior might be more agentic, collectively oriented, and strength intensive, which are not often mentioned in current measurement tools of prosocial behavior (Carlo & Randall, 2002). Items like physical assistance (Zabatany et al., 1985), helping in an emergency (Eisenberg & Miller 1987), and taking turns (Hastings et al., 2007) are all still valid prosocial behaviors under my working definition and are reasonably more attractive to boys as well as descriptive of their behavior.

Zabatany et al. (1985) conducted a study in which fifth-graders identified the real-life prosocial actions of their peers and found that boys were more likely to nominate other boys for prosocial behaviors, and that “masculine-related items do elicit endorsements of boys for prosocial behavior” (Zabatany et al., 1985, p. 97). Bergin et al. (2003) led a focus group of adolescents in a discussion of prosocial behaviors with the aim of identifying some masculine ways of helping others. Standing up for others, including others, and helping others develop skills (i.e. giving pointers during games) were some of the original categories of masculine prosocial behavior they validated across different focus groups. In a meta-analysis of gendered prosocial

behavior, Eagly (2009) claimed that it is incorrect to say females are more helpful. Rather, she found that prosocial behavior research yields patterns of gender specialization with females focused on emotionally supportive behavior and males focused on agentic, social, stranger-oriented behavior.

Of key concern to this paper is the masculine tenet of avoiding emotional sensitivity because the majority of the items comprising current prosocial measures indicate emotional sensitivity. Teenage boys wishing to strengthen their masculine image and to avoid the punishments for breaking them are not likely to want to relate themselves to “feminine” characteristics of concern and empathy. Indeed, Hine and Leman (2014) found that when boys aged 12-13 were made to choose between “acting prosocially” and “acting like a man,” they were more likely to choose the manly option. Of course, the definition of prosocial behavior as cited above is “any voluntary behavior meant to benefit another” (Eisenberg et al., 2015), thus, along with emotional sensitivity items, it can encompass a wider range of behaviors, including those which teenage boys may relate to more easily.

If questionnaire measures delineate different types of prosocial behaviors, the results also indicate that boys may not be as prosocially bereft as other studies indicate. Measures that include items of instrumental, action oriented, or agentic helping will theoretically do a better job at capturing the ways that boys help others (Eagly, 2009; Hastings et al., 2007). A multidimensional prosocial measure composed of items that both boys and girls relate to is likely to give us a more accurate understanding of how boys perform prosocial behavior. The current study seeks to test this theory by assessing various types of prosocial behaviors that are not stereotypically feminine, as well as by re-wording traditional prosocial items in a more gender-neutral style.

## Measure Development

When creating new measures, several different conditions must be tested to establish the validity of the scale proposed scale. The first condition is positing that extant scales do not have content validity. When a measure has content validity, it is believed to capture all aspects of a certain type of behavior (DeVellis, 2012). In this situation, I argue that extant scales do not fully capture the ways that boys and girls are helping other people. The next thing to be tested is construct validity, which means that a measure is only measuring that which it is supposed to – it neither under measures the constructs (missing important factors), nor over measures it (captures correlate constructs) (DeVellis, 2012). Construct validity is measured in two ways: 1) discriminant validity, which, in the context of this study, means that factors in the measure will not be overly correlated with other factors in the measure, and 2) convergent validity, that the construct is related to established correlates of prosocial behavior (DeVellis, 2012).

Gender is a theoretically important (yet heretofore unexplored) aspect of a multidimensional measure of prosocial behavior. Gender is generally recognized as an integral influence on human attitude, action, and relationships, and is a necessary force to consider when analyzing human behavior (Sherif, 1982). In the conclusion of their metasynthesis on universal gender similarities and difference, Zell, Krizan, and Teeter (2015) wrote that “although gender differences are typically small, they should not be regarded as trivial, as even small effects can have important everyday consequences” (p. 17). As prosocial researchers, then, we are not only faced with understanding gender differences, but with correctly identifying them as well. For example, methodology can heavily alter gendered results depending on how the study is conducted (Bolger & Kellaghan, 1990). Studies that bifurcate models and measures according to gender begin by indicating the influence of gender on the studied topic as a means to justify the

creation of a new measurement tool. Ashmore, Boca, and Bilder (1995) justify the creation of their gender attitude inventory by orienting within existing literature necessitating a gender-sensitive measure. Many articles in the prosocial field have indicated the presence of gender differences in prosocial behavior (Gretarsson & Gelfand, 1988; Hine & Leman, 2014; Olweus & Endresen, 1998; Zahn-Waxler et al., 1992), and several have called for the creation of a measure that allows an examination of this topic informed by the distinct pressures on males and females (Bergin et al., 2003; Eisenberg et al., 2015; Hastings et al., 2007). Given these findings and others that suggest the presence of a masculine prosocial behavior, it is important to develop a measure that may capture any new patterns of behavior particular to males.

**Correlates of gendered prosocial measure.** An important part of measure validation is convergent validity – testing how the new measure relates with theoretical and established correlational behaviors of the construct. Temperament and physiological reactivity are both personal characteristics that affect a person’s inclination toward prosocial behavior. Personality characteristics like self-regulation, personal distress, sympathy, and empathy form complicated interactions that impact how and when a person is prosocial. For example, sympathy, defined as feelings of *sorrow and concern* for others, may stem from an initial empathic response (Eisenberg et al., 1996), where empathy is an emotional response *similar to what another is feeling* (Eisenberg et al., 2014). These emotions work hand in hand when a person comprehends the difficult situation of another (empathy), feels bad for them (sympathy), and tries to help the person feel better (prosocial behavior). This mechanism can be complicated by the presence of personal distress, a *negative emotional response* that turns one’s focus from alleviating other’s distress to alleviating one’s own distress. Feelings of personal distress can overwhelm individuals and effectively debilitate prosocial action (Carlo, Allen, & Buhman, 1999). Personal distress can,

in turn, be moderated by self-regulation, *an individual's ability to control emotional and behavioral outcomes*, because an individual with strong self-control could ignore or quickly control personal distress in order to meet the needs of those around them (Eisenberg et al., 1989). Consequently, an individual's ability and inclination to help others depends on the native levels of sympathy they feel, the experiences they have had that engender empathy, and their ability to regulate the distress that they may feel at another's plight.

Research on the gender difference for these prosocial correlates reveal small and inconsistent mean differences between males and females and only one characteristic (self-regulation) that may be conceptually different. Silk, Steinberg, and Morris (2003) found that when negative emotions were induced, females were more likely to engage with a stressor to improve whereas males would distract themselves or cognitively reappraise the situation. Another study indicated that while behavioral responses were the same across gender, less neural locations were involved in emotional regulation in men than in women (McRae, Ochsner, Mauss, Gabrieli, & Gross, 2008). Considering the minimal gender differences presented in these studies, as well as the lack of research suggesting plausible gender-differentiated response models, it seems safe to assume that these correlational moral processes will still influence a gender-sensitive multidimensional measure of prosocial behavior. For this measure, I expected that empathy would be strongly positively correlated with prosocial behavior toward all targets and that self-regulation would be correlated, but less so, since it is usually mediated by personal distress.

In accordance with the theoretical relational grounding of this study, a measure of friendship connection is an important correlate of prosocial behavior toward friends. Friendship connection is understood to be a central indicator of friendship quality, and previous research indicates that adolescents will be more prosocial toward those with whom they are connected

(Amato, 1990; Clark & Mills, 2012). Berndt (1981) empirically tested this theory and found that children displayed more prosocial behavior toward their friends than toward acquaintances, and Padilla-Walker et al. (2015) found that this pattern strengthens throughout adolescence.

Similar to the relation between prosocial behavior toward friends and friendship connection is the relation between prosocial behavior toward family and parental connection (Eberly & Montemayor, 1999). Closeness with mothers and fathers, has been found to be particularly strongly associated with adolescent prosocial behavior (Day & Padilla-Walker, 2009; Eberly & Montemayor, 1999; Padilla-Walker et al., 2015). The effects of parental connection are not limited to prosocial behavior to the family; research indicates that positive parental connection positively affects prosocial behavior toward all targets (Carlo, McGinley, Hayes, Batenhorst, & Wilkinson, 2007; Eisenberg & Spinrad, 2014) as explained by Attachment Theory (Bowlby, 1969) and Social Learning Theory (Bandura, 1977; Cui, Conger, Bryant, & Elder, 2002). Accordingly, measures of friendship connection and parenting connection are included in the influential correlates to prosocial behavior in this study.

### **Current Study**

The increasing multidimensionality of prosocial research has clarified avenues of inquiry that were previously clouded, like type and target of prosocial behavior. Gendered prosocial research remains in a clouded, contradictory state, yet the questions and directions necessary to create a more specialized method of studying gendered prosocial behavior are amply available. Given the unique pressures males feel to be masculine, the main research question driving this research is whether masculine prosocial behavior is conceptually different than feminine prosocial behavior. I expect that modifying existing prosocial measures to capture both masculine and feminine ways of helping would achieve better prosocial content validity than established scales.

Such a scale would come closer to actual mean levels of boys' prosocial behavior than previous measures. These modifications include re-wording existing items and adding additional items that would allow boys to identify the ways they help others. Twenty items measuring prosocial behavior were generated by adapting items from studies analyzed in the literature review and by brainstorming potentially masculine types of helping as suggested by current prosocial scholars (Eberly & Montemayor, 1999; Hastings et al., 2007). According to the modifications made from previous items, as well as subscales in Bergin, Talley, and Hamer (2003), I expected the new measure to be composed of five factors: protection, emotional support, inclusion, physical help, and sharing. An exploratory factor analysis (EFA) was conducted on these 20 items on a sample of late adolescent online respondents and scales were created for family, friend, and stranger oriented prosocial behavior based on the results.

These scales were then administered to a second sample of late adolescents, along with the traditional prosocial measure and established correlational variables of prosocial behavior. A confirmatory factor analysis (CFA) was computed to determine 1) content validity - whether the items selected via the EFA would capture the construct of prosocial behavior, 2) the strength of individual factor loadings in each measure, and 3) whether the newly created scale was gender-invariant, or if masculine and feminine prosocial behavior were conceptually different.

Next, discriminant validity was tested on the factors validated by the CFA to determine whether my predicted factors would actually load as separate factors. This was accomplished by combining factors with high covariances and comparing adjusted chi-square values. Construct validity was tested using cross-sectional correlation analyses to see the how the newly constructed measure would associate with the Values in Action Inventory of Strengths (Peterson & Seligman, 2004), an established measure of prosocial behavior. Finally, convergent validity was tested by

correlating the new prosocial scale and established correlates of prosocial behavior including empathy, self-regulation, parenting style, and friendship connection. I expected the new measure to relate to these correlates after the manner of traditional prosocial measures because these correlates also should be conceptually similar across gender (Chapman et al., 2006; Eisenberg & Fabes, 1998; Eisenberg & Lennon, 1983; Eisenberg et al., 1989; Silk, Steinberg, & Morris, 2003; Van der Graaff et al., 2014; Van Hulle et al., 2013). To this end, the focus of the current study was to analyze existing literature, evaluate the need to more accurately identify masculine prosocial behavior, develop and validate a multidimensional prosocial measure, and compare it to an existing framework on prosocial behavior and its corollary behaviors. According to the Hegemonic Masculine theory, I expected that the pressures males face to be masculine would produce masculine prosocial behaviors that were different from feminine prosocial behaviors, and that these differences would be manifest in the items that loaded for males versus those that loaded for females. Furthermore, I expected that mean levels of prosocial behavior would be higher on the resultant measure than they are for existing measures because the resultant measure would have higher content validity for males, as well as for females. Finally, I expected that the resultant measure would relate to established correlates of prosocial behavior similar to how extant measures relate.

## **Methods**

### **Participants**

Participants for the preliminary analyses (EFA) included 463 adolescents and emerging adults from the Amazon Mechanical Turk (Amazon Turk) workforce database. Amazon Turk is a crowdsourcing internet marketplace in which various tasks are performed. General Amazon Turk demographics show that most of the workers live in the US (57%), that they are between

the ages of 18 and 24, most hold a bachelor's degree, and earn less than \$10,000 annually (Goodman, Cryder, & Cheema, 2012). Additional studies have validated the psychometric properties of Amazon Turk workers (Holden, Dennie, & Hicks, 2013), and replicated extant behavioral science research (Horton, Rand, & Zeckhauser, 2011; Suri & Watts, 2011). The participants from Amazon Turk in this sample were from the US, had a mean age of 23.42 (SD= 1.79), 60% male, 69% Caucasian (11% black, 9% Asian, 6% Latino, 4% other/mixed race), and 48% were currently employed.

Participants for the primary analyses were 453 adolescents who participated in the Flourishing Families Project, a longitudinal study of family life, now entering its ninth wave. Data for this study were taken from Wave 8 of the Flourishing Family project ( $M_{\text{age}}$  Wave 8 = 18.37,  $SD = 1.04$ ) gathered during the summer months of 2014. The participants from the Flourishing Families Project in this sample were 51% female, 67% European American (12% black, 4% Asian, 1% Latino, 15% other/mixed race), and 30% single parent families. Average monthly income as reported by mothers was \$5,800 (approximately \$70,000 per year), but approximately 28% of the sample reported a family income below \$40,000 per year.

At the initial wave, families were randomly selected from targeted census tracts that mirrored local school districts using a purchased national telephone survey database. In an attempt to more closely mirror the demographics of the local areas, a limited number of families were recruited into the study through other means (e.g., referral, fliers;  $n = 77$ , 15%). Of the eligible families contacted, those agreeing to participate ( $N = 500$ ) resulted in a 61% response rate. Of the families who participated at Wave 1, 90% had complete data at Wave 8. For wave 8 of data collection, questionnaires were administered via an online data collection service,

Qualtrics, to enable data collection for participants who had graduated high school and no longer lived at home.

### Measures

**Prosocial behavior.** Adolescents' prosocial behavior was measured at Time 8 using a modified version of the Kindness and Generosity subscale of the Values in Action Inventory of Strengths (Peterson & Seligman, 2004). The original measure was designed to assess behaviors toward strangers, but for this study it was modified to capture different prosocial targets including friends and family. In wave 8, the original 9-item scale was reduced to five items for each target that still retained the construct integrity for each measure. The scales assess prosocial behavior toward family (5 items e.g., "I really enjoy doing small favors for my family"), friends (5 items e.g., "I go out of my way to cheer up my friends"), and strangers (5 items e.g., "I go out of my way to cheer up people I do not know") on a 5-point Likert scale ranging from 1 (*not like me at all*) to 5 (*very much like me*). Mean scales were created for each prosocial measure in order to test correlations with traditional correlates of prosocial behavior (toward family:  $\alpha = .91$ ; toward friends:  $\alpha = .87$ ; toward strangers:  $\alpha = .80$ ).

**Empathy.** Adolescents reported on their empathic concern at Time 8 using a 7-item measure (Davis, 1983; e.g., "When I see someone being taken advantage of, I feel kind of protective towards them"). Based on a 5-point Likert scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*) with higher scores were indicative of greater empathic concern ( $\alpha = .77$ ).

**Self-regulation.** Adolescents reported on their self-regulation at Time 8 using a revised 13-item version of the Novak and Clayton (2001) self-regulation measure (e.g., "I have a hard time controlling my temper"). Responses ranged from 1 (*never true*) to 5 (*always true*) with higher scores were indicative of greater self-regulation ( $\alpha = .78$ ).

**Parenting.** Adolescents reported on their parent's parenting style using the Parenting Styles and Dimensions Questionnaire-Short Version (PSDQ; Robinson, Mandleco, Olsen, & Hart, 2001). Using a revised 15-item scale, adolescents were asked how often both their mothers and their fathers did certain behaviors characteristic of authoritative parenting which included subscales for warmth and support (5 items; e.g., "My mom/dad is responsive to my feelings and needs"), reasoning/induction (5 items; e.g. "My parent emphasizes the reasons for rules"), and autonomy granting (5 items; e.g. "My parent allows me to give input into family rules"). Responses ranged on a five point Likert-type scale from 1 (*never*) to 5 (*always*), with higher scores indicating more involved parenting (mothers:  $\alpha = .89$ ; fathers:  $\alpha = .89$ ).

**Friendship.** Adolescents' relationship quality with a best friend was assessed at Time 8 using a 9-item short form of the 14 item scale from Barber and Olsen (1997). The scale assessed the overall relationship, utilizing questions about friend connection (7 items; e.g. "If you needed help with something, how often could count on this friend to help you?"), friend companionship (3 items; e.g. "How often do you and this friend go places together, like a movie, shopping or a sports event?"), and friend psychological control (4 items; e.g. "When this friend disagrees with you, how often does he/she make you feel like your ideas aren't as good as his or hers?") that were reverse coded. Adolescents responded on a 5-point scale ranging from 0 (*never*) to 4 (*every day*) ( $\alpha = .73$ ) with higher scores indicative of better friendship quality.

### **Data Management**

The preliminary sample collected from Amazon Turk had less than 6% missing data for each variable, and analyses were conducted using listwise deletion.

The primary analyses were carried out on Wave 8 of a longitudinal study which had just over a 90% participation rate, thus there was around 10% missing for each variable in the study.

However, those cases with missing data were missing all data, and consequently did not affect the analyses. Logistic regression analyses were conducted on the cases with missing data at Time 8 and SES variables including income, ethnicity, and gender. The results revealed a non-significant association for all three tests (Income:  $\beta(1) = .00, p = .089$ ; Ethnicity:  $\beta(1) = .59, p = .051$ ; Gender:  $\beta(1) = -.015, p = .93$ ). Missing data was handled using the Maximum Likelihood (MLR) feature of Mplus 7 (Muthén & Muthén, 2007), thus  $n = 446$  for all analyses. At Wave 8, data were gathered utilizing a planned missing design, consequently, the data for each of these items has been imputed.

The parental income scale had several outliers of monthly income many thousands of dollars above the rest of the cases in the sample, so income was transformed into a categorical variable with 11 categories with 1= “below \$1,000” to 11= “\$11,000 and above”. The resultant variable satisfied structural equation model assumptions of normality (Muthén & Muthén, 2007) with  $M = 5.44, SD = 2.67$ . Descriptive analyses conducted in SPSS 21 included an estimation of means and standard deviations for all variables as well as bivariate correlations (see Table 1).

### **Item Selection**

The first step in constructing a multidimensional measure of prosocial behavior was to collect existing masculine-friendly items from the prosocial literature body. I began with a general search through PsychINFO (*Psychological Abstracts*) and Google Scholar for gender-sensitive prosocial research using search terms such as *gender differences, prosocial behavior, socialization, and masculinity*. This search yielded a few important studies that aided in the development of this measure, particularly Bergin, Talley, and Hamer (2003), a focus group conducted with students to generate different ways that boys help others. From this study, I borrowed concepts from several of the types of behavior they generated including stands up for

others, peacemaker, humorous, emotionally supportive, helps others develop skills, inclusive, provides physical assistance, and shares. Further items were generated based on theoretical directions from Hastings et al. (2007), Eagly (2009), Carlo et al. (2007), and Hine and Leman (2014) including: “I do physical acts of service for others [lifting heavy things, yard work, cleaning],” “I share my personal belongings with people,” and “If I notice someone who is lonely, I try to include that person.”

This process of item collection and creation resulted in a measure comprised of 68 items and 23 types of prosocial behavior. With parsimony in mind, I consolidated items from similar types (peacemaker and stands up for others combined with physical help; willing to play, inclusion, and good sport) which removed 10 items from the list. Next, I rejected types that did not conform to my definition of prosocial behavior which is more than avoiding negative behavior (avoids fights, honesty, humorous, keeps confidences, does not make fun of others, expresses happiness) which narrowed the categories to 9 with 37 items. Finally, I removed the community service type of helping with its three items because they did not fit the target manipulation condition imposed on the other items. After the theoretically based reductions, I ended up with five types of behavior (protection, emotional support, inclusion, physical help, and sharing) and a total of 20 items.

### **Planned Analyses**

Step one: Exploratory factor analyses (EFA) were conducted to determine a preliminary factor structure. These analyses were conducted on the preliminary sample of 463 emerging adults from Amazon Turk. The Principle Axis Factor Analysis with a Promax rotation was employed using SPSS 21. Differing dimensions of prosocial behavior were not speculated to be mutually exclusive; therefore, an oblique method of rotation (Promax) was believed to be the

most appropriate rotation technique and the pattern matrix was interpreted (DeVellis, 2012). Analyses were performed separately by gender for all different targets of prosocial behavior including family, friend, and stranger. For the first iteration, analyses were conducted without determined factors. After interpreting this initial output, analyses were constrained to a five factor solution to test the five-factor measure produced by the item selection process. If the five factors were not a good fit for the models, the initial, unconstrained output was used. If factors were similar across gender, I opted to choose items that loaded for both males and females for the sake of creating a more practical and parsimonious measure.

Step two: Content validity of the scales produced in the EFA was tested using a confirmatory factor analysis (CFA) conducted on the flourishing families sample using structural equation modeling with Mplus 7 software (Muthén & Muthén, 2007). Acceptable model fit was assessed by noting the chi-square significance test (significant outcomes should be noted, but allowed to continue), a comparative fit index (CFI) score above .90, a Tucker Lewis Index (TLI) above .90, and a root mean square error of approximation (RMSEA) score below .10 (Little, 2013). After the model fit was deemed acceptable, the factor analysis was performed, and factor loadings were assessed. Factor loadings were deemed acceptable if  $\beta > .50$  (Little, 2013).

Step three: Models were tested for invariance across gender using Little's (2013) Fixed Factor method of invariance. In this method, nested models of configural, weak, and strong gender invariant models are compared successively. Model fit was determined by log likelihood values obtained with the MLR estimator which were then converted to a chi-square difference value using the Satorra-Bentler Scaled Chi-Square adjustment. Satorra-Bentler Scaled Chi-Square values were used rather than the traditional chi-square difference tests because when MLR is used, traditional chi-square difference tests become inapplicable (Satorra & Bentler,

2010). The Satorra-Bentler adjustment produces a chi-square value that can be interpreted as a regular chi-square value, thus acceptable fit was determined in the comparison model by a non-significant change in the chi-square value from the nested model. A configural model includes constraints on factor means and variances while factor loadings and intercepts are free to vary for each model. If configural invariance is achieved, the model undergoes weak invariance testing in which the configural model is compared to a model in which factor loadings are constrained along with the factor variances and means for the female model (the male model has unconstrained factor variance). If weak invariance is achieved, the model is compared to a model in which intercepts and factor loadings, means, and variances are constrained (the male model has unconstrained factor means and variance). If strong variance is achieved, the model is considered invariant across constructs and mean levels can be compared across those constructs.

Step four: After establishing gender invariance, mean level differences between males and females were analyzed by interpreting Mplus betas and significance levels for mean level differences between the male and female models. In this data, female means are constrained to be zero and significant male scores indicated by how much the male means differ from zero.

Step five: Discriminant validity was tested between each factor by combining factors that had high covariance scores ( $\beta > .80$ ) (Little, 2013) and comparing the Satorra-Bentler adjusted chi-square values of the initial model and the combined factor model.

Step six: Construct validity was determined by correlating the emergent measures with an established measure of prosocial behavior, the Values in Action Inventory of Strengths (Peterson & Seligman, 2004). DeVellis (2012) wrote that an acceptable correlation level between variables to prove construct validity is any level above and beyond what shared variance can be attributed

to chance. The factors of the emergent prosocial measure will be combined and used to create a mean scale because the established prosocial measure does not have different factors.

Step seven: Convergent validity was tested by correlating the emergent scales with established measures of correlative behaviors including self-regulation and empathy. Target-specific prosocial correlates included a measure of parenting (separate scales for mothers and fathers) that was correlated with prosocial behavior toward family and a measure of friendship that was correlated with prosocial behavior toward friends.

## Results

### Step One: EFAs on Three Targets

**Family.** The EFA (Principal Axes, Promax rotation, Pattern Matrix) revealed a three factor solution for females and a two factor solution for males based on eigenvalues above 1.0. Results for the female three factor solution revealed that the KMO measure of sampling adequacy was .933 thus constituting a good score (between .90 and 1.00 is excellent, see Hutcheson, & Sofroniou, 1999). Bartlett's Test of Sphericity  $\chi^2(190) = 3538.80, p < .001$ , and cumulative variance accounted for 74.50%. However, the third item (20: I share my personal belongings with people) on the female factor cross-loaded with another factor. As this was the only instance of this item cross loading across all six models, and as the item makes theoretical sense in the sharing factor, this item was retained for this model. Results for the male two factor solution revealed that the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy was .956, Bartlett's Test of Sphericity  $\chi^2(190) = 5450.67, p < .001$ , and cumulative variance accounted for 72.69%. Although these results could have been accepted, the resultant female and male models would not have achieved configural invariance and thus could not be compared across gender. Accordingly, the male model was constrained to a three factor solution and compared to a freely

estimated model. Constraining the male model to a three factor solution produced almost identical test results (KMO was .933, Bartlett's Test of Sphericity  $\chi^2(190) = 3538.80, p < .001$ ) and an increased cumulative variance accounted for 76.39% (see Table 2). There was a one-item difference between the male two factor and three factor solutions with item number 10 (If someone is new to a group, I make an effort to include that person) not loading on the two factor solution. As the three factor solution did not differ from the two factor solution greatly and the benefits of cross gender comparison are many, the three factor solution was chosen for males.

Because the majority of items for these factors loaded similarly across gender, I opted to choose items that loaded for both females and males for the sake of creating a measure that can be compared across groups. My open hypotheses allowed for both gender variant and gender invariant outcomes, but as these factors were far more similar than dissimilar, the practicality of configurally invariant male and female models is to be preferred. In this process, two items were dropped from the female model (10: If someone is new to a group, I make an effort to include that person; 17: I share with people [food, clothes, car]) and three were dropped from the male model (1: If I see someone being given a hard time, I stand up for that person; 2: If someone is being made fun of, I stick up for that person; 7: If someone is upset, I listen to that person), thus bringing the total to 15 items. Interpretation of those factors suggested the following types of helping behavior: emotional support (6 items), helping (6 items), and sharing (3 items) (see Appendix A).

**Friend.** The EFA (Principal Axes, Promax rotation, Pattern Matrix) revealed a four factor solution for females and a two factor based solution for males based on eigenvalues above 1.0. Results for the female four factor solution revealed that the KMO was .915, Bartlett's Test of Sphericity was  $\chi^2(190) = 2700.93, p < .001$ , and variance accounted for 71.31%. However,

the fourth factor in this four factor solution only had two items loading above .4, thus a three factor model was estimated. Constraining the female model to three factors produced similar test results (KMO was .915, Bartlett's Test of Sphericity was  $\chi^2(190) = 2700.93, p < .001$ , 65.82% variance accounted for) and contained an identical number of items, thus the three factor model was retained. The final female model contained 17 total items and three factors. Interpretation of the factors suggested the following types of behavior: emotional support (9 items), physical help (5 items), and sharing (3 items) (Appendix A).

Results for the male two factor solution revealed that the KMO .951, Bartlett's Test of Sphericity was  $\chi^2(190) = 3939.62, p < .001$ , and the variance accounted for 63.28%. For the sake of configural invariance, the male model was constrained to a three factor solution and compared to the freely estimated model. Constraining the male model to a three factor solution produced almost identical test results (KMO was .933, Bartlett's Test of Sphericity  $\chi^2(190) = 3538.80, p < .001$ ) and an increased cumulative variance accounted for 76.39% (see Table 2). However, the three factors produced by the male and female models shared less than half of the same items. Consequently, it was determined that configural invariance could not be achieved and the two factor solution was used for the male model. The final male model contained 19 total items and two factors. Interpretation of the factors suggested the following types of behavior: helping (16 items) and sharing (3 items) (Appendix A).

**Stranger.** The EFA (Principal Axes, Promax rotation, Pattern Matrix) revealed a three factor solution for females and males based on eigenvalues above 1.0. Results for the female three factor solution revealed that the KMO measure of sampling adequacy was .924, Bartlett's Test of Sphericity  $\chi^2(190) = 2584.60, p < .001$ , and cumulative variance accounted for 65.62%. However, the third factor produced in this model combined items that did not make conceptual

sense: all the items from the theorized defending scale and all the items from the theorized sharing scale. The female model was constrained to a four factor solution and compared to the freely estimated model. The models produced identical test results (KMO was .924, Bartlett's Test of Sphericity  $\chi^2(190) = 2584.60, p < .001$ ) and an increased cumulative variance accounted for 70.20%, thus the four factor model was retained (see Table 3). One item was dropped for high cross loading (7: If someone is upset, I listen to that person), thus the final model contained 19 total items and four factors. Interpretation of the factors suggested the following types of behavior: emotional support (6 items), inclusion (5 items), physical help (4 items), and sharing (4 items) (see Appendix A).

Results for the male three factor solution revealed that the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy was .939, Bartlett's Test of Sphericity  $\chi^2(190) = 3694.39, p < .001$ , and the cumulative variance accounted for 65.06% (see Table 4). Configural invariance could not be achieved due to the differing number of factors between male and female models. Further, even when the female model was constrained to three factors, the factor items had more differences than similarities, thus separate models were retained. The final model contained 20 total items and three factors. Interpretation of the factors suggested the following types of behavior: emotional support (9 items), physical help (6 items), and sharing (4 items) (Appendix A).

### **Step Two: CFAs on Three Targets**

**Family.** In order to test for content validity, the three-factor model produced by the EFA on a sample population was analyzed on the target population sample using Mplus 7 software (Muthén & Muthén, 2007), and this model revealed an acceptable fit to the data ( $\chi^2(187) = 336.54, p < .001, CFI = .944, TLI = .937, RMSEA = .062$ ) after adding inter-item correlations

according to modification indexes suggested by Mplus. All variables loaded on their respective latent variables (see Figure 1). Modification indices were examined and there was no evidence of cross-loading.

**Friend.** Confirmatory Factor Analyses were conducted separately for the female and male models due to the configural variance.

**Friend female.** The female three-factor model produced by the EFA on a sample population was analyzed on the target population sample using Mplus 7 software (Muthén & Muthén, 2007), and this model revealed an acceptable fit to the data ( $\chi^2(282) = 470.963, p < .001$ , CFI = .941, TLI = .936, RMSEA = .056) after adding inter-item correlations according to modification indexes suggested by Mplus. All variables loaded on their respective latent variables (see Figure 2), and modification indices were examined and there was no evidence of cross-loading.

**Friend male.** The male two factor model produced by the EFA on a sample population was analyzed on the target population sample using Mplus 7 software (Muthén & Muthén, 2007), and this model revealed an acceptable fit to the data ( $\chi^2(317) = 534.66, p < .001$ , CFI = .937, TLI = .932, RMSEA = .056) with all variables loading on their respective latent variables (see Figure 3). Modification indices were examined and there was no evidence of cross-loading.

**Stranger.** Confirmatory Factor Analyses were conducted separately for the female and male models due to the configural variance.

**Stranger female.** The female four factor model produced by the EFA on a sample population was analyzed on the target population sample using Mplus 7 software (Muthén & Muthén, 2007), and this model revealed an acceptable fit to the data ( $\chi^2(309) = 629.24, p < .001$ , CFI = .91, TLI = .90, RMSEA = .069) after adding inter-item correlations according to

modification indexes suggested by Mplus. All variables loaded on their respective latent variables (see Figure 4). Modification indices were examined and there was no evidence of cross-loading.

***Stranger male.*** The male three factor model produced by the EFA on a sample population was analyzed on the target population sample using Mplus 7 software (Muthén & Muthén, 2007), and this model revealed an acceptable fit to the data ( $\chi^2(343) = 645.39, p < .001$ , CFI = .92, TLI = .91, RMSEA = .064), with all variables loading on their respective latent variables (see Figure 5). Modification indices were examined and there was no evidence of cross-loading.

### **Step Three: Invariance Testing Across Gender**

The family model was the only target to achieve configural invariance, thus it was the only model tested for further levels of invariance and subsequent mean level differences.

**Family.** Multiple group analyses were conducted to determine whether invariance could be established across gender on both factor loadings (weak invariance) and intercepts (strong invariance), which is what is needed to compare means across groups (Dyer, 2015). As can be seen in Table 5, weak and strong invariance was established for the whole family model indicating that mean levels of prosocial behavior can be compared between males and females for the family model.

### **Step Four: Mean Level Differences across Gender**

**Family.** To determine mean level differences between males and females, betas from the strong invariant female and male model were interpreted. Betas only indicated a significant difference for Emotional Support with females higher than males (Female:  $M = 4.24, SD = .68$ , Male:  $M = 4.02, SD = .80$ ;  $\beta = .25, p < .05$ ) and a non-significant gender difference for Helping

(Female:  $M = 4.37$ ,  $SD = .74$ , Male:  $M = 4.43$ ,  $SD = .68$ ;  $\beta = -.07$ ,  $p = .513$ ) and Sharing (Female:  $M = 3.95$ ,  $SD = 1.01$ , Male:  $M = 3.76$ ,  $SD = .99$ ;  $\beta = .20$ ,  $p = .062$ ).

### Step Five: Covariance Testing

**Family.** Factor covariances were analyzed to determine discriminant validity of the factors and although Emotional Support and Sharing showed acceptable covariance (females:  $\beta = .559$ , males:  $\beta = .511$ ) as well as Helping and Sharing (females:  $\beta = .605$ , males:  $\beta = .519$ ), Emotional Support and Helping were highly correlated for both females and males (females:  $\beta = .807$ , males:  $\beta = .807$ ). To determine if these factors were significantly different, Emotional Support and Helping factors were combined and the Satorra-Bentler Chi-Square Difference Test obtained with the MLR estimator (Satorra & Bentler, 2010) was compared between the original and the combined model. The adjusted chi-square values for the two factor model revealed a significantly worse model fit ( $\chi^2\Delta (6) = -57.73$ ,  $p < .001$ .), thus the three factor model was retained.

**Friend female.** Factor covariances were analyzed to determine discriminant validity of the factors. Emotional Support and Physical Help had an acceptable correlation, though the number was high ( $\beta = .786$ ). Emotional support and Sharing was  $\beta = .605$  and Physical Help and Sharing was  $\beta = .683$ . Discriminant validity was tested between Emotional Support and Physical Help by combining these factors and viewing the chi-square difference test based on log likelihood values and scaling correction factors obtained with the MLR estimator. The adjusted chi square values for the two factor model revealed a significantly worse model fit ( $\chi^2\Delta (14) = -701.73$ ,  $p < .001$ ) thus the three factor model was retained.

**Friend male** Factor covariances were analyzed to determine discriminant validity of the factors. It was revealed that the Helping and Sharing factors showed an acceptable correlation ( $\beta = .577$ ), thus discriminant validity between the factors was achieved.

**Stranger female.** Factor covariances were analyzed to determine discriminant validity of the factors (Emotional Support and Inclusion:  $\beta = .83$ , Emotional Support and Physical Help:  $\beta = .79$ , Emotional Support and Sharing:  $\beta = .75$ , Inclusion and Physical Help:  $\beta = .78$ , Inclusion and Sharing:  $\beta = .53$ , Physical Help and Sharing:  $\beta = .75$ ). Highly correlative factors were combined and the chi-square difference test based on log likelihood values and scaling correction factors obtained with the MLR estimator were viewed. The adjusted chi square values for all of the three factor models revealed a significantly worse model fit (with none changing less than  $\chi^2\Delta (8) = -65.34, p < .001$ ) thus all four factors were kept separated.

**Stranger male.** Factor covariances were analyzed to determine discriminant validity of the factors (Emotional Support and Physical Help:  $\beta = .90$ , Emotional Support and Sharing:  $\beta = .71$ , Physical Help and Sharing:  $\beta = .60$ ). Emotional Support and Sharing factors were combined and the chi-square difference test based on log likelihood values and scaling correction factors obtained with the MLR estimator were compared to the three factor model. The log likelihood values for the two factor model revealed a significantly worse model fit ( $\chi^2\Delta (6) = -52.37, p < .001$ ) thus all three factors were kept separated.

### **Step Six: Correlation Testing with Established Prosocial Measure**

To determine construct validity, bivariate correlational analyses were conducted to analyze how the family, friend, and stranger measures were associated with previously established measures of prosocial behavior. Factors of the emergent scale were combined to create a mean scale that was then correlated with the established measure mean scale. Although

comparing factors would have been more appropriate, the established measure of prosocial behavior utilized in this study does not have factors. The analyses revealed that each emergent measure of prosocial behavior shared over half of the variance with the established prosocial behavior measure (Family:  $r = .60, p < .001$ ; Friend Female:  $r = .60, p < .001$ ; Friend Male:  $r = .61, p < .001$ ; Stranger Female:  $r = .54, p < .001$ ; Stranger Male:  $r = .61, p < .001$ ) (see Table 6).

### **Step Seven: Correlation Testing with Established Correlates of Prosocial Behavior**

To determine convergent validity, bivariate correlational analyses were conducted to examine the unique relations between each target model and conceptually relevant correlates of prosocial behavior. The correlation with empathy and self-regulation for the established and emergent prosocial scales were also compared. The emergent prosocial scales showed similar patterns of correlations with empathy as did the established scales (emergent then established correlations with empathy for family: .40 vs .33, for friend female .46 vs .41 for friend male: .47 vs .41, for stranger female: .45 vs .48, for stranger male: .46 vs .48). The emergent scale was similarly correlated with self-regulation than the established scale (emergent then established correlations with empathy for family: .18 vs .22, for friend female .10 vs .19 for friend male: .11 vs .19, for stranger female: .11 vs .14, for stranger male: .11 vs .14). Additionally, the family-oriented prosocial measure was correlated with a parenting measure and compared with the established prosocial toward family measure and the same parenting measures, and the results were within .03 for both mother and father scales (emergent then established correlations with mothers and fathers respectively: .26 vs .25; .34 vs .31). Finally, the friend-oriented prosocial measure was correlated with a friendship measure and compared to the established prosocial toward friend measure and the same friendship scale (emergent then established correlations for friend female: .17 vs .24, for friend male: .20 vs .25) (see Table 7).

## **Discussion**

As the study of prosocial research continues to diversify, more is being learned about how people help different kinds of people and how they help in different kinds of situations. Researchers are becoming increasingly concerned about the potential differences between how boys might help and how girls might help. The foundational argument is that males might help others in more physical ways (Eagly, 2009; Hastings et al., 2007), yet established measures of prosocial behavior have items more typical of the emotional help commonly given by females (Chapman et al., 2006). These ideas are supported by hegemonic masculine theory (Carrigan et al., 1985) which posits that boys feel a lot of pressure to live up to masculine ideas that include physical strength and emotional stoicism. The purpose of the present research was to create and validate a measure of prosocial behavior with behaviors tapping items of physical strength and empathic emotions that might be more true to masculine prosocial behavior. A broad measure of potential prosocial behaviors was compiled, and factor analyses provided support for the internal reliability and validity of the emergent multidimensional prosocial scales. The discussion will focus on the gender differences apparent in the scale, relational differences, and future directions.

### **Gender Differences**

The present analyses indicated that prosocial behavior is indeed conceptually different across males and females for several different types and targets of behavior. On the one measure that mean levels of prosocial behavior could be compared between gender, the only time females showed higher levels of prosocial behavior was on the emotional support factor. The other measures indicated that males and females thought about prosocial behavior in qualitatively different ways including that females were more likely than males to differentiate between emotional and physical ways of helping people.

This is not unexpected given that females traditionally display higher levels of emotional sensitivity (Gretarsson & Gelfand, 1988), however, past research is contradictory about the prosocial gender disparity. While some research indicates a large gap between males and the high-achieving prosocial levels of females (Eisenberg et al., 2014), others show little difference (Radke-Yarrow, et al., 1983). Eisenberg and Fabes (1998) reasoned that the gender differences in prosocial behavior are likely a product of the differences in prosocial behavior measures, but the disparities between the male and female measures indicate that there are likely stark conceptual differences between male and female prosocial behavior above and beyond the gender variance manipulated by different prosocial measures.

Altering existing prosocial questions to reflect hegemonic masculine pressure, as well as creating new “masculine” prosocial questions, led to higher levels of male prosocial behavior. Although males still seem more prone to helping behavior than emotional support, given the pressures that males face to be emotionally stoic (Hill & Lynch, 1983; Hine & Leman, 2014), these outcomes were not unexpected. However, the present research shows higher levels of male emotional support after altering items to avoid potential language biases. By adding items like “I would enter a risky situation in order to help someone”, and rephrasing items from “I always listen to my friends talk about their problems” to “If my friend is upset, I listen to them”, I expected to tap into a desire to feel/appear masculine that is strongly manifest in adolescent boys (Hill & Lynch, 1983; Hine & Leman, 2014) and see higher levels of “masculine” prosocial behavior (Zarbatany et al., 1985). Indeed, two items that strongly tapped into physical defending behavior (“If I see someone being given a hard time, I stand up for that person”, and “If someone is being made fun of, I stick up for that person”) did not load on any factors for females on the family scale. This research sought to address whether stereotypes of masculine emotional

stoicism and physical toughness extended to the field of prosocial behavior and outcomes like this indicate that they certainly do. Stereotypes about the ways that girls help were vindicated as well: females showed that physically demanding items like breaking up fights loaded with items like entering risky situations and helping in emergencies whereas these items were never together on other scales. This outcome may suggest that while females are still willing to help their friends in physical ways, they are generally aware of potential danger.

### **Relational Differences**

In support of the relational perspective of prosocial behavior (Padilla-Walker & Christensen, 2011), significant differences were found between family, friend, and stranger oriented prosocial behavior. While family was comparable across gender, friend and stranger oriented prosocial behavior was constructurally different. This indicates that prosocial behavior toward friends and strangers is qualitatively different between males and females. It has been posited (Carlo et al., 2007; Padilla-Walker et al., 2015) that prosocial behavior toward family might be heavily associated with compliance to parental requests and standing arrangements about helping with chores, etc., which might work to explain equal levels of helping toward families for boys and girls.

Another potential explanation for this outcome is that males might feel less pressure to “act like a man” when around their mothers. Extant research shows that mothers receive more prosocial help than fathers (Eberly & Montemayor, 1999), and that fathers generally take the lead in things like norm compliance (Lamb, 2004) and emotional regulation (Roberts, 1999). Roberts (1999) also found that paternal regulation encouragement also predicts lower prosocial behavior. Perhaps mothers take the lead in fostering prosocial behavior in the home in general, and fathers encourage masculine types of helping while discouraging emotional types. Whatever

gendered pressures and socialization that is happening in the home, it is likely different from the socialization that males feel from their peers.

Whereas the friend oriented measure for females produced three factors similar to the three factors in the family oriented measure, the friend measure for males only produced two factors. One factor was very large and included all types of theorized prosocial behavior except the sharing items, which made up the remaining factor. This indicates that when males are helping their friends, they do not differentiate between more emotional ways of helping (like cheering up someone when they are upset) versus more physical acts (like helping in emergencies).

One possible explanation for this outcome is that boys are more likely than girls to interpret an item as physically oriented rather than emotionally oriented. For example, whereas females might read the item “When people are fighting with each other, I try to help them get along” as relating to relational arguments, males might think of it as stepping in and interrupting a fist fight. It is understandable that these differences are exacerbated when adolescents are spending time with their peers because at this age, both boys and girls are relentless promoters of hegemonic masculinity (Carrigan et al., 1985). Pascoe (2007) found that pressure to conform to masculine ideals manifest constantly in high school relationship negotiations and communication rituals, and Hine and Leman (2014) found that boys felt pressure not to display prosocial behavior especially around ages 12 to 14.

Another potential reason for these gender differences is the general difference in physical size and strength between males and females might account for some of these conceptual gender differences. Eagly (2009) wrote that “women’s lesser physical prowess can act as a deterrent to their participation in highly strength-intensive activities, which include some prosocial

behaviors” (p. 646). Furthermore, this physical difference might influence women to perceive more situations as more dangerous than men (Eagly & Crowley, 1986). Although some research has been done to interpret the ways boys think about prosocial behavior (Bergin, Talley, & Hamer, 2003; Hine & Leman, 2014) more work needs to be done to ensure a correct interpretation of these findings.

### **Limitations and Future Directions**

Although care was taken to select items representative of current and potential prosocial behaviors, a greater variety of behaviors could have been selected. For example, an important aspect of prosocial behavior toward strangers not appearing on this measure are volunteering behaviors. Community service was included in an early version of the measure, but it was cut when the decision was made to make all the items fit into a family, friend, or stranger orientation. Although volunteering was not included in this measure, it is likely that including it would have strengthened my findings that relational prosocial behavior is different than non-relational prosocial behavior.

The present validation study was limited to participants from the United States. As described above, the development of the multidimensional prosocial measure was based on research from several countries, but additional validation of the measure from other nations would be a next step. It would also be fruitful to extend the present study to adolescents and adult populations because, as Greener and Crick (1999) suggested, different age groups might think more broadly about prosocial research than traditional research. Although this study attempted to include various forms of prosocial behavior, more research should continue to investigate the validity of humor, peacemaking, and inclusion as well as other potentially prosocial behaviors.

Another limitation is the impractical nature of separate gender and target prosocial measures. Although every attempt was made to create configurally invariant models with which mean levels could be compared across gender, the analyses revealed factors that were too divergent across both gender and target. Using separate measures is undoubtedly more complicated, but so is using relational and physical scales in aggression research, and this kind of multidimensional scale has produced a wealth of data in this sister field to prosocial behavior (Crick & Grotpeter, 1996). Using the emergent scales produced in this research, prosocial behavior toward family can be compared across gender. This enables researchers to see that altering items to be more masculine more fully captures the way that males help others and removes the stigma that boys do not display much prosocial behavior. The divergent friend and stranger measures also allow researchers to capture actual behavior trends that are validated by current prosocial and masculine behavioral theories.

Moving forward, these differences in male and female prosocial behaviors are arguably the most important finding of this work. Future research should compare outcomes generated with a gender-sensitive prosocial measure and a gender-neutral measure for significant differences in variance explained. It may be that the differences produced in gender-sensitive measures do not have statistical significance, but they suggest practical differences in the way prosocial behavior should be taught to boys versus girls. For instance, this data suggests that practitioners interested in coaching prosocial behavior for boys should pay attention to the pressures that boys likely feel not to appear emotionally sensitive. While we obviously wish to encourage emotional literacy in boys, it is likely worthwhile to approach the topic with language couched in terms they are familiar with, similar to the way items in the new measure were rephrased.

As described at the outset, the purpose of this multidimensional measure was to create a measure of prosocial behavior that more adequately captured male helping behavior. Given the present validation, I would suggest that this multidimensional measure may now be deployed to extend both theory and research in moral psychology research. The use of this measure can address the increasing concern over the potential differences (Eisenberg et al., 2014; Eisenberg & Lennon, 1983; Zabatany et al., 1985) or biases (Chapman et al., 2006; Hastings et al., 2007; Skoe et al., 2002) in prosocial research that have been raised over the last 30 years. The data in these two samples indicates that tailoring measures to male-specific ways of helping will yield more accurate views of the ways boys help other people. Traditional prosocial measures of emotional support will continue to indicate lower male levels, but measures that include items on sharing and agentic helping show a different story: boys are not less prosocial than girls, they simply have different ways of helping.

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**Table 1.** Descriptive Statistics and Correlations between Prosocial Behavior and Correlative Scales

	1	2	3	4	5	6	7	8	9	10
1. PBFa	-	.51*	.34*	.33*	.23*	.43*	.39*	.20*	-.08	.07
2. PBFr	.46*	-	.34*	.40*	.09	.12	.31*	.23*	-.09	.27*
3. PBSt	.39*	.58*	-	.48*	.18*	.07	.11	.09	-.05	.11
4. Emp	.33*	.36*	.41*	-	.14*	.20*	.26*	.24*	-.09	.01
5. SelfReg	.25*	.12	.16*	.14*	-	.09	.23*	.15*	-.17*	.003
6. M_Rel	.40*	.24*	.17*	.36*	.12	-	.58*	.07	-.11	.08
7. D_Rel	.38*	.29*	.23*	.36*	.16*	.45*	-	.15*	-.06	.25*
8. FrRel	.26*	.20*	.15*	.18*	.16*	.15*	.18*	-	-.04	-.05
9. Eth	-.20*	-.04	-.03	.05	-.06	-.15*	-.10	-.06	-	-.12*
10. Inc	-.07	.12	.08	.07	-.06	.06	.08	-.02	-.16*	-
<i>F M(SD)</i>	<i>4.16(.78)</i>	<i>4.59(.54)</i>	<i>3.79(.74)</i>	<i>4.08(.60)</i>	<i>2.89(.50)</i>	<i>3.57(.78)</i>	<i>3.27(.93)</i>	<i>2.83(.47)</i>	<i>1.89(1.63)</i>	<i>5.62(2.95)</i>
<i>M M(SD)</i>	<i>4.04(.80)</i>	<i>4.38(.62)</i>	<i>3.46(.78)</i>	<i>3.67(.62)</i>	<i>2.99(.40)</i>	<i>3.43(.81)</i>	<i>3.21(.90)</i>	<i>2.65(.51)</i>	<i>1.86(1.68)</i>	<i>5.67(2.70)</i>

Notes: Female scores on top half, \* indicates  $p < .05$ , PB=Prosocial Behavior, Fa=Family, Fr=Friend, St=Stranger

**Table 2.** Exploratory Factor Analysis Output for Family

#	Item Content	M	F	M	F	M	F
		F1	F1	F2	F2	F3	F3
1.	If I see someone being given a hard time, I stand up for that person			.810			
2.	If someone is being made fun of, I stick up for that person			.787			
3.	When people are fighting with each other, I try to help them get along	.512	.945				
4.	I break up fights	.866	.827				
5.	If someone is sad, I try to make that person laugh	.782	.600				
6.	If someone is upset, I help that person let off steam	.637	.608				
7.	If someone is upset, I listen to that person	.617					
8.	If someone is upset, I do something fun with that person	.449	.701				
9.	I am nice to others, even if I don't like them	.906	.864				
10.	If someone is new to a group, I make an effort to include that person		.663				
11.	I accept others for who they are, even if they are different			.688	.591		
12.	If I notice someone who is lonely, I try to include that person			.722	.689		
13.	I do physical acts of service for others [lifting heavy things, yard work, cleaning]			.790	.546		
14.	If I see someone hurt themselves, I help that person			1.03	.917		
15.	I help people in an emergency			.938	.917		
16.	I would enter a risky situation in order to help someone			.843	.679		
17.	I share with people [food, clothes, car]				.853		
18.	I pick up the tab for people					.783	.691
19.	I lend money to people					1.005	.773
20.	I share my personal belongings with people					<b>.590</b>	<b>.815</b>
							<b>.498</b>

Note: M = Male, F = Female

**Table 3.** Exploratory Factor Analysis Output for Friends

#	Item Content	M	F	M	F	M	F
		F1	F1	F2	F2	F3	F3
1.	If I see someone being given a hard time, I stand up for that person	.861	.778				
2.	If someone is being made fun of, I stick up for that person	.886	.843				
3.	When people are fighting with each other, I try to help them get along	.547			.473		
4.	I break up fights	.697			.811		
5.	If someone is sad, I try to make that person laugh	.604	.686				
6.	If someone is upset, I help that person let off steam	.867	.797				
7.	If someone is upset, I listen to that person	.826	1.010				
8.	If someone is upset, I do something fun with that person	.875	.692				
9.	I am nice to others, even if I don't like them	.932	.268				
10.	If someone is new to a group, I make an effort to include that person	.737	.767				
11.	I accept others for who they are, even if they are different	.818	.778				
12.	If I notice someone who is lonely, I try to include that person	.871	.945				
13.	I do physical acts of service for others [lifting heavy things, yard work, cleaning]	.561			.528		
14.	If I see someone hurt themselves, I help that person	.870					
15.	I help people in an emergency	.923			.646		
16.	I would enter a risky situation in order to help someone	.570			.895		
17.	I share with people [food, clothes, car]						
18.	I pick up the tab for people				.786		.671
19.	I lend money to people				.967		.879
20.	I share my personal belongings with people				.737		.795

*Note: M = Male, F = Female*

**Table 4.** Exploratory Factor Analysis Output for Strangers

#	Item Content	M	F	M	F	M	F	F
		F1	F1	F2	F2	F3	F3	F4
1.	If I see someone being given a hard time, I stand up for that person	.788	.824					
2.	If someone is being made fun of, I stick up for that person	.747	.739					
3.	When people are fighting with each other, I try to help them get along	.960	.775					
4.	I break up fights	.859	.759					
5.	If someone is sad, I try to make that person laugh	.600						
6.	If someone is upset, I help that person let off steam	.771	.751					
7.	If someone is upset, I listen to that person	.538						
8.	If someone is upset, I do something fun with that person	.693	.668					
9.	I am nice to others, even if I don't like them	.747						.652
10.	If someone is new to a group, I make an effort to include that person			.751				.846
11.	I accept others for who they are, even if they are different			.856				.694
12.	If I notice someone who is lonely, I try to include that person			.542				.597
13.	I do physical acts of service for others [lifting heavy things, yard work, cleaning]			.540	.477			
14.	If I see someone hurt themselves, I help that person			.864	.761			
15.	I help people in an emergency			.899	.894			
16.	I would enter a risky situation in order to help someone			.446	.822			
17.	I share with people [food, clothes, car]					.734	.706	
18.	I pick up the tab for people					.895	.845	
19.	I lend money to people					.979	.915	
20.	I share my personal belongings with people					.900	.952	

Note: *M* = Male, *F* = Female

**Table 5.** Model Fit Statistics for Measurement Invariance across Gender for Family

Model tested	$\chi^2$	<i>df</i>	<i>p</i>	CFI	CFIA	TLI	TLIA	RMSEA
<b>Full Model:</b>								
Configural	120.519	71	<.001	.970	-	.954	-	.057
Factor loadings	121.861	79	<.001	.974	-.004	.964	-.01	.050
Intercepts	142.330	87	<.001	.967	.007	.958	.06	.055
<b>Emotional Factor</b>								
Configural	3.461	2	.27	.996	-	.977	-	.058
Factor loadings	5.296	5	.38	.999	-.003	.998	-.001	.017
Intercepts	6.106	8	.63	.000	-.001	1.008	-.01	.00
<b>Helping Factor</b>								
Configural	8.833	2	<.05	.978	-	.868	-	.126
Factor loadings	11.435	5	<.05	.979	-.001	.950	-.082	.078
Intercepts	14.544	6	<.05	.973	.006	.945	.005	.082
<b>Sharing Factor</b>								
Configural	.00	0	0	1.00	-	1.00	-	.00
Factor loadings	.531	2	.767	1.00	.00	1.018	-.018	.00
Intercepts	3.743	4	.44	1.00	.00	1.002	.016	.000

*Note: Bolded CFIA are those that did not pass the invariance test.*

**Table 6.** Correlations between Emergent and Original Prosocial Scales

	Fam (E)	Fri_F (E)	Fri_M (E)	Str_F (E)	Str_M (E)	Fam (O)	Fri (O)	Str (O)
Fam (E)	-	.66*	-	.50*	-	.59*	.48*	.37*
Fri_F (E)	-	-	.99*	.67	.67*	.45*	.60*	.54*
Fri_M (E)	.68*	.99*	-	.68*	-	-	-	-
Str_F (E)	-	-	-	-	-	.37*	.40*	.53*
Str_M (E)	.55*	.99*	.67*	.99*	-	-	-	-
Fam (O)	.60*	-	.34 *	-	.39*	-	.51*	.34*
Fri (O)	.44*	-	.61*	-	.54*	.46*	-	.34*
Str (O)	.38*	-	.49*	-	.61*	.39*	.58*	-

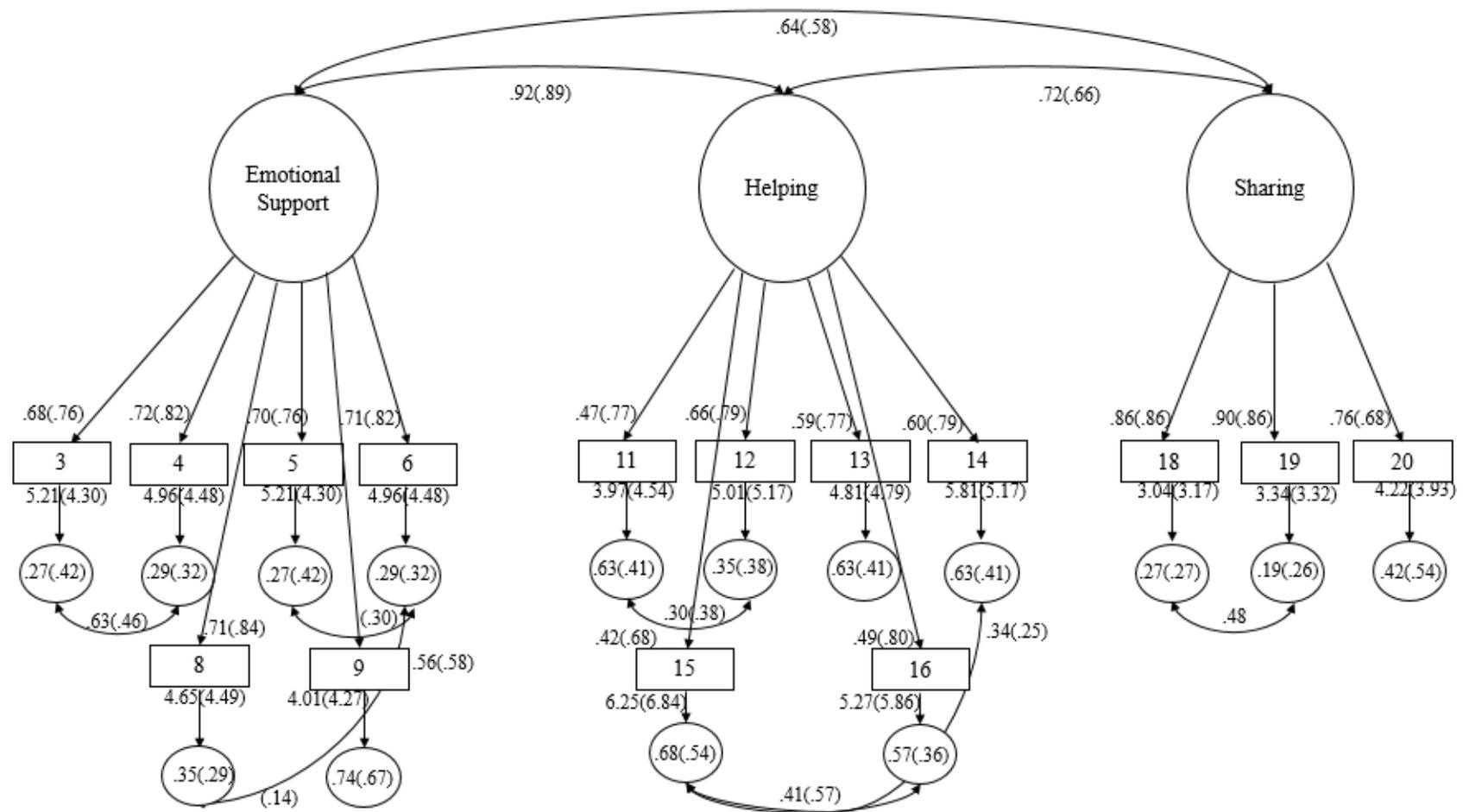
*Notes: Female scores on top half, \* indicates  $p < .05$ , Fam=Family, Fri=Friend, Str=Stranger, E=Emergent Scale, O=Original Scale, F=Female, M=Male. The factors of the emergent measures were merged to create a mean scale because the original prosocial measures have no factors. There are blank spaces in the table because the table is split top to bottom by female and male scores, but the gender specific scales do not have both male and female scores.*

**Table 7.** Correlations between Emergent Prosocial Scales and Correlative Scales

	PBFa	PBFr_F	PBFr_M	PBSt_F	PBSt_M	Emp	SelfReg	MomRel	DadRel	FrRel
PBFa	-	.66*	-	.50*	-	.37*	.18*	.36*	.32*	.17*
PBFr_F	.68*	-	.99*	.67*	.67*	.42*	.07	.26*	.28*	.17*
PBFr_M	.68*	.99*	-	.68*	-	-	-	-	-	-
PBSt_F	.55*	-	.67*	-	.99*	.45*	.11	.19*	.16*	.12
PBSt_M	.55*	.66*	.67*	.99*	-	-	-	-	-	-
Emp	.43*	-	.49*	.48*	.48*	-	.14*	.20*	.26*	.24*
SelfReg	.20*	-	.17*	.12	.12	.14*	-	.09	.23*	.15*
MomRel	.26*	-	.29*	.21*	.21*	.36*	.12	-	.58*	.07
DadRel	.34*	-	.34*	.25*	.25*	.36*	.16*	.75*	-	.15*
FrRel	.22*	-	.20*	.22*	.21*	.18*	.16*	.15*	.18*	-

Notes: \* indicates  $p < .05$ , Female scores on top half. PB=Prosocial Behavior, Fa=Family, Fr=Friend, St=Stranger, F=Female, M=Male, Emp=Empathy, SelfReg=Self Regulation, Momrel=Mother/Child Relationship, DadRel=Father/child relationship, FrRel=Friend Relationship. For this table, mean scales of the emergent measures were used in correlations with traditional correlates of prosocial behavior. There are blank spaces in the table because the table is split top to bottom by female and male scores, but the gender specific scales do not have both male and female scores.

**Figure 1.** Family Model (Strong Invariance)



*Note: Female model values outside of parenthesis, male model values inside.*

Figure 2. Friend Model (Female)

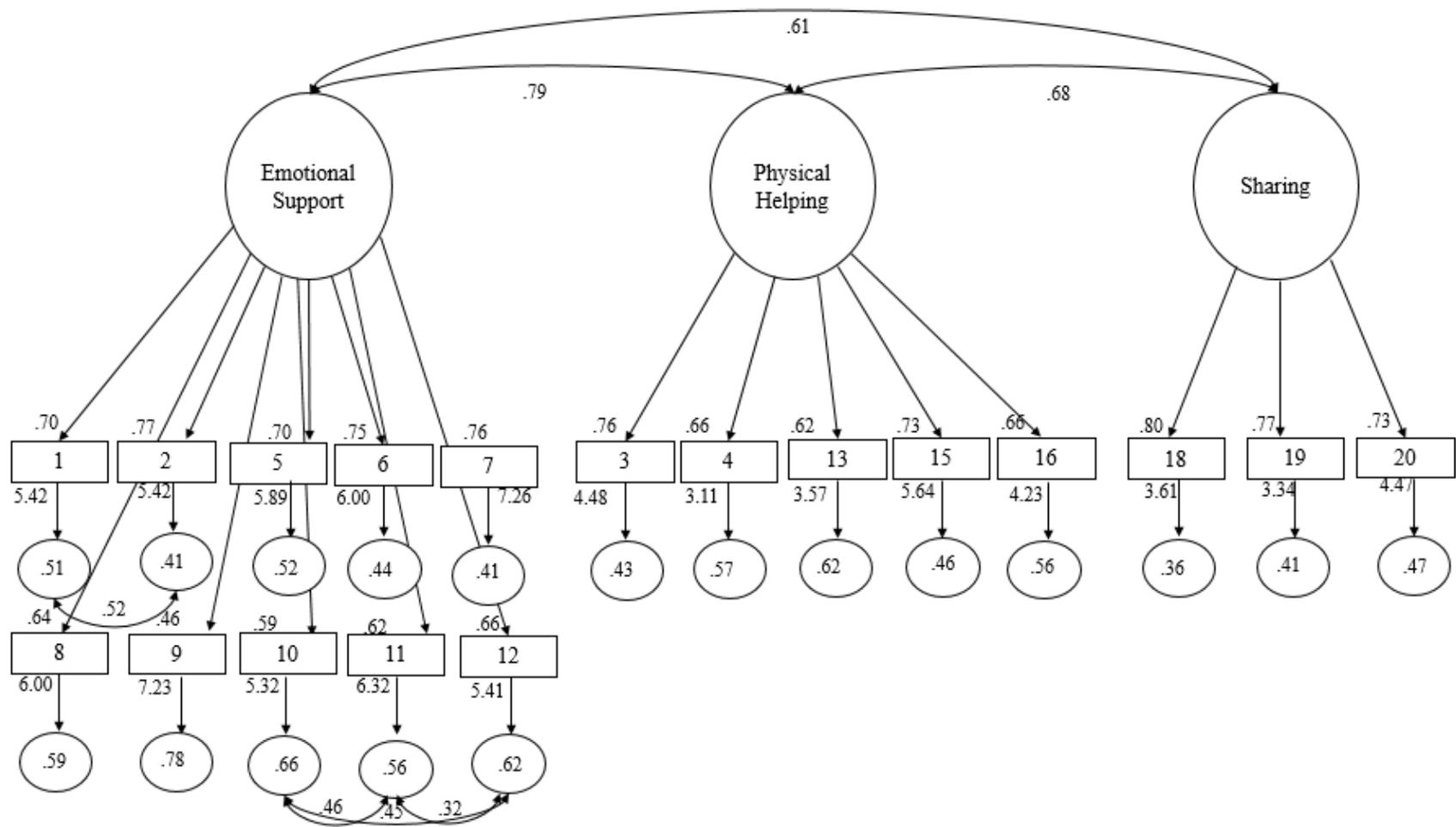


Figure 3. Friend Model (Male)

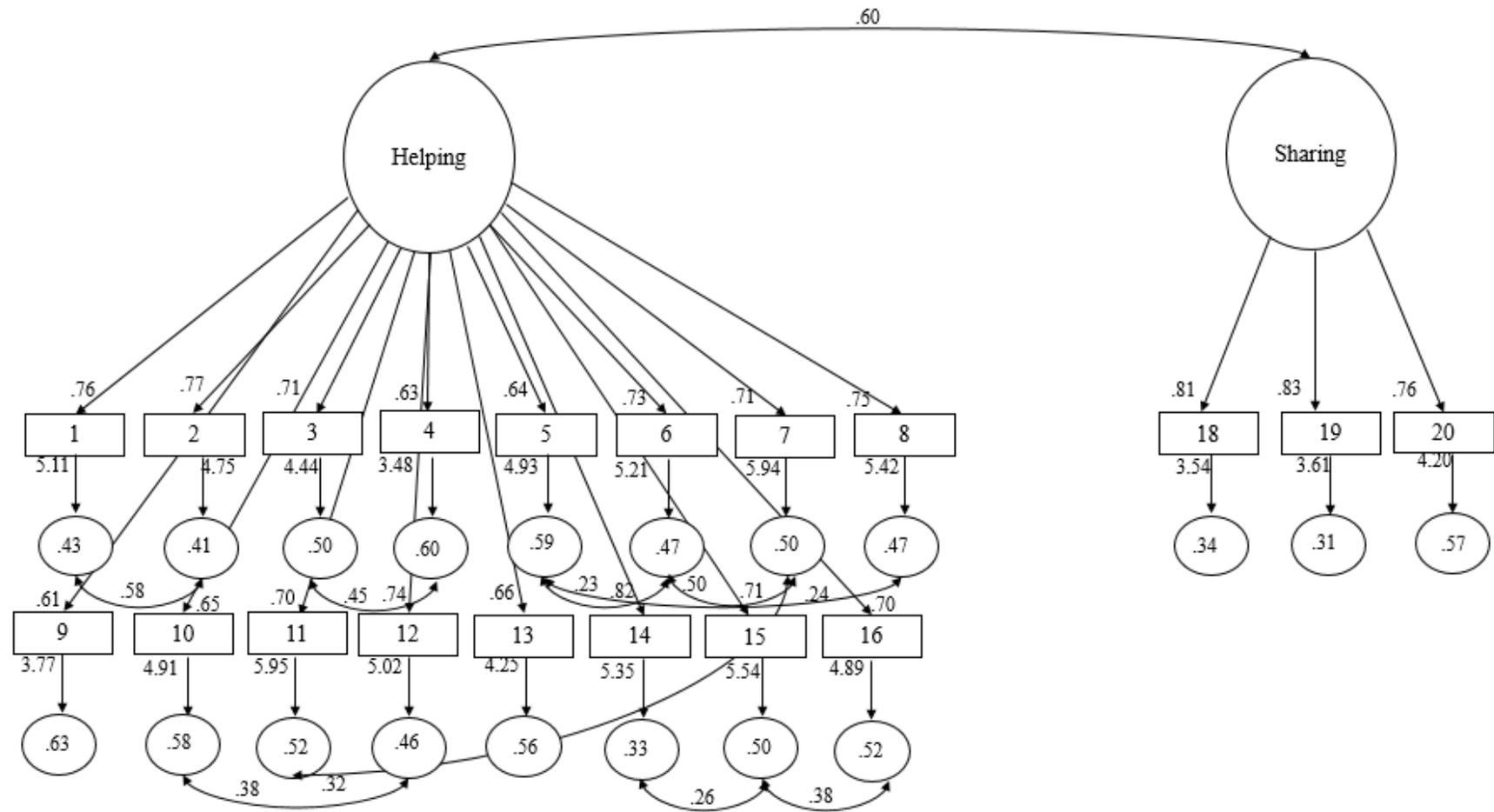


Figure 4. Stranger Model (Female)

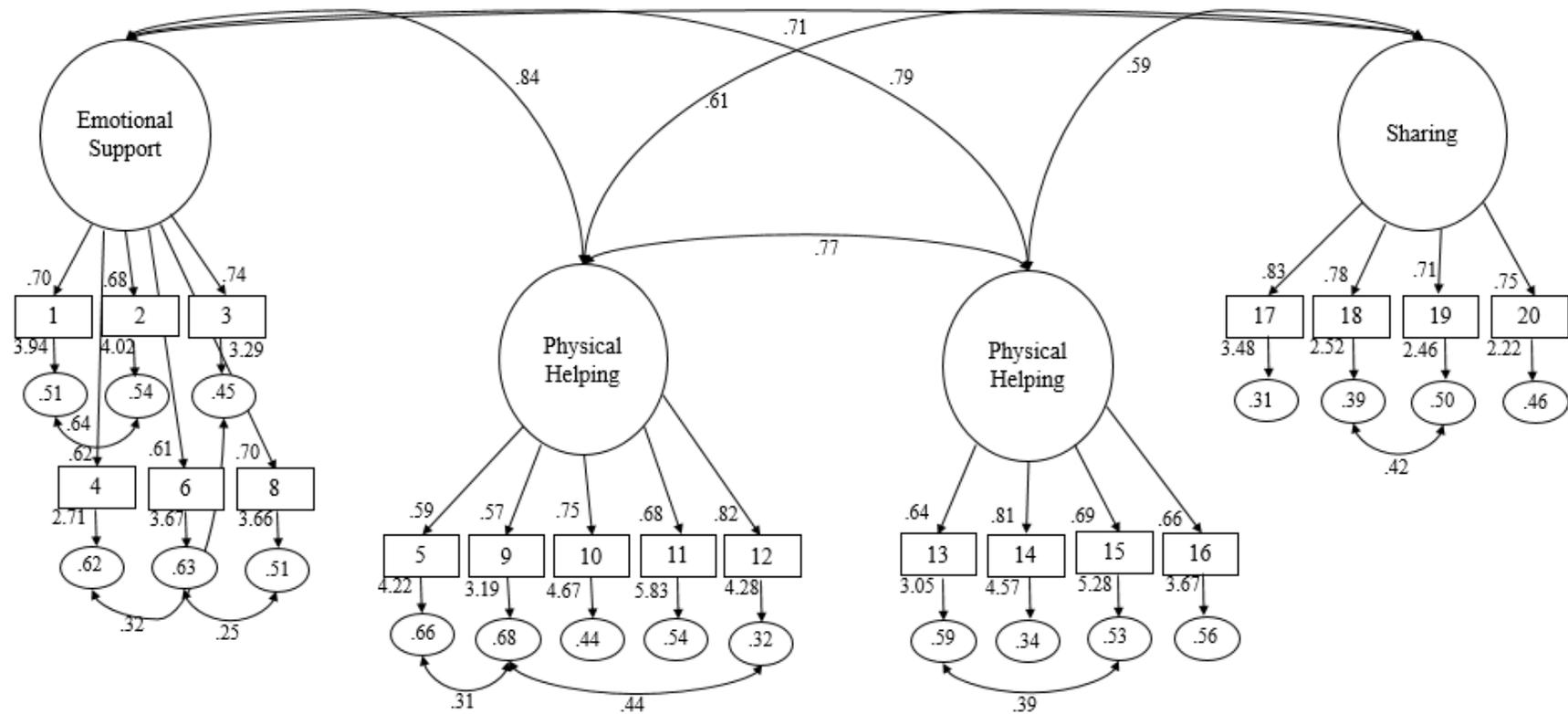
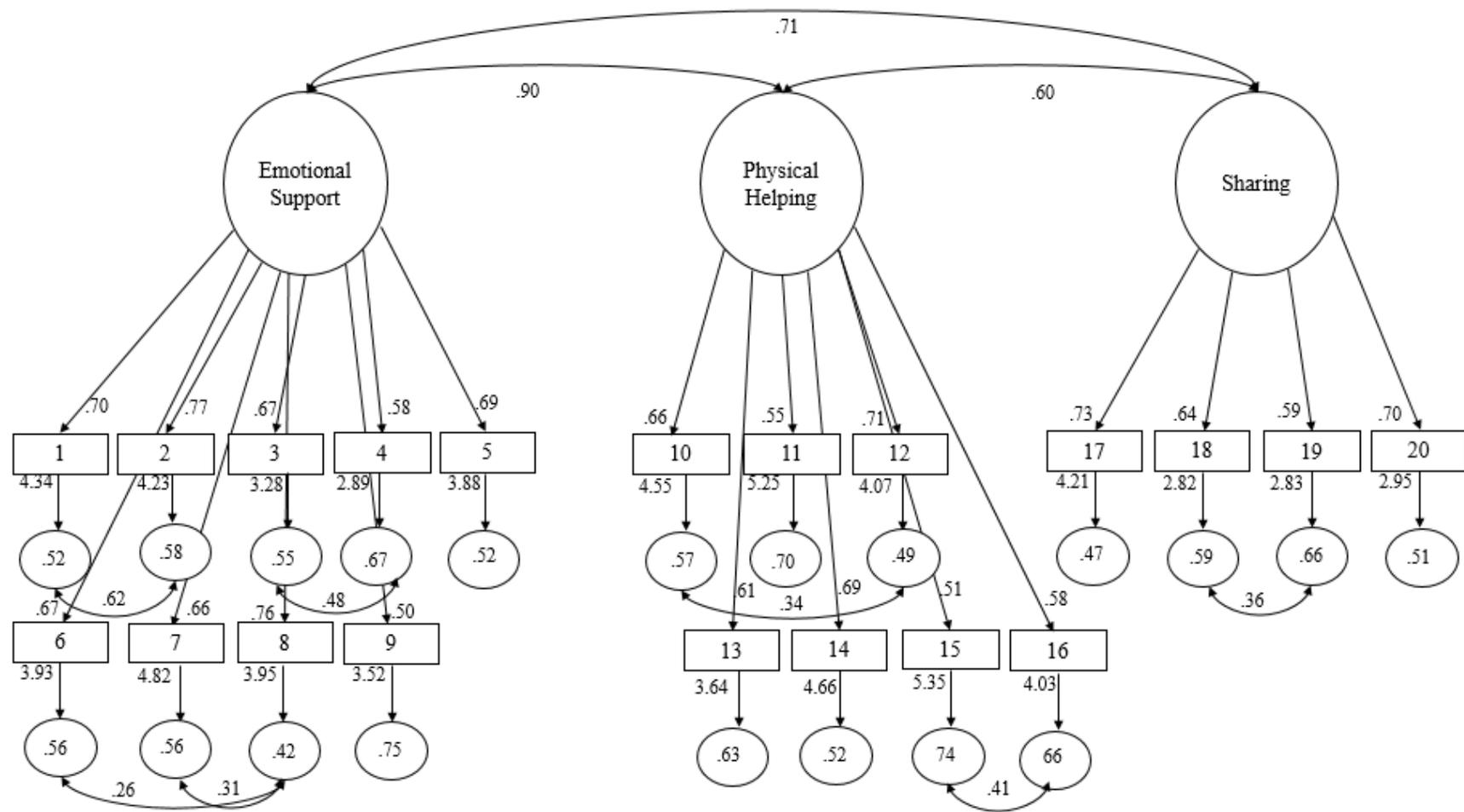


Figure 5. Stranger Model (Male)



## Appendix A

**Family Scale*****Emotional Support***

1. If someone is sad, I try to make that person laugh
2. If someone is upset, I help that person let off steam
3. If someone is upset, I do something fun with that person
4. I am nice to others, even if I don't like them
5. When people are fighting with each other, I try to help them get along
6. I break up fights

***Helping***

7. I do physical acts of service for others [lifting heavy things, yard work, cleaning]
8. If I see someone hurt themselves, I help that person
9. I help people in an emergency
10. I would enter a risky situation in order to help someone
11. I accept others for who they are, even if they are different
12. If I notice someone who is lonely, I try to include that person

***Sharing***

13. I pick up the tab for people
14. I lend money to people
15. I share my personal belongings with people

**Female Friend Scale*****Emotional Support***

1. If I see someone being given a hard time, I stand up for that person
2. If someone is being made fun of, I stick up for that person
3. If someone is sad, I try to make that person laugh
4. If someone is upset, I help that person let off steam
5. If someone is upset, I listen to that person
6. If someone is upset, I do something fun with that person
7. If someone is new to a group, I make an effort to include that person
8. I accept others for who they are, even if they are different
9. If I notice someone who is lonely, I try to include that person

***Physical Helping***

10. When people are fighting with each other, I try to help them get along
11. I break up fights
12. I do physical acts of service for others [lifting heavy things, yard work, cleaning]
13. If I see someone hurt themselves, I help that person
14. I help people in an emergency
15. I would enter a risky situation in order to help someone

***Sharing***

16. I pick up the tab for people
17. I lend money to people
18. I share my personal belongings with people

**Male Friend Scale*****Helping***

1. If I see someone being given a hard time, I stand up for that person
2. If someone is being made fun of, I stick up for that person
3. When people are fighting with each other, I try to help them get along
4. I break up fights
5. If someone is sad, I try to make that person laugh
6. If someone is upset, I help that person let off steam
7. If someone is upset, I listen to that person
8. If someone is upset, I do something fun with that person
9. I am nice to others, even if I don't like them
10. If someone is new to a group, I make an effort to include that person
11. I accept others for who they are, even if they are different
12. If I notice someone who is lonely, I try to include that person
13. I do physical acts of service for others [lifting heavy things, yard work, cleaning]
14. If I see someone hurt themselves, I help that person
15. I help people in an emergency
16. I would enter a risky situation in order to help someone

***Sharing***

17. I pick up the tab for people
18. I lend money to people
19. I share my personal belongings with people

**Female Stranger Scale*****Emotional Support***

1. If I see someone being given a hard time, I stand up for that person
2. If someone is being made fun of, I stick up for that person
3. When people are fighting with each other, I try to help them get along
4. I break up fights
5. If someone is upset, I help that person let off steam
6. If someone is upset, I do something fun with that person

***Inclusion***

7. If someone is sad, I try to make that person laugh
8. I am nice to others, even if I don't like them
9. If someone is new to a group, I make an effort to include that person
10. I accept others for who they are, even if they are different
11. If I notice someone who is lonely, I try to include that person

***Physical Helping***

12. I do physical acts of service for others [lifting heavy things, yard work, cleaning]
13. If I see someone hurt themselves, I help that person
14. I help people in an emergency
15. I would enter a risky situation in order to help someone

***Sharing***

17. I share with people [food, clothes, car]
18. I pick up the tab for people

19. I lend money to people

20. I share my personal belongings with people

### **Male Stranger Scale**

#### ***Emotional Support***

1. If I see someone being given a hard time, I stand up for that person
2. If someone is being made fun of, I stick up for that person
3. When people are fighting with each other, I try to help them get along
4. I break up fights
5. If someone is sad, I try to make that person laugh
6. If someone is upset, I help that person let off steam
7. If someone is upset, I listen to that person
8. If someone is upset, I do something fun with that person
9. I am nice to others, even if I don't like them

#### ***Physical Helping***

10. If someone is new to a group, I make an effort to include that person
11. I accept others for who they are, even if they are different
12. If I notice someone who is lonely, I try to include that person
13. I do physical acts of service for others [lifting heavy things, yard work, cleaning]
14. If I see someone hurt themselves, I help that person
15. I help people in an emergency
16. I would enter a risky situation in order to help someone

#### ***Sharing***

17. I share with people [food, clothes, car]
18. I pick up the tab for people
19. I lend money to people
20. I share my personal belongings with people