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# Associations Among Different Types of Prosocial Behavior Toward Friends, Friendship Quality, and Mental Health Outcomes During Adolescence

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Associations Among Different Types of Prosocial Behavior Toward Friends,  
Friendship Quality, and Mental Health Outcomes During Adolescence

Daye Son

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

### Associations Among Different Types of Prosocial Behavior Toward Friends, Friendship Quality, and Mental Health Outcomes During Adolescence

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The current study used a multidimensional approach to prosocial behavior by a) exploring various types of adolescent prosocial behavior toward friends (physical helping, sharing, defending, emotional support, including) using both qualitative and quantitative data, and b) examining longitudinal associations among prosocial behavior toward friends, friendship quality, and mental health (anxiety, life satisfaction, depression). The data were taken from Waves 8, 9, and 10 of the Flourishing Families Project. Participants at Wave 8 consisted of 470 adolescents ( $M$  age = 18.4 years,  $SD$  = 1.04, 49% male, 32% high school students, 33% single-parent families) from the United States. Results revealed that overall prosocial behavior for boys and emotional support for girls were positively associated with friendship quality over time. Overall prosocial behavior was also associated with increased life satisfaction. Discussion focuses on the multidimensionality of prosocial behavior and implications regarding friendships and mental health during adolescence.

Keywords: prosocial behavior, friendship quality, mental health, adolescence

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Associations Among Different Types of Prosocial Behavior toward Friends,  
Friendship Quality, and Mental Health Outcomes During Adolescence

“Go on, have a pasty,” said Harry, who had never had anything to share before or, indeed, anyone to share it with. It was a nice feeling, sitting there with Ron, eating their way through all Harry's pasties, cakes, and candies.

— Rowling, *Harry Potter and the Sorcerer's Stone*, 1998.

As adolescents begin to spend more time with their friends than with their parents, friendship becomes a dominant social context during adolescence (Steinberg & Morris, 2001). Friendship plays a critical role in various aspects of adolescents' social and emotional development (Hartup & Stevens, 1999), including development of prosocial behavior (i.e., voluntary actions intended to benefit another; Eisenberg, Spinrad, & Knafo-Noam, 2015). This is, in part, because friendship experiences present opportunities for adolescents to cooperate, share, and show kindness to their friends (Newcomb & Bagwell, 1998), and these prosocial actions function as a way through which adolescents maintain positive relationships (Barry & Wentzel, 2006). Indeed, adolescents report engaging in prosocial behavior more frequently toward friends than family or strangers (Padilla-Walker & Christensen, 2011), and extant research has identified several friend predictors (e.g., Farrell, Thompson, & Mehari, 2017; van Hoorn, Dijk, Meuwese, Rieffe, & Crone, 2016) and outcomes (e.g., friendship quality; Caputi, Lecce, Pagnin, & Banerjee, 2012; Markiewicz, Doyle, & Brendgen, 2001) of prosocial behavior. Given the importance of friendship as the context for prosocial behavior in adolescence, prosocial behavior may influence the quality of friendship and subsequently impact outcomes that are closely tied to friendship. One such outcome pertinent to adolescence is mental health. Increased anxiety (Merikangas et al., 2010) and depression (Costello, Mustillo, Erkanli, Keeler,

& Angold, 2003; Ford, Goodman, & Meltzer, 2003) are prevalent during adolescence. A close examination of adolescent mental health may help prevent chronic mental health problems that negatively affect other behavioral outcomes in adolescence and adulthood (e.g., academic performance; Van Ameringen, Mancini, & Farvolden, 2003, binge drinking; Chassin, Pitts, & Prost, 2002). Increased mental health problems during adolescence may be due in part to stress associated with developing and maintaining friendships (Graber & Sontag, 2009), with negative or a lack of friendship leading to adolescent psychological problems (Kingery, Erdley, & Marshall, 2011). The association between prosocial behavior and mental health problems may be explained through friendship quality because of the salience that friendships play in adolescents' lives and the role that prosocial behavior may play in promoting positive friendship. While previous studies have established the associations between prosocial behavior and friendship, and between friendship and mental health, the current study integrated these bodies of research in order to help elucidate a process through which adolescents may impact their own trajectories of mental health. Thus, this study sought to extend the current literature on adolescent development by a) examining the link between adolescent prosocial behavior toward friends and subsequent friendship quality, and b) exploring how these associations in turn are linked to mental health outcomes.

### **Theoretical Framework**

Internalizing problems (e.g., depression and anxiety) are defined as difficulties in regulating negative emotions (Graber & Sontag, 2009). Erikson's psychosocial development theory posits that friendships play a salient role in children's identity development during adolescence because adolescents exhibit high social orientation (Erikson, 1993). A lack of or negative friendship may result in "personality diffusion," which has been found to be associated

with depression and anxiety (Sollberger et al., 2012). On the other hand, positive friendships have been found to be related to identity achievement during adolescence (Jones, Vaterlaus, Jackson, & Morrill, 2014), which leads to positive mental health (See Thoits, 2013 for review). A heightened sensitivity and vulnerability to stress associated with friendships (Graber & Sontag, 2009), along with other challenges that adolescents face (e.g., academic demand; Brooks-Gunn, 1991), may overwhelm adolescents and negatively influence their mental well-being. Developing competence (i.e., successful adaptation to the developmental tasks given to a particular stage of life; Masten & Curtis, 2000) may promote positive mental health, with building friendships being one of the main tasks in adolescence. Prosocial behavior may facilitate successful friendship formation and maintenance, thus promoting positive emotional and mental well-being. Friendship is also closely tied to adolescent emotions and mental health because friendship satisfies individuals' basic needs of companionship and intimacy (Buhrmester, 1996; Gere & MacDonald, 2010). In addition to fulfillment of need for relatedness, friendships may fulfill the need for autonomy (La Guardia & Patrick, 2008), and such autonomy support in friendships has been associated with greater well-being (Deci, La Guardia, Moller, Scheiner, & Ryan, 2006). Indeed, close friendships provide potential for frequent mutual exchange of thoughts and feelings, which can promote autonomy and relatedness. As friendships are salient in adolescents' lives and therefore closely related to self-worth (Rubin et al., 2004), failures or successes in maintaining friendships may have a significant impact on adolescent mental health.

### **Prosocial Behavior Toward Friend and Friendship Quality**

Prosocial behavior toward friends may be associated with better mental health through increased friendship quality. Friendships can be mutually benefitting relationships wherein

adolescents exchange “social provisions” with each other (Bukowski, Newcomb, & Hartup, 1996). Prosocial behavior may be one type of social provision that adolescents provide to their friends. As people tend to reciprocate provisions in order to maintain a balance in relationships (equity theory; Walster, Berscheid, & Walster, 1976), greater prosocial behavior toward a friend may elicit greater positive social provisions (e.g., intimacy, support) from that friend, thus resulting in higher levels of friendship quality. It is well established that aggression creates conflicts in friendships while prosociality fosters positivity in friendships (Brown & Larson, 2009). More specifically, studies have found general prosocial tendencies (Markiewicz et al., 2001), prosociality toward a virtual peer (Poorthuis, Thomaes, Denissen, van Aken, & de Castro, 2012), peer nominations of prosociality (McDonald, Wang, Menzer, Rubin, & Booth-LaForce, 2011) and self-report of general prosocial tendencies (Cillessen, Jiang, West, & Laszkowski, 2005) to be associated with higher friendship quality. However, the cross-sectional design of these studies only indicates a concurrent association between prosociality and friendship quality. Longitudinal analysis is needed to provide stronger direction of effects for prosociality on friendship.

**Multidimensional approach to prosocial behavior.** Recent research on prosocial development has called for a need to move beyond the simplistic, global view of prosocial behavior and toward the understanding of prosocial behavior as a complex construct (Padilla-Walker & Carlo, 2014). This multidimensional approach to prosocial behavior provides greater nuances by identifying specific forms of prosocial behavior and their unique correlates (Carlo & Randall, 2002). The multidimensional approach in this study includes specifying the target and types of prosocial behavior. In terms of targets, limited research has been done regarding the association between prosocial behavior toward friends and friend outcomes (Padilla-Walker,

Carlo, & Nielson, 2015a; Padilla-Walker, Fraser, Black, & Bean, 2015b). Specifying the target of prosocial behavior as friends would be important given that behavioral (Padilla-Walker & Carlo, 2014) and neural (Schreuders, Klapwijk, Will, & Güroğlu, 2018) correlates are differentially associated with targets of prosocial behavior. There is a need to further distinguish between peers (i.e., same-aged youth with whom an adolescent shares experiences; Farrell et al., 2017) and friends (i.e., members in a peer group with whom an adolescent is attached and with whom an adolescent frequently and voluntarily interacts; Farrell et al., 2017) when examining prosocial behavior because the frequency and proximity of interactions, as well as the increased awareness of social context during adolescence, prompt adolescents to be more prosocial to friends than peers (Güroğlu, van den Bos, & Crone, 2014). A relational approach to prosocial behavior may elucidate how prosocial behavior toward friends may promote friendship quality (Amato, 1990). Unlike prosocial behavior toward strangers or peers which is more motivated by dispositional characteristics, prosocial behavior toward those with whom one shares close relationships (e.g., friend) is primarily motivated by the maintenance of positivity in such relationships (Lewis, 2014). From this approach, I expected prosocial behavior toward friends to be positively associated with friendship quality.

In terms of types of prosocial behavior, studies on prosocial behavior in friendship settings have thus far primarily used a global measure of prosocial behavior that consists of sharing, cooperating, and helping (Meuwese, Cillessen, & Güroğlu, 2017; Wentzel, 2014). Given the increased complexities and abilities in cognitive and physical development in adolescence (Blakemore & Choudhury, 2006), as well as the unique contextual setting that friendship provides, additional types of prosocial behavior are expected to regularly occur. Distinguishing types of prosocial behavior may also explain some of the null findings in relation to prosocial

behavior to friends (e.g., self-esteem; Fu, Padilla-Walker, & Brown, 2017), since the lack of significant associations between prosocial behavior toward friends and self-esteem may be due to the use of general helping as prosocial behavior rather than specific forms of helping (e.g., comforting) that may be more prevalent and more impactful on adolescent friend outcomes. Hence, this study drew upon a recently developed multidimensional measure of prosocial behavior (Nielson, Padilla-Walker, & Holmes, 2017) to distinguish five types of prosocial behavior that may be unique in friendships during adolescence. The five types of prosocial behavior consisted of *defending* (i.e., standing up for a friend who is getting victimized), *emotional support* (i.e., helping to appease negative emotions and/or to foster positive emotions), *including* (i.e., helping someone who is not a member of an in-group to feel accepted), *physical helping* (i.e., acts of service that primarily involve the physical body as resource for helping, such as lifting heavy things), and *sharing* (i.e., helping by providing material resource, such as giving gifts and picking up tabs). Given the varying degrees of cost that are associated with each type of prosocial behavior, different types of prosocial behavior were expected to differ in their impact on friendship quality and consequently on adolescent mental health. Providing emotional support was expected to have greater influence on friendship quality than physical helping or sharing because such helping may involve relational commitment and emotional investment that may be costly (Eisenberg & Shell, 1986), whereas physical helping or sharing can be performed without the presence of intimacy. Defending and including are more nuanced and understudied, with higher levels of defending behavior being related to a decrease in both the defender's own victimization and peer-perceived liking (Meter & Card, 2015). Defending behavior could also be considered high-cost due to the intense emotions involved in the victimizing situation. Standing up to an aggressor can be stressful and anxiety-provoking because the situation involves some

type of aggression, and taking the side of a victim could be perceived as being opposed to aggressive peers who may desire social dominance in the peer group (Olthof, Goossens, Vermande, Aleva, & van der Meulen, 2011). It was thus hypothesized that defending would be directly and positively associated with anxiety in addition to its relation to friendship quality.

### **Friendship Quality and Mental Health**

Prosocial behavior in general has been found to be protective against anxiety (Haroz, Murray, Bolton, Betancourt, & Bass, 2013) and depressive symptoms (Davis et al., 2016) during adolescence and adulthood (Musick & Wilson, 2003). Based on the relational approach to prosocial behavior, prosocial behavior toward friends may promote positive adolescent mental health via increased friendship quality. In support of this hypothesis, a recent study using the same data set found relationship quality to longitudinally mediate the relations between prosocial behavior to friends and family and adolescents' internalizing and externalizing outcomes (Padilla-Walker et al., 2015a). The results on prosocial behavior toward friends indicated positive bidirectional associations with anxiety via friendship connectedness, and no relations between prosocial behavior and depression. While this finding is inconsistent with previous literature on the protective effects of prosocial behavior, it could be that adolescents feel heightened anxiety because they are susceptible to the evaluation of friends (La Greca & Lopez, 1998) and peer conformity (Berndt, 1979) as they continue to maintain friendship through prosocial actions. Padilla-Walker and colleagues (2015a) speculated that this surprising finding may have been unique to the period of early adolescence they were studying, especially given that this result has not been found at other ages. Other studies seemed to suggest clearer effects of friendship on adolescent mental health, with low friendship quality being consistently related to mental health problems including reduced happiness (Cheng & Furnham, 2002; Demir &

Urberg, 2004), anxiety (La Greca & Harrison, 2005), and depressive symptoms (Spithoven et al., 2017). The current study thus examined the links between prosocial behavior toward friends and adolescent mental health outcomes (depression, anxiety, life satisfaction) via friendship quality. While depressive symptoms and anxiety are often studied as adjustment outcomes, the absence of negative emotions does not ascertain the development of positive adjustment (Greenspoon & Saklofske, 2001). Life satisfaction was additionally examined in order to understand the impact of friendship quality on both negative and positive mental health outcomes. It was hypothesized that friendship quality would be negatively associated with depression and anxiety while positively associated with life satisfaction.

### **Gender as Another Nuance**

Gender was also included in the current study as another meaningful aspect to consider since children tend to feel increased pressure to conform to traditional gender ideals during adolescence. Evidence suggests gender differences in both types of prosocial behavior and in friendship processes. Regarding the gender differences in types of prosocial behavior, studies have found that females tend to focus on emotionally supportive behavior and males on agentic helping behavior such as helping physically or helping in an emergency (Eagly, 2009; Nielson et al., 2017). These differences in the manifestation of prosocial behavior among males and females may be due to pressure for boys to conform to masculine ideals of emotional stoicism (Hine & Leman, 2013). Research has also found gender differences in the patterns of association between prosocial behavior and behavioral outcomes. For example, while prosocial behavior and personality independently and directly predicted delinquency for adolescent boys, the relations between prosocial behavior and delinquency were fully mediated by personality for girls (Pursell, Laursen, Rubin, Booth-LaForce, & Rose-Krasnor, 2008). Based on these differences,

we expected that there would be gender difference in the associations between types of prosocial behavior and friendship quality. Gender differences are also found in friendship processes (Rose & Rudolph, 2006), with girls reporting greater emotional intimacy and placing higher value in friendships than boys (Aukett, Ritchie, & Mill, 1988). Adolescent girls also tend to report greater concerns and stress related to friendships and friend evaluation (Graber & Sontag, 2009), so we expected friendship quality to have more salient effects on girls' mental health outcomes.

### **Current Study**

The current study employed a multidimensional approach to prosocial behavior to a) explore different types of prosocial behavior toward friends (physical helping, sharing, defending, emotional support, including) that adolescents engage in using qualitative data, and b) examine whether the types of prosocial behavior toward friends are differentially associated with mental health outcomes via friendship quality. As the types of prosocial behavior used in this study stemmed from the newly developed measure, we first explored qualitative responses about adolescents' prosocial actions toward friends to confirm that these types of prosocial behavior are prevalent in vivo. Specifically, a representative example is provided for each type of prosocial behavior. Next, we examined which types of prosocial behavior toward friends are longitudinally associated with friendship quality across gender and hypothesized that emotional support would be more strongly associated with friendship quality than other types for females, while physical helping would be more strongly related to friendship quality for males. Friendship quality in turn was hypothesized to be associated negatively with anxiety and depression and positively with life satisfaction over time, with stronger effects for females.

## **Method**

### **Participants**

The data were taken from Waves 8, 9, and 10 of the Flourishing Families Project, a longitudinal study of adolescent development. These waves were selected due to the availability of data and in order to analyze the influence of prosocial behavior during late adolescence. Participants at Wave 8 consisted of 470 adolescents (49% male, 32% high school students, 33% single-parent families) from the United States. Children participated every year starting in 2014, and longitudinal retention was 90%. There were no differences among variables of interest between those who stayed in the study and those who did not. The average age at Wave 8 was 18.4 years (range = 16-21,  $SD = 1.04$ ). Regarding ethnicity, 68% of families were European American, 11% were African American, and 23% were multiethnic or other ethnicities. In terms of income, 12% of families reported an annual income below \$25,000, another 56% reported between \$25,000 and \$75,000, and the remaining 32% reported greater than \$75,000.

### **Procedures**

Before the data collection, IRB approval was obtained from the sponsoring university. At Wave 1, families were randomly selected from targeted census tracts that mirrored the socioeconomic and racial stratification of reports of local school districts from a large northwestern city in the United States. Participants were identified using a multistage recruitment protocol (Polk Directories/InfoUSA), which contained detailed information (e.g., presence and age of children) of 82 million households across the United States. Families were considered eligible to participate if they had a child between the ages of 10 and 14 years in the home. Of the 692 eligible families contacted, 61% responded and agreed to participate in the project. In an attempt to capture the socio-economic and ethnic diversity of the local area, 77 (15%) additional families were recruited into the study through referrals and fliers. Data for waves 1 through 5 were collected in the homes of the participants, while the latter five waves, including the

questionnaires for this study, were administered online using Qualtrics. Data collection began the first week in May each year, and the participants were contacted over phone by undergraduate research assistants and were given instructions on taking the survey online. The survey took approximately 45 minutes to take and the adolescents were given \$100 upon completion.

### Measures

Waves 8, 9, and 10 are hereafter referred to as Time 1, 2, and 3 respectively, and the measures are described in the order of time at which they were assessed.

**Prosocial behavior toward friend.** Prosocial behavior toward friend was reported by adolescents at Time 1 using a multidimensional measure of prosocial behavior (Nielson et al., 2017). Five types included *defending* (e.g., “If someone is being made fun of, I stick up for that person”;  $\alpha = .84$ ), *emotional support* (e.g., “If someone is upset, I listen to that person”;  $\alpha = .87$ ), *inclusion* (e.g., “If someone is new to a group, I make an effort to include that person”;  $\alpha = .80$ ), *physical helping* (e.g., “I do physical acts of service for others [lifting heavy things, yard work, cleaning]”;  $\alpha = .82$ ), and *sharing* (e.g., “I share my personal belongings with people”;  $\alpha = .84$ ). Each type of prosocial behavior was measured by four items on a 5-point Likert scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). Higher scores indicate higher levels of prosocial behavior.

In conjunction with the quantitative portion of the survey, the participants were asked an open-ended question in order to explore prosocial behavior in depth and to investigate how prosocial actions are manifested in real-life situations. The specific question included, “Tell us about a time in the last year when you did something kind or helpful for a friend.” A total of 434 responses were collected and coded for the type of prosocial behavior. A codebook comprised of definitions, operationalizations, inclusion, and exclusion criteria for each type of prosocial

behavior was first developed based on the quantitative measure of prosocial behavior used in this study (Nielson et al., 2017). *Defending* was defined as helping by protecting a friend who is being physically, relationally, or verbally attacked, and it included breaking up fights, standing up for someone who is being made fun of or given a hard time. *Emotional support* was described as helping to appease negative emotions and/or to foster positive emotions, and it included situations in which a friend's emotions such as anger or sadness were clearly stated. *Including* was defined as helping someone who is not a member of an in-group to feel accepted. This involved someone who is new to a group or who seems lonely. *Physical helping* was described as assisting with the physical body as a primary resource (e.g., lifting heavy things, giving rides, cleaning). *Sharing* was defined as providing material resource, such as giving gifts, picking up tabs, and sharing personal belongings. Using the codebook, two undergraduate research assistants performed focused coding by examining each response and applying the appropriate code for prosocial types by assigning the value of 1 to indicate the presence of a certain type of prosocial behavior and 0 to designate nonexistence. Prosocial behaviors could be coded for more than one type of prosocial behavior. Interrater reliability was achieved for all codes (kappas > .70), and any remaining discrepancies were resolved by the first author.

**Friendship quality.** Children reported on their own relationships with their best friend at Time 1 and 2 using the connection subscale from the best friend relationship measure (three items; Barber & Olsen, 1997). Responses were given on a Likert-type scale ranging from 0 (*never*) to 4 (*every day*). Sample items included, "How often do you tell your friend things about yourself that you wouldn't tell most kids?" ( $\alpha = .69-.71$ ).

**Anxiety.** Child's anxiety was assessed at Time 2 and 3 using the six-item generalized anxiety disorder subscale from the Spence Child Anxiety Inventory (Spence, 1998). Participants

responded using a 4-point Likert scale ranging from 0 (*never*) to 3 (*always*) with higher scores reflecting greater levels of anxiety. Sample items included, “I worry a lot about things,” and “When I have a problem, my heart beats really fast” ( $\alpha = .83-.89$ ).

**Depression.** Adolescents reported on their own depression at Time 2 and 3 using the 20-item self-report CES-DC (Center for Epidemiological Studies Depression Scale for Children; Weissman, Orvaschel, & Padian, 1980). Participants responded by rating the degree to which they have experienced each item in the past week, with a Likert-type response scale ranging from 1 (*not at all*) to 4 (*a lot*). Higher scores indicate greater depressive symptoms. Sample items included “I felt down and unhappy” and “I felt lonely, like I didn’t have any friends” ( $\alpha = .91-.92$ ).

**Life satisfaction.** Life satisfaction in a number of domains was assessed at Time 3 using five items (adapted from Diener, Emmons, Larsen, & Griffin, 1985). Responses were on a scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*) regarding how adolescents felt about their life at this point (e.g., “I am satisfied with my life” and “I am satisfied with my relationships”;  $\alpha = .83$ ). Higher scores represent greater subjective life satisfaction.

### **Data Analysis Procedures**

First, the coded responses on prosocial behavior were analyzed to provide exemplar responses for each type of prosocial behavior. Next, a confirmatory factor analysis (CFA) was performed prior to structural modeling by creating latent variables of all study variables using Mplus (Version 7.4; Muthén & Muthén, 2016) to ensure good factor loadings. Following the CFA, a structural equation modeling with indirect effects was conducted to examine the associations among prosocial behavior toward friends, friendship quality, and mental health outcomes. Appropriate model fit was based on Hu and Bentler (1999)’s criteria of CFI and TLI

$> .95$ ,  $RMSEA < .05$ , and  $SRMR < .08$ . To examine the indirect effects, a bootstrapping analysis was conducted with 2000 bootstrap resamples and a 95% bias-corrected confidence interval (CI). Missing data were minimal (less than 5%; Schafer, 1999) and were considered missing at random, thus maximum likelihood feature was applied.

## Results

### Qualitative Findings

We first coded and analyzed the qualitative responses to explore the types of prosocial behavior toward friends. The frequency for each type of prosocial behavior in the qualitative data was 28.5% for emotional support, 19.3% for physical helping, 44.8% for sharing, 2.5% for including, and 2.1% for defending. When asked about an experience with helping friends, a respondent described helping providing emotional support: "I helped one of my friends get through a bad break up situation. I listened to how upset she was about everything and how terrible she felt. When she wanted to hurt herself, I told her to try to stay positive." Another respondent described how she helped by sharing: "My friend did not have money for a bubble tea, so I paid for her." In regards to physical helping, one participant stated: "Last week my friend needed help moving cut-up trees for his yard work business so he asked if I could help. I said 'of course,' and spent a few hours moving yard waste with him." An example of including as a type of prosocial behavior consisted of when a participant helped a friend who was new:

A friend of mine just moved from Chicago and didn't know anyone at my school. Several of my other friends invited him to sit with us at lunch while most people ignored him for the first couple days, but I kept talking to him to make him feel included and now he is one of my closest friends.

Another participant recounted helping two friends who were fighting:

Earlier this year two of my best friends at school got in a big fight. Instead of standing by and letting it ruin their friendship, I went to both of them separately, and talked them through their side of the argument. In the end I was able to help the two of them end their fight and continue their friendship.

This account provided an example of defending behavior that may be common in adolescence. Notably, some responses did not fit into any of the five types of prosocial behavior. These responses were examined again to form new categories of prosocial behavior that would be meaningful. One category called *intellectual helping* (3.7%) consisted of adolescents helping their friends academically, such as assisting with homework. Another category was named *harm prevention* (2.8%), and this category included actions out of concern for friend's health (e.g., helping a friend to quit doing drugs). For example, one participant recounted: "My friend struggles with self-harm and depression and I regularly help him overcome negative thoughts, specifically about lack of self-worth and self-potential. More than once I have talked him out of self-harming or comforted him after relapse."

### **Descriptive Statistics and Bivariate Correlations**

Means, standard deviations, and correlations of all continuous study variables are presented in Table 1. Notably, the five types of prosocial behavior were positively correlated with each other for both girls and boys. Most of the types of prosocial behavior were positively correlated with friendship quality for boys, while only emotional support was positively correlated with friendship quality for girls. Additionally, friendship quality was positively correlated with anxiety for girls, while types of prosocial behavior were positively associated with life satisfaction. T-tests were performed to identify gender differences on variables of interest. Tests revealed that girls reported higher levels than boys of emotional support ( $t = 4.24$ ,

$p < .001$ ), including ( $t = 2.70, p = .007$ ) friendship quality ( $t = 7.53, p < .001$ ), anxiety ( $t = 6.64, p < .001$ ), depression ( $t = 3.33, p < .001$ ), and life satisfaction ( $t = 2.87, p = .004$ ).

### **Measurement Model**

First, a measurement model was conducted using MPlus (Version 7.4, Muthén & Muthén, 2016). Latent variables were created for all study variables with individual items, and the model fit the data adequately,  $\chi^2(1163) = 2055.10, p < .001$ , CFI = .93, TLI = .92, RMSEA = .04 90% CI [.038 - .043], SRMR = .049, with all factor loadings above .40. To test the multidimensionality of prosocial behavior and capture the unique impact that each specific prosocial behavior has on friendship quality and mental health outcomes, a bifactor model (Reise, 2012) was created using overall prosocial behavior as a general latent factor and each type of prosocial behavior as a specific sub-latent factor. A bifactor model is advantageous when testing whether the items of prosocial behavior are composed of unique subfactors (e.g., physical helping, sharing) beyond their overall attributes as one construct (i.e., prosocial behavior). This type of modeling is useful for examining the possibility of heterogeneity of the items that make up one construct, as it was hypothesized that one type prosocial behavior (e.g., emotional support) would have different impact on the outcomes than another type (e.g., physical helping). By generating the bifactor model as opposed to the regular or second-order CFA, the associations between the subfactors (i.e., different types of prosocial behavior) and outcomes beyond the general factor can be statistically tested. The bifactor model converged well,  $\chi^2(147) = 357.49, p < .001$ ; CFI = .961; TLI = .949; RMSEA = .056, 90% CI [.049 - .064], SRMR = .035, and all items loaded significantly on a general prosocial behavior factor with factor loadings above .40 (see Figure 1). As expected, the model fit of the bifactor model was

significantly better than the previous CFA, which means that the model parameter estimates of the bifactor model are superior.

### **Structural Model**

A structural equation model was conducted to examine the influence of five types of prosocial behavior at Time 1 on friendship quality at Time 2, while controlling for friendship quality at Time 1. Friendship quality at Time 2 in turn predicted child mental health outcomes (anxiety, depression, and life satisfaction) at Time 3, while controlling for anxiety and depression at Time 2. Both direct and indirect paths were explored. Gender was used as a moderator in the final model. We conducted the multiple group analysis across gender by first comparing a freely estimated model (structural paths estimated for boys and girls separately) and a fully constrained model with all structural paths equal for boys and girls. Based on the overall significant chi square difference between the two models ( $\chi^2$  difference = 1197.12 - 694.72 = 502.4, df 652-300 = 352,  $p < .05$ ), we proceeded to analyzing gender differences on individual coefficients by releasing one path constraint at a time. Final model fit was acceptable,  $\chi^2$  (652) = 1197.11,  $p < .001$ , CFI = .916, RMSEA = .060, 90% CI [.054 - .065], SRMR = .058 (see Figure 2). Analyses of direct effects suggested that greater prosocial behavior in general was associated with higher life satisfaction, regardless of gender ( $\beta = .22$ ,  $p = .018$ ) and higher best friendship quality for boys ( $\beta = .34$ ,  $p < .001$ ). In other words, adolescents who initially reported engaging in overall prosocial behavior also reported having greater life satisfaction two time points later. Boys who initially engaged in greater overall prosocial behavior also had better friendship quality a year later. Unique variance of emotional support significantly predicted higher best friendship quality for girls ( $\beta = .39$ ,  $p < .001$ ), meaning girls who provided greater emotional support to friends at initial time point reported having improved friendship quality over time.

Additionally, best friendship quality was marginally and positively associated with anxiety over time for girls ( $\beta = .16, p = .071$ ) but not with other outcomes. This means that adolescent girls who reported higher friendship quality at Time 2 also reported higher anxiety one year later. Results indicated nonsignificant indirect effect via best friendship quality between emotional support and anxiety.

### **Discussion**

As previous studies on prosocial behavior in friend settings have typically used a measure of general prosocial behavior to an unspecified target without considering the multidimensionality of prosocial behavior, this study attempted to capture the meaningful nuances of adolescent prosocial behavior toward friends. Additionally, while the relations between prosocial behavior and friendship, and between friendship and mental health have separately been established, this study sought to take an integrated approach to understand a process through which prosocial behavior toward friends may have a positive impact on mental health via friendship quality, since interactions with friends become more frequent and salient during adolescence. Thus, the purpose of the current study was to a) explore different types of prosocial behavior that are manifested in vivo, and b) examine the links among types of prosocial behavior, friendship quality, and mental health outcomes across gender. The qualitative findings indicated that adolescents engage in various types of prosocial behavior toward friends, and that sharing was most frequently reported, while behaviors such as defending were more rarely given as examples. The quantitative results revealed unique effects of both overall prosocial behavior and specific type of prosocial behavior on friendship quality and mental health outcomes. Notably, greater emotional support for girls and general prosocial behavior for boys were

positively associated with friendship quality. Greater prosocial behavior in general was associated with higher life satisfaction for both boys and girls.

### **Multidimensionality of Prosocial Behavior**

Our findings suggest that not only do friendship settings during adolescence provide frequent opportunities to be prosocial (Padilla-Walker & Christensen, 2011), but that adolescents engage in diverse forms of voluntary helping. Indeed, adolescents' responses about their prosocial behavior to friends varied greatly in terms of time commitment, material resources, emotional intimacy, frequency, and cost. Results also indicated that the unique variance of emotional support predicted higher levels of friendship quality, suggesting differing impact that some types of prosocial behavior have on child outcomes. This supports continuing research on the multidimensional approach to prosocial behavior, which posits that different types of prosocial behavior have varying degrees of costs, correlates, and implications (Padilla-Walker & Carlo, 2014). The complexity and diversity in prosocial behaviors may emerge during adolescence due to an increase in children's abilities (e.g., cognitive; Blakemore & Choudhury, 2006) and resources (e.g., financial; Steinberg & Cauffman, 1995) to help others. Indeed, in addition to the pre-defined five types of prosocial behavior, other notable types of prosocial behavior including intellectual helping and harm prevention also emerged in the qualitative data. We encourage future research to incorporate these novel types of prosocial behavior to explore whether these kinds of helping behavior exist among different samples and across targets of prosocial behavior. By continuing to examine various types of prosocial behavior, research can accurately capture different ways that adolescents help and their varying impact on adolescent development. Taking the multidimensional approach, however, need not undermine the research on global prosocial behavior. Rather the multidimensional approach in conjunction with the

global view of prosocial behavior may complement each other and more completely inform us about the impact of prosocial behavior on child development. Indeed, by utilizing the bifactor model the current study found significant effects of both global prosocial behavior and specific types of prosocial behavior on adolescent friendship and mental health outcomes. Considering both the multidimensionality and singularity of prosocial behavior is beneficial for taking into account the nuances and contexts while preventing a narrow scope of research. Thus, future research should incorporate both global and multidimensional measures of prosocial behaviors.

### **Gender Differences in the Patterns of Associations**

Interesting findings emerged by gender, with emotional support being uniquely associated with increased friendship quality for girls and global prosocial behavior being positively associated with friendship quality over time for boys. This finding seems to be in line with previous research that females tend to place greater importance on emotional intimacy (Rose & Rudolph, 2006) and closeness (Henrich, Blatt, Kuperminc, Zohar, & Leadbeater, 2001) as a means of promoting positive friendships than do males. On the other hand, friendships for boys may benefit from the combination of various prosocial actions such as physical assistance and sharing. Indeed, rather than having friendships that are intimate and exclusive (Berndt, 1982), adolescent males' friendships tend to be promoted by general support for each other that consists of many forms of helping behaviors such as taking turns and helping physically. These combinations of prosocial behaviors then seem to have a positive impact on friendship quality as an overall support for boys, commonly expressed as "having each other's back." Future research should continue to consider the development of gender beliefs when studying child prosocial behavior.

Notably, friendship quality was positively associated with anxiety over time for girls. Descriptive results also found that girls reported higher mean levels of friendship quality and anxiety. While the finding is surprising given the protective effects of positive friendship on mental health outcomes (Haroz et al., 2013), this warrants further investigation into adolescent girls' interactions with close friends that may provoke anxiety. One possible explanation is negative interactions and stress related to maintaining friendships. One study found that adolescent girls engaged in co-rumination (i.e., discussion problems while focusing on negative emotions) more than did boys, which was associated with both more positive friendship and greater anxiety problems (Rose, 2002). Additionally, adolescent girls may feel heightened anxiety partly due to their susceptibility to the evaluation of friends (La Greca & Lopez, 1998) and stress related to maintaining friendships (Graber & Sontag, 2009). Given that friendships play a salient role in identity formation (Erikson, 1993) and needs fulfillment (Deci et al., 2006) during adolescence, it would be important for parents, school teachers, and other stakeholders to help and teach adolescents (especially girls) to regulate stress and anxiety related to maintaining friendships and interacting with friends. Interventions on positive friendship skills may indeed be fruitful for reducing mental health problems among adolescents.

Another possible explanation is that close friendships often entail caring for a friend when distressed (Wentzel, 2014), and such prosocial behavior may lead adolescents to be more sensitive to a friend's needs and even taking on the stress of their friend, thus being anxious for and with their friend. In this light, increased anxiety can be interpreted as personal distress (i.e., aversive emotional reaction to other's situations; Eisenberg et al., 1989) to some degree. This emotional sensitivity and reactivity to a friend's needs may be particularly prevalent during adolescence as they are in the process of learning to maintain close social relationships (Collins

& Laursen, 2004) and may have not fully matured to learn to regulate their own emotions while helping close friends. While interventions to help adolescents to regulate their emotions while interacting with friends will be important given that failure to self-regulate emotions and personal distress as opposed to sympathy may prevent altruistic helping behavior (Eisenberg, 2010), this shows that anxiety that is below clinical level to some extent may not be as negative, but rather is a manifestation of sensitivity and care for friends.

### **Prosocial Behavior and Mental Health Outcomes**

Interestingly, beyond the benefit of improved friendship quality, overall prosocial behavior toward friends was associated with increased life satisfaction for both boys and girls. This finding is meaningful in that helping friends has a positive impact on adolescent well-being independent of its impact on friendship quality. As previous research on prosocial behavior has found positive child outcomes related to prosocial behavior (e.g., self-esteem; Fu et al., 2017), being kind and helping friends can promote happiness and good mental health in adolescents. Prosocial behavior may facilitate life satisfaction because increasing another's welfare may bring a sense of worth (Grant & Gino, 2010) and joy to the giver (Eisenberg, VanSchyndel, & Spinrad, 2016). However, the nonsignificant association between prosocial behavior and depression is worth noting. While this finding is somewhat puzzling and warrants further investigation, we speculate that prosocial behavior towards friends may be more effective at promoting positive moods than protecting against negative moods. Studies that have found prosocial behavior to be protective against depressive symptoms primarily measured prosocial behavior to an unidentified target or toward strangers (Davis et al., 2016; Musick & Wilson, 2003). A study using the same data with different time points also found nonsignificant effects of prosocial behavior towards friends on depression over time (Padilla-Walker et al., 2015a). Since little research has been

conducted exploring the impact of prosocial behavior toward various targets and internalizing problems, more studies should distinguish targets of helping and examine other mechanisms through which prosocial behavior might influence depression.

It is also of note that global prosocial behavior as opposed to specific types influenced greater life satisfaction. Overall prosocial behavior may be a better reflection of one's consistent tendencies for helping because it measures helping in a wide range of situations. Thus, prosocial behavior may be most beneficial to the helpers when they engage in prosocial behavior under various circumstances. Related implications for interventions include coaching youth to engage in prosocial actions toward friends to facilitate greater well-being and an increased sense of gratification in adolescents' lives.

### **Limitations and Conclusion**

While the present study made significant contributions to the extant research on child prosocial behavior, friendship, and mental health, it was not without limitations. As all study measures were self-reported, responses regarding friendship quality might have been biased. To accurately capture the friendship dynamic, future studies should include friend-reports or employ social network analysis. Further, the general lack of associations between friendship quality and mental health outcomes might have been due to the fact that friendship quality may have a different impact on child development as a function of the type of friendship (Berndt, 2002; Hartup, 1996). Future research should thus incorporate measures of friendship types (e.g., delinquent, prosocial). In addition, because life satisfaction was only measured at the final time point, a direction of effects for the results on this variable is difficult to determine. More studies replicating the associations between prosocial behavior and life satisfaction are needed to establish a causal link. Lastly, more diversity in race/ethnicity and socioeconomic status is

needed in the future to examine whether these patterns of associations among prosocial behavior, friendship quality, and mental health are similar across varying samples. Just as this study found gender differences, analyzing the patterns of associations across varying samples may facilitate producing effective intervention efforts that are tailored for a specific group of youths. Despite these limitations, this study utilized a newly developed measure of prosocial behavior and a mixed-method design to identify the unique impact that overall prosocial behavior as well as each type of prosocial behavior has on friendship quality and adolescent mental health outcomes. The results were further distinguished by gender to provide meaningful insights into ways that prosocial behavior may impact friendship quality and well-being differentially or similarly for boys and girls during adolescence. Considering emotional support as well as global prosocial behavior seem particularly important and fruitful avenues for future research on the multidimensional approach to prosocial behavior in adolescence. Our findings also illustrate the positive influence that prosocial behavior has on adolescent well-being and encourage researchers and the stakeholders to promote prosocial behavior in adolescents to increase life satisfaction. In addition, as friendship becomes salient during adolescence and consists of increased friend interactions (e.g., helping a distressed friend) and concerns about friend evaluation that may accompany anxiety, teaching friendship skills to help adolescents maintain healthy friendships and mental health would also be important.

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Table 1  
*Descriptive Statistics and Correlations of all Continuous Study Variables*

	1	2	3	4	5	6	7	8	9
1. Defending	-	.66**	.66**	.45**	.70**	.24**	.01	-.13	.19**
2. Emotional Support	.64**	-	.72**	.53**	.66**	.23**	-.12	-.15*	.13
3. Physical Helping	.75**	.60**	-	.56**	.68**	.22**	-.01	-.11	.08
4. Sharing	.53**	.51**	.58**	-	.46**	.20**	.06	.01	-.08
5. Including	.61**	.59**	.59**	.45**	-	.13	-.05	-.12	.12
6. Friendship Quality	.08	.24**	.07	.10	.06	-	.01	-.02	.07
7. Anxiety	-.04	.01	-.01	-.02	.01	.14*	-	.53**	-.33**
8. Depression	-.04	-.05	.01	-.06	-.06	.01	.50**	-	-.49**
9. Life Satisfaction	.21**	.27**	.22**	.23**	.28**	.11	-.28**	-.46**	-
<i>M</i>	4.06\3.99	4.50\4.24	4.15\4.23	3.99\3.82	4.24\4.06	3.92\3.19	1.43\1.01	1.90\1.72	5.36\5.06
<i>SD</i>	.71\ .78	.60\ .72	.70\ .71	.82\ .83	.67\ .69	1.02\1.02	.70\ .62	.61\ .52	1.03\1.72

*Note.* All correlations below the diagonal are for females, and above the diagonal are for males. Means and standard deviations before the slash indicate reports of females and after the slash are for males. \*  $p < .05$ , \*\*  $p < .01$

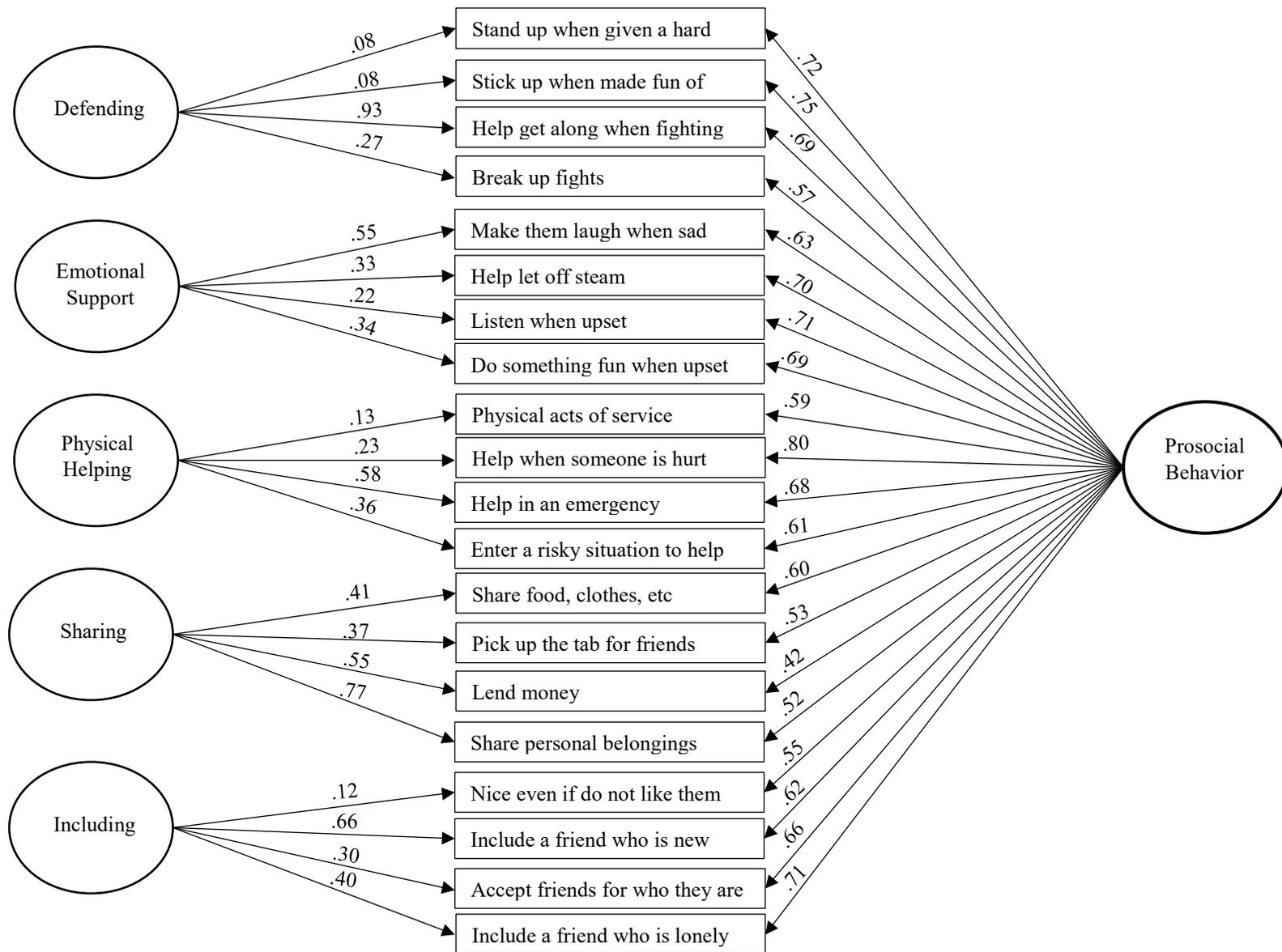


Figure 1. Bifactor Measurement Model of Prosocial Behavior Items.  
 $\chi^2(147) = 357.49, p < .001$ ; CFI = .961; TLI = .949; RMSEA = .056, 90% CI [.049 - .064], SRMR = .035. Standardized loadings are shown.

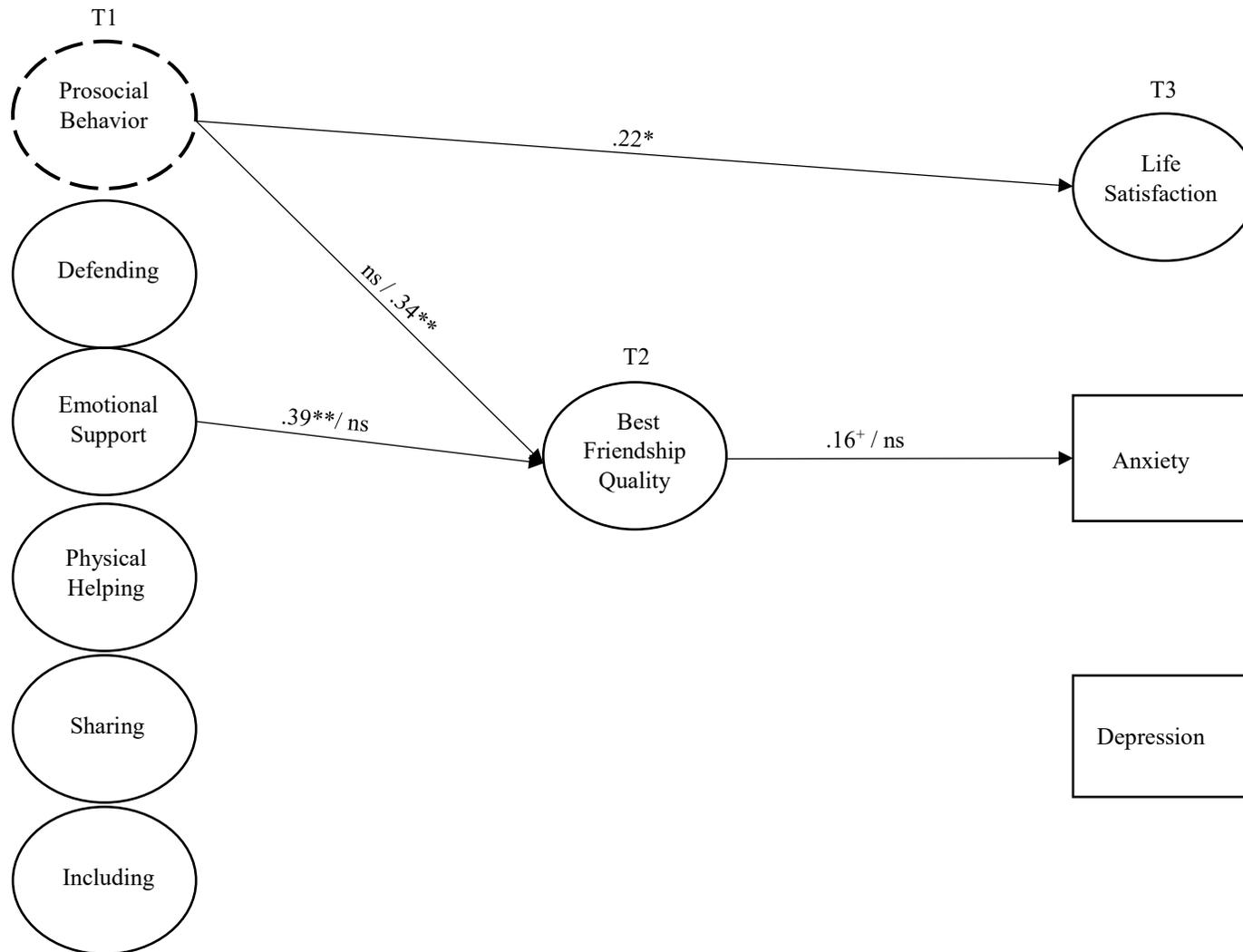


Figure 2. Longitudinal Associations Among Types of Prosocial Behavior, Best Friendship Quality, and Mental Health Outcomes.  $\chi^2(652) = 1197.11, p < .001, CFI = .916, RMSEA = .060, 90\% CI [.054 - .065], SRMR = .058$ . Standardized betas are reported. Nonsignificant paths, covariances, and error correlations are not shown in the figure for parsimony. All endogenous variables except for life satisfaction were controlled at previous time points, but stability paths are also not shown in the figure. Dashed circle represents the general factor. Beta weight before the slash reports associations for females, after the slash for males. All reported gender differences are statistically significant. <sup>+</sup>  $p < .08, * p < .05, ** p < .001$