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# Developmental changes and gender differences in adolescents' perceptions of friendships

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**Abstract**

This five-wave study aims to investigate the development of adolescents' perceptions of support, negative interaction, and power in best friendships from ages 12 to 20 years. Furthermore, gender differences and linkages between the three dimensions are explored. A total of 593 early adolescents (53.6% boys) and 337 middle adolescents (43.3% boys) participated. A multigroup multivariate accelerated growth curve showed an increase of support for both boys and girls. Negative interaction was found to temporarily increase and then decrease for boys, while remaining stable for girls. Power temporarily increased for boys and decreased for girls. Results indicated that (1) friendships become more supportive during adolescence, (2) power issues are more prominent in friendships of boys and more powerful peers are perceived as more supportive by boys but not by girls, and (3) friendships of boys show a lagged development towards more equality.


*Keywords:* Adolescent friendships; Development; Growth curves; Relationship quality

Over the course of adolescence friendships are subject to various changes (Furman & Buhrmester, 1992). Adolescents spend more and more time with their peers (Brown, 2004) and in middle and late adolescence, adolescents spend more free time with close friends compared to any other relationship (Laursen, 1995). The increasing desire of adolescents to spend time with their

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friends is argued to be a result of the growing importance of friendship intimacy for adolescents' well-being (Sullivan, 1953). Because friendships are thought to be increasingly characterized by equality, mutual respect, mutual trust, and symmetrical reciprocity (Youniss & Smollar, 1985) friends might be the pre-eminent persons adolescents turn to for fulfillment of these needs (Sullivan, 1953). Furthermore, the horizontal nature of friendships (Laursen & Bukowski, 1997) may provide adolescents with a context to practice their increasing capacities of perspective taking, which may enable them to develop principles of relating to others that are based on equality and can be generalized to other situations and romantic relationships later on (Piaget, 1932/1965; Selman, 1980; Sullivan, 1953; Youniss & Smollar, 1985; see Brown, 2004).

These considerations suggest that adolescents' perceptions of friendships change over time. However, most of the findings on age-related changes in friendship perception are based on cross-sectional studies and little is known about developmental changes based on longitudinal data. Longitudinal research is needed to give a more decisive answer regarding the development of the perception of the friendship relationship (Ruspini, 1999). This study provides more clarity on the development of adolescent friendships by longitudinally examining developmental changes in adolescent friendships as well as the interplay between these changes. Also, the current study examines gender differences in the developmental course of friendships. The focus lies on the perceptions of adolescents with respect to the relationship they have with their best friend, because compared to other close friendships, best friendships are found to be more intimate (Degirmencioglu, Urberg, Tolson, & Richard, 1998; Newcomb & Bagwell, 1995), more stable (Berndt & Keefe, 1995), and they have a greater developmental significance (Hartup, 1996).

Although different researchers have distinguished between various aspects of friendship quality, (Berndt, 2002; Bukowski, Hoza, & Boivin, 1994; Furman & Buhrmester, 1985; see Furman, 1996; Parker & Asher, 1993), all conceptualizations include aspects of closeness, intimacy, and support on one hand, and negative interaction or conflict on the other hand. In addition, support and negative interaction are key dimensions in many theories on development of close relationships. Attachment theory assumes that a need for relatedness or support stimulates friendships (Bowlby, 1969/1982; see Rubin, Bukowski, & Parker, 2006). Also, psychoanalytic theory and Sullivan's developmental model of interpersonal relationships emphasize that adolescents start close and intimate relationships with same-sex peers to fulfill their social needs and these friends become increasingly important as providers of support (Blos, 1967; Buhrmester & Furman, 1986; Furman & Buhrmester, 1992; Rubin et al., 2006; Sullivan, 1953). The role of negative interaction is stressed by the social relational perspective, which states that conflict is fundamental in close relationships and results from the need to integrate different objectives and expectations (Laursen & Collins, 1994).

In addition, several theories emphasize that equality is an important characteristic of friendships. Sullivan's developmental model of interpersonal relationships hypothesizes that intimate and mutual adolescent friendships are the first relationships characterized by equal power, which enhances adolescent development by stimulating a sense of well-being and self-validation (Rubin et al., 2006; Sullivan, 1953). Similarly, the social relational perspective highlights interdependence, or the balance of power, as one of the main characteristics of friendships (see Collins & Laursen, 2004). Because of the importance of support, negative interaction, and power in theories of adolescent development, the current study examines developmental changes in the perceptions

of adolescents regarding these dimensions. In the current study, we define support as the amount of perceived support from the best friend, including feelings of companionship, instrumental aid, intimacy, nurturance, affection, admiration, and reliable alliance. Negative interaction is defined as the perceived intensity of conflict and antagonism in adolescent friendships. We define power as the relative power and dominance the adolescents attributed to their best friend.

## Development of support, negative interaction, and power

Adolescents are thought to develop mutual intimacy and support from early adolescence onwards (Selman, 1981; Shulman, Laursen, Kalman, & Karpovsky, 1997). Selman hypothesized in his five-stage model of friendship development that during adolescence, friendships become closer and more intimate with the function of having a reliable source of support (Selman, 1980). Both psychoanalytic theory and Sullivan's developmental model of interpersonal relationships emphasize that, whereas adolescents become more autonomous from parents, their friendships become closer and more intimate (Blos, 1967; Furman & Buhrmester, 1992; Rubin et al., 2006; Sullivan, 1953). Thus, these theories suggest an increase of support from friends during adolescence. For these changes in support some longitudinal evidence is available. Perceived support from friends was found to increase from early to middle adolescence (Stice, Ragan, & Randall, 2004). Also, from middle to late adolescence support from friends was found to increase, with a steeper rise for boys compared to girls (Way & Greene, 2006).

Regarding negative interaction, Selman (1980) theorized that adolescents learn to better differentiate between minor conflicts that could improve the friendship and larger conflicts that could threaten the friendship. According to Selman (1980), adolescents acquire the required perspective taking skills to understand each other and to take each other's opinion into consideration, and as a result the occurrence of negative interactions decreases in adolescent friendships. Moreover, adolescents' interactions are thought to become increasingly based on equality, whereas conformity in friendships becomes less important (Berndt, 1979; Selman, 1980; Shulman et al., 1997), which might result in a decrease of negative interaction. Although there is no longitudinal empirical evidence available with respect to development of negative interaction with friends across adolescence, it was cross-sectionally found that negative interaction with friends was higher in early adolescence than in middle adolescence and at the same level in middle and late adolescence (Furman & Buhrmester, 1992).

Considering that friendships are thought to become increasingly characterized by equality and reciprocity (Youniss & Smollar, 1985), it seems plausible that power in adolescent friendships declines over time. Also, Selman (1980) theorized that during adolescence, friendships develop towards more interdependence, because adolescents learn to negotiate and integrate needs (Shulman & Knafo, 1997; Shulman et al., 1997). Empirical evidence on this topic is, however, not consistent. A cross-sectional study showed that the level of relative power in adolescent friendships did not differ for groups of early, middle, and late adolescents (Furman & Buhrmester, 1992). Another cross-sectional study showed that the related concept of control, measuring the preference for unilateral decision making, was significantly higher for 12-year-olds compared to 14-year-olds and that 16-year-olds did not differ from 12- and 14-year-olds (Shulman et al., 1997). These are puzzling findings that call for a longitudinal approach.

## Gender differences

Friendships of boys and girls have often been suggested to differ: whereas girls are thought to be more focused on intimate friendship dyads characterized by self-disclosure, empathy, interdependence, and a need for nurturance, boys generally interact in larger friendship groups with a focus on companionship, competition, control, and conflict (Galambos, 2004; Maccoby, 1990). Friendships of girls are expected to be more supportive and focused on equality than friendships of boys, whereas in friendships of boys negative interaction and issues of dominance are assumed to be more present (see Maccoby, 1990). Empirical studies indeed showed that friendships of girls have higher levels of peer support (Colarossi & Eccles, 2000; Furman & Buhrmester, 1992; Helsen, Vollebergh, & Meeus, 2000; Jenkins, Goodness, & Buhrmester, 2002), and that friendships of boys have higher levels of conflict (Jenkins et al., 2002; Updegraff et al., 2004). Findings regarding power are inconsistent. Although one study showed that boys reported the same level of power as girls (Furman & Buhrmester, 1992), another study showed that boys reported higher levels on the related concept of control than girls (Shulman et al., 1997). Despite these findings on concurrent gender differences, little is known about gender differences with respect to development of adolescent friendships. However, since girls are generally 2 years ahead of boys with respect to intellectual and social-cognitive functioning (Colom & Lynn, 2004; Porteous, 1985; Silberman & Snarey, 1993), it is plausible that friendships of girls become more intimate, less conflictual, and more equally balanced with respect to power at an earlier age compared to friendships of boys. Given that the literature reveals differences between boys and girls with respect to perceived friendship characteristics, we will investigate gender differences concurrently as well as over time.

## Linkages between support, negative interaction, and power

Next to investigating developmental changes and gender differences, we will also examine linkages between developmental changes in support, negative interaction, and power. Several theories describe independent parallel developments between these three friendship characteristics. For example, Selman (1980) theorized that adolescent friendships become more intimate and more equally balanced with respect to power. Furthermore, the social relational model (Laursen, 1996) addresses the balance of closeness and conflict in friendships, with closeness gaining in importance and conflict becoming increasingly minimized. It is however not clear whether or not these independent parallel developments are related over time in the sense that change in one relationship characteristic is associated with change in another relationship characteristic. As a result, the current literature provides no source for hypotheses about linkages over time.

Research on linkages between relationship characteristics in adolescent friendships is limited and predominantly cross-sectional. The existing literature on this topic shows no significant relation between support from friends and conflict with friends in early adolescence (see Jenkins et al., 2002). Nevertheless, for the related concept of self-efficacy in giving intimate support, a significant negative relation with conflict was found for girls but not for boys (Jenkins et al., 2002), suggesting gender differences regarding linkages between support and negative interaction. It seems that the level of conflict in a friendship is lower when adolescent girls feel more competent with respect to maintaining an intimate and supportive friendship.

With respect to linkages between support and power no empirical evidence is available. However, for the related concepts of intimacy and control, girls who were more controlling were found to show relatively low levels of friendship intimacy 2 years later (Updegraff et al., 2004). These findings suggest that friendships of girls with higher levels of power will be relatively less supportive 2 years later. Being more controlling might obstruct the usual development of girls towards higher levels of intimacy (Updegraff et al., 2004).

Although no linkages between negative interaction and power have been reported, it was found that more controlling adolescents reported higher levels of conflict, a concept related to negative interaction, than less controlling adolescents (Updegraff et al., 2004). This might indicate that powerful adolescents are less avoidant to start negative interactions.

## Aim of the present study

In this study, we will longitudinally investigate the development of adolescent friendships from the perspective of the adolescent by examining mean developmental changes of perceived support, perceived negative interaction, and perceived power in the relationship with friends, as well as interindividual differences in these changes. Furthermore, we will explore gender differences and linkages between these three dimensions. Our research questions are as follows:

1. How do mean levels of perceived support, perceived negative interaction, and perceived power in the relationship with friends develop during adolescence from ages 12 to 20 years? We expect that perceived support from friends will increase throughout adolescence. For negative interaction we expect a decline from early to middle adolescence and stabilization from middle to late adolescence. We hold no explicit expectation for the development of relative power because of inconsistent evidence. We will explore gender differences in these developmental changes.
2. How are the developmental changes of perceived support, perceived negative interaction, and perceived power within adolescent friendships associated to each other over time? Hypotheses are only formulated with respect to concurrent correlations and linkages over time will be assessed in an exploratory manner. Regarding concurrent correlations, we expect a non-significant relation between support and negative interaction for boys and a negative relation between support and negative interaction for girls. Also, we expect a positive relation between negative interaction and power for both boys and girls and a negative relation between support and relative power for girls but not for boys.

## Method

### *Participants*

Data for this study were collected as part of an ongoing longitudinal research project on COnflict And Management Of RElationships (CONAMORE; Meeus et al., 2004). The current study uses five measurement waves with a 1-year interval between each of the waves for all participants. From 2001 onwards, data collection took place in the fall of each year. The longitudinal sample consists of 1341 participants. Participants were asked to identify their best friend and to answer the items while

thinking about the relationship with this best friend. They could not select a romantic partner as their best friend. Participants were, however, not restricted to select a same-age, same-school, or same-gender friend. To prevent interdependence in the data, two criteria were used to select adolescents from the total sample. Firstly, when two or more target adolescents selected the same person as their best friend in a particular wave, one dyad was randomly selected. Secondly, when two adolescents selected each other as their best friend in a particular wave and thus formed a mutual friendship, one report of this dyad was randomly selected to avoid interdependence in the data. This selection was conducted for every measurement wave separately and resulted in a sample of 930 unique and fully independent friendship dyads, since each friendship in the final sample was reported on only once. From the 930 participants there were 464 boys (49.9%) and 466 girls (50.1%). Two age groups were represented: 593 early adolescents (63.8%), who were on average 12.4 years of age (SD = 0.59) and 337 middle adolescents (36.2%), who were on average 16.7 years of age (SD = 0.82) during the first wave of assessment. The early adolescent group consisted of 318 boys (53.6%) and 275 girls (46.4%). The middle adolescent group consisted of 146 boys (43.3%) and 191 girls (56.7%). Because both age groups were assessed during five measurement waves, a total age range from 12 to 16 and from 16 to 20 years was available. Most participants were Dutch (84.4%), and others identified themselves as part of a Dutch non-Western ethnic minority group. Although there was no specific focus on same-sex friendships, the majority of the participants chose to report about a same-sex friendship; 62.0% did so in all five waves, 18.1% in four waves, 9.9% in three waves, 5.7% in two waves, and 3.1% in one wave. Only 0.4% of the participants never reported on a same-sex friendship. Regarding educational level, around one third of the participants were in pre-university education, around one third were in preparatory higher professional education and around one third were in preparatory secondary vocational education. At the first measurement wave, the total years of education were just over 6 years for the early adolescent group and just over 10 years for the middle adolescent group. Sample attrition was 5.6% from wave 1 to wave 5. Missing values were estimated in Amos with the Full Information Maximum Likelihood approach for model estimation.

### *Procedure*

The participating adolescents were recruited from various high schools in the province of Utrecht, the Netherlands. Participants received an invitation letter, describing the research project and goals and explaining the possibility to decline from participation. Both parents and adolescents provided informed consent. More than 99% of the approached high school students decided to participate. The participants completed the questionnaires at their own high school or at home, during annual assessments. Confidentiality of responses was guaranteed. Verbal and written instructions were offered. The adolescents received €10 as a reward for every wave they participated in.

### *Measures*

#### *The Network of Relationships Inventory*

The Network of Relationships Inventory (Furman & Buhrmester, 1985, 1992) was used to measure adolescents' perceptions of support from friends, negative interaction with friends, and power of friends. An explorative factor analysis for three factors showed that all factor loadings

were above 0.47 for support from the best friend, above 0.57 for negative interaction with the best friend, and above 0.45 for power of the best friend, with no cross-loadings higher than 0.21, 0.07, and 0.22, respectively. Internal consistencies were high with alphas ranging across waves from 0.91 to 0.93 for support of friends, from 0.82 to 0.87 for negative interaction with friends, and from 0.82 to 0.86 for power of the best friend. The factor and construct validity of the NRI are adequate (Edens, Cavell, & Hughes, 1999).

*Support*. Support was assessed using the short version of the Network of Relationships Inventory (Furman & Buhrmester, 1985, 1992). The support scale consisted of 12 items, including items from different subscales like companionship, instrumental aid, intimacy, nurturance, affection, admiration, and reliable alliance. Answers were indicated on a five-point Likert scale (ranging from 1 = *a little or not at all* to 5 = *more is not possible*). Examples of items are "Does your best friend like or approve of the things you do?" and "How much does your best friend really care about you?".

*Negative interaction*. Negative interaction was assessed by combining the conflict and antagonism subscales of the Network of Relationships Inventory (Furman & Buhrmester, 1985, 1992). The negative interaction scale consisted of six items. The participants indicated their answers on a five-point Likert scale (ranging from 1 = *a little or not at all* to 5 = *more is not possible*). Examples of items are "Do you and your best friend get on each other's nerves?" and "How much do you and your best friend get upset with or mad at each other?".

*Power*. Power was assessed by combining the relative power and the dominance subscales of the Network of Relationships Inventory (Furman & Buhrmester, 1985, 1992). The power scale consisted of six items. Answers were given based on a five-point Likert scale (ranging from 1 = *a little or not at all* to 5 = *more is not possible*). Low scores on the power scale show that adolescents do not see their best friend as more powerful, indicating that both adolescents and their best friend are equally powerful and have a high level of equality in their relationships. High scores indicate that adolescents perceive their best friend as more powerful and feel their relationship is less equal. Examples of items are: "How often does your best friend tell you what to do?" and "To what extent is your best friend the boss in your relationship?".

## Results

### *Descriptives*

Table 1 provides the means and standard deviations for the observed values of the variables support, negative interaction, and power on the five measurement waves for both the early and the middle adolescents and for boys and girls separately.

### *Strategy of analyses*

A multigroup multivariate latent growth curve model was used to examine the developmental changes in support, negative interaction, and power (Duncan, Duncan, Strycker, Li, & Alpert,

Table 1
Means and standard deviations of the observed values.

| | Early adolescents | | | | | Middle adolescents | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Wave 1 | Wave 2 | Wave 3 | Wave 4 | Wave 5 | Wave 1 | Wave 2 | Wave 3 | Wave 4 | Wave 5 |
| | *M* (SD) | *M* (SD) | *M* (SD) | *M* (SD) | *M* (SD) | *M* (SD) | *M* (SD) | *M* (SD) | *M* (SD) | *M* (SD) |
| Support | | | | | | | | | | |
| Boys | 2.72 (0.85) | 2.86 (0.74) | 2.88 (0.71) | 3.00 (0.67) | 3.04 (0.68) | 2.85 (0.74) | 3.15 (0.60) | 3.21 (0.63) | 3.20 (0.54) | 3.18 (0.60) |
| Girls | 3.42 (0.74) | 3.54 (0.69) | 3.49 (0.70) | 3.56 (0.65) | 3.65 (0.60) | 3.48 (0.67) | 3.53 (0.56) | 3.54 (0.57) | 3.54 (0.59) | 3.48 (0.62) |
| Negative interaction | | | | | | | | | | |
| Boys | 1.33 (0.44) | 1.42 (0.50) | 1.43 (0.56) | 1.39 (0.51) | 1.34 (0.47) | 1.33 (0.41) | 1.32 (0.43) | 1.26 (0.37) | 1.26 (0.42) | 1.26 (0.46) |
| Girls | 1.23 (0.40) | 1.33 (0.44) | 1.29 (0.41) | 1.21 (0.35) | 1.22 (0.39) | 1.24 (0.35) | 1.30 (0.45) | 1.20 (0.36) | 1.16 (0.33) | 1.18 (0.32) |
| Power | | | | | | | | | | |
| Boys | 1.71 (0.60) | 1.86 (0.60) | 1.90 (0.60) | 1.89 (0.58) | 1.84 (0.55) | 1.74 (0.52) | 1.80 (0.57) | 1.78 (0.51) | 1.75 (0.51) | 1.78 (0.55) |
| Girls | 1.73 (0.50) | 1.89 (0.61) | 1.81 (0.55) | 1.73 (0.54) | 1.75 (0.52) | 1.69 (0.50) | 1.73 (0.52) | 1.68 (0.50) | 1.61 (0.48) | 1.59 (0.52) |

1999; McArdle & Epstein, 1987) (Table 2). Also, linkages between these changes and gender differences in these changes were investigated. In the model three latent factors, the intercept, the slope, and a quadratic slope, are estimated for each construct from the time-based indicators. We distinguished between four groups: early adolescent boys, early adolescent girls, middle adolescent boys, and middle adolescent girls. An accelerated longitudinal design (Duncan, Duncan, & Strycker, 2001) was used to estimate the development of support, negative interaction, and power from the ages 12 to 20 years. For all groups the intercept factor loadings were fixed at 1, because the intercept is a constant over time. The slope factor loadings were fixed at 0, 1, 2, 3, and 4 for the early adolescent groups and at 4, 5, 6, 7, and 8 for the middle adolescent groups. The quadratic slope factor loadings were fixed at 0, 1, 4, 9, and 16 for the early adolescent groups and at 16, 25, 36, 49, and 64 for the middle adolescent groups. Means and variances of the intercepts, slopes, and quadratic slopes as well as linkages between intercepts and slopes were fixed to be equal for the two age groups within the same gender. This allows estimating one growth curve from the ages 12 to 20 years.

Furthermore, within-time correlations between errors were added to the model. Because variances of quadratic slopes were non-significant and freely estimating these variances and the correlations with these variances resulted in negative variances and estimation problems, quadratic slope variances and correlations with the quadratic slopes were fixed at zero.

Gender differences were examined by comparing a model in which groups of boys and girls were allowed to differ versus models with similar parameters for boys and girls. We stepwise tested whether means, variances, and linkages should be constrained to be equal for boys and girls. Using chi-square difference tests we determined which parameter constraints made a significant improvement to the model fit. Constraining the means to be equal for boys and girls significantly worsened the model fit ($\Delta\chi^2 = 265.94$, $\Delta df = 9$, $p < 0.001$) and means were therefore again released. Constraining the variances to be equal for boys and girls did not worsen the fit ($\Delta\chi^2 = 7.37$, $\Delta df = 6$, $p > 0.05$), so we kept these parameters fixed. Subsequently constraining the

Table 2
Results of the multigroup multivariate latent growth curve model.

| | Support | | Negative interaction | | Power | |
|---|---|---|---|---|---|---|
| | Boys | Girls | Boys | Girls | Boys | Girls |
| IC | | | | | | |
| *M* | $2.730_a$*** | $3.401_b$*** | $1.352_b$*** | $1.265_a$*** | $1.751_a$*** | $1.763_a$*** |
| $\sigma^2$ | 0.250*** | 0.250*** | 0.070*** | 0.070*** | 0.128*** | 0.128*** |
| SL | | | | | | |
| *M* | $0.096_a$*** | $0.063_a$*** | $0.019_a$ | $-0.001_a$ | $0.051_b$*** | $0.009_a$ |
| $\sigma^2$ | 0.005*** | 0.005*** | 0.001* | 0.001* | 0.002** | 0.002** |
| QU | | | | | | |
| *M* | $-0.005_a$* | $-0.006_a$** | $-0.004_a$** | $-0.002_a$ | $-0.006_a$*** | $-0.004_a$** |
| $\sigma^2$ | 0 | 0 | 0 | 0 | 0 | 0 |

IC = intercept, SL = linear slope, QU = quadratic slope.

*Note*. Estimated means that do not share subscripts are significantly different with respect to gender at $p < 0.05$, two-tailed by critical ratios. All intercept and slope variances were fixed to be equal for boys and girls. Quadratic slope variances were fixed at zero due to estimation problems.

*$p < 0.05$; ** $p < 0.01$; ***$p < 0.001$.

linkages between intercepts, between slopes, and between intercepts and slopes to be equal for boys and girls made the model fit significantly worse ($\Delta\chi^2 = 25.44$, $\Delta df = 15$, $p < 0.05$). These parameter constraints were therefore released again. Thus, we used a model in which the variances were fixed to be equal for boys and girls and means as well as associations were allowed to differ for boys and girls. We used critical ratios to examine gender differences in the estimated intercept and slope means and variances and the correlations within this model. The fit of the final model was adequate ($\chi^2/df = 1.66$, CFI = 0.93, RMSEA = 0.03).

*Development of support, negative interaction, and power*

Estimated intercept and slope means and variances are presented in Table 2.

At the first wave, critical ratios showed that girls perceived a significantly higher level of support from their best friends compared to boys ($z = 11.42$). Support from friends was found to develop curvilinearly with an increase from early to late adolescence (see Fig. 1). Critical ratios showed no gender difference ($z = -1.34$ and $z = -0.37$) in rate of change, suggesting that the mean gender difference in perceived support that was initially found remained over time.

Boys were found to initially perceive more negative interaction with friends than girls ($z = -2.69$). For boys we found a significant quadratic change with an overall decrease towards late adolescence, but negative interaction in girls' friendships was found to remain stable throughout adolescence (see Fig. 2). No significant gender differences were found regarding the linear ($z = -1.39$) and quadratic slopes ($z = 1.29$), however, suggesting that the initial gender difference in negative interaction also remained over time.

Initially, boys and girls were found to perceive equal levels of power of their friend ($z = 0.30$). Both boys and girls showed a curvilinear development of power. Over time, boys showed an increase in perceived power of the friend followed by a slight decline. Girls, in contrast, showed a stable level of power of the friend followed by a decline (see Fig. 3). The linear slope differed

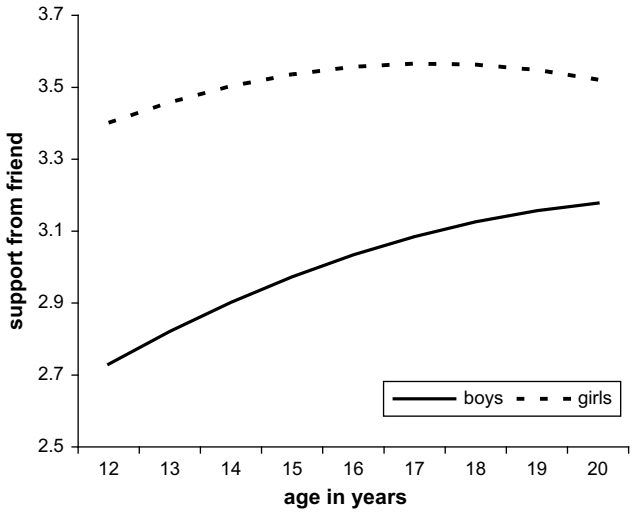


Fig. 1. Support from best friend over time for boys and girls.

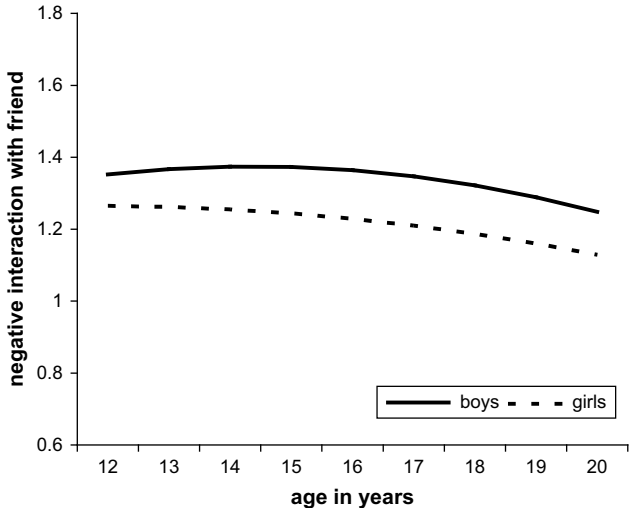


Fig. 2. Negative interaction with best friend over time for boys and girls.

significantly between boys and girls ($z = -2.23$), suggesting a gender difference in development of power. The quadratic slope, however, was not significantly different for boys and girls ($z = 0.87$).

*Linkages between support, negative interaction, and power in adolescent friendships*

With respect to linkages between support and negative interaction we found mainly correlations at intercept level (see Table 3 and Fig. 4). Also, we found different results for boys and girls. For girls

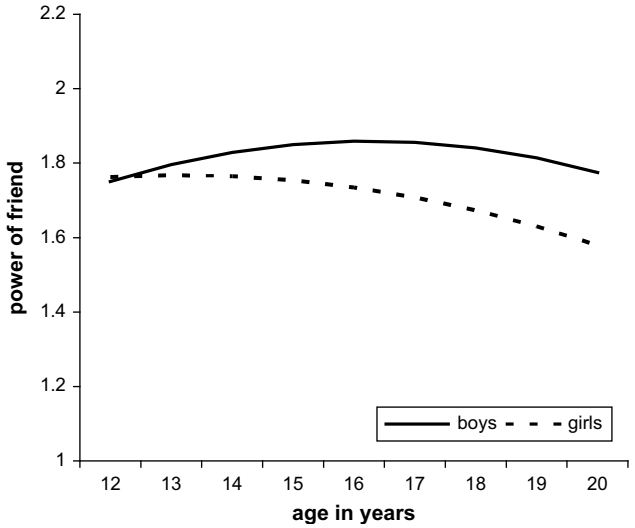


Fig. 3. Power of best friend over time for boys and girls.

Table 3
Results of the multigroup multivariate latent growth curve model.

| Relation type | Boys | Girls |
|---|---|---|
| Intercept–intercept correlations | | |
| Support ↔ negative interaction | $-0.099_a$ | $-0.251_a$* |
| Support ↔ power | $0.379_b$*** | $0.063_a$ |
| Negative interaction ↔ power | $0.354_a$** | $0.277_a$* |
| Intercept-slope paths | | |
| Support ↔ support | $-0.603_a$*** | $-0.536_a$*** |
| Negative interaction ↔ negative interaction | $-0.165_a$ | $-0.526_b$* |
| Power ↔ power | $-0.213_a$ | $-0.355_a$ |
| Intercept-slope cross-paths | | |
| Support ↔ negative interaction | $-0.572_b$* | $0.118_a$ |
| Support ↔ power | $-0.343_a$ | $-0.217_a$ |
| Negative interaction ↔ support | $-0.045_a$ | $0.213_a$ |
| Negative interaction ↔ power | $0.021_a$ | $-0.067_a$ |
| Power ↔ support | $-0.312_a$ | $-0.088_a$ |
| Power ↔ negative interaction | $0.088_a$ | $0.091_a$ |
| Slope–slope correlations | | |
| Support ↔ negative interaction | $0.471_a$ | $-0.450_a$ |
| Support ↔ power | $0.291_a$ | $0.088_a$ |
| Negative interaction ↔ power | $0.416_a$ | $0.254_a$ |

IC = intercept, SL = slope.
*Note*. Estimated means that do not share subscripts are significantly different with respect to gender at $p < 0.05$, two-tailed by critical ratios.
*$p < 0.05$; **$p < 0.01$.

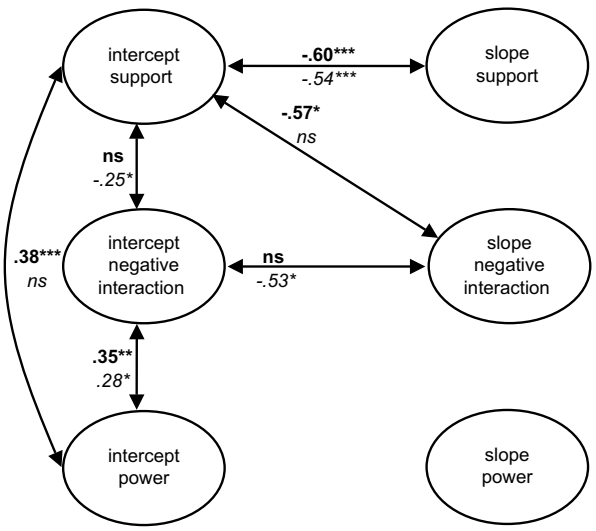


Fig. 4. Linkages in adolescent friendships. Note. Bold = boys, italic = girls. *$p < 0.05$; **$p < 0.01$; ***$p < 0.001$.

we found a significant negative correlation between the intercepts of support and negative interaction, meaning that higher initial levels of support were related to lower initial levels of negative interaction. Although this correlation was not found to be significant for boys, the coefficients for girls and boys were not significantly different ($z = -0.94$). For boys we found a significant positive correlation between the intercepts of support and power. For girls the relation between the intercepts of support and power was not significant and the coefficients for girls and boys were significantly different ($z = -2.12$). This means that for boys but not for girls, higher levels of support were related to higher levels of power. We found a significant positive correlation between the intercepts of negative interaction and power for both boys and girls, indicating that higher initial levels of negative interaction were related to higher initial levels of power.

For boys we found a significant negative correlation between the intercept of support and the slope of negative interaction, indicating that a higher initial level of support was related to a greater decrease of negative interaction. The correlation between the intercept of support and the slope of negative interaction was not significant for girls and this path was significantly different for boys and girls ($z = 2.13$).

## Discussion

In this study we investigated developmental changes in adolescent friendships as well as gender differences and linkages in these changes. Although development in adolescent relationships has been theorized repeatedly, empirical evidence is still limited, mainly cross-sectional and often inconsistent. This study takes a longitudinal approach and can therefore extend current knowledge on development of adolescent friendships from ages 12 to 20 years. We examined perceived support from friends, perceived negative interaction with friends, and perceived power of friends from ages 12 to 20 years using an accelerated latent growth curve model. This longitudinal design allowed us to extend earlier findings about development of these relationship characteristics in adolescent friendships.

### *Development of adolescent friendships towards more intimacy and reciprocity*

All in all, our results confirm that friendships become increasingly positive and supportive and develop towards more reciprocity during adolescence. In concurrence with our expectations we found that support increased during adolescence for both boys and girls. In addition, we found that power issues became less prevalent over time, especially for girls. This is in line with the idea that adolescent friendships become increasingly characterized by equality, mutual respect, mutual trust, and symmetrical reciprocity (Youniss & Smollar, 1985). Friendships possibly develop towards more intimacy and interdependence, because adolescents cognitively develop and acquire the required perspective taking skills to understand each other and to negotiate and integrate their needs (Selman, 1980; Shulman & Knafo, 1997; Shulman et al., 1997).

In contrast to our expectations, negative interaction did not decline from early to middle adolescence and then stabilized from middle to late adolescence. Instead, negative interaction showed a curvilinear development for boys with an overall decrease towards late adolescence, and remained stable over time for girls. Although the decline in negative interaction started in middle adolescence instead of early adolescence, the overall decline of negative interactions for boys was

as we expected. A factor that could account for this development is that adolescents learn to better differentiate between minor conflicts and acquire better perspective taking skills which could improve the friendship (Selman, 1980). Also, conformity in friendships becomes less important (Berndt, 1979; Selman, 1980; Shulman et al., 1997), which might result in a decrease of negative interaction. In addition, it could be that friendships become more stable over the course of adolescence with as a result of more positive features and less negative interactions.

It is important to note that several gender differences appeared in adolescent friendships. In line with our expectation, we found that girls perceived their friendships as more supportive compared to boys from early adolescence onwards. Over time, development of support did not significantly differ for boys and girls, suggesting that the gender difference between boys and girls remained over time (Colarossi & Eccles, 2000; Furman & Buhrmester, 1992; Helsen et al., 2000; Jenkins et al., 2002). This is in line with the theoretical notion that friendships of girls are more supportive and focused on equality than friendships of boys (Maccoby, 1990). It seems that girls focus on self-disclosure, empathy, and a need for nurturance, and boys focus on companionship, competition, and control (Galambos, 2004; Maccoby, 1990) at all stages of adolescence.

In addition, negative interaction was less present in friendships of girls: it remained stable over time and was lower than for boys, who revealed an increase during early adolescence and a decrease later on. This gender difference is in agreement with earlier studies that reported higher levels of conflict and negative interaction for boys compared to girls (Jenkins et al., 2002; Updegraff et al., 2004). An explanation for this gender difference could be that in friendships of boys, negative interaction and issues of dominance are more present due to the competitive characteristics of boys' friendships and the availability of a large group of friends rather than few intimate dyadic friendships that have to be protected, as is the case for girls (see Maccoby, 1990). It is also possible that girls' friendships become less conflictual at an earlier age compared to friendships of boys, because girls are generally 2 years ahead of boys with respect to intellectual and social-cognitive functioning (Porteous, 1985; Silberman & Snarey, 1993).

Furthermore, whereas power of the friend was equal for boys and girls during early adolescence, power became temporarily higher for boys during middle adolescence and decreased throughout adolescence for girls. The rise in power for boys could be related to a heightened level of conformity around ages 13 and 14 years (Berndt, 1979; Coleman, 1980), which possibly leads to peer pressure and more willingness to accept dominance of a friend. During late adolescence, conformity and power of friends are supposed to decrease again, due to adolescent autonomy development and acceptation of each other's needs (Devereux, 1970; Selman, 1981).

All in all, these gender differences indicate a lagged development for boys compared to girls. Change towards less powerful friendships takes place to a lesser extent for boys in comparison to girls. A possible explanation could be that girls have a faster cerebral cortex development than boys during early adolescence (Andrich & Styles, 1994; Colom & Lynn, 2004), with a 2-year head start regarding intellectual and social-cognitive functioning during early adolescence as a result (Porteous, 1985; Silberman & Snarey, 1993).

### *Linkages between support, negative interaction, and power*

Several linkages were found between the three relationship characteristics, support, negative interaction, and power that were in part gender-specific and that partially confirmed our

hypotheses. We found the hypothesized initial relation between support and negative interaction for girls only. This means that when levels of support are high, levels of negative interaction are low. Possibly when intimacy and support are more important aspects in a friendship, as is the case for girls (Maccoby, 1990), support and negative interaction do not go together well in a friendship. For boys it is only until later that the association between support and negative interaction arises, again indicating a lagged development for boys compared to girls. When initial levels of support in friendships of boys were higher, negative interaction decreased faster over time compared to less supportive friendships. Since negative interaction is more common in friendships of boys and support is more common in friendships of girls, it seems that boys who initially have more supportive friendships also become more similar to girls regarding negative interaction by showing a faster decrease in negative interaction.

As expected, for both boys and girls higher levels of power were concurrently related to higher levels of negative interaction. Hence, an unbalanced power division in the friendship is related to negative interaction. It might be that an unbalanced power division goes concurrently together with negative interaction or that negative interaction concurrently results in a power struggle.

In contrast with our expectation we found no significant association between support and power for girls. We formulated no expectation for boys, for whom support and power were found to be concurrently positively associated. A possible explanation for this finding is that for boys the friendship dyad is more focused on control and dominance (Galambos, 2004; Maccoby, 1990). In this form of peer interaction, it is accepted for one peer to be more dominant in deciding, because this phenomenon is inherent to the interaction form. Girls' friendship dyads, however, are more focused on decision making through polite discussion and compromise than on dominance (Maccoby, 1990). As a result it could be that girls are less accepting of an unequal power division and therefore consider a higher level of power of a friend as negative and not as supportive. We found this positive linkage between support and power also for the parent–adolescent relationship (De Goede, Branje, & Meeus, 2009). It appeared that especially in early adolescence, when dominance of parents is still normative, adolescents perceived powerful parents as supportive. Later on in adolescence this linkage disappeared, indicating that in more reciprocal relationships unequal divisions of power are no longer adequate. Similarly, in friendships, powerful friends might only be perceived as supportive when the friend is accepted as being hierarchically superior, and this might be more applicable to friendships of boys than to friendships of girls.

### *Strengths and limitations*

In this study both concurrent correlations as well as correlations over time show how different relationship characteristics in adolescent friendships are related. In this way this study contributes to the understanding of friendship dynamics during adolescence. However, no correlated changes were found even though it is imaginable that the developments of negative interaction and power are in reality associated over time. The absence of significant correlated change could be due to a lack of statistical power and it is not to say that correlations over time do not exist in reality (see Hertzog, Lindenberger, Ghisletta, & von Oertzen, 2006).

An important strength of the current study is that the accelerated design of this study allowed for longitudinal analyses on development of perceived support, perceived negative interaction,

and perceived power in adolescent friendships from ages 12 to 20 years, and thereby extends current knowledge that is based mainly on cross-sectional studies. With the use of an accelerated design, two adjacent age cohorts can be linked together; by setting equality constraints for the two curves, slopes are estimated together in order to determine one common growth curve that best represents development over time (Duncan, Duncan, & Strycker, 2006). Duncan et al. (1999) compared a cohort that was longitudinally measured to a cohort-sequential design and found no significant differences, indicating that an accelerated design can be used to estimate a longitudinal curve and study developmental changes over time. Furthermore, the use of multivariate latent growth curve models led to more insight in linkages between the three investigated relationship characteristics.

Despite the longitudinal design, this study was nevertheless limited in that two groups of participants were assessed over five measurement waves, instead of one group that was assessed from early to late adolescence. Although well-fitting growth curves could be estimated for both age groups together, in future research a longitudinal design that follows the same adolescents over the entire age period of adolescence would be preferable.

Another limitation was that the data were based on self-reports of adolescents and therefore describe only the adolescents' perception of the friendship. Even though relationship quality is for a large part in the 'eye of the beholder' (Branje, van Aken, & van Lieshout, 2002) and adolescents' perception of the friendship might influence friendship interactions and adolescent developmental outcomes, examining friendships from preadolescence onwards and using observations or multi-informant questionnaires could give more information on development in these relationships.

In addition, the study is limited in that the included friendships might be mutual or non-mutual friendships, and reciprocity of these friendships was not taken into account. It might be important to include only mutual friendships in future research, since qualitative features of reciprocal and non-reciprocal friendships could differ (Bukowski & Hoza, 1989; Bukowski, Hoza, & Boivin, 1993).

Furthermore, friendship stability was not taken into account either in this study, so the results are based on both stable and non-stable friendships. Stable friendships have been found to be more satisfying, more similar, and with higher levels of commitment and relationship quality than non-stable friendships (Branje, Frijns, Finkenauer, Engels, & Meeus, 2007; Kiesner, Nicotra, & Notari, 2005; Newcomb, Bukowski, & Bagwell, 1999). Future research could distinguish between stable and non-stable friends in order to see whether adolescents with stable and non-stable friendships differ regarding development of relationship quality.

Another point worth mentioning is that a minority of the participants selected cross-sex friendships in one or more waves. Same-sex and cross-sex friendships are found to differ on several features (Kuttler, La Greca, & Prinstein, 1999; McDougall & Hymel, 2007). Since for a given participant, some waves of assessment were based on a same-sex friendship and other waves on a cross-sex friendship, the estimated growth curves were based on these two types of friendships.

All in all, this study shows the importance of investigating friendship quality over time. However, it would be interesting to include in future research other personal and relational variables that could have an effect on development patterns. For example, personality type during childhood and interactions in relationships with parents were found to be related to adolescent friendships (Furman, Simon, Shaffer, & Bouchey, 2002; Hart, Hofmann, Edelstein, & Keller,

1997). Including these kind of factors in future research could further illuminate interindividual differences with respect to developmental changes in adolescent friendships.

### *Conclusions*

Taken as a whole, our study provides three conclusions. Firstly, adolescent friendships develop towards more reciprocal, positive, and intimate relationships during adolescence. Secondly, adolescent friendships differ for boys and girls regarding power issues, that is, power is more important in friendships of boys and powerful friends are perceived as supportive by boys but not by girls. Thirdly, friendships of boys showed a lagged development compared to friendships of girls. For instance, girls developed towards more equality in their friendships at an earlier age compared to boys. Also for girls, support and negative interaction were related from the start, whereas for boys the relation between initial support and development of negative interaction over time was found to be significant. When initial support in friendships of boys was higher, negative interaction decreased faster than in less supportive friendships. Since girls showed higher initial levels of support and lower initial levels of negative interaction compared to boys, it seems that boys, who have higher, more girl-like initial levels of support in their friendships, also become more equal on other friendship characteristics like negative interaction.

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