

Gender Differences in Friendship Quality Across Adolescence

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It is often assumed that adolescent girls are more socially adept than their male counterparts. However, the question of whether adolescent girls' and boys' close friendships differ in quality is largely unexplored in the literature. The present study aims to address this question by characterizing the development of boys' and girls' friendship quality across seven years of adolescence, from the ages of 13 to 19. A community sample of 184 adolescents (53% female) and their closest friends participated, and observational and self-report measures of friendship quality were collected. Growth curve analyses revealed that girls' friendship quality grew faster in early adolescence (ages 13-16), while boys' friendship quality grew faster in later adolescence (ages 16-19), supporting the notion that boys lag in their social development. Boys' self-reported friendship quality was lower than that of girls across all seven years of adolescence, with the strongest difference at the age of 16. Boys' observed friendship quality was lower than that of girls only in the middle adolescent years of 14-16; this was followed by a rebound such that boys and girls were observed to demonstrate equivalent friendship quality in late adolescence. It is evident that teens' perceptions of their friendships may not always align with their observed friendship behaviors. However, one intriguing similarity between the self-report and observational data is the finding that boys' friendship quality appears to drop behind girls' most robustly in the middle adolescent years. Possible reasons for this phenomenon are discussed.

Friendships play a critical role in shaping teens' social-emotional development (Bagwell et al., 2005; Buhrmester & Furman, 1986; Sullivan, 1953). High-quality peer relationships in adolescence promote wellbeing (Demir & Urberg, 2004; Raboteg-Saric & Sakic, 2014), while low-quality friendships are associated with anxiety, depression and subsequent relationship dysfunction (La Greca & Harrison, 2005; Linder & Collins, 2005; Williams, Connolly, & Segal, 2001). The implications of variations in teen friendship dynamics are far-reaching: adolescent peer relationship qualities have been linked to self-worth, physical health and life satisfaction up to 30 years later (Allen, Uchino, & Hafen, 2015; Bagwell, Newcomb & Bukowski, 1998; Marion, Laursen, Zettergren & Bergman, 2013).

Researchers have long been interested in the ways in which gender might influence friendship qualities (Booth, 1972; Furman & Buhrmester, 1985; Maccoby, 1998). One of the enduring, but relatively unexamined, popular conceptions of adolescent social development is that girls are more socially adept than boys. A number of mostly cross-sectional studies suggest that in childhood and adolescence, girls report higher levels of intimacy, self-disclosure and affection in their friendships than do boys (Buhrmester & Furman, 1987; Lempers & Clark-Lempers, 1993; Sharabany, Gershoni & Hofman, 1981). However, some researchers contend that gender differences in friendship skills have been overstated, or at minimum, that existing work in the field is inconclusive (Rose & Asher, 2017; Underwood, 2007; Way & Silverman, 2011).

This study seeks to investigate whether boys' friendship quality lags behind that of girls in adolescence, and if so, to what extent boys are able to catch up by the end of adolescence. Several lines of theory and research suggest that teenage boys' friendship quality may initially

drop behind that of girls, but that boys may experience a slight rebound in friendship quality towards the end of adolescence.

Gender intensification theory (Hill & Lynch, 1983) posits that adolescence is a time of increased gender salience and differentiation, largely due to increased gender socialization. Adherence to gender role expectations should result in increasingly dissimilar behavioral profiles for teenage boys and girls. A review of relationship processes found that gender differences in some friendship qualities, such as self-disclosure and affection, were stronger for adolescents than for children (Rose & Rudolph, 2006). Given the widely-held stereotype that women are more interpersonally-oriented than men (Bakan, 1966; Block, 1973; Chodorow, 1978), gender intensification may lead adolescent girls to emphasize the degree to which they value friendships. A study that looked at gender socialization and friendship quality in early adolescent boys also found that their gender-typed behaviors (e.g., emotional stoicism) increased across time, and that adherence to these behaviors was associated with lower friendship quality (Gupta et al., 2013).

While gender socialization is likely to play out in friendships, biological processes may also differentially propel boys' and girls' social development across adolescence. Girls' bodies and brains begin to mature earlier than boys' (Marshall & Tanner, 1970; Tanner, 1971; Lenroot et al., 2007). In pre-adolescence through early adolescence, elements of boys' brain development can lag behind those of girls by 1-4 years (Lenroot et al., 2007). This holds true for some regions of the brain that are implicated in social cognition, such as the posterior superior temporal sulcus (Mills et al., 2012). Girls also typically begin puberty 2 years before boys do (Tanner, 1971), and pubertal hormones have been found to influence patterns of social emotion processing in the brain, as well as social behaviors like dominance-seeking (Goddings, Burnett Heyes, Bird, Viner,

& Blakemore, 2012; Rowe, Maughan, Worthman, Costello, & Angold, 2004). Together, these biological patterns suggest that girls are prepared at an earlier age to engage in increasingly sophisticated, meaningful relationships. It seems possible that they would maintain a social advantage over boys until boys' pubertal and cognitive development accelerates and they catch up in later adolescence.

Little work has directly assessed gender differences in developing patterns of friendship quality across adolescence, but research on a variety of socially-relevant competencies would suggest that such differences are likely to exist. Consistent with both biological timelines and the predictions of gender intensification theory, a number of studies have found that teenaged boys' and girls' relationship-relevant skills, such as pro-social behavior, conscientiousness, and perspective-taking, diverge in the adolescent period, with boys falling behind (Carlo, Crockett, Randall, & Roesch, 2007; Fabes, Carlo, Kupanoff, & Laible, 1999; Klimstra, Hale, Raaijmakers, Branje, & Meeus, 2009; Van der Graaff et al., 2014). However, one of these studies also found that boys' and girls' levels of agreeableness converge across adolescence, with boys "catching up" (Klimstra et al., 2009).

The small literature examining friendships, specifically, is more mixed. One study of 206 adolescents found that the gap in self-reported friendship quality between boys and girls was the greatest in early adolescence, with boys reporting lower-quality friendships, but that boys' steep improvement in friendship quality across time closed the gap by late adolescence (Way & Greene, 2006). Participants were reported to be approximately 13.5-15 years of age in the first wave of the study (M: 14.33; SD: .75), and data were collected in four consecutive yearly waves. Therefore, while the authors were able to parse their data to examine friendship quality patterns each year between the ages of 13-19, they were not tracking the *same* participants annually

across 7 years. Moreover, nearly a quarter (22%) of participants only provided data at 2 time points, further limiting the sample size at each age. These limitations suggest that conclusions about longitudinal friendship quality trajectories should be interpreted with some caution.

Another study of 930 adolescents found that boys consistently perceived less support in their close friendships than girls across the entire adolescent period; the gender gap in perceived support remained essentially the same at age 20 as it was at age 12 (de Goede, Branje, & Meeus, 2009). This study too lacked a single longitudinal cohort. Rather, the authors combined 5 years of longitudinal data from one cohort of early adolescents (M age at start: 12.4; SD: 0.59) with 5 years of longitudinal data from a second cohort of middle adolescents (M age at start: 16.7; SD: 0.82) to create a single growth-curve model. The authors acknowledge the need for a single-cohort longitudinal investigation of adolescent perceptions of their friendships.

Both of these studies captured same-sex friendship quality by self-report measure only, using shortened versions of the Network of Relationships Inventory (Furman & Buhrmester, 1985). One limit to self-report data in this context is that it could be distorted by gender differences in what is most socially desirable to report—especially, as noted earlier, if gender intensification is at play. Furthermore, both of these studies obtained friendship quality data from only one reporter, a target adolescent. Collecting data from *both* members of each friendship dyad would provide a more holistic sense of the quality of the friendship itself, which is inherently dyadic.

Notably, an *observational* study found no differences in girls' and boys' affective closeness (e.g. shared emotional expression) with their same-sex friends at any of three time points in high school (McNelles & Connolly, 1999). In this study, dyads engaged in a 10-minute video recorded interaction, during which they were asked to make joint decisions in a variety of

imagined scenarios. The videos were coded for “intimate affect” (e.g., shared affect, mutual attentiveness, and maintenance of eye contact) and “intimate behavior” (e.g., sharing in an activity together, discussion of topics, and engaging in personal disclosures). All participants demonstrated increased affective and behavioral closeness with age. Within the behavioral domain, boys demonstrated more activity-centered intimacy than girls, while girls engaged in more discussion and personal disclosures. However, as noted above, no main effect for gender was obtained in the realm of “intimate affect.” The authors concluded that boys and girls may use different *behavioral* strategies to obtain emotional closeness, but that ultimately, boys and girls are similarly skilled in achieving affective intimacy.

Despite using observational methodologies, this study was not without limitations. The experimenters created the friend dyads by pairing each adolescent with one of 30 friends that the adolescent had nominated. Over half the dyads did not meet criteria for a “close” friendship – criteria which would be met if at least one member of the dyad said that they knew the other person well. The findings of this study, therefore, may more accurately reflect adolescents’ ability to engage positively with acquaintances than with friends. Another weakness of this study is that it focused on only three consecutive years of middle adolescence (*M* age at time one = 14.77), failing to capture the full spectrum of adolescent development.

In all of the studies of social competencies and friendship quality that use self-report measures, boys lag socially at some point. However, there are two broader, different patterns that emerge in boys’ trajectories: they either start at the same level as girls and fall behind, or they start behind girls and catch up. Upon first consideration these findings appear to conflict; however, it is possible that *both* patterns are occurring. That is, boys’ social development may follow a U-shaped or two-phased trajectory, such that they first fall behind girls, and then catch

up to girls. Indeed, several of the papers mentioned that a slight “rebound” effect was apparent in boys’ data after middle adolescence (de Goede et al., 2009; Van der Graaff et al., 2014). This curve may not have been apparent in all studies, due to various methodological idiosyncrasies such as the range or standard deviation of age within a sample, the spacing of assessments across adolescence, and the use of several discrete samples across time. It is difficult to know whether such a pattern might exist in observational data, as the single study that used observational methodologies only tracked participants for three consecutive years.

The current study used multiple methods and multiple reporters to examine the trajectories of boys’ and girls’ friendship quality across seven years of adolescence. In doing so, we were able to bridge the gap between self-report and observational data, and obtain truly *dyadic* measures of friendship quality. Moreover, by collecting these data in a single cohort, followed from early to late adolescence, we were able to conduct uniquely robust longitudinal analyses.

Our aims and hypotheses follow. Because of our particular interest in investigating the possible two-phased pattern in boys’ friendship quality, our hypotheses and analyses are structured terms of *phase I* (ages 13-16) and *phase II* (ages 16-19) data.

**Aim 1.** *To determine whether boys lag behind girls in their adolescent friendship quality.*

We hypothesize that there will be a main effect of gender on *self-reported* friendship quality, such that on the net, girls will report higher friendship quality than boys both in phase I and phase II. We further hypothesize that there will be no main effect of gender on *observed* friendship quality; we expect that on the net, boys’ and girls’ friendship quality will be comparable both in phase I and phase II. We anticipate that by the age of 19, boys will fail to



“catch up” to girls in *self-reported* friendship quality, but that boys’ and girls’ *observed* friendship quality will be equivalent at the age of 19.

**Aim 2.** *To determine whether boys’ friendship quality follows a two-phased pattern, dropping towards middle adolescence and subsequently rebounding.* We hypothesize that boys’ *self-reported* friendship quality will follow a two-phased pattern, dropping between the ages of 13-16 (phase I), and climbing between the ages of 16-19 (phase II). We also intend to examine Aim 2 using observational data. However, as the only relevant observational study of which we are aware (McNelles & Connolly, 1999) examined friendships solely in middle adolescence, we cannot make an informed prediction about the trajectories of boys’ observed friendship quality across phases I and II.

## Methods

### Participants and procedure

The data are taken from a larger, longitudinal investigation of adolescent social development in family and peer contexts. Participants included 184 target adolescents (86 male and 98 female) along with their closest friends (n=180). Participants were initially recruited from the seventh and eighth grades of a public middle school serving urban and suburban areas of a small city in the Southeastern US. Students were recruited by means of a mailing to all parents of students in the school along with follow-up contact efforts at school lunches. Adolescents who indicated that they were interested were contacted by telephone. Of all students eligible for participation, 63% agreed to participate either as target participants or as peers providing collateral information.

The sample of target teens was racially/ethnically and socioeconomically diverse: 58% identified themselves as Caucasian, 29% as African American, 8% as of mixed race/ethnicity, and 5% as being from other minority groups. The median family income, reported by the teens' parents in the first year of the study (1998), was in the \$40,000-\$59,999 range. In 1998, the median income for all US families was \$38,900 and the median income for families in the state in which the study took place was \$42,622. Target teens' friends were similarly racially/ethnically diverse: in the first year of the study, 57% identified themselves as Caucasian, 30% as African American, 3% as mixed race/ethnicity, and 10% as being from other minority groups.

Target adolescents were assessed in seven annual waves, from age 13 (M age = 13.35; SD = 0.64) through age 19 (M age = 19.66; SD = 1.07). At each assessment, target adolescents were asked to nominate their closest friend at that time to take part in the study. The targets and their close friends completed questionnaires, and they were asked to participate in two video-taped interactions in the lab. All participants received compensation for their participation. Because target adolescents nominated their closest friend at each wave, these friends could, but did not necessarily, remain the same across time. In the first five waves of the study, no more than two participants per wave (approximately 1% or less of the sample) nominated an opposite-sex best friend. In waves six and seven, five (4%) and nine participants (7%), respectively, nominated opposite-sex best friends.

Follow-up data on measures of interest for this particular study were obtained for 165 (90%) of the original 184 participants at age 14, 161 (88%) at age 15, 160 (87%) at age 16, 164 (89%) at age 17, 138 (75%) at age 18, and 146 (79%) at age 19. Data were obtained from 161

collateral peers at age 14, 141 at age 15, 151 at age 16, 149 at age 17, 141 at age 18, and 136 at age 19.

### Measures

**Friendship Quality.** The Friendship Quality Questionnaire (FQQ; Parker & Asher, 1993) is a 40-item questionnaire that was used to assess the quality of each target teen's friendship with his or her closest friend in Waves 1-7. The FQQ asks participants to evaluate the accuracy of statements about their friendship quality on a 5-point scale, ranging from 1 = *not at all true* to 5 = *really true*. The FQQ includes scales designed to assess six different facets of friendship quality: validation and caring, conflict resolution, conflict and betrayal (reverse coded), help and guidance, intimate exchange and companionship and recreation. A composite "total friendship quality" scale also exists; it is composed of all of the questionnaire's positive items, with the conflict items removed. This study used data from the total friendship quality scale. Typical FQQ items include statements such as "We do fun things together a lot," "S/he sticks up for me if others talk behind my back," and "We help each other with school work a lot." Target teens and their close friends independently completed the FQQ at each of the first 7 waves of data collection. Correlations between teen and friend total friendship quality scores ranged from .32 to .47. Each dyad's scores were averaged to create a comprehensive rating of that dyad's reported friendship quality.

**Observed Dyadic Interaction Quality.** At each of the first 7 study waves, the quality of each adolescent's interaction with his or her closest friend was observed during a 6-minute Supportive Behavior Task. Target adolescents were instructed to consult their friends about "a problem they were having that they could use some advice or support about." Typical topics

included dating, problems with peers or siblings, or choosing extracurricular activities. The interactions were coded using the Supportive Behavior Coding System (Allen et al., 2001), which was based on several related systems (Crowell et al., 1998; Haynes & Fainsilber-Katz, 1998; Julien et al., 1997). Several characteristics of each interaction were assessed, coded on a 9-point scale from 0 = *characteristic not present* to 4 = *characteristic highly present*, with half-points between. Examples of these characteristics were negativity, dominance and engagement. These scores are all molar; they reflect participants' behaviors across the entire interaction. A minimum of two trained raters independently coded each interaction; their codes were then averaged to yield final coding scores. Intraclass correlations ranged from fair (0.47) to excellent (0.75).

In this investigation, the dyadic engagement scores were used to capture overall interaction quality. Examples of behaviors that contributed towards the engagement score are maintaining eye contact, responding with interest or enthusiasm, and asking clarifying questions. Correlations between teen and friend engagement scores ranged from .68 to .82. Each dyad's scores were averaged to create a comprehensive rating of that dyad's observed interaction quality. This approach has previously been found to yield valid data (Allen et al., 2003).

## **Results**

### **Preliminary Analyses**

Means and standard deviations for all substantive variables are presented in Table 1. Initial analyses examined the effects of family income on friendship variables; as numerous main effects were found, family income was included in all analyses.

### Primary Analyses

SAS PROC MIXED was used to complete growth curve analyses to examine the interaction between gender and time in the friendship quality measures. Separate growth curves were created to examine phase I (age 13-16) and phase II (age 16-19) self-report and observational data. Because of the natural variation in age in our sample (e.g., age 13 SD = .64), curves were run both with and without adjustments for age. These adjustments did not affect the results, so results from the unadjusted growth curves are reported. See Table 1 for the raw means that went into the growth curves.

**Aim 1.** *To determine whether boys lag behind girls in their adolescent friendship quality. We hypothesize that there will be a main effect of gender on self-reported friendship quality, such that girls will report higher friendship quality than boys, both in phase I and phase II.* Highly significant overall linear growth models ( $\chi^2_{(3)} = 130.00, p < .0001$ ;  $\chi^2_{(3)} = 133.87, p < .0001$ ) revealed main effects of gender such that girls reported higher friendship quality than boys, both in phase I ( $B_{\text{GENDER}} = 8.32, p < .0001$ ) and phase II ( $B_{\text{GENDER}} = 8.71, p < .0001$ ).

*We further hypothesize that there will be no main effect of gender on observed friendship quality; we expect boys' and girls' friendship quality will be comparable, both in phase I and phase II.* Highly significant overall linear growth models ( $\chi^2_{(3)} = 64.49, p < .0001$ ;  $\chi^2_{(3)} = 64.54, p < .0001$ ) revealed main effects of gender such that girls were observed to have higher quality dyadic engagement than boys, both in phase I ( $B_{\text{GENDER}} = 0.13, p = .0001$ ) and phase II ( $B_{\text{GENDER}} = .10, p = .0039$ ).

*We anticipate that by the age of 19, boys will fail to "catch up" to girls in self-reported friendship quality, but that boys' and girls' observed friendship quality will be equivalent at the age of 19.* Independent samples t-tests (see Table 4) indicated that boys *reported* lower levels of

friendship quality than girls at all ages, including at age 19 ( $t(117.55)=-3.65, p=.0004$ )).

However, an independent samples t-test indicated that boys and girls were *observed* to have equivalent levels of friendship quality at age 19 ( $t(128)=-1.08, n.s.$ ). In fact, boys and girls were observed to have equivalent levels of friendship quality at all ages except for the middle adolescent years of 14 ( $t(147)=-2.20, p=.006$ ), 15 ( $t(147)=-2.20, p=.03$ ) and 16 ( $t(144)=-3.78, p=.0002$ ), when girls' friendship quality was observed to be higher.

**Aim 2.** *To determine whether boys' friendship quality follows a two-phased pattern, dropping towards middle adolescence and subsequently rebounding. We hypothesize that boys' self-reported friendship quality will follow a two-phased pattern, dropping between the ages of 13-16 (phase I), and climbing between the ages of 16-19 (phase II).* Results regarding the effects of gender on self-reported friendship quality from ages 13-16, based on a highly significant overall linear growth model ( $\chi^2_{(3)} = 130.00, p < .0001$ ), indicate that girls' reported friendship quality increases more rapidly than boys' across phase I ( $B_{\text{TIME} \times \text{GENDER}} = 2.08, p = .0007$ ). Specifically, girls' reported friendship quality increases ( $B_{\text{girls}} = 2.79, p = .0015$ ), while boys' reported friendship quality demonstrates a declining trend across this period ( $B_{\text{boys}} = -1.50, p = .076$ ). Results regarding the effects of gender on self-reported friendship quality across the ages of 16-19, based on a highly significant overall linear growth model ( $\chi^2_{(3)} = 133.87, p < .0001$ ), indicate that boys' friendship quality increases more rapidly than girls' across phase II ( $B_{\text{TIME} \times \text{GENDER}} = -1.94, p = .0011$ ; see Figure 1). Specifically, boys' reported friendship quality increases ( $B_{\text{boys}} = 4.64, p < .0001$ ) while girls' remains stable ( $B_{\text{girls}} = .74, n.s.$ ). See Figure 1.

*We also intend to examine Aim 2 using observational data [no hypothesis].* Results regarding the effects of gender on observed dyadic engagement across the ages of 13-16, based on a highly significant overall linear growth model ( $\chi^2_{(3)} = 64.49, p < .0001$ ), indicate that girls'

dyadic engagement improves more rapidly than boys' across phase I ( $B_{\text{TIME} \times \text{GENDER}} = .047, p = .013$ ). Specifically, boys' observed engagement remains stable ( $B_{\text{boys}} = -.007, \text{n.s.}$ ) while girls' observed engagement increases ( $B_{\text{girls}} = .088, p = .0014$ ). Results regarding the effects of gender on observed dyadic engagement across the ages of 16-19, based on a highly significant overall linear growth model ( $\chi^2_{(3)} = 64.54, p < .0001$ ), indicate that boys' dyadic engagement trends towards a more rapid increase than girls' across phase II ( $B_{\text{TIME} \times \text{GENDER}} = -.039, p = .092$ ). Specifically, girls' observed engagement remains stable ( $B_{\text{girls}} = -.007, \text{n.s.}$ ) while boys' increases ( $B_{\text{boys}} = .086, p = .0095$ ). See Figure 2.

### Post-Hoc Analysis

Our initial growth curve analyses revealed that boys' observed engagement does not change between the ages of 13-16 ( $B_{\text{boys}} = -.007, \text{n.s.}$ ). We subsequently wanted to investigate the possibility that boys' observed engagement might follow the previously described two-phased pattern, but with the nadir occurring *before* age 16. We therefore conducted a growth curve analysis to examine whether boys' observed engagement changes between the ages of 13-15. The analysis revealed that boys' observed engagement does demonstrate a declining trend between the ages of 13 and 15 ( $B_{\text{boys}} = -.07; p = .069$ ; Table 4).

### Discussion

In line with the notion of boys' lagged social development, girls' friendship quality appeared to grow faster in early adolescence, and boys' friendship quality grew faster in later adolescence. Specifically, between the ages of 13-16, girls' self-reported friendship quality and observed engagement improved faster than boys'. Boys experienced a trend towards an initial

*decrease* in reported friendship quality during this time, as well as a trend towards a decrease in observed engagement between the ages of 13-15. Between the ages of 16-19, boys' reported friendship quality improved faster than girls', and their observed engagement trended towards a steeper increase, supporting the hypothesis of a rebound in friendship quality.

Despite boys' eventual increased growth in self-reported reported friendship quality, they did not ever fully "catch up" to girls in this respect: their reported friendship quality remained significantly lower than girls' across all time points. However, boys' and girls' observed dyadic engagement was equivalent in both early and late adolescence. It was only between the ages of 14-16 that boys' observed dyadic engagement was significantly lower than that of girls. An examination of differences at individual ages indicated that boys' engagement was significantly lower than girls' at all three of those ages, most robustly at age 16 ( $t(144)=-3.78$ ,  $p=.0002$ ).

It is notable that our findings with regard to both self-reported friendship quality and observed engagement revealed the anticipated two-phased pattern of friendship skill development among boys. In the observational data, boys appeared to reach their lowest level of engagement at the age of 15, while in the self-report data, boys reached their lowest level of friendship quality at the age of 16. Boys' friendship quality and engagement were both most robustly lower than girls' at the age of 16 ( $t(144)=-3.78$ , and  $t(143.32)=-7.28$ , respectively).

Despite similarities in the trajectories of self-reported friendship quality and observed engagement, results using these two methods did not fully align. Most notably, boys' reported friendship quality was significantly lower than girls' at every age, while their observed engagement was equivalent to that of girls' for the early and late adolescent years. It is apparent that boys' and girls' reported perceptions of their friendships may not align with their observed behaviors. That is, for the most part, differences in boys' and girls' perceptions of their reported



friendship qualities did not generally play out in terms of differences in body language, interest in conversation, or other signs of engagement. The one exception is in the middle adolescent years, when boys' self-reported friendship quality was at its lowest, and their observed engagement was significantly lower than girls'. It seems possible that something broader is happening for boys in these years that ultimately influences both their perceived friendship quality and their ability to demonstrate engagement with close friends.

It is possible that homophobia plays a role in boys' friendship difficulties in middle adolescence. Mapping approximately onto the trajectories observed in this study, researchers have found that for boys, but not for girls, homophobia increases from the ages of 14 to 17 (Baker & Fishbein, 1998). Indeed, several scholars have pointed to homophobia as a substantially disruptive force in adolescent boys' friendships (Bank & Hansford, 2000; Way, 2013). In a college sample, Bank & Hansford (2000) found that males who reported more homophobia also reported less intimacy and support in their closest same-sex friendships. Niobe Way has suggested that as they get older, adolescent boys may try to distance themselves from their friends due to a fear of being perceived as gay (Way, 2013). They may use phrases such as "no homo" when talking about male friendship, to indicate that they are not gay (Way, 2013, p. 209). Decreased engagement as coded in the present study—for example, manifested as reduced eye contact – may essentially act as a nonverbal "no homo." We did not examine homophobia in this study, but this hypothesis may be fruitful to explore in future work.

Increased pressure to adhere to the broader norms of masculinity may also contribute to the initial decline in boys' perceived friendship quality and observed engagement. As boys transition into junior high school, and again when they transition into high school, they are likely to be surrounded by older peers who are at later stages of pubertal and social development. They

may look up to these older boys, who not only appear more manly, but who more frequently engage in hegemonic masculine behaviors such as playing varsity sports and engaging in sexual activity with girls (Martino, 2000). Younger adolescent boys may attempt to prove their masculinity by demonstrating emotional stoicism, projected self-sufficiency, or other stereotypically masculine traits (Chu, Porche, & Tolman, 2005). These behaviors could account for concurrent or subsequent deficits in quality of intrasexual engagement, as well as a decreased comfort in reporting closeness with same-sex friends. In line with the interpretation that boys feel increased pressure to demonstrate normative masculinity in the earlier years of adolescence, it has been found that younger adolescents' masculinity attitudes are relatively traditional, while these views become less traditional in the latter half of adolescence (Marcell, Eftim, Sonenstein, & Pleck, 2011).

Why might adherence to masculinity norms attenuate in later adolescence? Boys typically report their first true dating experiences to occur between the ages of 15 and 16, their first experiences with sexual intercourse to take place around the age of 17, and their first "serious relationship" to begin around the age of 18 (Regan, Durvasula, Howell, Ureño, & Rea, 2004). It is possible that boys are able to "prove" their masculinity through engaging in heterosexual romantic and sexual activities. That is, a 17-year-old boy who holds his girlfriend's hand in the hallway at school may feel less of a need to demonstrate his heterosexual masculinity through reporting or demonstrating less closeness with same-sex peers.

The cognitive and emotional developmental strides that adolescents make through adolescence may also contribute to a reduced adherence to masculine norms. The prefrontal cortex continues to develop across the adolescent period (Yurgelun-Todd, 2007); along with its development, adolescents experience development in higher-order thinking (Casey, Tottenham,

Liston, & Durston, 2005), including complex, socially-relevant thought processes such as self-concept (e.g., “I’m the kind of person who...”; Sebastian, Burnett, & Blakemore, 2008). Indeed, it has long been acknowledged that adolescence is a time of identity development (Erikson, 1968). As adolescents develop a stronger sense of self, and as they become better able to reason morally and logically, it is possible that they could better stand up to norms of masculinity like expectations of independence and self-sufficiency. That said, one prior study (Way et al., 2014) has suggested that boys engage in more active resistance to the norms of masculinity earlier, rather than later, in adolescence.

Increasing rates of cross-gender friendships in adolescence may also contribute to boys’ rebound in reported friendship quality and engagement. In childhood and pre-adolescence, boys and girls tend to belong to same-sex peer groups, but the number of cross-sex friendships grows steadily across adolescence (Strough & Cavatto, 2002). As boys build more friendships with girls, they may learn some of the skills that girls appear to excel at a younger age, such as self-disclosure and the ability to express concern or care for friends. Applying these skills is likely to strengthen their same-sex and cross-sex friendships alike.

It is important to consider that not only may boys be underreporting friendship quality, but girls may also be overreporting friendship quality. Indeed, it seems likely that both phenomena are at play. Women are typically expected to place great value on interpersonal relationships, and to be warm and supportive of others (Mahalik et al., 2005). The girls in our study may, therefore, have been more motivated than the boys to appear capable of maintaining high-quality friendships.

It is a strength of this study that we were able to capture *dyadic* measures of friendship quality, both in self-report and observational data. However, both members of each dyad were

not necessarily the same age (e.g., a target teen might be 13, with a best friend who is 14 at the time of study participation). Additionally, participants were not required to nominate a same-sex close friend, although no more than 7% of the sample nominated opposite-sex friends at any given time. As we did not require adolescents to nominate a close friend who was same-sex and same-age, our results may reflect a relatively “real-world” phenomenon of friendship quality development among adolescents and their closest friends, who will not always match in terms of gender and age. However, future studies could require adolescents to nominate same-sex, same-age peers to obtain a more *pure* measure of gender and age differences in the development of friendship quality.

An important limitation of this study, and of a number of studies we reviewed, is the cis- and hetero-normative framework. Future studies should examine gender- or sexuality-related variations in friendship qualities among non-cis-gendered and non-heterosexual individuals.

This study was, to our knowledge, the first to use multiple methods and multiple reporters to examine gender differences in friendship quality over the course of adolescence. Results of self-report and observational data were somewhat discrepant, suggesting that adolescents’ perceptions of friendships, and their observable behaviors within friendships, may not always align. Nonetheless, results from both data collection methods provided support for the existence of a male lag in friendship quality and skills during adolescence. Specifically, boys seemed to fall behind girls most substantially during the middle adolescent years. Fortunately, boys’ reported friendship quality and dyadic engagement did appear to rebound somewhat in later adolescence—indeed, in terms of observed engagement, boys and girls appeared equally skilled from the age of 17 onward. We suspect that gender norms may play a role in these patterns, but future research should directly investigate this theory.

### References

- Allen, J. P., Hall, F. D., Insabella, G. M., Land, D. J., Marsh, P. A., & Porter, M. R. (2001). Supportive behavior coding system. Unpublished manuscript. Charlottesville: University of Virginia.
- Allen, J. P., McElhaney, K. B., Land, D. J., Kuperminc, G. P., Moore, C. W., O'Beirne-Kelly, H., & Kilmer, S. L. (2003). A secure base in adolescence: Markers of attachment security in the mother-adolescent relationship. *Child development, 74*(1), 292-307.
- Allen, J. P., Uchino, B. N., & Hafen, C. A. (2015). Running with the pack: Teen peer-relationship qualities as predictors of adult physical health. *Psychological science, 26*(10), 1574-1583.
- Bagwell, C. L., Bender, S. E., Andreassi, C. L., Kinoshita, T. L., Montarello, S. A., & Muller, J. G. (2005). Friendship quality and perceived relationship changes predict psychosocial adjustment in early adulthood. *Journal of Social and Personal Relationships, 22*(2), 235-254.
- Bagwell, C. L., Newcomb, A. F., & Bukowski, W. M. (1998). Preadolescent friendship and peer rejection as predictors of adult adjustment. *Child development, 69*(1), 140-153.
- Bakan, D. (1966). *The duality of human existence: Isolation and communion in Western man*. Beacon Press (MA).
- Baker, J. G., & Fishbein, H. D. (1998). The development of prejudice towards gays and lesbians by adolescents. *Journal of Homosexuality, 36*(1), 89-100.
- Bank, B. J., & Hansford, S. L. (2000). Gender and friendship: Why are men's best same-sex friendships less intimate and supportive?. *Personal Relationships, 7*(1), 63-78.

- Block, J. H. (1973). Conceptions of sex role: Some cross-cultural and longitudinal perspectives. *American psychologist, 28*(6), 512.
- Booth, A. (1972). Sex and social participation. *American Sociological Review, 183-193*.
- Buhrmester, D., & Furman, W. D. (1986). The changing functions of friends in childhood: A neo-Sullivanian perspective. In *Friendship and social interaction* (pp. 41-62). Springer, New York, NY.
- Buhrmester, D., & Furman, W. (1987). The development of companionship and intimacy. *Child development, 1101-1113*.
- Carlo, G., Crockett, L. J., Randall, B. A., & Roesch, S. C. (2007). A latent growth curve analysis of prosocial behavior among rural adolescents. *Journal of Research on Adolescence, 17*(2), 301-324.
- Casey, B. J., Tottenham, N., Liston, C., & Durston, S. (2005). Imaging the developing brain: what have we learned about cognitive development?. *Trends in cognitive sciences, 9*(3), 104-110.
- Chodorow, N. (1978). The Reproduction of. *Mothering: Psychoanalysis and the Sociology of Gender*.
- Chu, J. Y., Porche, M. V., & Tolman, D. L. (2005). The adolescent masculinity ideology in relationships scale: Development and validation of a new measure for boys. *Men and Masculinities, 8*(1), 93-115.
- Crowell, J., Pan, H., Goa, Y., Treboux, D., O'Connor, E., Waters, E. (1998). The Secure Base Scoring System for Adults. Version 2.0. Unpublished manuscript. State University of New York at Stonybrook.

- De Goede, I. H., Branje, S. J., & Meeus, W. H. (2009). Developmental changes and gender differences in adolescents' perceptions of friendships. *Journal of Adolescence*, 32(5), 1105-1123.
- Demir, M., & Urberg, K. A. (2004). Friendship and adjustment among adolescents. *Journal of Experimental child psychology*, 88(1), 68-82.
- Erikson, E.H. (1968). *Identity: youth and crisis*. Oxford, England: Norton & Co.
- Fabes, R. A., Carlo, G., Kupanoff, K., & Laible, D. (1999). Early adolescence and prosocial/moral behavior I: The role of individual processes. *The Journal of Early Adolescence*, 19(1), 5-16.
- Furman, W., & Buhrmester, D. (1985). Children's perceptions of the personal relationships in their social networks. *Developmental psychology*, 21(6), 1016.
- Goddings, A. L., Burnett Heyes, S., Bird, G., Viner, R. M., & Blakemore, S. J. (2012). The relationship between puberty and social emotion processing. *Developmental science*, 15(6), 801-811.
- Gupta, T., Way, N., McGill, R. K., Hughes, D., Santos, C., Jia, Y., ... & Deng, H. (2013). Gender-typed behaviors in friendships and well-being: A cross-cultural study of Chinese and American boys. *Journal of Research on Adolescence*, 23(1), 57-68.
- Haynes, Catherine, Fainsilber Katz, Lynn. The Asset Coding Manual: Adolescent social skills evaluation technique. Unpublished manuscript. University of Washington.
- Hill, J. P., & Lynch, M. E. (1983). The intensification of gender-related role expectations during early adolescence. In *Girls at puberty* (pp. 201-228). Springer, Boston, MA.

- Julien, D., Markman, H., Lindahl, K., Johnson, H., Van Widenfelt, B., Herskovits, J. (March 1997). The interactional dimensions coding system. Unpublished manuscript. University of Denver.
- Klimstra, T. A., Hale III, W. W., Raaijmakers, Q. A., Branje, S. J., & Meeus, W. H. (2009). Maturation of personality in adolescence. *Journal of personality and social psychology*, 96(4), 898.
- La Greca, A. M., & Harrison, H. M. (2005). Adolescent peer relations, friendships, and romantic relationships: Do they predict social anxiety and depression?. *Journal of clinical child and adolescent psychology*, 34(1), 49-61.
- Lempers, J. D., & Clark-Lempers, D. S. (1993). A functional comparison of same-sex and opposite-sex friendships during adolescence. *Journal of Adolescent Research*, 8(1), 89-108.
- Lenroot, R. K., Gogtay, N., Greenstein, D. K., Wells, E. M., Wallace, G. L., Clasen, L. S., ... & Thompson, P. M. (2007). Sexual dimorphism of brain developmental trajectories during childhood and adolescence. *Neuroimage*, 36(4), 1065-1073.
- Linder, J. R., & Collins, W. A. (2005). Parent and peer predictors of physical aggression and conflict management in romantic relationships in early adulthood. *Journal of Family Psychology*, 19(2), 252.
- Maccoby, E. E. (1998). *The two sexes: Growing up apart, coming together*. Cambridge: Harvard University Press.
- Mahalik, J. R., Morray, E. B., Coonerty-Femiano, A., Ludlow, L. H., Slattery, S. M., & Smiler, A. (2005). Development of the conformity to feminine norms inventory. *Sex Roles*, 52(7-8), 417-435.



- Marcell, A. V., Eftim, S. E., Sonenstein, F. L., & Pleck, J. H. (2011). Associations of family and peer experiences with masculinity attitude trajectories at the individual and group level in adolescent and young adult males. *Men and Masculinities, 14*(5), 565-587.
- Marion, D., Laursen, B., Zettergren, P., & Bergman, L. R. (2013). Predicting life satisfaction during middle adulthood from peer relationships during mid-adolescence. *Journal of Youth and Adolescence, 42*(8), 1299-1307.
- Marshall, W. A., & Tanner, J. M. (1970). Variations in the pattern of pubertal changes in boys. *Archives of disease in childhood, 45*(239), 13-23.
- Martino, W. (2000). Mucking around in class, giving crap, and acting cool: Adolescent boys enacting masculinities at school. *Canadian Journal of Education/Revue canadienne de l'education, 102*-112.
- McNelles, L. R., & Connolly, J. A. (1999). Intimacy between adolescent friends: Age and gender differences in intimate affect and intimate behaviors. *Journal of Research on Adolescence, 9*(2), 143-159.
- Mills, K. L., Lalonde, F., Clasen, L. S., Giedd, J. N., & Blakemore, S. J. (2012). Developmental changes in the structure of the social brain in late childhood and adolescence. *Social cognitive and affective neuroscience, 9*(1), 123-131.
- Raboteg-Saric, Z., & Sakic, M. (2014). Relations of parenting styles and friendship quality to self-esteem, life satisfaction and happiness in adolescents. *Applied Research in Quality of Life, 9*(3), 749-765.
- Regan, P. C., Durvasula, R., Howell, L., Ureño, O., & Rea, M. (2004). Gender, ethnicity, and the developmental timing of first sexual and romantic experiences. *Social Behavior and Personality: an international journal, 32*(7), 667-676.

- Rose, A. J., & Asher, S. R. (2017). The social tasks of friendship: Do boys and girls excel in different tasks?. *Child Development Perspectives, 11*(1), 3-8.
- Rose, A. J., & Rudolph, K. D. (2006). A review of sex differences in peer relationship processes: potential trade-offs for the emotional and behavioral development of girls and boys. *Psychological bulletin, 132*(1), 98.
- Rowe, R., Maughan, B., Worthman, C. M., Costello, E. J., & Angold, A. (2004). Testosterone, antisocial behavior, and social dominance in boys: Pubertal development and biosocial interaction. *Biological psychiatry, 55*(5), 546-552.
- Sebastian, C., Burnett, S., & Blakemore, S. J. (2008). Development of the self-concept during adolescence. *Trends in cognitive sciences, 12*(11), 441-446.
- Sharabany, R., Gershoni, R., & Hofman, J. E. (1981). Girlfriend, boyfriend: Age and sex differences in intimate friendship. *Developmental psychology, 17*(6), 800.
- Strough, J., & Covatto, A. M. (2002). Context and age differences in same-and other-gender peer preferences. *Social Development, 11*(3), 346-361.
- Sullivan, H. S. (1953). *The interpersonal theory of psychiatry*. New York: Norton.
- Tanner, J. M. (1971). Sequence, tempo, and individual variation in the growth and development of boys and girls aged twelve to sixteen. *Daedalus, 907-930*.
- Underwood, M. K. (2007). Gender and children's friendships: Do girls' and boys' friendships constitute different peer cultures, and what are the trade-offs for development?. *Merrill-Palmer Quarterly (1982-), 319-324*.
- Van der Graaff, J., Branje, S., De Wied, M., Hawk, S., Van Lier, P., & Meeus, W. (2014). Perspective taking and empathic concern in adolescence: Gender differences in developmental changes. *Developmental psychology, 50*(3), 881.

- Way, N. (2013). Boys' friendships during adolescence: Intimacy, desire, and loss. *Journal of Research on Adolescence, 23*(2), 201-213.
- Way, N., Cressen, J., Bodian, S., Preston, J., Nelson, J., & Hughes, D. (2014). "It might be nice to be a girl... Then you wouldn't have to be emotionless": Boys' resistance to norms of masculinity during adolescence. *Psychology of Men & Masculinity, 15*(3), 241.
- Way, N., & Greene, M. L. (2006). Trajectories of perceived friendship quality during adolescence: The patterns and contextual predictors. *Journal of Research on Adolescence, 16*(2), 293-320.
- Way, N., & Silverman, L. R. (2012). The quality of friendships during adolescence. *Adolescence and beyond: Family process and development, 91-112*.
- Williams, S., Connolly, J., & Segal, Z. V. (2001). Intimacy in relationships and cognitive vulnerability to depression in adolescent girls. *Cognitive Therapy and Research, 25*(4), 477-496.
- Yurgelun-Todd, D. (2007). Emotional and cognitive changes during adolescence. *Current opinion in neurobiology, 17*(2), 251-257.

Table 1. Raw Means and Standard Deviations of Primary Measured Variables

Friendship Quality Measurement	Boys			Girls			Total		
	N	M	SD	N	M	SD	N	M	SD
Observed Time 1	86	2.48	0.64	93	2.52	0.81	179	2.51	0.73
Observed Time 2	77	2.36	0.53	87	2.62	0.65	164	2.50	0.61
Observed Time 3	72	2.36	0.52	77	2.56	0.62	149	2.46	0.58
Observed Time 4	69	2.49	0.57	77	2.85	0.61	146	2.67	0.62
Observed Time 5	65	2.78	0.56	76	2.91	0.56	141	2.86	0.56
Observed Time 6	63	2.71	0.62	66	2.78	0.70	129	2.74	0.66
Observed Time 7	57	2.80	0.65	73	2.91	0.64	130	2.86	0.64
Self-Report Time 1	86	147.09	18.04	98	157.35	22.54	184	152.56	21.14
Self-Report Time 2	78	146.73	21.75	88	159.73	19.91	166	153.62	21.73
Self-Report Time 3	79	146.11	21.09	84	163.56	20.76	163	155.11	22.62
Self-Report Time 4	78	143.49	22.28	85	166.19	16.93	163	155.33	22.67
Self-Report Time 5	81	143.87	23.03	87	164.52	20.13	168	154.56	23.87
Self-Report Time 6	72	154.34	21.46	83	166.82	17.74	155	161.02	20.47
Self-Report Time 7	64	154.63	22.50	84	167.14	17.88	148	161.73	20.88

Table 2. Phase I Growth Curve Results

	Self-Reported Friendship Quality (Age 13-16)		Observed Dyadic Engagement (Age 13-16)	
	<i>B</i>	<i>SE</i>	<i>B</i>	<i>SE</i>
Gender (1=M; 2=F)	8.32****	1.18	0.13***	0.03
TIME	0.78	0.20	0.04*	0.02
Gender X TIME	2.08***	0.61	0.05*	0.02
TIME <sub>boys</sub>	-1.50†	0.84	-0.007	0.026
TIME <sub>girls</sub>	2.79**	0.87	0.088**	0.027

Note: \*\*\*\*  $p < .0001$ . \*\*\*  $p < .001$ . \*\*  $p < .01$ . \*  $p < .05$ . †  $p < .1$ .

Table 3. Phase II Growth Curve Results

	Self-Reported Friendship Quality (Age 16-19)		Observed Dyadic Engagement (Age 16-19)	
	<i>B</i>	<i>SE</i>	<i>B</i>	<i>SE</i>
Gender (1=M; =F)	8.71****	1.19	0.10**	0.03
TIME	2.58****	0.59	0.04†	0.02
Gender X TIME	-1.94**	0.59	-0.04†	0.02
TIME <sub>boys</sub>	4.64****	0.95	0.086**	0.033
TIME <sub>girls</sub>	0.74	0.75	-0.007	0.032

\*\*\*\* p&lt;.0001. \*\*\* p&lt;.001. \*\* p&lt;.01. \* p&lt;.05. † p&lt;.1.

Table 4. Tests of Gender Differences in Friendship Quality by Wave

	Observed Friendship Quality			Self-Reported Friendship Quality		
	<i>df</i>	<i>T</i>	<i>p</i>	<i>df</i>	<i>T</i>	<i>p</i>
Wave 1	172.91 <sup>s</sup>	-0.37	n.s.	180.53 <sup>s</sup>	-3.43	0.0008
Wave 2	162	-2.81	0.006	164	-4.02	<.0001
Wave 3	147	-2.20	0.03	161	-5.32	<.0001
Wave 4	144	-3.78	0.0002	143.32 <sup>s</sup>	-7.28	<.0001
Wave 5	139	-1.36	n.s.	166	-6.20	<.0001
Wave 6	127	-0.59	n.s.	153	-3.96	0.0001
Wave 7	128	-1.08	n.s.	117.55 <sup>s</sup>	-3.65	0.0004

S indicates use of Satterwaithe method due to unequal variances

Table 5. Post-Hoc Growth Curve Analysis

	Observed Friendship Quality (Age 13-15)	
	<u>B</u>	<u>SE</u>
Gender (1=M; =F)	0.10**	0.04
TIME	-0.03	0.03
TIME <sub>boys</sub>	-0.07†	0.04
TIME <sub>girls</sub>	0.02	0.05

\*\*\*\* p<.0001. \*\*\* p<.001. \*\* p<.01. \* p<.05. † p<.1.



Figure 1.

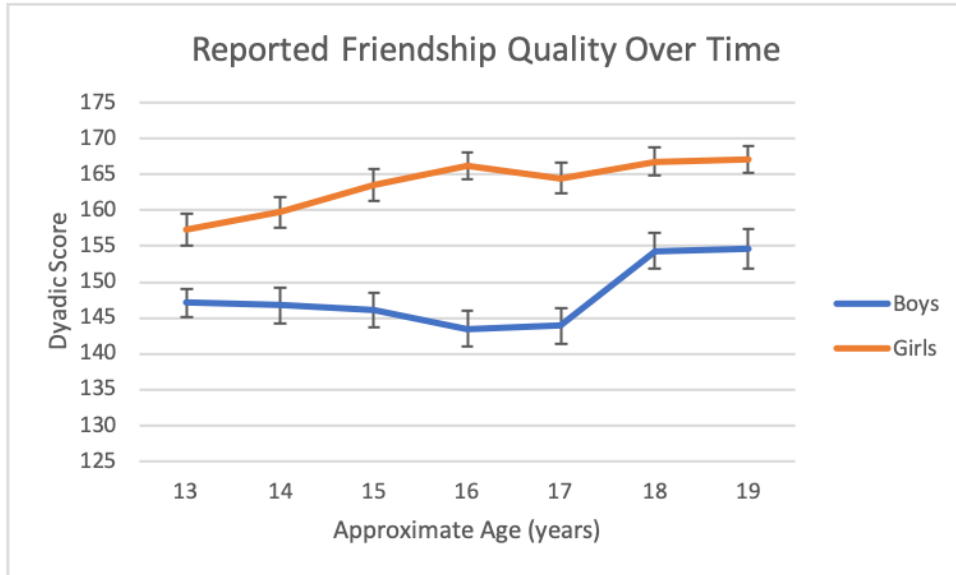


Figure 2.

