Similarities in aggression, inattention/hyperactivity, depression, and anxiety between friends and nonfriends

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University of Northern Iowa

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SIMILARITIES IN AGGRESSION, INATTENTION/HYPERACTIVITY, DEPRESSION, AND ANXIETY BETWEEN FRIENDS AND NONFRIENDS

An Abstract of a Thesis
Submitted
in Partial Fulfillment
of the Requirements for the Degree
Master of Arts

Kristin A. Clark
University of Northern Iowa
July 2000
ABSTRACT

Friendship similarities on behavioral and psychopathological characteristics have been proposed as being risk factors for maladaptive development, yet these similarities have not been thoroughly examined. The purpose of the present study was to examine the similarities within children’s friendships. It was expected that friends would be more similar than nonfriends on aggression, inattention/hyperactivity, depression, and anxiety. Friendship similarities should also differ across grades, with similarity decreasing as grade increases, and across gender, with boys’ friendships more similar on depression and anxiety and girls’ friendships more similar on aggression and inattention/hyperactivity.

Two hundred thirty-four 4th through 9th grade students completed self-report and peer-report measures that identified friends and nonfriends and assessed behavioral and psychopathological characteristics. Difference scores and correlations between the two types of dyads were compared to demonstrate friendship similarity.

Friends were more similar on inattention/hyperactivity and depression than nonfriends. Friends in the higher grades were significantly more similar on peer-reported depression than the younger friends were. Female friends were more similar on peer-reported levels of aggression and inattention/hyperactivity than male friends. Understanding the similarities in friendships may help school counselors and therapists more adeptly address these behavioral and psychopathological characteristics in their clients. Furthermore, classroom interventions may diversify friendships and encourage more adaptive development and adjustment.
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Kristin A. Clark
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This Study by: Kristin A. Clark
Entitled: Similarities in Aggression, Inattention/Hyperactivity, Depression, and Anxiety Between Friends and Nonfriends

has been approved as meeting the thesis requirement for the Degree of Master of Arts.

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CHAPTER 1
INTRODUCTION

The development and adjustment of children are greatly influenced by their friends. Being disliked and being liked by peers both affect children's development. Being disliked in childhood is associated with academic difficulties and high school dropout rates (Barclay, 1966). Being liked by a disruptive and uninvolved peer is also associated with a child's academic difficulties (Berndt & Keefe, 1995), although being liked by a peer who is involved in school is associated with increased school involvement. Adolescents who have disruptive friends and supportive friendships are more likely to increase their disruptive behavior at school than are adolescents with any other combination of friends and friendships. In fact, delinquent adolescents appear to select their friends for such support (Brendgen, Vitaro, & Bukowski, 1998). These friends may be either delinquent or rejected by most of their peers. A cycle may be perpetuated of delinquent adolescents selecting supportive and delinquent friends, who influence them to engage in more disruptive behaviors. This cycle appears to be supported by Fergusson and Horwood's research (1996) that found children with early conduct problems tend to later associate with delinquent friends and commit violent and/or property offences in adolescence.

A child's risk for victimization is also affected by who his/her friends are (Hodges, Malone, & Perry, 1997; Hodges & Perry, 1999). The presence of individual risk factors (e.g., internalizing problems, such as anxiety and depression; externalizing problems, such as Attention-Deficit/Hyperactivity Disorder and Conduct Disorder; and physical
weakness) predicts victimization. The chances of victimization increase, however, if the child has no or few friends or if his/her friends are physically weak (Hodges et al., 1997). On the other hand, friends do offer a protective function if they demonstrate externalizing behaviors (Hodges & Perry, 1999). If both friends have high levels of externalizing behaviors, however, it may lead to negative outcomes. For example, groups of aggressive adolescents are more likely to drop out of school or be suspended or expelled than are nonaggressive adolescents (Cairns, Cairns, Neckerman, Gest, & Gariepy, 1988).

Adolescents’ psychological functioning is also related to their friendships (Kupersmidt, DeRosier, & Patterson, 1995). Peer rejection and being friendless in childhood are associated with psychopathological symptoms in adulthood (Bagwell, Newcomb, & Bukowski, 1998), whereas concurrent perceptions of social support are associated with adolescent symptomatology (Compas, Slavin, Wagner, & Vannatta, 1986). Low levels of satisfaction with adolescents’ social support are related to symptoms of depression, somatization, interpersonal sensitivity, and anxiety in adolescence.

Most childhood research focuses on children’s sociometric status (e.g., their popularity or rejection; Rubin, Bukowski, & Parker, 1998). As these studies illustrate, however, friendships have a significant effect on an individual’s development (Hartup & Stevens, 1997). The type of friendships children have can predict future outcomes such as academic difficulties, victimization, and psychological functioning. Moreover, it appears that friends who are similar in aggression influence one another to engage in maladaptive behaviors. Similarities in other behavioral and psychopathological characteristics (e.g., inattention/hyperactivity, depression, and anxiety) may have analogous associations with
maladjusted development. In order to investigate the effects of such friendships, the extent to which friends are similar in relevant behavioral and psychopathological characteristics (e.g., depression) must first be determined. If friendships do evidence similar levels of these characteristics, then the developmental effects of these friendships can be studied. For those friendships that are maladaptive, interventions can be developed to influence the selection of more adaptive friendships. Since the selection of children's friends may be influenced by the conditions of their environment, a possible intervention is to increase children's opportunities for interacting with different peers in the classrooms (Epstein, 1989).

The purpose of the present study is to examine similarities in children's friendships. A review of the literature on children's friendships and the similarities among them will initially be described. I will provide an overview of friendship development, followed by theories and illustrations of friendship similarities. Because this study will examine friendship similarities on four behavioral and psychopathological characteristics (i.e., aggression, inattention/hyperactivity, depression, and anxiety), past research on their effects on friendships and on their similarities among friends will be outlined. These characteristics are of interest because similarities in behavioral and psychopathological dimensions between middle childhood friends are not well known (Haselager, Hartup, van Lieshout, & Riksen-Walraven, 1998; Kupersmidt, DeRosier et al., 1995) yet may influence children's development and adjustment.
CHAPTER 2

REVIEW OF LITERATURE

The Development of Friendship

Friendship is an experience between two specific individuals (Bukowski & Hoza, 1989) and is characterized by “intimacy, mutual understanding, attachment, interpersonal sensitivity, and affection” (Newcomb, Bukowski, & Bagwell, 1999, p. 63). Rubin et al. (1998) describe four conditions that are important in friendship. First, it is a reciprocal relationship because both members recognize its existence. Second, affection is reciprocated between the two members. Third, the relationship is voluntary. Fourth, it is affected by other relationships (e.g., peers, teachers, and parents) and must be understood with respect to its interactions in other relationships. Overall, the characteristics of each individual influence the shared experiences of the friends, which influence the subsequent development of each individual (Newcomb et al., 1999).

In early childhood, friendships typically consist of several features. First, friends engage in common activities (e.g., playing, eating, or sharing; Epstein, 1983b; Hartup, 1993; Shulman, 1993). Second, their perceptions and expectations of friendships are concrete (Hartup, 1993). For example, friends are more focused on active tasks (e.g., building a block tower) as opposed to abstract concepts (e.g., providing emotional support). Third, friendships are primarily based on the child’s self-interests (Aboud & Mendelson, 1996). In other words, the child becomes involved in a relationship from which he/she expects to gain, such as being able to play with another child’s toy. Fourth, children’s goals have not been defined or developed (Epstein, 1983a). Their relationships
are not focused on emotional support but on observable benefits, such as having someone to sit by. Finally, early childhood friendships are strongly influenced by the proximity of prospective friends (Epstein, 1989). Since young children are very dependent upon their parents for care and transportation, their friendships will be based in part on whom their parents put them in close physical proximity with (e.g., in day care or at family get-togethers). In this way, parents have a significant influence on their young children’s friends.

Early adolescents, like young children, continue to select friends from their own academic classes (Epstein, 1983a). Compared to friends in childhood, friends in early adolescence begin to become more involved in the relationships rather than just the shared activities (Epstein, 1983a). Friends become cooperative partners in activities; however, conflict is not easily overcome (Aboud & Mendelson, 1996). Conflict may create hurt feelings between friends, possibly causing the friendship to suffer or to dissolve. Friendships at this stage are also beginning to involve issues of intimacy and closeness (Shulman, 1993).

Friends in middle adolescence cooperatively engage in activities even more than friends in early adolescence do (Shulman, 1993). Furthermore, middle adolescents are less likely to select their friends from shared academic classes than are early adolescents and young children (Epstein, 1983a). As children grow older, the importance of close proximity in selecting friends levels off (Epstein, 1989). This tendency may be due to middle adolescents’ increased participation in extracurricular activities, which may influence the selection of friends in two ways (Karweit, 1983). First, participation in
extracurricular activities may provide information about prospective friends’ interests, skills, and personalities. Second, participation may increase student status, making prospective friends appear more desirable. Stronger friendships may form between individuals who share several activities compared to friendships that are “site-specific” (Epstein, 1989).

As children develop from early childhood to middle adolescence, friendships become more intimate and autonomous and less competitive (Aboud & Mendelson, 1996; Shulman, 1993). Children also become more particular about who their friends are (Epstein, 1983a), possibly because they view their friendships as being more long-term than younger children do (Aboud & Mendelson, 1996).

At all developmental stages, appropriate social skills are important in establishing and maintaining friendships (Hartup & Stevens, 1997; Selman, Jaquette, & Lavin, 1977). Perspective-taking is an important social skill because it indicates how and why individuals act toward and think about others (Selman, 1976). In other words, it describes the extent to which an individual can put himself/herself in another person’s place. Perspective-taking ability also helps individuals to develop realistic expectations of their friends, themselves as friends, and their friendships in general (Epstein, 1983a).

Selman and his colleagues identified friendship features for each of the five stages of perspective-taking, or interpersonal awareness (Selman, 1976; Selman et al., 1977). Between the ages of approximately three and five years, children are typically at Stage 0. Consistent with later findings (Epstein, 1983a; Hartup, 1993; Shulman, 1993), friendships at this age appear to be based on concrete activities. At about 5 to 11 years, children are
at Stage 1, and their friendships consist of one-way assistance (i.e., are self-interested; Aboud & Mendelson, 1996). At Stage 2, children approximately 7 to 14 years believe that trust in a friendship is based on reciprocal benefits for each friend. Between roughly 12 years to adulthood, individuals are at Stage 3. At this stage, friends mutually share intimate concerns and support one another. Finally, at Stage 4, adolescents and adults view friendship as an autonomous interdependent relationship. Friends allow each other to change and grow while their trust in the relationship remains stable.

Theories of Friendship Similarities

As a child develops, his/her perspective-taking ability continues to develop. This ability appears to be related to the extent that individuals perceive similarities and differences in themselves and others (Epstein, 1983a). In order to perceive a peer as similar, a child must first understand the peer’s beliefs and thoughts by taking his/her perspective. It is these perceived similarities that are believed to be important in the development and maintenance of friendship at all ages (Aboud & Mendelson, 1996).

Similarities among friends have both advantages and disadvantages. Advantages are that similarity is associated with high support and low conflict between friends (Epstein, 1989). This may reinforce self-esteem and validate attitudes and beliefs for each child (Aboud & Mendelson, 1996; Epstein, 1989). Because friends are likely to participate in enjoyable activities together (Aboud & Mendelson, 1996), they may become more involved in activities and confident in their abilities and talents. Disadvantages of friendship similarities are associated with a restriction of the social, academic, or extracurricular experiences encountered and tried by individuals (Epstein, 1989). If a child
does not feel supported by his/her friends in joining a new club, the child may not join in order to reduce feelings of being “different.”

There are several theories that explain why similarities exist between friends. These theories are either based on demographic forces (also known as proximity), attraction (also known as selection), or social influence.

Demographic Forces

Theories of demographic forces state that a child does not select a friend based on his/her characteristics; rather, the selection of a friend is based on the use of shared space (Epstein, 1989). The shared “space” that is often considered to be of most importance in the development of friendships is the school, but the home and community are two other settings important in the development of friendships (Epstein, 1989). Whichever setting is considered, these theories state that children are more likely to become friends with someone who is from the same school or neighborhood than someone who attends another school or lives farther away (Hartup, 1993, 1995, 1997). These demographic effects are also evident among adult friendships, with adults more likely to be friends with those who live closest to them (Festinger, Schachter, & Back, 1950). Because people tend to live near others with the same characteristics, such as class and ethnicity, similarities in friendships may be mainly byproducts of similarities among people who live in the same neighborhoods.

Over the course of an individual’s development, the effects of demographic forces will differ. Because a young child spends more time in the school and community, his/her friends will have the attributes that are characteristic of the children in that school and
neighborhood. In contrast, an adolescent, who is able to drive and spend more time outside of those areas, is more likely to have friends with attributes that differ from the characteristic attributes of adolescents in his/her neighborhood and school.

Just as the effects of demographic forces vary across an individual's development, their effects also differ between the different settings. For example, home friendships are more similar than school friendships on demographic characteristics (e.g., gender and ethnicity) and aggression (Kupersmidt, DeRosier et al., 1995). To explain this difference, proponents for the theories of demographic forces argue that neighborhood children are more similar than school children.

The effects of demographic forces should be greater in the development of friendships during times of transition and stress (Epstein, 1989). When a child changes schools, he/she may develop a friendship with the first person that initiates a conversation with him/her. However, as the child becomes adjusted to his/her surroundings, he/she may "branch out" and develop new and different friendships based on other criteria.

As the theories of demographic forces indicate, the formation of friendships may be affected by outside influences. It is important to note that not all individuals in close proximity will develop friendships (Epstein, 1983a). Disliked individuals are also more likely to live near a person than to live farther away (Ebbesen, Kjos, & Konecni, 1976). Therefore, other theories, such as attraction and social influence, must be considered in the development of friendships.
Attraction

Attraction-based theories, such as the similarity-attraction hypothesis (Kupersmidt, DeRosier et al., 1995), suggest that similarities stem from individuals liking one another because of similar features (Hartup, 1995, 1997). Selection effects, which are based on this assumption, suggest that children choose friends that resemble themselves. Friends may be selected based on similarities on gender, behavioral attributes, or personal attitudes and values (Hartup, 1993, 1995, 1997). Because attitudes are not easily observed, it is possible that friendship similarities on these characteristics may result from selecting friends based on observable behaviors arising from their underlying attitudes and values (Urberg, Degirmencioglu, & Tolson, 1998).

It is believed that friendships with similar peers will be rewarding because the similarities increase each person's approval of the other by reducing conflicts and by validating identities (Billy, Rodgers, & Udry, 1984). It is also rewarding because friends share common ground in their activities and conversations (Hartup, 1997), allowing them to spend more time together.

An attraction-based theory was supported by Kupersmidt, DeRosier et al. (1995), who found that the more similar two children were on demographic, behavioral, and academic attributes, the more likely they were to become friends. Kandel (1978a) also supported the attraction effects on friendship development by demonstrating that peers in the process of forming friendships are more similar than are peers in the process of dissolving their friendships. Friends in newly-formed friendships had more positively correlated scores on measures of marijuana use ($r = .41$ vs. $r = .22$), educational aspirations ($r$
= .41 vs .38), and minor delinquency (r = .30 vs .17) than friends who were dissolving their friendships. It appears that similarities are important in developing friendships and a lack of similarities is influential in terminating friendships. Corresponding similarities on cigarette use, parent values, and social activity between adolescents in the process of forming friendships and adolescents in stable friendships demonstrate that similarities exist between children who are about to become friends (Urberg et al., 1998). This suggests that they are “attracted” to one another by their similarities.

Social Influence

Social influence, or socialization, theories explain similarities as stemming from the interactions between friends (Hartup & Stevens, 1997) rather than the other way around. Friends interact with each other, causing them to change and adapt to the others’ interests and behaviors (Hartup, 1993, 1995, 1997) and become more similar. A friend may influence another by either modeling or reinforcing a particular behavior (Billy et al., 1984).

A social influence theory, social impact theory (Latané, 1981), predicts that the strength, immediacy, and number of social sources impact a person in a multiplicative fashion. When the strength (i.e., importance), immediacy (i.e., proximity), and number of social sources are high, the person will be more influenced than when one or more of these variables are low. If an individual’s close friend (high strength) engages in a particular behavior, the individual will be more likely to engage in that behavior than if an acquaintance (low strength) engages in the behavior. The individual will also be more likely to change his/her behavior if the person influencing him/her is nearby (high
immediacy; e.g., in the same class), as opposed to far away (low immediacy; e.g., in a
different class), as people are most influenced by those who live closest to them (Latané,
Liu, Nowak, Bonevento, & Zheng, 1995). Finally, the more people (high number)
engaging in a behavior, the more likely a person will be influenced to engage in the same
behavior. Like close friends, popular peers are considered to be strong social sources, and
their approval of particular behaviors influence the development of mature attitudes in
other students (Harton & Latané, 1997). Popular children approve of mature attitudes
(e.g., kissing, dating, and cigarette use) earlier and at a higher rate than their peers do.
Through social influence, these attitudes then become accepted by a majority of the
students.

The increase in similarities within adolescent friendships over time (Hartup, 1993)
appears to support the social influence explanation. This effect has been observed in
moderately disruptive boys with aggressive-disturbing friends (Vitaro, Tremblay, Kerr,
Pagani, & Bukowski, 1997). It appears that, over time, the aggressive-disturbing friends
influence the moderately disruptive friends to increase in their delinquency.

Summary of Theories

For the most part, each theory of friendship similarity has been described
independently. It is very likely, however, that demographic forces, attraction, and social
influence interact with one another in the development and maintenance of friendship
similarities. For example, proximity is important in the theories of demographic forces and
social influence. Children from the same neighborhood are likely to interact and become
friends, possibly influencing one another to change and become more similar. Attraction
and social influence interact when peers initially become friends because they have similar characteristics (e.g., gender) and later influence one another to change on other characteristics (e.g., aggression) to become even more similar. All three theories may interact when a child selects a friend from the children in his/her neighborhood based on similarities the two children share on styles of play. Although these children develop a friendship based on proximity and attraction, they may influence one another and become similar on other characteristics, such as beliefs about school. Longitudinal studies are needed to separate the effects that the different theories may have on the development and maintenance of friendships.

**Friendship Similarities**

Similarities have been found in friends versus nonfriends as young as seven years-old (Rubin, Lynch, Coplan, Rose-Krasnor, & Booth, 1994). The degree of similarity varies from attribute to attribute and depends, in part, on the reputational salience of the features (Hartup, 1997). Reputational salience means that certain characteristics are more significant to a person’s social reputation at different stages of his/her development and with different genders. Type of play would be associated with a young child’s reputation more than with an adolescent’s reputation. On the other hand, sexual behavior would be associated with an adolescent’s reputation more than with a young child’s. Furthermore, similarities in sexual behavior are more prominent among female adolescent friends than among male adolescent friendships because it is believed that sexual intercourse for females does not follow sex-appropriate norms (Billy et al., 1984).
Overview of Similarities

The attributes that friends are usually most similar on are demographic characteristics. Similarities on these characteristics may be due to demographic forces or the proximity of prospective friends. In order to become friends, children must spend time together to form the friendships. The demographic characteristics on which adolescent friends are typically similar are age, grade, gender, and race (Billy et al., 1984; Epstein, 1983a; Kandel, 1978b).

Behavioral similarities between friends are not as strong as demographic similarities, but they are still significant. Among childhood friendships, behavioral similarities have been found on the type of play engaged in by children, such as solitary, parallel, or group play (Rubin et al., 1994). Behavioral similarities that have been found among adolescent friends include drug use and sexual behavior (Billy et al., 1984; Kandel, 1978a, 1978b; Urberg et al., 1998). Among both childhood and adolescent friendships, friend dyads are more similar than nonfriend dyads on prosocial and antisocial behavior, shyness, and victimization (Haselager et al., 1998).

Similarities in attitudes and values are also significant but to a lesser extent than demographic and behavioral similarities (Kandel, 1978b; Urberg et al., 1998). Attitudes about adult expectations, career goals, school structure, and political orientations are similar among childhood and adolescent friends (Kandel, 1978a, 1978b). Parent, religious, and school values are similar among adolescents in stable friendships (Urberg et al., 1998).
Similarities in psychopathological characteristics have not been extensively investigated, but some have been found among both childhood and adolescent friends. Friends are more similar than nonfriends on aggression levels and depressive symptoms (Haselager et al., 1998; Kupersmidt, DeRosier et al., 1995; Newcomb et al., 1999). Behavioral and psychopathological characteristics in friendships will be discussed more extensively in a later section.

Grade

Children tend to be friends with others in their same grade (Kandel, 1978b). Because schools are organized by grades, students in the same grade will spend much of their time together (Epstein, 1989), and friendships will be more likely to form between classmates than between older or younger students. As grade increases and students are able to drive and have classes with students from other grades, however, the number of friendships between children in different grades also increases (12% in 3rd grade to 35% in 12th grade; Shrum, Cheek, & Hunter, 1988).

Not only is grade an important feature on which friends are similar, but it is also important in describing the nature of friendship similarities. Similarities often vary by grade or age, but how they vary appears to be controversial. Some researchers believe that friendship similarities decrease with age. In a cross-sectional study of third and sixth graders, Clark and Drewry (1985) examined similarities among friends on characteristics such as intelligence, social self-concept, popularity, future success, birth order, and social class. In this study, they found that as grade level increases, the number of similarities between friends begins to decrease slightly. Sippola, Bukowski, and Noll (1997) also
found decreases in friendship similarity with age. They demonstrated that the difference between liking of same- versus other-sex peers is smaller in the older age levels (e.g., sixth through ninth grades) than in the younger age levels (e.g., second through fifth grades). It appears that, with age, children change and like other-sex peers more than they had previously. The researchers attributed the change in preference to evolving views toward the other-sex peers, as opposed to the same-sex peers.

Other researchers, however, have found that friendship similarities increase with age. In a cross-sectional study of 3rd through 12th graders, the selection of same-race friends increased as grade increased (Shrum et al., 1988). Young children make and receive more friend selections than adolescents (Epstein, 1983b), suggesting that young children are less discriminative about who their friends are (Epstein, 1989). Adolescents, on the other hand, may be more particular and choose their friends based on having similar characteristics. The increased freedom that adolescents experience when they can drive and select their classes also allows adolescents to be more selective in whom their friends are because they have access to a variety of prospective friends (Aboud & Mendelson, 1996; Epstein, 1989). This may increase their likelihood of selecting friends based on shared interests or experiences.

With age, the degree of similarity may decrease on certain characteristics, such as gender (Sippola et al., 1997), and increase on others, such as academic interests. This is demonstrated in Shrum et al.'s (1988) study. As grade increased, friendship similarity on race increased from elementary to middle school while similarity on gender was stable. As
grade increased from middle school onward, the number of same-sex friendships decreased while racial similarity was stable.

It is likely that investigations of behavioral and/or psychopathological characteristics, on the other hand, would have different findings. From 7th to 11th grades, control and conformity within friendships decreased as adolescents became better able to balance their own needs with the needs of others (Shulman, Laursen, Kalman, & Karpovsky, 1997). Therefore, similarities in behavioral and psychopathological characteristics are believed to decrease with age because peers may be more understanding of and sensitive to differences in peers' personal attributes, such as behavioral and psychopathological characteristics. In the present study, the change in the degree of friendship similarities on behavioral and psychopathological characteristics will be examined. It is hypothesized that as grade level increases, friendship similarities on these characteristics will decrease.

Gender

Friends also appear to be similar on the demographic characteristic of gender. Children like same-sex peers more than they like other-sex peers (Bukowski, Gauze, Hoza, & Newcomb, 1993; Shrum et al., 1988; Sippola et al., 1997), and they will typically select peers of the same-sex when instructed to identify a close friend (Epstein, 1983a; Kandel, 1978b; Singleton & Asher, 1979). Children select same-race peers more than other-race peers (Singleton & Asher, 1979), but children are more likely to have other-race friendships than other-sex friendships (Kupersmidt, DeRosier et al., 1995). Both are very rare. Although gender continues to be a salient feature on which friends are similar,
friendship similarities on gender appear to decrease somewhat after eighth grade (Shrum et al., 1988).

Girls are more likely than boys to be selected as friends and to have reciprocal friends (Epstein, 1983b; Parker & Asher, 1993). Compared to boys, girls view their friendships more positively (Berndt & Keefe, 1995). Both boys and girls, however, view closeness as the most important characteristic of their friendships (Shulman et al., 1997).

Boys' friendships are more similar than girls' friendships in cooperation, whereas girls' friendships are more similar than boys' friendships on measures of antisocial behavior (e.g., starting fights, disrupting class, and bullying classmates; Haselager et al., 1998). This variation may be due to “reputational salience,” which was described earlier as the importance of an attribute in determining a child's social standing (Hartup, 1997). Attributes that are non-normative or non-stereotypical are more likely to determine social standing. Boys obtain higher antisocial scores than girls (Haselager et al., 1998), and girls obtain higher scores on helping, caring, and disclosure than boys (Parker & Asher, 1993; Shulman et al., 1997). Thus, being cooperative may stand out more among boys than girls, and engaging in antisocial behavior may stand out more among girls than boys. Children that stand out from the norm may develop friendships based on common “differences.”

In the present study, it is hypothesized that girls' and boys' friendships will be more similar on their respective non-stereotypical characteristics. Since the expression of sadness and anxiety is non-normative for boys, their friendships are hypothesized to be more similar on levels of internalizing disorders (i.e., depression and anxiety). Because the
expression of aggression and hyperactivity is non-normative for girls, their friendships are hypothesized to be more similar on levels of externalizing disorders (i.e., aggression and inattention/hyperactivity).

**Behavioral and Psychopathological Characteristics**

Although friendship similarities have been investigated, little research has been done to examine the extent that behavioral similarity (e.g., aggression) is associated with children’s friendships (see Cairns et al., 1988; Haselager et al., 1998; Kupersmidt, DeRosier et al., 1995). Even less research has examined the extent that similarities in psychopathological characteristics (e.g., inattention/hyperactivity, depression, and anxiety) are related to children’s friendships (see Haselager et al., 1998; Hogue & Steinberg, 1995). Similarities in these characteristics are of interest because it has been proposed that such similarities may be risk factors for maladaptive development (Hartup & Stevens, 1997). Thus, the purpose of this study is to better understand the extent to which similarities among friends versus nonfriends exist in the characteristics of aggression, inattention/hyperactivity, depression, and anxiety.

**Aggression**

Aggressive friends can negatively influence the development of a child’s aggression. A child that has been identified as aggressive early in life may either continue being aggressive or not (see O’Donnell, Hawkins, & Abbott, 1995). Risk factors identified in the continuation of aggression from late childhood to early adolescence are negative peer interactions and negative adult interactions (O’Donnell et al., 1995). Even non-aggressive children may become more aggressive if their friends are. Third through
seventh graders who are rejected by their peers but have an aggressive best friend are more likely to become aggressive than those without an aggressive best friend (Kupersmidt, Burchinal, & Patterson, 1995). Interestingly, conflict within the friendship is a protective factor for rejected children against becoming aggressive. It is support between rejected and aggressive friends that is associated with the rejected children becoming more aggressive. This support is more predictive of later aggressive behavior than are teachers’ ratings of students’ aggressive behaviors (O’Donnell et al., 1995). In general, if friends are similar on aggression, then their aggressive similarities will increase over time as a result of social influence (Vitaro et al., 1997).

In understanding an aggressive child’s interactions with peers, it is important to recognize that the aggressive child is unlikely to trust his/her peers and will believe that negative interpersonal experiences are caused intentionally by others (Rubin et al., 1998). Since aggressive friendship dyads can be supportive, it would seem that the support might be based on similar feelings of distrust toward peers. The child may be rejected and distrust his/her peers but still have a best friend whom he/she trusts. Thus, a distinction must be made between sociometric status (peer acceptance/rejection) and friendship status (Parker & Asher, 1993). Even though children who are rejected by their peers are less likely to have friends than are peer accepted children, rejected peers do have friends (Parker & Asher, 1993). It is possible that peer-rejected children identify with one another, become friends, and encourage each other’s deviant behavior (Hinshaw & Melnick, 1995).
Of the four behavioral and psychopathological characteristics, the similarities between friends and nonfriends in aggression have been examined the most often. Aggressive fourth through seventh grade students tend to be friends with other aggressive peers (Cairns et al., 1988; Xie, Cairns, & Cairns, 1999), and aggressive third and fourth grade dyads are more likely to be friends than any other type of dyad (i.e., nonaggressive dyad and nonaggressive/aggressive dyad; Kupersmidt, DeRosier et al., 1995). Even if children are not identified as aggressive, friendship similarities among fourth through eighth graders are greater on antisocial characteristics that indicate aggressiveness (e.g., “starts fights,” “disrupts,” and “bullies classmates”) than on prosocial behavior, shyness, and sociometric characteristics (Haselager et al., 1998). The stability of friendships is also related to aggression among friends because friends in stable friendships are more similar on aggression and class competence than friends in nonstable friendships (Newcomb et al., 1999).

Inattention and Hyperactivity

Although it is highly correlated with aggression, Attention-Deficit/Hyperactivity Disorder (ADHD) is a distinct construct in children (Boelter, 1999; Hinshaw, 1987). The distinction, however, is not detectable until approximately the sixth grade (Boelter, 1999). Furthermore, even though aggression and ADHD are correlated, they can still offer independent information based on their distinct relationships with criterion variables (Hinshaw, 1987). Compared to conduct-disordered/aggressive peers, children with hyperactivity/attention deficits are more likely to be off-task. Conduct-
disordered/aggressive children, on the other hand, are more likely to engage in delinquent behaviors in adolescence than hyperactive/inattentive children.

The main features of ADHD are inattention and hyperactivity-impulsivity (American Psychiatric Association, 1994). Some symptoms for inattention include failure to pay attention to details, difficulty organizing tasks, and forgetfulness in daily activities. Symptoms for impulsivity-hyperactivity include difficulty waiting a turn, fidgeting with hands, and talking excessively. ADHD boys also evidence higher rates of noncompliant behavior and verbal and physical aggression than comparison groups of boys (Erhardt & Hinshaw, 1994). ADHD children are at an increased risk for engaging in antisocial behaviors and substance abuse, as well as developing depressive and anxiety symptoms and disorders (see Spencer et al., 1996). A difference has not been found, however, between ADHD and comparison boys on prosocial behavior and social isolation (Erhardt & Hinshaw, 1994).

Children with ADHD tend to be rejected by both their “normal” and ADHD peers (Erhardt & Hinshaw, 1994; Hinshaw & Melnick, 1995). Negative nominations from their peers often occur shortly after meeting ADHD six to twelve year-old boys for the first time (Erhardt & Hinshaw, 1994). Even though negative nominations come from both groups of peers, ADHD boys tend to prefer their ADHD peers more than normal peers do (Hinshaw & Melnick, 1995). While the negative nominations appear to be largely associated with aggressive and noncompliant behavior, it appears that the ADHD peers are more accepting of the deviant behaviors than are the comparison peers.
Rather than using the diagnostic label of Attention Deficit/Hyperactivity Disorder for the participants in this study, the features associated with the disorder will be referred to as inattention/hyperactivity. The present study consists of a non-clinical sample of children, and there is no intent to clinically diagnose the participants with a psychological disorder. Similarities in inattention/hyperactivity between friends versus nonfriends have not been previously examined. ADHD has been described as “a heterogeneous disorder of unknown etiology” (Spencer et al., 1996, p. 409), with possible causes being biological make-up, psychological characteristics, and life experiences (Munden & Arcelus, 1999; Spencer et al., 1996). Because the etiology of ADHD is unknown, it is possible that it may be influenced by interpersonal relationships.

Depression

While aggression and inattention/hyperactivity are symptoms of externalizing disorders (i.e., external manifestations of distress are excessive), depression is an internalizing disorder (i.e., inner feelings of distress are excessive). Symptoms of depression include loss of interest in all activities and having depressed mood (American Psychiatric Association, 1994).

Research has shown a connection between depression and believing that one’s friends are not supportive (see Hartup, 1993). Early adolescents with higher depressive affect report less supportive friends (Feldman, Rubenstein, & Rubin, 1988). These adolescents are more likely to expect their friends to ignore and embarrass them and less likely to expect their friends to understand and accept them. Whereas depressive affect in childhood is associated with a concurrent lack of friendship support, depressive
symptomatology in adulthood is associated with not having a friend in preadolescence (Bagwell et al., 1998). In either childhood or adulthood, poor friendship quality or the lack of friends may perpetuate depressive affect (Feldman et al., 1988).

Children with major depression have fewer close friends than non-depressed children (Puig-Antich et al., 1985). There is a significant correlation between duration of depressive episode and quality of peer relations, which suggests that peer relations worsen the longer the depressive episode persists.

Preliminary studies among non-clinically diagnosed children indicate that fourth through eighth grade friends are more similar in self-reported depressive symptoms than nonfriends (Haselager et al., 1998). Friends’ scores were significantly closer than nonfriends’ scores, and friends’ scores were correlated more strongly than nonfriends’ scores, although this difference was nonsignificant.

**Anxiety**

Like depression, anxiety is also an internalizing disorder. Its symptoms, however, include worry and fear of objects, places, or people (American Psychiatric Association, 1994).

Last and colleagues (Last, Hansen, & Franco, 1997) differentiated between anxiety and comorbid anxiety and depressive disorders to illustrate the different effects of each on development (although they did not examine depression alone). In their prospective study of young adults who had been identified as having early-onset anxiety or anxiety-depression, the children with early-onset anxiety-depression appeared to be more maladjusted in young adulthood than those with anxiety alone or no psychiatric disorder in
childhood. The former reported using more mental health services than those with early-onset anxiety and reported having more psychological problems (e.g., depression, anxiety, and drug/alcohol abuse) than those with both early-onset anxiety and no childhood psychiatric disorder. The young adults who suffered from anxiety in childhood were functioning similarly to the young adults who did not manifest any psychiatric disorders in their childhood.

Social anxiety (i.e., fear of social situations) is likely to interfere with the development and maintenance of friendships in childhood and adolescence (Inderbitzen, Waters, & Bukowski, 1997; Vernberg, Abwender, Ewell, & Beery, 1992). Anxious second through fifth graders are less popular than nonanxious children and are viewed by their peers as being shy and socially withdrawn (Strauss, Frame, & Forehand, 1987). Anxious children are more depressed and have lower self-concepts than nonanxious children. Childhood anxiety, however, does not appear to adversely impact psychological adjustment in adulthood (Last et al., 1997).

Childhood social withdrawal has been associated with later problems in psychological overcontrol (Rubin et al., 1998), such as anxiety and depressive disorders. In their study on the similarities between friends, Hogue and Steinberg (1995) did not differentiate between anxiety and depression but investigated the broad category of internalized distress. Adolescents with high levels of internalized distress were likely to be friends with similarly distressed adolescents. In contrast, less-distressed adolescents associated with less-distressed peers.
Because friendship similarities on anxiety, apart from depression, have not been examined, more research is needed. The current research on social anxiety suggests that anxiety may interfere with the development of friendships. It is possible, however, that friendships among socially anxious children may develop based on similar difficulties in establishing friendships.

Assessment

Friends

There are several methods by which friends can be identified. Each method has adequate reliability, but the various methods often identify different friends for a child (Chapman, Smith, Foot, & Pritchard, 1979). There are four ways that friends can be identified (Hartup, 1997). One method is to interview the children, parents, or teachers and specifically ask the interviewee who the child’s friends are. A second alternative is for researchers to observe a child’s proximity-seeking for other peers, such as by recording how many times one child approaches another child. A third procedure is to measure certain behaviors (e.g., sharing) in a child’s social interactions. The most common method in identifying friendships, however, is to have children identify who they like on a self-report measure. There are several techniques for doing this, with each one resulting in different numbers of friends being identified (Erdley, Nangle, & Gold, 1998). Friends may be defined as two peers who give each other high ratings on liking to play with the other, mutual positive nominations on liking the other, or various combinations of the two. Friends are most typically defined as peers who give mutual positive nominations to each other (Erdley et al., 1998; Haselager et al., 1998; Hodges et al., 1997; Newcomb et al.,
This technique identifies the smallest number of friendship dyads and the most “intense reciprocated liking” (Erdley et al., 1998, p. 68) and is the method that was used in the present study to identify friends.

**Behavioral and Psychopathological Characteristics**

There are several ways to measure aggression, inattention/hyperactivity, depression, and anxiety in childhood, including self-reports, peer-reports, teacher reports, parent reports, and observations. In the present study, self-reports and peer-reports are used. A disadvantage of self-reports is that participants may try to appear well-adjusted to the experimenter. On the other hand, self-reports have the advantage of assessing thoughts and feelings that are not readily observable by peers, teachers, or parents. Unlike self-reports, peer-reports have the disadvantage of being influenced by inflexible impressions of the individual that are resistant to change (Hymel, Wagner, & Butler, 1990). However, peer-reports also have many advantages in childhood research. First, the children are “insiders” and can identify the characteristics that are salient in determining interpersonal relationships (Hymel & Rubin, 1985). Second, the children are not affected by social desirability bias when they report on their peers, as opposed to when they report on themselves. Third, the children’s judgements are based on various interactions and experiences with the individual (Hymel & Rubin, 1985). Fourth, the peer-reports include multiple informants that have had varied personal experiences with the individual (Hymel & Rubin, 1985).
Overview

In this study, fourth through ninth grade students completed self- and peer-report measures on four behavioral and psychopathological characteristics. Similarities between friends and nonfriends were examined on the characteristics of aggression, inattention/hyperactivity, depression, and anxiety. Grade and gender effects were also studied. The present study examined the following hypotheses:

1. Friends will be more similar on levels of aggression than nonfriends.
2. Friends will be more similar on levels of inattention/hyperactivity than nonfriends.
3. Friends will be more similar on levels of depression than nonfriends.
4. Friends will be more similar on levels of anxiety than nonfriends.
5. Similarities between friends will decrease as grade level increases.
6. Boys' friendships will be more similar on levels of the internalizing disorders (i.e., depression and anxiety) than girls' friendships, whereas girls' friendships will be more similar on levels of the externalizing disorders (i.e., aggression and inattention/hyperactivity) than boys' friendships.
CHAPTER 3

METHOD

The present study was part of a larger study on children's development (Boelter, 1999; Jagodzinski, 1999; Lantz, 1999). Participants in the larger study were 482 students from the 1st through 12th grades, approximately 14 teachers from the 1st through 12th grades, and 113 parents whose children were in the 6th through 9th grades.1

Participants

Participants in this analysis were 234 students from the fourth through ninth grades enrolled in the 1999 spring semester at a midwestern university-affiliated laboratory school. There were 33 students from fourth grade (mean age = 9.85; 18 males and 15 females), 31 from fifth grade (mean age = 10.87; 20 males and 11 females), 42 from sixth grade (mean age = 11.45; 24 males and 18 females), 32 from seventh grade (mean age = 12.63; 11 males and 21 females), 41 from eighth grade (mean age = 13.61; 22 males and 19 females), and 55 from ninth grade (mean age = 14.67; 26 males and 29 females). At this time, 543 students were enrolled in the kindergarten through 12th grades. This study assessed 43% of the school population and 96% of the target population. From the target population, one student from ninth grade did not complete the measures, and three students from fourth grade, three from fifth grade, and four from ninth grade did not have complete data. These students were eliminated from the present sample. Socioeconomic status was not available for specific students, but 10% of the students at the school received free or reduced lunches. Eighteen percent of the students in the school were ethnic minorities (12% African-American, 4% Asian-American, 1% Hispanic-American,
and 1% Native-American). Enrollment in the school automatically grants parental consent for participation in studies; therefore, consent forms were not used.

**Measures**

**Peer Nomination Inventory**

The Peer Nomination Inventory (PrNI; Appendix A; Boelter, 1999) asked students to nominate classmates who were described by the items. Participants were given a list of same-grade classmates, on which each name was assigned a number. Using the list, participants were instructed to identify up to three students that were described by each item and write their code numbers on the form. Participants nominated up to six same-grade classmates who they liked most and three who they liked least. These items were used to identify participants’ friends and nonfriends. The measure also included 20 behavioral items, which assessed classmates’ aggression (4 items), inattention/hyperactivity (4 items), depression (4 items), anxiety (6 items), and preference (3 items; see Appendix A for each subscale’s items). Two of the items were not included in the subscales because one was a distracter item (#20) and the other (#16) had a low correlation with its intended subscale of anxiety.

Participants’ subscale scores were based on the number of peer nominations they received. Scores could range from 0 (no peer nominations) to the number of students in the participant’s grade (e.g., 33 in the fourth grade). Because each grade had a different number of students, the subscale scores were then standardized by grade. Higher z-scores describe more difficulties with the associated behavioral and/or psychopathological characteristics.
The PrNI was developed to minimize item overlap between variables, and it was created using the Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV; American Psychiatric Association, 1994), Achenbach Child Behavioral Checklist (CBCL; Achenbach & Edelbrock, 1986), Conners Teacher Rating Scale (CTRS; Conners, 1969), and the Peer Nomination Inventory (Schmidt, 1996). Internal consistencies for this sample were .90 for aggression, .80 for inattention/hyperactivity, .94 for depression, and .77 for anxiety.

**Self-Report Inventory**

The Self-Report Inventory (SRI; Appendix B; Boelter, 1999) is a 50-item questionnaire, with each item containing three alternatives. The students were instructed to select one out of each set of three statements that best described their feelings and ideas in the past two weeks. The measure consists of 10 aggression items, 8 inattention/hyperactivity items, 13 depression items, 14 anxiety items, and 4 rejection items (see Appendix B for each subscale’s items). The rejection subscale, however, is not included in the analyses, so it will not be discussed further. One item (#38) was dropped from the present sample’s inattention/hyperactivity subscale because it had a low correlation with the remaining items.

Scores could range from 0 to 20 for aggression, 0 to 16 for inattention/hyperactivity, 0 to 26 for depression, and 0 to 28 for anxiety. Higher subscale scores describe more difficulties with the associated behavioral and/or psychopathological characteristics.
The CBCL (Achenbach & Edelbrock, 1986), DSM-IV (American Psychiatric Association, 1994), and the Self-Report Inventory (Schmidt, 1996) were used to develop the SRI to have minimal item overlap between scales. Internal consistencies for this sample were .77 for the aggression subscale, .66 for the inattention/hyperactivity subscale, .82 for the depression subscale, and .76 for the anxiety subscale.

Procedure

Trained graduate and undergraduate research assistants administered the measures to participants in group settings. The students were told that the researchers were interested in friendships at school and that their answers would remain confidential (Appendix C). Students also received verbal instructions on each of the measures. Throughout the assessment, undergraduate research assistants offered assistance to students regarding the measures. The PrNI was administered first, followed by the SRI and other measures.
CHAPTER 4
RESULTS

Plan of Analysis

I performed several descriptive analyses. First, I calculated correlations between each participant's self- and peer-report subscales. Second, I calculated the means and standard deviations for each grade on the self-report measure and for each gender on the self- and peer-report measures. Differences for each grade and between each gender on the dependent variables—aggression, inattention/hyperactivity, depression, and anxiety—were then examined using five-way and two-way ANOVAs, respectively. The results comparing grade are reported using eta-squared ($\eta^2$; Appendix D), which describes the percentage of variance accounted for by an effect. The comparisons across gender are reported as effect size $d$, which describes the size of an effect independent of sample size (Appendix D). An effect size of .20 is small, .50 is medium, and .80 is large (Cohen, 1988), and a positive $d$ indicates a difference in the predicted direction.

The main hypotheses were analyzed in terms of two categories of dyads—friends and nonfriends. A friend dyad is defined as two participants of the same gender and grade who mutually identified each other on the PrNI as one of the six classmates that they “like the most.” A nonfriend dyad is defined as two participants of the same gender and grade who did not identify each other on the PrNI as one of the six classmates that they “like the most” or one of the three that they “like the least.” Using this method, 88% of the males and 89% of the females had a reciprocated friend. Ninety-eight percent of the males and 100% of the females had a nonfriend.
A small percentage of participants did not have a reciprocated friend \( (n = 26) \) and/or a nonfriend \( (n = 3) \). Participants without reciprocated friends were significantly higher on their self-report \( (F(1, 232) = 4.09, p < .05; M = 5.82, SD = 4.64 \text{ vs. } M = 4.16, SD = 3.86) \) and peer-report \( (F(1, 232) = 49.20, p < .01; M = 1.21, SD = 1.62 \text{ vs. } M = -0.11, SD = .78) \) levels of depression and on their peer-reported anxiety \( (F(1, 232) = 10.30, p < .01; M = .61, SD = 1.33 \text{ vs. } M = -.03, SD = .91) \) than participants with reciprocated friends. Participants without any reciprocated friends also had higher rates of self-reported \( (F(1, 228) = 6.56, p < .05; M = 3.50, SD = 2.20 \text{ vs. } M = 2.66, SD = 1.47) \) and peer-reported \( (F(1, 232) = 49.85, p < .01; M = 1.19, SD = 1.18 \text{ vs. } M = -.16, SD = .89) \) rejection. The two groups did not differ, however, on levels of aggression and inattention/hyperactivity.

In order to minimize the problems of nonindependence, each individual was used in a dyad only once within each category (friend or nonfriend). In other words, if John and Mark form a reciprocal friend dyad, neither John nor Mark would be paired in any other friend dyad. In order to maximize the data available, friend dyads were analyzed separately from nonfriend dyads. Therefore, John and Mark could be included in separate nonfriend dyads.

A participant who did not respond to a self-report item on a particular scale (i.e., aggression, inattention/hyperactivity, depression, and anxiety) was given a score that was the average of all the participants’ scores on the missing item. If a participant did not respond to more than half of the items on a subscale, the subscale score was deleted. Participants with deleted subscale scores were not included in the assignment of friend and
nonfriend dyads because they would not have subscale scores that could be compared with another participant’s scores. After dyads had been formed with the above restrictions, 78% of the males and 80% of the females were included in a friend dyad and 93% of the males and 92% of the females were included in a nonfriend dyad.

Two types of comparisons (i.e., difference scores and correlations) were made to show similarity (see Clark & Drewry, 1985; Haselager et al., 1998). First, the closeness of each dyad’s scores was compared using difference scores. The absolute value of the difference between each friend’s scores on the aggression, inattention/hyperactivity, depression, and anxiety subscales of the SRI and PrNI were calculated. Each difference score was then compared to zero using a one-sample t-test. This shows whether the difference scores were significantly different from zero and thus whether friends’ scores on the two scales were significantly different from each other. Nonfriends’ scores were compared in a similar but separate set of t-tests. For both friends and nonfriends, effect sizes (d) were calculated from the t scores and reported so comparisons could be made across subscales (Appendix D).

Second, the relationship of the scores between friends and nonfriends was compared using correlations. This technique examines the proportion of shared variance in the scores of participants and their friends and nonfriends on self- and peer-ratings for each of the four characteristics. Dyads that are more similar will have more highly and positively correlated scores.

After the two dyad types were studied separately, they were compared to each other. The effect sizes for the difference score analyses were converted to correlation
coefficients (Appendix D). These correlations and those computed directly between the scores of friends and nonfriends were then compared using meta-analytic techniques on each of the four behavioral and psychopathological characteristics (Appendix D; Rosenthal & Rosnow, 1991). Significant differences between dyads indicate that one type of dyad (i.e., friends) is more similar on a characteristic than the other type of dyad (i.e., nonfriends).

Difference scores and correlations were also used to examine friendship similarity within each grade and gender. Friendship similarities on the four characteristics were compared between three grade groups using three-way analyses of variance (ANOVAs) for the difference scores and $Z$-tests for the correlations (Appendix D; Rosenthal & Rosnow, 1991). When applicable, significant ANOVAs were further examined using Tukey's HSD to compare the difference scores between grade. The similarities between the genders on each of the subtests were compared using two-way ANOVAs and $Z$-tests. Eta-squareds ($\eta^2$) were calculated and reported for the grade ANOVAs. Effect sizes (d) were calculated and reported for the gender ANOVAs. Grade and gender were the independent variables and difference scores and correlations were the dependent variables in these analyses.

**Descriptive Analyses**

The levels of participants' behavioral and psychopathological characteristics were similar among self- and peer-reports. The aggression subscales had the highest correlations, followed by inattention/hyperactivity, depression, and anxiety ($r (230) = .50$, $r (232) = .42$, $r (232) = .30$, and $r (232) = .29$, respectively; $p$'s < .01). Students who
were more aggressive were also more inattentive/hyperactive ($r (230) = .57$ for self-report and $r (232) = .65$ for peer-report). Students who were more depressive, on the other hand, reported more anxiety ($r (232) = .64$ for self-report and $r (232) = .59$ for peer-report).

Table 1 shows the descriptive statistics for the students in each of the grades on the SRI subscales. A five-way ANOVA by grade was performed, followed by Tukey’s post hoc tests for the subscales that revealed significant differences ($p < .05$). Eighth graders scored the highest on depression and fourth graders scored the lowest, however, a post hoc test did not reveal significant differences between specific grades. On the anxiety subscale, sixth and eighth graders scored higher than fifth and ninth graders. Neither of these grade effects was very large. Students from the different grades did not differ on the aggression and inattention/hyperactivity subscales. Means on the PrNI subscales were not compared by grade. Because the scores were standardized by grade, the means for each grade are zero.

Overall, fourth and fifth, sixth and seventh, and eighth and ninth graders had relatively similar scores on the self-report subscales, with the exception of eighth and ninth graders’ anxiety scores. Because the respective grades were basically similar and were expected to be similar, they were grouped into pairs to increase power in later analyses. The fourth and fifth graders constitute the younger group (28 friend dyads; 29 nonfriend dyads). The middle group is the sixth and seventh graders (29 friend dyads; 32 nonfriend dyads). The older group consists of eighth and ninth graders (35 friend dyads; 47 nonfriend dyads).
### Table 1

Means and (Standard Deviations) for the Self-Report Subscales of 4th through 9th Grade Students

<table>
<thead>
<tr>
<th>Subscale</th>
<th>4th Grade</th>
<th>5th Grade</th>
<th>6th Grade</th>
<th>7th Grade</th>
<th>8th Grade</th>
<th>9th Grade</th>
<th>n</th>
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<tr>
<td></td>
<td>M (SD)</td>
<td>M (SD)</td>
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<tr>
<td>Aggression</td>
<td>4.64 (3.21)</td>
<td>4.03 (2.97)</td>
<td>5.67 (3.76)</td>
<td>5.10 (3.87)</td>
<td>5.82 (2.87)</td>
<td>5.31 (3.24)</td>
<td>232</td>
<td>.03</td>
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<td>(possible range = 0 – 20)</td>
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<tr>
<td>Inattention/Hyperactivity</td>
<td>4.03 (2.48)</td>
<td>4.74 (3.00)</td>
<td>5.42 (2.37)</td>
<td>5.16 (1.82)</td>
<td>5.17 (2.83)</td>
<td>4.73 (2.88)</td>
<td>234</td>
<td>.03</td>
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<tr>
<td>(possible range = 0 – 16)</td>
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<tr>
<td>Depression</td>
<td>3.06a (3.72)</td>
<td>4.10a (4.07)</td>
<td>5.42a (4.50)</td>
<td>3.58a (3.47)</td>
<td>5.52a (4.03)</td>
<td>4.01a (3.60)</td>
<td>234</td>
<td>.05*</td>
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<tr>
<td>(possible range = 0 – 26)</td>
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<tr>
<td>Anxiety</td>
<td>7.45ab (4.12)</td>
<td>7.00a (4.87)</td>
<td>10.01b (4.52)</td>
<td>8.65ab (4.00)</td>
<td>10.03b (4.59)</td>
<td>7.29a (4.44)</td>
<td>234</td>
<td>.08**</td>
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<tr>
<td>(possible range = 0 – 28)</td>
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</table>

**Note.** If subscripts differ between grades within a row, then those grades significantly differ on the subscale.  
*significance is at the .05 level  
**significance is at the .01 level
Table 2 describes the SRI subscale scores and the PrNI subscale scores by gender. Overall, males scored significantly higher on both the SRI and PrNI aggression and inattention/hyperactivity subscales than females. Females, on the other hand, scored significantly higher on the SRI and PrNI anxiety subscales than males. Males and females did not differ on depression. There were also no grade by gender interactions on any SRI subscales.

**Friend and Nonfriend Dyads**

**Difference Scores**

The absolute values of the differences between friends' scores were analyzed using one-sample $t$-tests in which difference scores were compared with zero. If friends' scores were equal, then the difference in their scores would be zero. Thus, a significant $t$-test indicates that friends' scores are significantly different from each other. Results are reported as effect sizes to allow comparisons to be made across subscales and types of dyad. Table 3 shows that the differences in friends' scores for both self- and peer-reports were significantly greater than zero. These findings do not contradict the hypotheses, however, because the hypotheses are based on comparisons between friends and nonfriends. More specifically, the first four hypotheses state that friends will be more similar than nonfriends on the four behavioral and psychopathological characteristics, not that friends will be equal to one another.

The differences of nonfriends' scores for both self- and peer-reports were also significantly greater than zero (Table 3). This means that the nonfriends' scores were significantly different from each other.
Table 2
Means and (Standard Deviations) for the Self-Report and Peer-Report Subscales of Male and Female Students

<table>
<thead>
<tr>
<th>Subscale</th>
<th>Self-Report</th>
<th>Peer-Report</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Males</td>
<td>Females</td>
</tr>
<tr>
<td></td>
<td>(SD)</td>
<td>(SD)</td>
</tr>
<tr>
<td>Aggression</td>
<td>5.63</td>
<td>4.68</td>
</tr>
<tr>
<td>(possible range = 0 – 20)</td>
<td>(3.55)</td>
<td>(3.06)</td>
</tr>
<tr>
<td>Inattention/Hyperactivity</td>
<td>5.29</td>
<td>4.46</td>
</tr>
<tr>
<td>(possible range = 0 – 16)</td>
<td>(2.73)</td>
<td>(2.45)</td>
</tr>
<tr>
<td>Depression</td>
<td>4.48</td>
<td>4.20</td>
</tr>
<tr>
<td>(possible range = 0 – 26)</td>
<td>(4.04)</td>
<td>(3.92)</td>
</tr>
<tr>
<td>Anxiety</td>
<td>7.80</td>
<td>9.10</td>
</tr>
<tr>
<td>(possible range = 0 – 28)</td>
<td>(4.52)</td>
<td>(4.55)</td>
</tr>
</tbody>
</table>

Note. *significance is at the .05 level  
**significance is at the .01 level
Table 3

Means and (Standard Deviations) of Difference Scores for Friend and Nonfriend Dyads on Self-Report and Peer-Report Measures

<table>
<thead>
<tr>
<th>Subscale</th>
<th>Self-Report</th>
<th>Peer-Report</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Friend</td>
<td>Nonfriend</td>
</tr>
<tr>
<td></td>
<td>M (SD)</td>
<td>M (SD)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>d</td>
<td>d</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aggression</td>
<td>3.25 (2.97)</td>
<td>3.55 (3.08)</td>
</tr>
<tr>
<td></td>
<td>2.20**</td>
<td>2.31**</td>
</tr>
<tr>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inattention/</td>
<td>2.74 (1.84)</td>
<td>2.90 (2.15)</td>
</tr>
<tr>
<td>Hyperactivity</td>
<td>3.00**</td>
<td>2.70**</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>.78 (1.06)</td>
<td></td>
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<td></td>
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<td></td>
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<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Depression</td>
<td>3.75 (2.89)</td>
<td>3.94 (3.69)</td>
</tr>
<tr>
<td></td>
<td>2.61**</td>
<td>2.15**</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>.52 (.64)</td>
<td></td>
</tr>
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<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Anxiety</td>
<td>4.57 (3.66)</td>
<td>5.06 (3.79)</td>
</tr>
<tr>
<td></td>
<td>2.51**</td>
<td>2.68**</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>.88 (.84)</td>
<td></td>
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<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
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<td></td>
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</tr>
</tbody>
</table>

Note. *significance is at the .05 level
**significance is at the .01 level
In general, the effect sizes for nonfriends’ difference scores were larger than for friends’ difference scores as indicated by the positive Z-scores. The similarities in difference scores between friends and nonfriends were compared using the meta-analytic technique described earlier. Each dyad’s t-scores were transformed into correlation coefficients, and these correlations were used to calculate Z-scores (Rosenthal & Rosnow, 1991). Contrary to expectations, this analysis indicated that friends were not significantly more similar than nonfriends, as assessed by difference scores, on any of the self- and peer-reports of aggression, inattention/hyperactivity, depression, and anxiety (Table 3).

Correlations

The proportion of similarities in friends’ scores were examined using correlation coefficients. Higher positive correlations indicate more similarity in friends’ scores. Table 4 shows that friends were significantly similar on self- and peer-reported inattention/hyperactivity. Friends were also similar on peer-reported depression.

None of the correlation coefficients for nonfriend dyads’ scores were significant on either the self- or peer-report measures (Table 4). It appears that nonfriends do not share similarities on any of the behavioral and/or psychopathological characteristics. Furthermore, nonfriends’ score correlations were lower than friends’ score correlations, which supports the expectation that friends will be more similar than nonfriends on the measured subscales.

Comparisons between the correlations of friends and nonfriends partially supported the second and third hypotheses of the present study (Table 4). On the peer-report
Table 4

Correlation Coefficients for Friend and Nonfriend Dyads on Self-Report and Peer-Report Measures

<table>
<thead>
<tr>
<th>Subscale</th>
<th>Self-Report</th>
<th>Peer-Report</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Friend</td>
<td>Nonfriend</td>
</tr>
<tr>
<td>Aggression</td>
<td>.17</td>
<td>.03</td>
</tr>
<tr>
<td>Inattention/Hyperactivity</td>
<td>.21*</td>
<td>.04</td>
</tr>
<tr>
<td>Depression</td>
<td>.20</td>
<td>.06</td>
</tr>
<tr>
<td>Anxiety</td>
<td>.11</td>
<td>.01</td>
</tr>
</tbody>
</table>

Note. *significance is at the .05 level  
**significance is at the .01 level

measures, friends were significantly more similar than nonfriends on inattention/hyperactivity and depression.

Grade Differences in Friendship Similarity

The fifth hypothesis predicted that friendship similarities would decrease as grade increased. The only characteristic that showed differences in closeness of friends’ scores by age group was peer-reported depression (Table 5). However, friends from the older group were significantly more similar on levels of depression than friends in the younger group. The score differences of friends from the middle group did not differ significantly from the score differences of either the younger or the older groups. Friendship similarity did not differ significantly by age group on any of the other behavioral and
Table 5

Means and (Standard Deviations) of Difference Scores for Friend Dyads Comparing Younger, Middle, and Older Groups on Self-Report and Peer-Report Measures

<table>
<thead>
<tr>
<th>Subscale</th>
<th>Self-Report</th>
<th>Peer-Report</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Younger Group M (SD)</td>
<td>Middle Group M (SD)</td>
</tr>
<tr>
<td>Aggression</td>
<td>2.50 (2.12)</td>
<td>4.21 (3.86)</td>
</tr>
<tr>
<td>Inattention/ Hyperactivity</td>
<td>3.14 (1.84)</td>
<td>2.45 (1.82)</td>
</tr>
<tr>
<td>Depression</td>
<td>3.68 (3.02)</td>
<td>3.69 (3.05)</td>
</tr>
<tr>
<td>Anxiety</td>
<td>4.79 (3.40)</td>
<td>3.90 (3.43)</td>
</tr>
</tbody>
</table>

Note. If subscripts differ between groups within a half-row, then those groups significantly differ on the subscale.

*significance is at the .05 level

**significance is at the .01 level
psychopathological characteristics. There also does not appear to be a linear trend across age groups on any of the subscales.

Although different patterns of correlations between friends’ scores emerged when the correlations were calculated separately by age group, there were no significant differences in these correlations (Table 6). This indicates that similarity, as measured by correlation, did not differ across age groups.

**Gender Differences in Friendship Similarity**

The final hypothesis predicted that boys’ friendships would be more similar on the internalizing disorders (i.e., depression and anxiety) and girls’ friendships would be more similar on the externalizing disorders (i.e., aggression and inattention/hyperactivity). Differences in friends’ scores were examined by gender using two-way ANOVAs (Table 7). Female friends had significantly smaller differences between scores on peer-reported aggression and inattention/hyperactivity than male friends, supporting this hypothesis. Although not significant, there was a tendency for male friends to have smaller difference scores on anxiety than female friends. Contrary to expectations, however, female friends did not have greater difference scores on depression than male friends.

Female friends were similar on their levels of peer-reported depression (Table 8), but this correlation did not differ from the correlation for male friends. No other correlations were significant on the other subscales from the self- or peer-reports among male or female friends. Comparisons between the male and female friend correlations showed that there were no significant differences for gender on aggression, inattention/hyperactivity, depression, or anxiety.
Table 6

Correlation Coefficients for Friend Dyads from Younger, Middle, and Older Groups on Self-Report and Peer-Report Measures

<table>
<thead>
<tr>
<th>Subscale</th>
<th>Self-Report</th>
<th></th>
<th>Peer-Report</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Younger Group</td>
<td>Middle Group</td>
<td>Older Group</td>
<td>Lower Group</td>
</tr>
<tr>
<td>Aggression</td>
<td>.31</td>
<td>.01</td>
<td>.23</td>
<td>.32</td>
</tr>
<tr>
<td>Inattention/ Hyperactivity</td>
<td>.17</td>
<td>.00</td>
<td>.32</td>
<td>-.60</td>
</tr>
<tr>
<td>Depression</td>
<td>.21</td>
<td>.28</td>
<td>.16</td>
<td>.19</td>
</tr>
<tr>
<td>Anxiety</td>
<td>.13</td>
<td>.28</td>
<td>-.09</td>
<td>.83</td>
</tr>
</tbody>
</table>

Note. *significance is at the .05 level
**significance is at the .01 level
Table 7

Means and (Standard Deviations) of Difference Scores for Friend Dyads Comparing Males and Females on Self-Report and Peer-Report Measures

<table>
<thead>
<tr>
<th>Subscale</th>
<th>Self-Report</th>
<th>Peer-Report</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Males</td>
<td>Females</td>
</tr>
<tr>
<td></td>
<td>(SD)</td>
<td>(SD)</td>
</tr>
<tr>
<td>Aggression</td>
<td>3.38 (3.46)</td>
<td>3.11 (2.39)</td>
</tr>
<tr>
<td>Inattention/Hyperactivity</td>
<td>3.04 (1.94)</td>
<td>2.42 (1.69)</td>
</tr>
<tr>
<td>Depression</td>
<td>3.98 (3.29)</td>
<td>3.51 (2.41)</td>
</tr>
<tr>
<td>Anxiety</td>
<td>4.21 (3.57)</td>
<td>4.93 (3.76)</td>
</tr>
</tbody>
</table>

Note. *significance is at the .05 level
**significance is at the .01 level
Table 8

Correlation Coefficients for Male and Female Friend Dyads on Self-Report and Peer-Report Measures

<table>
<thead>
<tr>
<th>Subscale</th>
<th>Self-Report</th>
<th>Peer-report</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Males</td>
<td>Females</td>
<td>Z</td>
</tr>
<tr>
<td>Aggression</td>
<td>.11</td>
<td>.23</td>
<td>.56</td>
</tr>
<tr>
<td>Inattention/Hyperactivity</td>
<td>.14</td>
<td>.22</td>
<td>.37</td>
</tr>
<tr>
<td>Depression</td>
<td>.18</td>
<td>.18</td>
<td>.00</td>
</tr>
<tr>
<td>Anxiety</td>
<td>.26</td>
<td>-.05</td>
<td>1.48</td>
</tr>
</tbody>
</table>

Note. *significance is at the .05 level
**significance is at the .01 level
CHAPTER 5

DISCUSSION

Summary of Results

The first hypothesis predicted that friends would be more similar than nonfriends on levels of aggression. This hypothesis was developed from past research that found aggressive peers tend to be friends with one another (Cairns et al., 1988; Haselager et al., 1998; Kupersmidt, DeRosier et al., 1995; Xie et al., 1999). However, the present study did not support this finding.

The second hypothesis predicted that friends would be more similar than nonfriends on levels of inattention/hyperactivity. Although previous research has not studied friendship similarity on this characteristic directly, it has found that inattentive and hyperactive boys prefer other inattentive and hyperactive boys more than their non-hyperactive peers do (Hinshaw & Melnick, 1995). As expected, friends had higher positive correlations of peer-reported inattention/hyperactivity than nonfriends.

Friends were predicted to be more similar than nonfriends on depression in the third hypothesis. The present findings confirmed a preliminary study in which similarities on depression were higher among friends than nonfriends (Haselager et al., 1998). Friends had higher peer-reported depression than nonfriends.

The fourth hypothesis predicted that, on levels of anxiety, friends would be more similar than nonfriends. This was a novel avenue for research on friendship similarity. The present study did not support the prediction for friendship similarity on this characteristic.
The significant differences between friends' and nonfriends' similarities occurred only on the peer-report measures. This suggests that friendship similarity may be based on overt behavior more than on thoughts and feelings in this group. It could also be that similarities were based on a peer-halo effect. For example, when participants were responding to peer-report items assessing aggression, an aggressive child's friends may have been identified as aggressive due to their association with the aggressive child and not because they displayed aggression. A lack of friendship similarity on the self-report measures may have been due to social desirability bias, with participants attempting to appear well-adjusted.

Furthermore, the finding that friends were more similar than nonfriends when comparing correlations, and not difference scores, is also of interest. This suggests that the proportion of the scores' shared variance is a better measure of friendship similarity. Rather than having similar scores on a subscale, friends may have similar levels on a subscale. In other words, children high on a characteristic may be more likely to be friends with peers who are also high on the characteristic but who do not necessarily receive the same score on the subscale.

Contrary to previous research, the present study did not find similarity differences on aggression between friends and nonfriends. Because previous research consisted of a larger sample (Cairns et al., 1988; Haselager et al., 1998; Xie et al., 1999), highly aggressive boys (Cairns et al., 1988), or boys living in high-crime areas (Xie et al., 1999), it is likely that there were comparatively fewer children with high levels of aggression in the present sample. Likewise, few children with high levels of anxiety may explain the
lack of significant differences on similarity between friends and nonfriends on this characteristic. Friendship similarities on aggression or anxiety may increase as the severity of children’s levels of aggression or anxiety increase. This explanation reconciles previous and present findings for friendship similarity on aggression. Because previous research has not studied whether friends are similar on anxiety, it is also possible that there is simply a lack of friendship similarity on this characteristic. Additional research is needed to confirm or disconfirm these possibilities.

Friendship similarity on inattention/hyperactivity is important because it has not been studied previously. It offers new information on ADHD and how it is associated with children’s interpersonal relationships, giving additional support for more than just a biological influence. Friendship similarity on depression is also significant because it supports findings from a preliminary study using self-reported levels of depression (Haselager et al., 1998).

The fifth hypothesis predicted that the degree of friendship similarity would decrease as grade level increased. Because conformity within friendships decreases as children age (Shulman et al., 1997), I predicted that older children would be more understanding of and open to differences in behavioral and psychopathological characteristics in friends than younger children. This relationship was not observed in the present sample. In fact, friendship similarities on peer-reported depression appeared to increase over time. The present sample may be too young to demonstrate a decrease in friendship similarity. Shulman et al.’s study (1997) demonstrated that conformity within friendships decreases from seventh to eleventh grades, but the present study consisted of
fourth through ninth grade friends. It may be that friendship similarities on behavioral and psychopathological characteristics increase from elementary to high school and decrease from high school to college. A possible explanation is that elementary and high schools continue to be homogeneous, with few students having characteristics that differ from the majority of the student population. On the other hand, the student population in colleges tend to be more diverse, which increases the probability that friendships will develop between nonsimilar individuals. Participants in the present study were also unable to drive, limiting their accessibility to peers with diverse characteristics.

The final hypothesis predicted that boys’ friendships would be more similar on levels of internalizing disorders (i.e., depression and anxiety) than girls’ friendships, whereas girls’ friendships would be more similar on the externalizing disorders (i.e., aggression and inattention/hyperactivity) than boys’ friendships. Because characteristics of internalizing disorders are more normative for females and characteristics of externalizing disorders are more normative for males, it was expected that friendship similarities would be based on non-normative characteristics. Overall, levels of aggression and inattention/hyperactivity were higher among males and the level of anxiety was higher among females. Depression did not appear to differ between genders. Thus, aggression and inattention/hyperactivity were normative characteristics for males in this sample and anxiety was a normative characteristic for females in this sample. As predicted by the hypothesis, girls’ friendships were more similar on aggression and inattention/hyperactivity than boys’ friendships, as measured by difference scores. Although not significantly different, boys’ friendships appeared to be more similar on anxiety than girls’ friendships.
However, the expected trend for depression was not observed. This may be caused by a lack of differences on levels of depression between males and females in the present sample or because depression is not a non-normative characteristic for fourth through ninth grade males in general. In fact, the prevalence of depression is the same among six to eleven year-old males and females (Speier, Sherak, Hirsch, & Cantwell, 1995). It is during and after adolescence that the prevalence of depression is greater in females compared to males.

These friendship similarities did not seem to be caused by greater variability among one gender. In the present sample, the ranges between the scores of males and females were comparable, with the exception that the ranges of scores on self- and peer-reported inattention/hyperactivity were smaller among females than males. The distributions of scores differed somewhat by gender, with males having more high scores on their self- and peer-reports of inattention/hyperactivity. While high scores on the anxiety subscales were comparable between males and females, males had more high scores on their peer-reports of aggression and self-reports of depression, and females had more high scores on self-reported aggression and peer-reported depression. Both genders had many low scores on their self- and peer-reports of aggression and depression.

The present study is a conservative test of friendship similarity for several reasons. The children in the sample were from the same school and most lived in the same neighborhoods, so the effects of proximity may lead to relatively high levels of similarity across all students, making similarity among friends less salient. Thus, friendship similarities that do appear are notable for their significant differences from the similarities
that naturally exist among students in the sample population. The present study also consisted of a non-clinical sample. In a clinical sample, children may have more extreme levels of the four behavioral and psychopathological characteristics than the present sample. This may lead to higher rates of similarity than a non-clinical sample because of greater variability and because the clinical sample may be involved in treatment with children of similar behavioral and psychopathological characteristics. It is likely that analyses of friendship similarities among a clinical sample would lead to stronger results than among the present sample. In addition, most studies have not calculated similarities among nonfriends. Those that have calculated these similarities often do not statistically analyze differences in similarities between friends and nonfriends but compare only the base correlations between dyad types. Therefore, any differences in the present study are strong support for friendship similarity on the particular characteristics.

Implications

Similarities on the behavioral and psychopathological characteristics were demonstrated between friends versus nonfriends and males versus females. The similarities on inattention/hyperactivity among friends versus nonfriends were notable because of the rising attention given to the increased diagnoses of ADHD and prescriptions of Ritalin over the last 20 years (Runnheim, Frankenberger, & Hazelkorn, 1996). It is possible that there may be a social influence that causes or maintains ADHD, so studies should address the relationship between friends and the disorder. The similarities among girls’ friendships on aggression and inattention/hyperactivity compared to boys’ friendships were also of interest because of the influence that non-normative
characteristics have on friendships. Because friendship similarities differ by gender, it seems that stereotypes continue to influence children's lives and their relationships. For example, it is not stereotypical for a girl to be aggressive. Because she "stands out" among her non-aggressive female peers, she may develop a friendship with a similarly aggressive female peer who also differs from the stereotypical female. Although strides have been taken to decrease the influence of stereotypes on children's development, it appears that stereotypes continue to influence their friendships.

The friendship similarities on the behavioral and psychopathological characteristics may be of concern because "when close relationships are organized around deviant patterns and activities, they may have potentially deleterious effects" (Xie et al., 1999, p. 147) upon children and their friends. For example, highly aggressive children tend to be friends with one another and have academic and social problems (Xie et al., 1999).

Because childhood and adolescent friendships can be influenced by the structure of their surroundings (Epstein, 1983a), teachers may be able to influence the development of particular friendships. Teachers can encourage the formation of different friendships by rewarding or requiring cooperation among peers who would have otherwise not interacted together, either within a grade or across grades. This type of environment is called a high-participatory class, where students are able to walk around the room, to work with each other on projects, and to choose their activities among several possibilities (Epstein, 1983b). Since more friendships differ in grade and gender in high-participatory classes than low-participatory classes, the former appears to be effective in establishing more heterogeneous friendships (Epstein, 1983b). There are also more students selected as best
friends and more friendships that are reciprocated in high-participatory classes. Similar techniques used in college classes lead to increases in student acquaintanceship, class participation, and learning (Harton, Richardson, Barreras, Rockloff, & Latané, 2000).

**Limitations and Future Research**

Several limitations may have impacted the findings from this study. The present study consisted of a middle-class sample, so the results may not be generalized to upper- or lower-class children. The number of children with high or low levels of the four characteristics may differ between the present, middle-class sample and upper- or lower-class children, leading to different rates of friendship similarity.

The relatively small numbers of friend and nonfriend dyads for each of the grades reduced the power of statistical analyses. As a result, grades were combined into three age groups (i.e., younger, middle, and older) to increase the sample sizes. Comparisons were then made across these combined age groups. Because the grades were combined, more specific comparisons could not be made across the individual grades. For example, even though eighth and ninth graders differed on anxiety, they were combined into one age group and friendship similarities between these students could not be compared.

Another limitation was that the present study was a cross-sectional study. The design of this study was appropriate for its purpose of determining whether friends are more similar than nonfriends on the four behavioral and psychopathological characteristics. From a cross-sectional study, however, it is difficult to determine the causes of such similarities. It is likely that these similarities arise from a mixture of children's proximity to, attraction to, and influence on their friends. Because more
information is needed to determine the causes of friendship similarities, one possibility for future research is to develop a longitudinal study. This would provide information about the participants across time and about the causes of friendship similarities, such as attraction or social influence, on aggression, inattention/hyperactivity, depression, and anxiety.

A second possibility for future research is to examine the relationship between friendship similarities and the subsequent maladaptive development of each friend. This research could include reports from informants other than children (e.g., teachers or parents). Friendship similarities on aggression, inattention/hyperactivity, depression, and anxiety may be associated with either positive or negative development of a child. For example, it is possible that friends with similar levels of depression may minimize symptoms of depression (e.g., feelings of loneliness), which may decrease each person’s depression. On the other hand, friends with similar levels of depression may magnify symptoms of depression (e.g., feelings of hopelessness), thereby increasing each person’s depression. Therefore, longitudinal studies could provide important information on friendship formation and its influence on development.

Because most childhood research has focused on children’s sociometric status (Rubin et al., 1998), more research needs to be done on the dyadic relationship between friends, including the formation of friendships and the influence of friends on development. The current findings should be replicated and expanded upon by continuing to investigate friendship similarities on aggression, inattention/hyperactivity, depression, and anxiety. Friendship similarity on inattention/hyperactivity alone spurs the development of future
research for two reasons. First, it is not well researched. Second, understanding the causes of similarities on this characteristic would offer important information about the etiology and/or maintenance of inattention/hyperactivity. This information could ultimately be used to better understand ADHD.

Conclusions

Friends were more similar than nonfriends on the psychopathological characteristics of inattention/hyperactivity and depression. Friendship similarities did not decrease as grade increased, but similarities did differ between girls and boys. Girls’ friendships were more similar than boys’ friendships on aggression and inattention/hyperactivity, whereas boys’ friendships tended to be more similar than girls’ friendships on anxiety. Understanding the similarities in children’s friendships may help school counselors and therapists more adeptly address these behavioral and psychopathological characteristics in their clients. Furthermore, teachers can develop and implement interventions to diversify children’s friendships formed in the classroom and/or school.
ENDNOTES

1 Other than those included in the present study, measures that were administered in the larger study include the Teacher-Report Inventory (Boelter, 1999), the Parental Authority Questionnaire (Buri, 1991), the Multiple Stressor Attribution Inventory (Panak, Endelmann, Downs, & Schmidt, 1994), the Rosenberg Self-Esteem Scale (Rosenberg, 1965), the Self-Perception Profile for Children (Harter, 1985), the Anxiety Cognition Questionnaire (Lantz, 1999), and the Friendship Quality Questionnaire (Marchik & Panak, 1999).

The Teacher-Report Inventory is a 30-item questionnaire that was completed by the 1st through 12th grade teachers on each of their students. Completed on the teachers’ own time, the measure assessed children’s depression, anxiety, aggression, inattention/hyperactivity, and rejection. The Parental Authority Questionnaire is a 30-item questionnaire that was sent to the parents of children from grades six through nine. The measure assessed parents’ perceptions of their parenting attitudes. The Multiple Stressor Attribution Inventory is a 36-item questionnaire. The measure was completed by first through ninth graders on their styles of explaining events involving their peers and parents. The Multiple Stressor Attribution Inventory assessed internal-external, global-specific, and stable-unstable attributional dimensions. The Rosenberg Self-Esteem Scale is a 10-item questionnaire completed by sixth through ninth graders to assess general level of self-esteem. The Self-Perception Profile for Children is a 36-item measure that was also completed by sixth through ninth graders. The measure assesses six domains, but only the social acceptance, physical appearance, and global self-worth domains were collected in
the larger study. The Anxiety Cognition Questionnaire is a 25-item questionnaire that was completed by first through fifth grade students. The measure was designed to describe each child's cognitions related to anxiety disorders. Finally, the Friendship Quality Questionnaire is a 21-item questionnaire that was administered to only the fourth and fifth grade students. The measure identified the respondent's best friend and assessed features of this friendship by using a five-point scale to rate how well various characteristics such as closeness and conflict describe the friendship.

A series of $2 \times 5$ factorial ANOVAs revealed similar results to the separate ANOVAs (with no interactions), but the results from the individual ANOVAs are presented here due to unequal cell sizes in the factorial design.
REFERENCES


APPENDIX A
PEER REPORT INVENTORY (PrNI)
1. YOU LIKE THE MOST: a) _____ b) _____ c) _____
2. OTHER KIDS WHO YOU LIKE: a) _____ b) _____ c) _____
3. YOU LIKE THE LEAST: a) _____ b) _____ c) _____
4. ARGUE WITH ADULTS: a) _____ b) _____ c) _____
5. OFTEN LOOK SAD: a) _____ b) _____ c) _____
6. TROUBLE WAITING TURNS: a) _____ b) _____ c) _____
7. AFRAID OF LITTLE THINGS: a) _____ b) _____ c) _____
8. ALWAYS ON THE GO, HYPER: a) _____ b) _____ c) _____
9. OFTEN LOOK LONELY: a) _____ b) _____ c) _____
10. GET EMBARRASSED EASILY: a) _____ b) _____ c) _____
11. OVERREACT TO ACCIDENTS: a) _____ b) _____ c) _____
12. DON'T PAY ATTENTION: a) _____ b) _____ c) _____
13. CHEW THINGS, BITE NAILS: a) _____ b) _____ c) _____
14. GET UPSET EASILY, CRY: a) _____ b) _____ c) _____
15. THREATEN OTHERS: a) _____ b) _____ c) _____
16. HEADACHES /STOMACHACHES: a) _____ b) _____ c) _____
17. DON'T JOIN IN: a) _____ b) _____ c) _____
18. START FIGHTS, MEAN: a) _____ b) _____ c) _____
19. WORRY A LOT: a) _____ b) _____ c) _____
20. DO WELL IN SCHOOL: a) _____ b) _____ c) _____
21. FEARFUL AND JUMPY: a) _____ b) _____ c) _____
22. DON'T HAVE MUCH FUN: a) _____ b) _____ c) _____
23. FIDGET, SQUIRM: a) _____ b) _____ c) _____

*Note. Aggression items: 4, 11, 15, & 18; Inattention/hyperactivity items: 6, 8, 12, & 23; Depression items: 5, 9, 17, & 22; Anxiety items: 7, 10, 13, 14, 19, & 21; Preference items: 1, 2, & 3
APPENDIX B
SELF-REPORT INVENTORY (SRI)
Remember, pick one sentence that best describes your feelings in the past two (2) weeks. Please only choose one answer for each question.

1. _____ I am sad once in a while  
   _____ I am sad many times  
   _____ I am sad all the time

2. _____ Nothing will ever work out for me  
   _____ I am not sure if things will work out for me  
   _____ Things will work out o.k. for me

3. _____ I do most things o.k.  
   _____ I do many things wrong  
   _____ I do everything wrong

4. _____ I have fun in many things  
   _____ I have fun in some things  
   _____ Nothing is fun at all

5. _____ I hate myself  
   _____ I do not like myself  
   _____ I like myself

6. _____ I feel like crying every day  
   _____ I feel like crying many days  
   _____ I feel like crying once in a while

7. _____ Things bother me all the time  
   _____ Things bother me many times  
   _____ Things bother me once in a while

8. _____ I look o.k.  
   _____ There are some bad things about my looks  
   _____ I look ugly

9. _____ I am tired once in a while  
   _____ I am tired many days  
   _____ I am tired all the time

10. _____ I do not feel alone  
    _____ I feel alone many times  
    _____ I feel alone all the time
11. _____ I never have fun at school
       _____ I have fun at school only once in a while
       _____ I have fun at school many times

12. _____ My schoolwork is all right
       _____ My schoolwork is not as good as before
       _____ I do very badly in subjects I used to be good in

13. _____ Nobody really loves me
       _____ I am not sure if anybody loves me
       _____ I am sure that somebody loves me

14. _____ I don't worry about falling behind in my schoolwork
       _____ I sometimes worry about falling behind in my schoolwork
       _____ I often worry about falling behind in my schoolwork

15. _____ I worry a lot about what other people think about me
       _____ I sometimes worry about what other people think about me
       _____ I usually don't worry about what other people think about me

16. _____ I often feel very nervous and jittery
       _____ I sometimes feel very nervous and jittery
       _____ I feel nervous and jittery only once in a while

17. _____ I never get embarrassed when I talk to other people
       _____ I sometimes get embarrassed when I talk to other people
       _____ I often get embarrassed when I talk to other people

18. _____ I do not worry about aches and pains
       _____ I worry about aches and pains many times
       _____ I worry about aches and pains all the time

19. _____ I am afraid of many things that don't scare most other people
       _____ I am afraid of a few things that don't scare most other people
       _____ Things usually do not frighten me

20. _____ I like to talk to my teacher
       _____ I sometimes get nervous when I talk to my teacher
       _____ I often get nervous when I talk to my teacher

21. _____ I often worry that other people will laugh at my mistakes
       _____ I sometimes worry that other people will laugh at my mistakes
       _____ I don't worry about making mistakes in front of other people
22. ______ I worry about things a lot more than other kids do
    ______ I worry about things, but not any more than other kids do
    ______ Other kids worry about things more than I do

23. ______ When I get nervous, I get real shaky
    ______ When I get nervous, I get a little shaky
    ______ I don't get shaky when I get nervous

24. ______ On many days I worry so much that I do not feel like eating
    ______ On some days I worry so much that I do not feel like eating
    ______ I don't worry too much so I eat pretty well

25. ______ When I worry, I always get headaches or stomachaches
    ______ When I worry, I sometimes get headaches or stomachaches
    ______ When I worry, I usually don't get headaches or stomachaches

26. ______ I worry that I am doing my schoolwork wrong only once in a while
    ______ I sometimes worry that I am doing my schoolwork wrong
    ______ I often worry that I am doing my schoolwork wrong

27. ______ I think about bad things happening to me once in a while
    ______ I worry that bad things will happen to me
    ______ I am sure that terrible things will happen to me

28. ______ If someone hits me, I usually hit them back
    ______ If someone hits me, I sometimes hit them back
    ______ If someone hits me, I never hit them back

29. ______ I would rather agree with someone than get into an argument
    ______ If someone doesn't agree with me, I sometimes get into an argument
    ______ I can't help getting into arguments

30. ______ I am bad all the time
    ______ I am bad many times
    ______ I am bad once in a while

31. ______ I never get mad enough to slam doors or throw things
    ______ I sometimes get mad enough to slam doors or throw things
    ______ I often get mad enough to slam doors or throw things

32. ______ If someone makes fun of me, I usually ignore them
    ______ If someone makes fun of me, I have a hard time ignoring them
    ______ If someone makes fun of me, I usually get into an argument
33. _____ I rarely pick on other kids or call them names  
    _____ I sometimes pick on other kids or call them names  
    _____ I often pick on other kids or call them names

34. _____ I hardly ever get mad at other kids  
    _____ I sometimes get mad at other kids  
    _____ I get mad at other kids real easily

35. _____ I usually do what I am told  
    _____ I do not do what I am told most times  
    _____ I never do what I am told

36. _____ I get along with people  
    _____ I get into fights many times  
    _____ I get into fights all the time

37. _____ I never push other kids around or bully them to get what I want  
    _____ Sometimes I push other kids around to get what I want  
    _____ I push other kids around and bully them a lot of the time

38. _____ I am able to sit still in my seat most of the time  
    _____ I am able to sit still in my seat some of the time  
    _____ I am never able to sit still in my seat. I am always moving and squirming

39. _____ I never get in trouble for talking too much  
    _____ I sometimes get in trouble for talking too much  
    _____ I always get in trouble for talking too much

40. _____ I never get in trouble for being out of my seat  
    _____ I sometimes get in trouble for being out of my seat  
    _____ I get in trouble for being out of my seat all the time

41. _____ I talk out of turn lot  
    _____ I sometimes talk out of turn  
    _____ I never talk out of turn

42. _____ I make a lot of careless mistakes in my schoolwork  
    _____ I sometimes make careless mistakes in my schoolwork  
    _____ I usually do not make careless mistakes in my schoolwork

43. _____ I can usually find my things at school  
    _____ I sometimes misplace things at school  
    _____ I lose things at school all the time
44. ____ I do not have trouble remembering what my teacher had said
    ____ I sometimes have trouble remembering what my teacher has said
    ____ I usually forget what my teacher has said

45. ____ Waiting for my turn is easy for me
    ____ I sometimes have trouble waiting for my turn
    ____ I often have trouble waiting for my turn

46. ____ I have a lot of trouble paying attention in class
    ____ I sometimes have trouble paying attention in class
    ____ I do not have much trouble paying attention in class

47. ____ I always have a hard time making friends
    ____ I sometimes have a hard time making friends
    ____ It is easy for me to make friends

48. ____ I am very popular with other kids
    ____ I am a little popular with other kids
    ____ I am not popular at all

49. ____ I get included in lots of things that other kids do
    ____ I get included in some things that other kids do
    ____ I get left out of lots of things that other kids do

50. ____ I have plenty of friends
    ____ I have some friends but I wish I had more
    ____ I do not have any friends

*Note. Depression items: 1-13; Anxiety items: 14-27; Aggression items: 28-37; Inattention/hyperactivity items: 39-46; Rejection items: 47-50
APPENDIX C
SCRIPTS
INTRODUCTORY SCRIPT

Hi. My name is ___________ and I am a researcher at University of Northern Iowa. Today we are collecting data as part of a study of friendships at school. We think it is important that you understand what we will be doing before you agree to participate.

We will be completing some questionnaires that ask questions about who your friends are at school and what school is like for you. This will take about 50 minutes. This is not a test because there are no right or wrong answers; we want to know what you think. Your answers to our questions will be confidential. That means that we will not show your answers to your classmates, or your parents, or your teacher or principal. The only persons who will see your answers will be researchers at UNI, and they will see only your answers and not your names so that your answers will be private. We hope that this privacy will help you to be comfortable in telling us just how you feel.

It is also important that you not discuss your answers with the other children in your class. Please don't discuss your answers with other children today or any other day. This is important to keep all answers private.

We are ready to begin, but before we start are there any questions? (pause). If any of you do not wish to participate you may be excused now if you wish. Leaving now will not affect your grades since this is research and not a test. (pause). We hope that you can answer all of our questions today, but if there are any questions that you do not want to answer you can skip those if you wish. If you want to stop and excuse yourself after we get started that is O.K. too.

PrNI SCRIPT

We would like to learn about kids your age and what it is like for you to go to school. One way we can do this is to ask you questions about yourself and about your classmates. You are going to tell us about your classmates on the first questionnaire. We will ask you about yourself on the other questionnaires.

In front of you is a list of names of the children in your grade. Each name has a number. Find your name on the list, and write the number beside your name at the top of the first page of your answer book, where you see the letters "ID". Has everyone found their own name?

Now, draw a line through your name and number on the class roster, because we don't want you to use your number anymore. Everyone hold up your class roster
when you have done this, so that I can see that you have crossed out your name and number. (Repeat this instruction if needed, because it is important that children do not use their own number.)

After each question we ask, we would like you to write down the numbers of the three kids who are best described by the sentence that we read to you. You can write down the number of anyone on the sheet, boy or girl, in your classroom or in another classroom. You can use the same number twice on different question, but you can't use the same number twice on the same question. Does everyone understand this (pause). You can use only the numbers for people on your roster. Don't write down the names of children in other grades at this school, or the names of children that you know outside of school.

Remember, your answers are private. We won't tell anyone about your answers, and we don't want you to tell anyone about your answers either. Does everyone promise to keep your answers private both right now and also after we are finished today. (Try to have everyone's attention and agreement on this before proceeding.) You can use the class roster to cover your answers to keep them private.

Everyone ready? Let's try the first question:

1. Who do you like the most in your grade. Find that person's name, and write his or her number in the space marked "A" on question 1. Now write down the number of another kid that you like the most in space "B". Now write down the number of a third kid that you like the most in space "C".

2. Now, there probably are other kids that you spend time with that you didn't pick for question 1, but you do things with these kids and you like them too. For question 2, write down the numbers for three other kids that you like and spend time with. Pick different kids than the ones that you picked for question 1.

3. Now, you may like all the kids in your grade, but there may be some kids that you don't like as much as other kids. For question 3, write down the numbers of three kids that you like the least. It may be hard to think of three kids that you like the least. If you can't think of three kids, try to think of at least two kids that you like the least. Remember, this doesn't mean that you hate these kids or that there is something wrong with them, these just might be the kids that you don't like as much as the kids in questions 1 and 2 (This is the one question where children will laugh, talk, point at others, etc. It is important to maintain privacy. Remind them that they have all promised to keep their answers private.)

Now remember, for the rest of the questions you can write down the same number for different questions, but not the same number for the same question. (Try to pace yourself to just under one minute for each of the rest of the sociometric questions).
4. Now, pick three kids who argue with adults. These kids don't agree with what their teachers say, and they seem to want to get into arguments with them. (Remind the children that if they can't think of three kids that often argue with adults, then try to think of two; use this prompt periodically during the sociometrics).

5. Now, pick three kids who often look sad. These are kids that don't look happy a lot.

Remember, pick one kid, then pick a different kid, then pick a third kid; don't pick the same kid more than once for any one question. You can pick the same kid again for other questions.

6. Now, pick 3 kids who have trouble waiting for their turn. They seem to get impatient, or they sometimes cut in line like they didn't know you were there in front of them.

7. Now, pick 3 kids who are afraid of little things that don't scare other kids, like spiders or mice or loud noises.

8. Now, pick 3 kids who are always on the go. These kids are real active -- they even seem to be hyper.

9. Now, pick 3 kids who often look lonely. These kids often look like they are all alone.

10. Now, pick 3 kids who get embarrassed easily. These are kids who don't like to speak up in class, or do other things in front of the group.

11. Now, pick 3 kids who over-react when they get pushed by accident or bumped when they are in line. When they get bumped they get mad at the other kid real easy rather than keeping their cool.

12. Now, pick 3 kids who often don't pay attention. These kids have trouble remembering directions or what the teacher has said to them because they don't listen or they forget to listen.

13. Now, pick 3 kids who have nervous habits, like chewing on pencils or biting their fingernails.

14. Now, pick 3 kids who get upset a lot. These kids may cry a lot or they may look like they are going to cry a lot.
15. Now, pick 3 kids who sort of bully other kids around. They push other kids around and threaten them to try to get their own way.

16. Now, pick 3 kids who seem to be sick a lot. These kids complain of headaches or stomachaches, or other things all the time.

17. Now, pick 3 kids who don't join in. These are kids who sort of hang back rather than joining the group.

18. Now, pick out 3 kids who start fights. These kids say mean things to other kids or push them, hit them, and boss them around to get what they want.

19. Now, pick 3 kids who worry a lot. These are kids who are always bothered by things that happened in the past, or by things that are going to happen.

20. Now, pick 3 kids who do real well at school. These kids get good grades, and they always seem to be caught up and handing in their homework on time.

21. Now, pick 3 kids who are sort of fearful and jumpy. These kids seem to have trouble relaxing and are nervous about a lot of things.

22. Now, pick 3 kids who don't seem to have much fun. These are kids that don't seem to enjoy themselves.

23. Now, pick 3 kids who fidget a lot. These kids are real squirmy, and they have trouble sitting still in their seats.

(Give children enough time to respond to the last sociometric question. It is O.K. for children have left some nomination spaces blank)

If you need more time we can come back to these questions at the end of testing. Let's go on to the next questionnaire. The rest of these questions go a lot faster, so I'm going to pick up the pace. Raise your hand and let me know if I'm going too fast.

SRI SCRIPT

Now, turn to the next page of your answer book, the page with SRI on top (show the children your page). Now for each question I will read three statements. Choose the one statement that best describes how you have been feeling for the past two weeks. Please don't skip any questions, and choose only one answer for each question.

(At this point, each item on the SRI will be read aloud).
APPENDIX D
FORMULAS
For $t$-tests that had one degree of freedom ($df$), effect sizes ($d$) were calculated:

\[ d = \frac{t}{df^{1/2}} \]

\[ df = N - 1 \]

\[ t = t\text{-value} \]

\[ N = \text{number of sampling units} \]

Effect sizes for ANOVAs with more than one degree of freedom were calculated as eta-squared ($\eta^2$):

\[ \eta^2 = \frac{SS_{\text{treatment}}}{SS_{\text{total}}} \]

\[ SS_{\text{treatment}} = \text{sum of squares treatment} \]

\[ SS_{\text{total}} = \text{sum of squares total} \]

Correlation coefficients were calculated from $t$ scores comparing difference scores between friend dyad members and between nonfriend dyad members to zero. The following was the equation for these correlations:

\[ r = \left( \frac{t^2}{t^2 + df} \right)^{1/2} \]

\[ df = N - 1 \]

\[ t = t\text{-value} \]

\[ N = \text{number of sampling units} \]

The meta-analytic technique then used these correlations (those calculated from $t$-values and those calculated directly between dyad members) to compare friends’ and nonfriends’ similarities on the four characteristics. The following are the series of calculations for the $Z$-score for nonindependent sample tests:

\[ Z = (z_1 - z_2) \left( \frac{(N - 3)}{2(1 - r_{xy}h)} \right)^{1/2} \]

\[ z_1 \text{ and } z_2 = \text{Fisher transformations of the } r\text{'s being compared (}r_{xz} \text{ and } r_{yz} \text{)} \]

\[ N = \text{number of sampling units} \]

\[ r_{xy} = \text{correlation between person's friend and nonfriend scores} \]

\[ h = \left( 1 - f \cdot \bar{r}^2 \right) / \left( 1 - \bar{r}^2 \right) \]

\[ f = \left( 1 - r_{xy} \right) / \left( 2(1 - \bar{r}^2) \right) \]
\[ \hat{r}^2 = \text{mean of } r_{xz}^2 \text{ and } r_{yz}^2 \]

I tested the correlations for friendship similarities for a linear effect for grade and between gender using Z-scores for independent sample tests:

\[ Z = \frac{(z_1 - z_2) / \left( \left( 1 / \left( N_1 - 3 \right) \right) + \left( 1 / \left( N_2 - 3 \right) \right) \right)^{1/2}} \]

\( z_1 \) and \( z_2 \) = Fisher transformations of the \( r \)'s being compared (\( r_{xz} \) and \( r_{yz} \))
\( N_1 \) and \( N_2 \) = number of sampling units for each of the two correlations