

**The Importance of Experienced Support and Physical Closeness as Contributors to Friendship Quality for Adolescent Boys and Girls in a Collectivistic and an Individualistic Culture: Do Sex-Differences in Intimacy Levels account for Differences in Friendship Quality?**

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*Maike Boersma*

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Friendship is very important during adolescence since it provides the social environment necessary for adolescents to develop interpersonal skills such as collaboration, taking different perspectives, and empathy (Buhrmester & Furman, 1986; in Clark & Ayers, 1993; Crosnoe, 2000). In supplement to the Bachelor research of Boersma, Mulder and Okur (2007), who found that the most important contributors to friendship quality, in an individualistic as well as a collectivistic culture, are experienced support and physical closeness, gender-differences in the influence that these two factors have on friendship quality were studied. In previous studies females have been found to be more competent in the skills needed to develop intimate relationships (e.g. Buhrmester, 1998) and to be giving more support to males than other males do (e.g. Aukett et al., 1988; Buhrmester, 1998; Kuttler et al., 1999). Gender-differences in supportive and intimate skills give implications for the way policy-makers, schools, clubs, and all other organizations that deal with youngsters think about separating or mixing male and female adolescents in their daily lives, since males and females could possibly supplement each others' intimate development. In present research females were expected to be experiencing more support and be physical more intimate than males and therefore they were expected to experience more friendship quality. Regression analysis confirmed these expectations. For females only mediating relationships between gender, experienced support, physical closeness, and friendship quality were found while for males a moderating relationship between gender, physical closeness and friendship quality also existed. This difference can be explained in terms of socialization processes making males less likely to be physical intimate with one another. The implication that these findings have for the separating or mixing of male and female adolescents in their daily lives remains contradictory since it seems that adolescents' intimacy and sensitivity with same gender friends transfers to relationships with cross-gender friends (e.g. Sullivan, 1953; in Sieffge-Krenke, 1993) and since other factors like reciprocity of friendship are expected to be more important for the development of interpersonal skills than experienced support and physical intimacy in adolescent' friendship.

The interest of this research lies in the difference between sexes when it comes to the importance of experienced support and physical closeness as indicators of friendship quality. It is being expected that gender differences in intimacy levels between friends, in a collectivistic as well as an individualistic culture, might result in differences in experienced support and physical closeness in friendship and in the influence that experienced support and physical closeness have on perceived friendship quality. The main research question is: *what is the influence of gender on experienced support and physical closeness as indicators of friendship quality of adolescents in a collectivistic and an individualistic culture?*

A number of authors have argued that intimate friendship is an important achievement during preadolescence and adolescence (Rotenberg, 1986). Early adolescence is a critical period for the development of close relationships (Clark & Ayers, 1993) since they provide the social environment necessary for adolescents to develop interpersonal skills such as collaboration, taking different perspectives, and empathy (Buhrmester & Furman, 1986; in

Clark & Ayers, 1993; Crosnoe, 2000). In order to be able to function in a world that is turning more and more cross-cultural and where emancipation gives rise to men and women being more equal, one could expect that it is important for adolescents to form friendships with people from other cultures as well as the other gender since these friendships give them the possibility to develop all the necessary interpersonal skills needed to function optimal in this highly culturally and more and more gender integrated world.

In their Bachelor thesis Boersma, Mulder and Okur (2007) had reason to assume that cross-ethnic friendships are relatively uncommon, particularly in late adolescence (Verkuyten & Masson, 1996), because under the influence of culture adolescents have different ideas about what is important in friendships. Even in selection processes cultural differences exist, since Asian adolescents in Britain had a lower preference of mixed-ethnic friendships than their non-Asian counterparts (Shams, 2001). Moreover cross-ethnic friendships are found to be relatively uncommon due to the fact that children are attracted to those who have the same attitudes, behaviors, and characteristics (Baron and Byrne, 1994; in Crosnoe, 2000), meaning that they feel more understood by children from their own culture. There is a possibility that differences in the meaning of friendship and the norms and values guiding friendship can explain why cross-ethnic friendships are relatively uncommon (Verkuyten and Masson, 1996). According to symbolic theorists, perceptions of a relationship are the most valid indices of the quality of the relationship (Furman, 1998, p. 41) so Boersma et al. (2007) deduced that if adolescents' perceptions were more alike, the quality of their relationship would be too. This would mean that more knowledge about these differences could promote cross-cultural friendships.

In order to examine whether differences in adolescents' perceptions are at the core of the failure of development of cross-cultural friendships Boersma et al. (2007) investigated the influence of living in a collectivistic or an individualistic culture on adolescent friendship for six indicators of friendship quality, namely the emotional bond with family, time sharing with friends and family, experienced support, power difference, and physical closeness. Even although they expected many cultural differences in the importance of these variables concerning friendship quality, they found that the most important contributors to friendship quality in both cultures were experienced support and physical closeness. These two factors accounted for the majority of the variance in friendship quality with experienced support accounting for 46% of the variance in the Netherlands and 56% in Singapore and physical closeness for 29% in the Netherlands and 19% in Singapore. While the percentages of variance differed between the Netherlands and Singapore, differences were small. This could be a result of the fact that adolescents in the Netherlands did not significantly differ from adolescents in Singapore on allocentrism, which is the individual level equivalent of collectivism (Triandis, Leung, Villareal & Clack, 1985). Based on their results Boersma et al. (2007) concluded that the choices that adolescents make in their friendships and the ideas

they foster about friendship quality are not so much subject to the culture they live in. Those seemed to be more influenced by their life stage, namely adolescence, in which even adolescents from an individualistic country such as the Netherlands appear to function as collectivists. Cultural differences in ideas about what is important in a friendship should therefore not be a reason why cross-cultural friendships are relatively uncommon. It could be that indeed adolescents feel more understood by children from their own culture (Baron & Byrne, 1994; in Crosnoe, 2000) or that choosing friends from within their own ethnic group (Smith & Tomlinson, 1989; in Shams, 2001) gives children more opportunity for self-identification, more self pride through racial pride, and a sense of security (Ward, 1990; in Shams, 2001). It could also be that same-race friendships are just more reciprocal (Clark & Ayers, 1992) and therefore more satisfactory since the intimacy and self-disclosure important in adolescent friendships and the opportunity to develop interpersonal skills such as collaboration and empathy can exist only in relationships characterized by mutual liking or reciprocity-of-liking (Clark & Ayers, 1992; Clark & Ayers, 1993).

Due to the complexity of the research Boersma et al. (2007) ignored possible gender-differences even although there are two important reasons not to. Firstly, and this is the most important reason, it is widely agreed that gender is the most significant of all social influences in the shaping of friendship patterns (Allan, 1989; in Armstrong & Goldsteen, 1990). In fact, gender is the one social category that supersedes race as an organizer of friendship (Crosnoe, 2000). Similarity of self to friend, for example, appears not to be dependent on ethnicity when it actually does appear to be dependent on gender, with males seeing their friends as less similar than females (Verkuyten & Masson, 1996). Also, same-race friendships are found to be more reciprocal than cross-gender friendships, while reciprocity is a requirement for the existence of the intimacy and self-disclosure that are important in adolescent friendships (Clark and Ayers, 1992). Additionally, since gender-differences in attentiveness and sensitivity to friends, closeness of friendship, sharing of intimate information, and endorsing of the importance of trust and confidence in friendship (amongst others) exist in various ethnic groups (with females showing higher levels on all factors), a more general female-male difference, in comparison to a cultural difference, is said to exist in the perception of friendship (Verkuyten and Masson, 1996).

Secondly, male and female friendships are structurally different (Clark & Ayers, 1992). For example, close friendship among males appears to be more heterogeneous than among females with three types of close friendship, differing in the level of mutual intimacy, existing among males and only one type among females (Youniss & Smollar, 1985, p. 104). About 40% of close male friendship involves mutual intimacy, about 33% of close male friendship lack intimacy altogether and entail guardedness or defensiveness and in about 25% of close male friendships is neither intimacy nor its absence a relevant factor, while for females about 66% of close friendships are characterized by symmetrical understanding and

intimacy. Males also appear to resolve problems in their close friendships internal rather than overt in comparison to females using more overt procedures (Youniss & Smollar, 1985, p. 120). And males consistently report less intense relationships with their close friendships than females do, perhaps because of different socialization processes with a greater emphasis placed on interpersonal relationships for females or because of different conceptions of friendship for males (Kuttler, La Greca and Prinstein, 1999). Research has also shown that males and females differ in the perception of the kinds of activities that define a close friendship, with males more often describing having nonintimate discussions and females more often describing having intimate discussions (Youniss & Smollar, 1985, p. 97), which coheres with reported differences in orientation of friendship, with males tending to be activity oriented and females preferring disclosure and intimacy, (Kuttler et al., 1999; Verkuyten & Masson, 1996) and with reported differences in structure of friendship group, with males having larger and more diverse groups of friends and females preferring more exclusive and dyadic relationships (Kuttler et al., 1999; Verkuyten & Masson, 1996). Additionally, the same issue that Boersma et al. (2007) expected to be an important reason for the failure of development of rich cross-cultural friendships, namely that children are attracted to those who have the same attitudes, behaviors, and characteristics (Baron and Byrne, 1994; in Crosnoe, 2000), could be of importance in cross-gender friendships. Since adolescents select friends who are of the same gender, and similarity in gender is the most important characteristic of adolescent friendships (Clark & Ayers, 1992), cross-gender friendships are, like cross-cultural friendships, relatively uncommon and found to be less satisfactory than same-gender friendships (e.g. Kuttler et al., 1999, Lempers & Clark-Lempers, 1993; in Kuttler et al., 1999; Rotenberg, 1986). This could be due to the behavioral repertoires of males and females being incompatible (Rotenberg, 1986) or to same-gender peers being more reinforcing and effective at meeting adolescents' social demands (Dusek, 1991; in Kuttler et al., 1999). One could therefore expect that gender-differences in ideas about what is important in friendships are at the core of the failure of the development of satisfactorily cross-gender friendships. More knowledge about gender-differences in ideas about what is important in friendship can help to find similarities. Since children are attracted to those who have similar attitudes, behaviors, and characteristics (Baron and Byrne, 1994; in Crosnoe, 2000) these similarities can aid in developing cross-gender friendships. More knowledge can also help to discover in what ways males and females could supplement each others development of interpersonal skills such as collaboration, taking different perspectives, and empathy. Both findings can give implications for the way policy-makers, schools, clubs, and all other organizations that deal with youngsters think about separating or mixing male and female adolescents in their daily lives.

### **Gender differences in intimacy levels in friendship in adolescence**

For young children an intimate relationship is one in which there is trust, the sharing of secrets, and the keeping of those secrets (Rotenberg, 1986). In the case of adolescents intimacy is defined as self-disclosure, closeness, and the sharing of feelings (Laursen, 1993; in Howes, 1998, p. 80) between friends. With the emergence of the need for intimate relationships in adolescence (Sullivan, 1953; in Shulman, 1993), which long have been regarded as the social threshold of adolescence (Sullivan, 1953; in Hartup, 1993), friends become open to one another, disclose personal secrets, and exchange ideas within a secure and accepting environment (Shulman, 1993, p. 55) while they develop the capacities needed for closeness, for sharing deep confidences and for empathy with another's feelings and desires (Fischer, 1981). It is commonly accepted among researchers, and very well investigated, that the way and the pace in which males and females develop these capacities and give rise to these intimate relationships differ. Since males' social needs are different from those of females, males' friendships focus more extensively on agentic concerns and needs and on doing things together, whereas females' friendships focus more on communal concerns and needs and on emotional sharing and talking (e.g. Buhrmester, 1998, p. 168; Caldwell & Peplau, 1982; Verkuyten & Masson, 1996). In addition Clark and Ayers (1992) point out that female friendships are oriented toward issues of loyalty, intimacy, and commitment, whereas male friendships are dominated by achievement and status issues. These differences in focus lead to females' same-gender friendships being more intimate than those of males (Caldwell & Peplau, 1982).

Research for example consolidated that more adolescent females report having an intimate friendship (Youniss and Smollar, 1985, p. 104), that females report greater levels of intimacy in their close friendships (e.g. Aukett, Ritchie & Mill, 1988; Clark & Ayers, 1992; Clark & Ayers, 1993; Verkuyten & Masson, 1996; Williams, 1985), and that they view intimacy as more central (Berndt, 1981; Buhrmester & Furman, 1987; Furman & Buhrmester, 1985; Sharabany, Gershoni & Hofman, 1981; in Kuttler et al., 1999) and more important (Clark & Ayers, 1992) in their relationships than do males. On the contrary preadolescent and adolescent males are found to be less intimate with same-gender friends (Rotenberg, 1986) and nearly a third of the males have been found to report close friendships characterized by an absence of intimacy (Youniss & Smollar, 1985, p. 104). Gender-differences in intimacy levels in friendship also become apparent in differences in expressiveness (e.g. Verkuyten & Masson, 1996), in topics of conversation and in feelings of trust between same-gender friends. Males appear to be having difficulty with emotional intimacy and expressiveness and disclose less personal information (Aukett et al., 1988) and less innermost thoughts and feelings (Buhrmester & Furman, 1987; Claes, 1992; Jones, 1991; in Stanton-Salazer & Spina, 2005) in same-gender friendships than females do. In comparison, females place a higher intrinsic value on interaction processes itself, and derive enjoyment from the expression of

feelings and the sense of experienced communality (Aukett et al., 1988). Consistent with these results conversation topics between female friends tend to be more oriented to family and personal problems and to the feelings associated with these problems whereas male conversations tend to be more concrete and event-based (e.g. Caldwell & Peplau, 1982; Johnson & Aries 1983; in Stanton-Salazer & Spina, 2005; Wheeler & Nezlek, 1977; in Caldwell & Peplau, 1982 & in Moore & Boldero, 1991; Youniss & Smollar, 1985, p. 126). Males also report to have less trust in their same-gender friends when compared to their female counterparts (Rotenberg, 1986; Buhrmester & Furmer, 1987; Claes, 1992; Jones, 1991; in Stanton-Salazer & Spina, 2005), while females value trust and confidence in their friendships more than males do (Verkuyten & Masson, 1996), indicating that more trust in same-gender friendships will be reported by females.

Just how much male and female same-gender friendships differ in intimacy levels becomes apparent through research on cross-gender friendships. Aukett et al. (1988) found that females tended to place higher value on their same-sex friendships than males did. Males, in contrast to females, appeared to derive more emotional support and therapeutic value from their cross-gender relationships than their same-gender friendships. Youniss and Smollar (1985, p. 123) estimate the percentage of males who seem to be more likely to have their emotional needs met in a cross-gender friendship to be approximately 33%. This could be due to male friendships being more instrumental in nature, whereas female friendships are more intimate and emotional. According to Kuttler et al. (1999) it is possible that cross-gender friendships may serve different functions than same-gender friendships, meaning that males and females could play a supplementary role in development for each other. This is especially important since male friendship was found to be more often non-reciprocal than female friendship while reciprocity is considered necessary for intimacy in friendships to exist (Clark & Ayers, 1992) and since intimate friendships are essential for the development of interpersonal skills (Buhrmester & Furman, 1986; in Clark & Ayers, 1993; Crosnoe, 2000). Epstein (1983; in Clark & Ayers, 1993) suggests that nonreciprocal relationships are common during adolescence, since close to 50% of the adolescents in her sample had no reciprocated best friend. This would mean that about half of the adolescents experience some sort of difficulty in developing interpersonal skills. Males however seem to be more in disadvantage since Clark & Ayers (1993) found that gender differences outweigh differences associated with reciprocity, being that females overall expect more from their close friendships and also report them to have more intimacy and self-disclosure than males.

However, research on gender-differences in intimacy levels in friendship has not always been consistent. Caldwell and Peplau (1982) argue that possible gender-differences in same-gender friendships of males and females is an area of considerable controversy even. They argue that males' friendships are generally thought of as being superficial and lacking the intimacy and emotional richness of females' friendships while the empirical evidence

documenting such gender-differences is very limited. Following this assumption they found for example that males and females did not differ in the value placed on intimate friendships. Additionally, Caldwell and Peplau (1982) argue that males and females might have very similar relations with a best friend, but that males reserve intimacy for a few or perhaps only one best friend while females' friendships are more intimate as a whole. Their results revealed that emotional sharing plays a lesser role in males' than females' best same-gender friendships, but that males and females value intimacy equally and report equal numbers of intimate friends. Reported levels of actual self-disclosure of feelings and problems however indicated that males' interactions with a best friend are less personal and intimate than females'. Rotenberg (1986) indicates that males less frequently refer to intimate behavior in their friendship expectations than do females, but emphasizes that such differences have not been uniformly found. Also, it is not to say that males do not engage in intimate activities, since research of Youniss and Smollar has shown that 30% of the activities male friends engage in involve intimate discussions, as compared to 60% for females (1985, p. 97) and that for many of the males mutual intimacy and meeting of emotional needs are indeed present in their same-gender friendships, even though for many of the males mutual self-disclosure clearly is not an aspect of their friendship (1985, p. 123). Youniss and Smollar (1985, p. 127) also found that descriptions of relationships with close friends of 40% to 45% of the males were comparable to those of at least 66% of the females, indicating that the conceptualizing of relationships with close friends are not so fundamentally different as is often found. In many of their studies, however, about a third of the males provided responses that were clearly different from those given by the majority of all subjects, indicating that at least a third of the males differ from the majority of females. This difference could be explained in terms of masculinity and femininity. Williams (1985) uncovered that masculinity, in terms of instrumental qualities, has little effect on the degree of reported intimacy, while femininity, in terms of expressive qualities, is positively associated with intimate friendship, regardless of whether subjects reported high or low levels of masculinity. Perhaps that third part of the males that is expected to be different from the majority of females lack expressive qualities.

Most likely, inconsistent findings have appeared because gender-differences seem to depend on the age level studied. According to Kuttler et al. (1999) all youngsters' friendships increase in their levels of intimacy and emotional support from pre-adolescent to adolescent years. Rotenberg (1986) assumes that intimacy is not a structural basis of male friendship in contrast to female friendship but emphasizes that these differences are not dramatic in preadolescence. Clark & Ayers (1993) point out that the most frequent finding is indeed that females, during late adolescence, expect more intimacy from their best friends than males expect. However, these differences are not often found for early adolescent populations that have just begun to see intimacy potential as an important quality in a friend. Also, Smollar

and Youniss (1982; in Clark & Ayers, 1993) found that the sharing of personal problems with close friends emerged during early adolescence for females and late adolescence for males. Fischer (1981) also points to research of Josselson, Greenberger and McConochie (1977) who found that older males have more intimate same-gender friendships than did younger males and additionally she found that college students were more likely to report having an intimate style of relationship than high school students. She also found that no gender-difference existed in the group of high school students while in the group of college students females were more likely to report having an intimate style of relationship. Kuttler et al. (1999) found that older adolescents, males as well as females, overall reported more intimacy with friends than younger adolescents and that, in addition, females reported more intimacy with close friends than males did. These results imply that age can have an effect on the influence that gender is expected to have on intimacy levels in friendship, making age a possible mediator between gender and intimacy levels in friendship.

In sum, it is found that adolescent females overall seem to experience more intimacy and behave more intimately in friendships than males do. It is possible that males consider intimacy in friendship equally important as females do, although research is ambivalent about this (e.g. Caldwell & Peplau, 1982; Sanderson, Rahm, & Beigbeder, 2005; Youniss & Smollar, 1985, p. 97), but that males are socialized not to be emotional (e.g. Aukett et al., 1988; Bryan, Fitzpatrick, Caldwell & Fischer, 2001; Kuttler et al., 1999; Pagano & Hirsch, 2007; Rotenberg, 1986; Stanton-Salazer & Spina, 2005; Williams, 1985), giving females the opportunity to develop competence at intimate relating earlier than do males (Fischer, 1981). According to Sattel (1976; in Williams, 1985), however, male inexpressiveness is not a result of early socialization but a conscious attempt to maintain privilege and power in relationships with others, so that even in friendship males learn to withhold emotional expression. Williams (1985) also points out that individuals often redefine roles when there is incongruence or lack of fit between individual personality and role demands. However, one could expect that socialization processes indeed have a negative influence on male intimacy levels in friendship for several reasons. First of all, males overall report lower levels of intimacy in their friendships than females do, even although they incorporate a high degree of femininity in their self-concepts indicating that they should not lack expressive abilities (Williams, 1985). Second of all it is found that males generally desire closer friendships with other males but fear the consequences of behaving in ways that may be considered "unmanly" (Williams, 1985). Also, Strikwerda and May (1992) point towards typical male activities, such as soldiers guarding for days in the trenches, as parts of the socialization of males which have led to a form of friendship that may pass for intimacy but has more to do with deep loyalty or comradeship since it is based on so little information about the person to whom one is loyal to that it is quite fragile. According to Goldberg (1976; in Aukett et al., 1988) it is important that males are socialized in a way that they express their feelings more readily, or continue to

risk higher casualty rates than females in terms of suicide, life longevity, crime, accidents, and alcoholism statistics.

Deducing from the way researchers have defined intimacy in different studies, both experienced support and physical closeness could be considered an indicator of intimacy in friendship. For example, regarding experienced support, Buhrmester (1998, p. 179) composes an overall intimacy score of levels of self-disclosure and *emotional support* and Clark and Ayers (1993) speak of intimacy as to exist of loyalty, commitment and *empathic understanding*. Moore and Boldero (1991) describe the development of intimacy as the development of reciprocity, compromise, and *mutual support* and Pagano and Hirsch (2007) point out that self-disclosure and the provision of *mutual support* play important roles in the development of intimacy. Also, Sanderson et al. (2005) discovered that individuals with a strong focus on intimacy in friendships exchange high levels of *social support* and self-disclosure. Moreover, they considered social support as an interaction pattern. Physical closeness could be considered an interaction pattern also, since touching one another often has a communicative meaning, indicating that experienced support as well as physical closeness can be thought of as communicative behaviors which indicate a certain level of intimacy. With regard to physical closeness Strikwerda and May (1992) argue that taboos against the expression of feelings and *touching* among males culminate males to being less suited for intimacy than females are, indicating that touching one another is an important indicator of intimacy. Additionally Derlega, Lewis, Harrison and Winstead (1989) found that *hugging and putting arms around one another's waist* were more likely to be rated as representing *emotional support* compared to no touching. These last findings are consistent with findings of Boersma et al. (2007) that physical closeness is positively related to experienced support, indicating that it is possible for experienced support and physical closeness to coincide in an overarching construct, which could very well be intimacy.

Although much research has been conducted concerning gender-differences in intimacy levels in friendship, it seems not much research has been conducted on gender-differences in experienced support and even less on gender-differences in physical closeness. Also, as illustrated above, researchers seem to be investigating many concepts of intimacy, differing in specificity or simply in name with a lot of overlap as well, making present specific research of extra importance.

### **Gender-differences in experienced support in friendships in adolescence**

Support is an important aspect in the friendships of adolescents. Attachment, which is defined as an emotional bond between two people and which gives a sense of security (Cotterell, 1996; in Shams, 2001), is for example very important for an adolescent since it is seen as a form of social support (Shams, 2001) and peer relationships are said to play a critical role in

the lives of adolescents since they, amongst other things, facilitate tolerance of stress (Pagano & Hirsch, 2007). Also, friends provide the necessary circumstance for adolescents to achieve independence by refocusing emotional dependencies away from parents and giving support for the many changes to be faced during this period (Moore & Boldero, 1991). Best friend support is found to moderate the relationship between friend interference and friendship satisfaction, such that interference is negatively related to satisfaction when support is low (Bryan et al., 2001). These results indicate that adolescents must experience support from their friends first, before they accept their friends to interfere in aspects of their lives. This finding could explain why experienced support is an important indicator of friendship quality (Boersma et al., 2007) since in an intimate friendship adolescents function as role models for each other, meaning that giving each other feedback, which can be seen as intervening, is necessary. Additionally, one could expect that individuals take action to maintain relationships that provide support, perhaps because of pragmatic concerns (Weisz & Wood, 2005), explaining why higher support levels cohere with higher friendship quality. Present research tries to uncover whether a gender-difference exists in the level of experienced support in friendship and in the level of influence that experienced support has on friendship quality, making the sub research questions: *Can the level of experienced support in friendship be predicted by being male or female in a collectivistic and an individualistic culture?* and *Can the level of influence of experienced support on friendship quality be predicted by being male or female in a collectivistic and an individualistic culture?*

Several authors have emphasized that same-gender friendships provide a central vehicle for emotional support across the lifespan (Weisz & Wood, 2005) and that adolescents perceive friendship as a supportive relationship (Seiffge-Krenke, 1993, p. 76). Stanton-Salazer and Spina (2005) have for example shown that, in their sample of 73 low-income, Mexican-origin high school student, from 40% tot 50% of all peer relationships tend to provide multiple forms of support (i.e. different types of social support other than companionship). The other half are more specialized relationships, like getting help with homework. They also established that from about 50% to 75% of participating adolescents identified peers as their sole sources of emotional support. These results are because of the specific characteristics of the participants to be interpreted carefully, but illustrate just how common, and important, supportive friendships can be in adolescence.

With regard to gender-differences in support levels in friendship Verkuyten and Masson (1996) argue that the terms "communal" and "agentic", which can be used to describe the different orientations of females and males, have similarities to the collectivism-individualism paradigm, with females being more allocentric (or behaving more collectivistic (Triandis et al., 1985)). Since high allocentrics were considered to be experiencing more support from one another, a gender-difference in experienced support could be expected, with higher levels of experienced support for females. Kashima, Yamaguchi, Kim, Choi,

Gelfand and Yuki (1995; in Verkuyten and Masson, 1996) conclude however that there is not a great deal of parallelism between gender- and cultural differences. This means that these expectations will not wash but it also means that there is another reason to leave cultural differences out of consideration in present research.

Luckily some more specific research on gender-differences in support levels in friendships has been done also. Females for example report substantially higher levels of emotional support in daily interactions (Buhrmester & Carbury, 1992; in Buhrmester, 1998, p. 169), higher levels of mutual support and self-disclosure (e.g. Pagano & Hirsch, 2007), and more prosocial support (Kuttler et al., 1999) in their friendships than males. Also, females stress reciprocity with an emphasis on help and support in friendship more while males stress similarity with an emphasis on shared experiences (Weiss & Lowenthal, 1975; in Caldwell & Peplau, 1982). Caldwell and Peplau (1982) additionally found that females meet their best friend more often "just to talk" than males (about three times a week compared to about twice a week). If talking is a prediction for the sharing of personal information females' friendships might entail more emotional sharing and therefore more emotional support. Also, females' friendships seem to have a therapeutic component since they discuss personal problems more often with their same-gender than their cross-gender friends, find their social relationships with other females to be emotionally supportive and relate on an emotionally supportive level with each other (Aukett et al., 1988). Lastly, and this seems a little contradictory, Clark and Ayers (1993) found that males' best friendships provided slightly more empathic understanding than they expected to receive from best friends while for females their friendship expectations were greater than their evaluation of empathic understanding. In addition, females overall expected more empathic understanding from friends than males did. However, they also reported these qualities as present in their actual friendship more than males. It seems that females have a higher standard for empathic understanding in their close friendships than do males, making it more difficult for their relationships to satisfy these standards. But since females expect these higher levels, which can be seen as a form of experienced support, one could assume that the level of experienced support in best friendships is higher for females than for males, because without it females would not consider another female their best friend. Additionally Sanderson et al. (2005) found that intimacy goals had a significant positive effect on social support giving and receiving in friendships, while it is widely accepted that intimacy goals are present more in female than in male friendship. Also, in research of Clark and Ayers (1993) it seemed that differences in friendship expectations are present in late as well as early adolescent friendships, meaning that gender-differences in experienced support are likely to exist, with females overall experiencing more support than males, indicating that gender is a predictor of experienced support in friendship (hypothesis 1).

These expected gender-differences in levels of support in friendship do not automatically crossover to the expected influence that experienced support has on friendship quality, as can be deduced from research regarding cross-gender friendships and males' need of support in friendship. First, males seem to derive more prosocial support (Kuttler et al., 1999; Rose, 1985; in Kuttler et al., 1999), disclosure and support (Buhrmester, 1998, p. 178), emotional support, and therapeutic value (Aukett et al., 1988) from their cross-gender relationships than their same-gender friendships, in contrast to females. According to Kuttler et al. (1999) it is possible that cross-gender friendships may provide different types of support than same-gender friendships, meaning that males and females could play a supplementary role for each other. More specifically, according to Kuttler et al. (1999), females could help to fill a void in esteem support. Since males are overall socialized to be less emotionally supportive and more instrumental supportive (e.g. financial and protective) males might feel uncomfortable praising others, especially their other male friends. In fact, Rose (1985; in Kuttler et al., 1999) has found that cross-gender friendships provided more ego-support or emotional support for young males than same-gender friendships. Overall, it seems that friendships with females provide more support than friendships with males, for males as well as females, which could be due to females' greater skills at self-disclosure and provision of support which may enable them to have more intimate friendships (Buhrmester, 1998, p. 180). In research of Buhrmester (1998, p. 178) females appeared to be more competent in self-disclosure and provided support in comparison to males, averaging well over one-half standard deviation. Douvan and Adelson (1966; in Rotenberg, 1986) proposed this could be due to the masculine sex typing of preadolescent and adolescent males inhibiting their achievement of intimate friendship. Strikwerda and May (1992) point out that in male friendships characteristics of loyalty, fellow feeling, and concern for the other's interests for the most part have been stressed much more heavily than intimacy in comparison to female friendships while males tend not to have same-gender friendships that are as satisfying to them as same-gender friendships are to females. Moreover, according to Moore and Boldero (1991) friendship variables, such as importance of close friendships, are more associated with development for males than for females indicating that closeness may be somewhat more important for males compared to females in aiding their development through the psychosocial stages. Ironically, friends are important agents of socialization for adolescents and developing close friendships gives adolescents the possibility to satisfy their growing need for intimacy and self-disclosure (Clark & Ayers, 1992), meaning that males might be in disadvantage. Males have more trouble than females in adapting to cross-gender friendships but also derive more esteem from them, mostly because they lack experience with the intimacy that females bring into these friendships (Kuttler et al., 1999). Hence, males seem to have to develop their intimacy skills in (non-romantic) relationships with females since their same-gender friendships do not provide the opportunity to do so. If males indeed

profit more from relationships with females than with males, since these provide more support as males are socialized not to be supportive with other males, it would mean that male, as well as female, friendship quality profits from the experiencing of support.

Secondly, according to Buhrmester (1998, p. 170), the layperson's perception is that females have a stronger need to "talk" and seek emotional support than do males. Buhrmester points out that, although there is substantial evidence that females do, in fact, engage in more intimate self-disclosure than males do (at least in interaction with same-gender peers), there is less evidence bearing directly on whether females have a stronger need for intimacy than do males. However, research has shown that females are more likely than males to spontaneously mention wanting emotional support and the opportunity for intimate disclosure when they describe an ideal friend. And in research of Mc Adams and Constantian (1983; in Buhrmester, 1998, p. 171) females reported nearly twice as high a mean percentage of interpersonal thoughts as did males when they were paged at various times of the day and asked to record their thoughts, meaning that one could expect that females have more need for sharing these interpersonal thoughts and more need for seeking emotional support regarding these interpersonal thoughts. The findings of Weisz and Wood (2005) concerning gender-differences in support make clear, though, that high (social identity) support coheres with high friendship quality for males as well as females, which would again indicate that male, as well as female, friendship quality profits from the experiencing of support. In sum this would mean that gender does not have a moderating effect on experienced support, since the effect of experienced support on friendship quality is equal for adolescent females and males (hypothesis 2) but does have a mediating effect on friendship quality via experienced support, with the effect for adolescent females higher than for adolescent males (hypothesis 3) since the level of experienced support is higher for females than for males (see hypothesis 1).

### **Gender differences in physical closeness in friendships in adolescence**

Heslin and Boss (1980; in Derlega et al., 1989) found a positive relationship between the closeness of the relationship between two persons and the intimacy of the touch observed in each pair of travelers greeting one another or saying goodbye at airports. These results are consistent with findings of Boersma et al. (2007) that physical closeness can be considered an important contributor to friendship quality. Present research tries to uncover whether a gender-difference exists in the level of physical closeness in friendship and in the level of influence that physical closeness has on friendship quality, making the sub research questions: *Can the level of physical closeness in friendship be predicted by being male or female in a collectivistic and an individualistic culture?* and *Can the level of influence of physical closeness on friendship quality be predicted by being male or female in a collectivistic and an individualistic culture?*

Gender-differences are previously found to exist in the touching behavior between friends. Seiffge-Krenke (1993) found that, analyzed out of diary entries, for close female friends proximity and close body contact were frequent in intimate activities related to the body, external appearance, and female roles. No analysis is given with regard to males however, but Strikwerda and May (1992) point out that in contemporary Western cultures a taboo exists against males touching, except for example in the firm public handshake. Ting-Toomey (1991) found females reporting a significantly higher degree of expressions of love commitment, disclosure maintenance, and interpersonal conflict than their male counterparts. Also, males demonstrate less affection toward male friends than toward their female friends (Derlega et al., 1989) and less than females do toward their same-gender friends (Derlega et al., 1989; Williams, 1985).

Socialization processes, or cultural norms, are again thought of to play a role in gender-differences in physical closeness, in such a way that males are relatively unlikely to display affection in public in comparison to females (Derlega et al., 1989; Ting-Toomey, 1991). Demonstrations of physical intimacy of males might be viewed negatively given that they are traditionally expected to be competitive and achievement-oriented while females' expectations to be nurturing and emotional might not (Derlega et al., 1989). Derlega et al. (1989) provide evidence for the consideration that male physical intimate behavior could be subject to cultural norms, since they consolidated that male-male intimate behavior was rated as less normal than female intimate behavior, which was consistent with findings of other researchers they consulted. According to Strikwerda and May (1992) males are clearly hindered in pursuing intimacy with other males because of fears involving their sexuality. It was suggested that homophobia, or the fear of appearing or being homosexual, may operate to inhibit physical intimacy between males, especially since it was found that females as well as males are equally likely to label an embrace or arms around the waist between males as representing sexual involvement (Derlega et al., 1989).

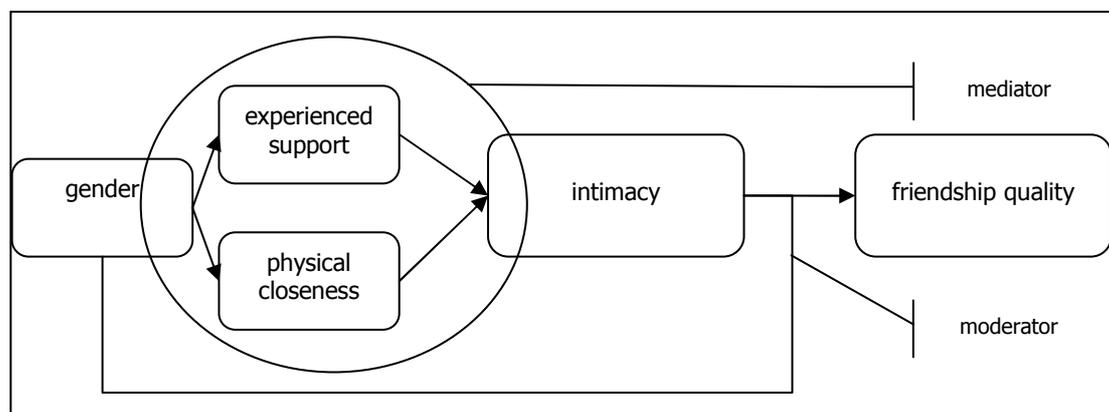
Overall, previous research indicates that females show more physical closeness in their friendships than do males, indicating that gender is a predictor of physical closeness in friendship, with the level of physical closeness higher for adolescent females than for adolescent males (hypothesis 4). Since touching behavior is found to cohere with emotional support (Derlega et al., 1989), intimacy (Heslin and Boss, 1980; in Derlega et al., 1989), and friendship quality (Boersma et al., 2007) and gender-differences are found to exist in emotional support and intimacy (with higher levels for females), one could very well expect that gender-differences exist in the influence that physical closeness has on friendship quality, with the influence being larger for females. This would mean that gender has a moderating effect on physical closeness, with the effect of physical closeness on friendship quality higher for adolescent females than for adolescent males (hypothesis 5), and a

mediating effect on friendship quality via physical closeness, with the effect for adolescent females higher than for adolescent males (hypothesis 6).

Shortly, one could expect that gender has a mediating, but not a moderating, effect on friendship quality via experienced support since the level of experienced support in friendship is higher for females than for males but the influence that experienced support has on friendship quality is equal for both genders, indicating that gender only has an effect on the level of experienced support in friendship, which on its turn has a positive influence on friendship quality. In contrast gender has a moderating *and* a mediating effect on friendship quality via physical closeness, given that not only the level of physical closeness in friendship is higher among females, which on its turn has a positive influence on friendship quality, but also that this positive influence is higher for females than for males, indicating that a double effect of physical closeness can be expected for females.

### Research design

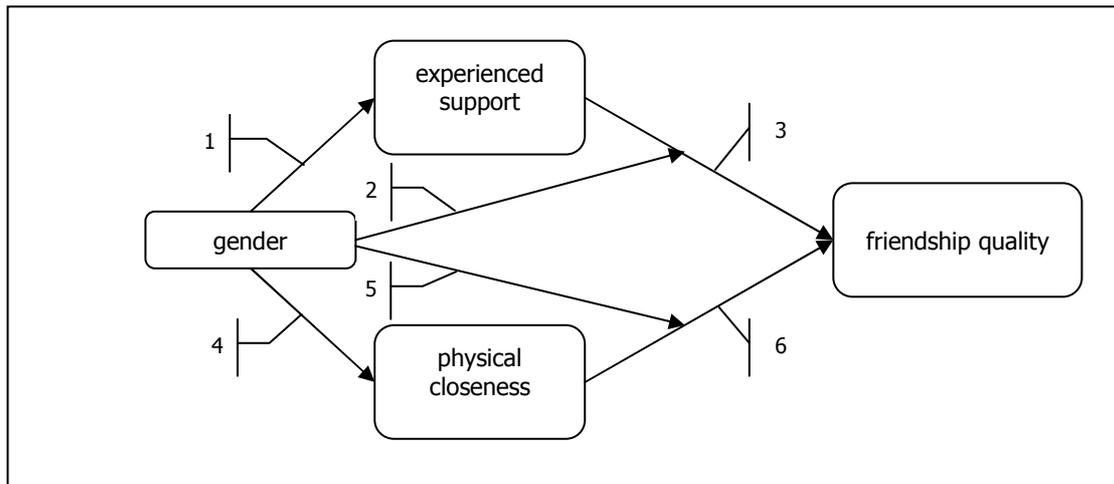
In sum, since gender-differences are investigated, the present research has one independent variable, namely gender. The dependent variables are experienced support, physical closeness and friendship quality. There is reason to assume that experienced support and physical closeness are indicators of intimacy. Intimacy has in its turn an important influence on friendship quality with gender as a mediator and a moderator, making the expected relationship between the variables as can be seen in figure 1.



*Figure 1: the expected relationships between gender, intimacy, and friendship quality with intimacy as a latent variable composed of experienced support and physical closeness and gender having a moderating and a mediating effect (via intimacy) on friendship quality.*

No hypothesis needs to be investigated concerning intimacy, since previous research of Boersma et al. (2007) has already confirmed there to be a positive relationship between experienced support and physical closeness. This relationship not only appeared to be a positive and a significant one but also a relatively large one. Apparently, the more physical

intimate friends are the more support they experience from friends. Therefore, the model that needs to be tested can be relatively simplified as can be seen in figure 2.



*Figure 2: the expected relationships between gender, experienced support, physical closeness, and friendship quality with gender having a moderating and a mediating effect (via experienced support and physical closeness) on friendship quality.*

The accompanying hypotheses concerning gender-differences are:

1. Gender is a predictor of experienced support in friendship, with the level of experienced support higher for adolescent females than for adolescent males.
2. Gender is not a moderator of experienced support, since the effect of experienced support on friendship quality is equal for adolescent females and males.
3. Gender has a mediating effect on friendship quality via experienced support, with the effect for adolescent females higher than for adolescent males.
4. Gender is a predictor of physical closeness in friendship, with the level of physical closeness higher for adolescent females than for adolescent males.
5. Gender is a moderator of physical closeness, with the effect of physical closeness on friendship quality higher for adolescent females than for adolescent males.
6. Gender has a mediating effect on friendship quality via physical closeness, with the effect for adolescent females higher than for adolescent males.

Although gender is found to supersede race as an organizer of friendship (Crosnoe, 2000) and adolescents are, despite of their cultural background, all found to be behaving as collectivists (Boersma et al., 2007) there will be controlled for cultural differences, creating the following hypothesis with culture being a second independent variable:

7. Gender does not have an interaction effect with culture on experienced support.
8. Gender does not have an interaction effect with culture on physical closeness.
9. Gender does not have an interaction effect with culture on friendship quality.

Lastly, there are a couple of things that need to be kept into consideration. First of all, since reciprocity is necessarily for intimacy in friendships to exist (Clark & Ayers, 1992) and intimate friendships are essential for the development of interpersonal skills (Buhrmester & Furman, 1986; in Clark & Ayers, 1993; Crosnoe, 2000), friendship will be defined as "a qualitative relationship between peers which is reciprocal and based on equality". Secondly, since age is expected to have a possible mediating influence on gender-differences in intimacy levels, present research will be conducted on males and females who are 14 to 15 years of age. Also, some variables need to be conceptualized. In present research gender is considered to be "the sexual category which indicates whether someone considers him- or herself to be male or female", physical closeness is defined as "all touching between friends that is not sexual" and experienced support as "the level of support someone experiences receiving from his or her best friend, with support being the emotional, informational, or companionship resources provided by the best friend that helps the adolescent deal with every day problems or crisis events" (based on Bryan et al., 2001). Friendship quality is defined as "the experienced level of friendship quality with the best friend". In this context the best friend is conceptualized as "a friend of the same gender and about the same age who is not a relative, with whom the adolescent thinks he or she has the best friendship".

## **METHOD**

Research was conducted by using data of Boersma et al. (2007).

### **Participants**

Participants were 1048 secondary school students in the Netherlands and Singapore with 44.8% (N=470) Dutch and 55.2% (N=578) Singaporean students. In the Netherlands 45.7% and in Singapore 47.6% were male and in the Netherlands 50.6% and in Singapore 52.1% were female. There was no significant difference in the number of males and females between the Singaporean and the Dutch sample ( $\chi^2 = 0.008$ ;  $df = 1$ ;  $p > .05$ ) with 46.8% of the participants being male and 51.4% being female overall.

All participants were between 12.6 and 19.3 years with a mean age of 15.1 years. In the Netherlands participants were between 12.6 and 17.3 years with a mean age of 15.3 years ( $sd = 0.5470$ ) and in Singapore participants were between 13.0 and 19.3 years with a mean age of 14.9 years ( $sd = 1.0058$ ). There was a significant difference in the mean age between the Dutch and the Singaporean sample ( $t = -9.879$ ;  $df = 877.971$ ;  $p < .001$ ), however in the Netherlands all classes were third classes except for one fourth class. In Singapore an effort was put in to achieve participation of comparable classes to the Dutch ones. However, many classes appeared to exist of different levels and many times participating classes were changed just before participation. Therefore table 1 shows the

percentages of age classes in the Netherlands as well as Singapore demonstrating a big difference in the partitioning of ages except for the eldest age group. There was no significant difference in the number of males and females divided over the age classes ( $\chi^2 = 5.887$ ;  $df = 3$ ;  $p > .05$ ).

*Table 1: percentages of age classes in the Netherlands as well as Singapore.*

<b>AGE CLASS / COUNTRY</b>	<b>NETHERLANDS</b>	<b>SINGAPORE</b>
< 13.9	00.2%	21.5%
14.0 – 14.9	19.5%	34.9%
15.0 – 15.9	65.0%	28.3%
> 16.0	15.3%	15.3%

### **Measurement**

A survey method was used because that is the most efficient way to interview a representative sample instead of the whole population and because present research fits both criteria of Salant and Dillmand (1994), namely: the goal is to find out what percentage of some population has a particular attribute or opinion and the information is not available from secondary sources. To assess all the variables that needed to be measured the survey of Boersma et al. (2007) was composed of multiple questionnaires. All questionnaires were in English, except for the Network of Relationship Inventory (NRI; Furman & Buhrmester, 1985) which had already been translated and used in Dutch by Utrecht University. Therefore the survey was developed in English and then translated into Dutch. Afterwards an independent party translated the survey back into English to discover whether or not the Dutch survey was asking about the same constructs as the English one did. After some alterations the two surveys are believed to measure the same. The survey in Dutch as well as the original English version can be found in Appendix B and Appendix A, respectively.

### *Instrument*

The independent variable, namely gender, was assessed by letting the participants circle their sex in the beginning of the survey. The dependent variables, namely experienced support, physical closeness, and friendship quality, were assessed by using multiple questionnaires.

*Experienced support* was measured by a questionnaire that was adapted from the Reliable Alliance (or "Steun" in Dutch) subscale of the Network of Relationship Inventory (NRI; Furman & Buhrmester, 1985). No differences in alpha between the original English version and the translated Dutch version of Utrecht University (unpublished research project) were found in the subscale used with alpha being .92. Unfortunately item 8 of the Reliable

Alliance scale ("Do you care about your best friend?") disappeared somewhere in the process of translation and could therefore not be taken into account leading to the Support scale containing 11 items instead of the original 12 items in the Reliable Alliance scale. Table 2 shows the results on reliability of the Support scale.

The items on the Support scale were formulated in such a way that they only refer to perceived support from the other person, not from the adolescent filling out the survey. Scores of the Support scale were measured on a five-point Likert scale with 1 meaning "not at all", 2 meaning "somewhat", 3 meaning "neutral", 4 meaning "a lot" and 5 meaning "the most" and the level of Experienced support was calculated by adding up the answers on the Support scale.

*Physical closeness* was measured by a new scale created by Boersma et al. (2007) since most previous research on physical intimacy has used observational procedures. Five situations of physical intimacy were chosen and made into statements in the form of "I touch my best friend when...", namely greeting, telling a story, while going out, helping and providing comfort. The adolescents stated whether the statements are true or false on the same five-point Likert scale used for Experienced support. Adding up the five scores then made an index of Physical closeness between friends. The reliability of this scale is shown in table 2.

*Friendship quality* was measured by a questionnaire based on the Friendship Quality Questionnaire composed by Parker and Asher (1993). The Friendship Quality Questionnaire exists of 40 questions in 6 subscales, namely Validation and Caring, Conflict Resolution, Conflict and Betrayal, Help and Guidance, Companionship and Recreation, and Intimate Exchange. The original article provides alpha's above .70 in all subscales. Unfortunately, item 32 of the Friendship Quality Questionnaire ("He\she comes up with good ideas on ways to do things.") and the items of the subscale Validation and Caring disappeared somewhere in the process of translation and could therefore not be taken into account leading to the Friendship quality scale containing 29 items instead of the original 40 items of the Friendship Quality Questionnaire. Also, the original statements were made suitable for adolescents since they were expected not to be able to relate to statements like "We always play together at recess". Table 2 shows the results on reliability of the Friendship quality scale.

Because of Furman's (1998) view that perceptions of a relationship are the most valid indices of the quality of the relationship, an extra dimension was created by letting the adolescents decide whether or not the statements are true for their best friend and would be true for their ideal friend. This way a contrasting score between the adolescent's real friend and their ideal friend resulted in a more subjective and perhaps more valid score of friendship quality. Adolescents indicated whether the 29 statements like "He/she gets mad a lot" and "We talk about how to get over being mad at each other" were true or false for their best and

their ideal friend on the same five-point Likert scale that was used in the rest of the survey with 1 meaning “not at all”, 2 meaning “somewhat”, 3 meaning “neutral”, 4 meaning “a lot” and 5 meaning “the most”. After recoding item 2, 4, 11, 18, 21 and 26 the level of Friendship quality was calculated by simply subtracting the best friend score from the ideal friend score. Because a positive score was now indicative of a lower appreciation of the friendship all outcomes were multiplied by -1, so that a higher score meant more appreciation and vice versa. Scores ranged from -69 to 67, with a score of -69 indicating an adolescent having a qualitative low relationship with its best friend and a score of 67 indicating an adolescent having a qualitative high relationship with its best friend.

*Table 2: Reliability of experienced support, physical closeness and friendship quality for best and ideal friend.*

	<b>CRONBACH'S ALPHA</b>	<b>N OF ITEMS</b>
Experienced support	.85	11
Physical closeness	.81	5
Friendship quality best friend	.88	29
Friendship quality ideal friend	.93	29

### *Procedure*

Participants in the Netherlands were gathered by writing letters to 45 secondary schools that were listed in the directory in the surroundings of Utrecht. Then all schools were called to ask for participation of their third classes leading to seven participating schools with 21 participating third classes and 1 participating fourth class. In case the school wanted to ask the parents for authorization a sample letter was provided that the adolescents could show their parents. After a date was set one of the authors visited the school to give a brief introduction about the research and the survey before the adolescents were asked to fill in the survey. All questionnaires in the survey needed to be filled in at once in approximately an hour. A similar procedure was followed in Singapore, except that in Singapore there was a brief period of waiting for approval of the research proposal from the Ministry of Education before sending letters to the 30 randomly chosen schools in Singapore. In Singapore seven schools participated as well with 16 participating classes of different levels.

### **Missing Data Imputation**

When the data was entered into SPSS it became apparent that some adolescents had not filled out all the questions which was resulting in missing data. The data was Missing At Random (MAR) because the missingness of the data was not related to any variable in the dataset. Multiple Imputation appeared to be the best solution for this missingness since this

procedure preserves the inter-correlations between the items by replacing each missing value with an average of plausible values that represent the uncertainty about the right value to impute instead of filling in a single value for each missing value. The Multiple Imputation was carried out by Boersma et al. (2007) using NORM, a software package developed by Schafer (1997). After this the new data was imputed into SPSS.

## RESULTS

### Results regarding experienced support

Three relationships need to be tested using regression analysis regarding experienced support, namely whether gender has a linear relationship with experienced support in friendship (hypothesis 1), if gender then has a moderating relationship with friendship quality via experienced support (hypothesis 2) and whether gender has a mediating effect on friendship quality via experienced support (hypothesis 3). In order to test hypothesis 1 a scatter plot was drawn, as can be seen in figure 3. This plot shows that there is a linear

positive correlation between gender and experienced support. Being female has more positive influence on the level of experienced support in friendship than being male, indicating that females experience more support from their best friend than males. Table 3 shows the results of regression analysis. It can be seen that the

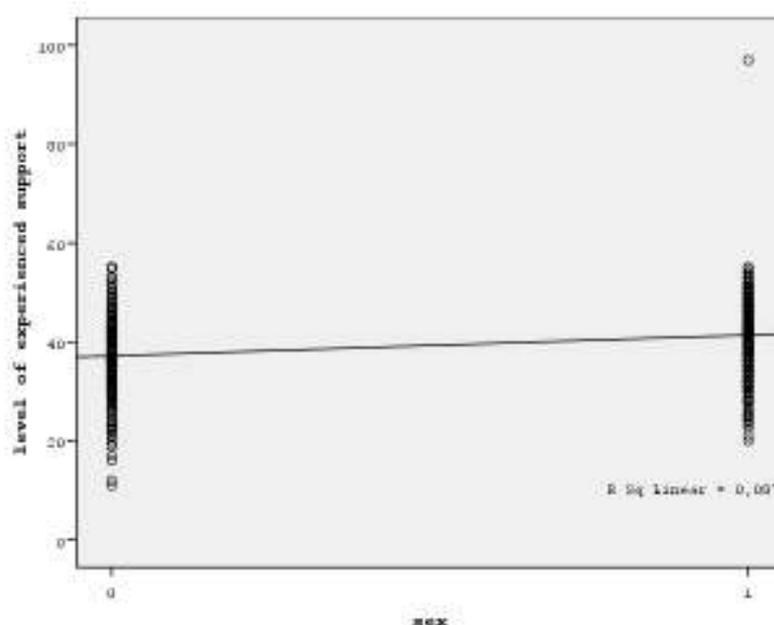


Figure 3: the relationship between gender and experienced support with 0 indicating male and 1 indicating female participants.

strength of the relationship between gender and experienced support is average in size ( $R = .295$ ;  $p < .001$ ) and that 8.7% of the variance in experienced support can be explained by gender. The slope coefficient of the analysis comparing males to females is 4.217 ( $\beta = .295$ ;  $p = .000$ ). Since this is a positive number, indicating that the level of experienced support increases when comparing males to females, as can be seen in figure 3, these results indicate, again, that females experience more support than males.

Table 3: Results of the regression analysis of the effect of gender on experienced support.

R	R <sup>2</sup>	Adj. R <sup>2</sup>	df	F	Sig.
.295	.087	.086	1: 1027	97.596	.000
	Slope ( <i>b</i> )	Std. error of slope	Standardized slope ( $\beta$ )	<i>t</i>	Sig.
gender	4.217	.427	.295	9.879	.000

Another scatter plot was drawn in order to test hypothesis 2, namely whether gender has a moderating relationship with friendship quality via experienced support. If this is the case an interaction effect between gender and experienced support should exist when the dependent variable is friendship quality.

Figure 4 shows that there is reason to assume that this is the case. Therefore two models were tested using regression analysis; model 1 with gender and experienced support as independent variables and model 2 where an interaction effect between gender and experienced support was added as a third

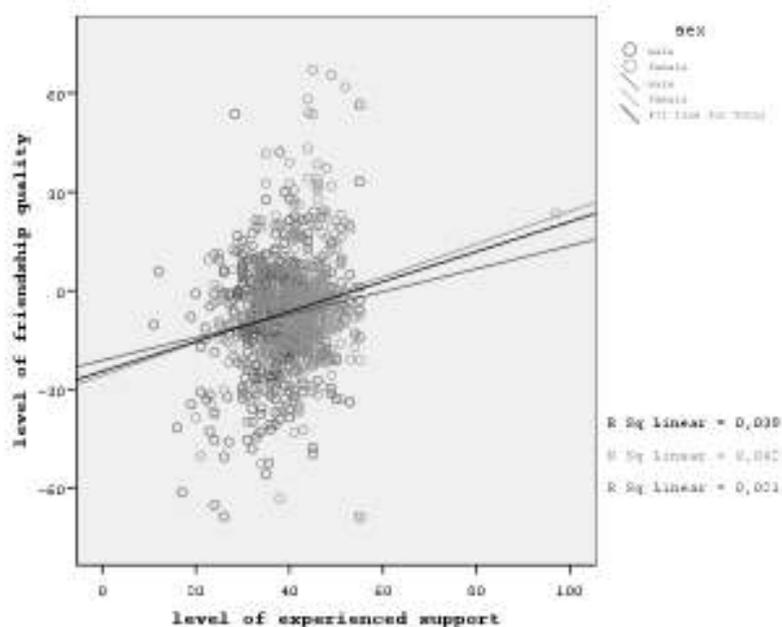


Figure 4: the relationship between experienced support and friendship quality with the dark grey line being for males and the light gray line for females.

independent variable. This interaction effect was calculated by firstly subtracting the mean score of experienced support from each participant's score on that same variable, transforming each participant's score into a deviation from the mean, and then by multiplying this new score by gender (Miles & Shevlin, 2006, p. 177). Regression analysis shows that the change in R<sup>2</sup> between these models is equal to .001 (F = 14.635; df = 3; 1025; p < .001) which is significant at p < .05, as can be seen in table 4. The second model, with the interaction effect, is therefore significant. However, the model without interaction is also significant (F = 21.434; df = 2; 1026; p < .001) and, as can be seen in table 5, in the second model the standardized slope coefficient of the interaction effect ( $\beta = .046$ ; p = .309) is not significant at p < .05. Therefore the interaction effect does not make it a better model. Consequently gender is not a moderator of experienced support on friendship quality.

However, as can be seen in figure 4, the effect of experienced support on friendship quality seems different for males than for females. Therefore a separate regression analysis for males as well as females was conducted with experienced support as the independent and friendship quality as the dependent variable. The results can be seen in table 6. The effect of experienced support on friendship quality is indeed different for males ( $R = .146$ ;  $p = .001$ ) than for females ( $R = .205$ ;  $p < .001$ ), but since gender does not moderate the effect that experienced support has on friendship quality and since being female has more positive influence on the level of experienced support in friendship than being male (see hypothesis 1), it must be that some other influence is causing this difference. It could be that gender does have a mediating effect on friendship quality via experienced support, with the effect for females higher than for males. This is exactly the assumption of hypothesis 3.

Table 4:  $R$ ,  $R^2$  adjusted  $R^2$ ,  $df$ ,  $F$  and significance for the models with friendship quality being the dependent variable and gender and experienced support (model 1), or gender, experienced support, and an interaction between gender and experienced support (model 2) being the independent variables.

	<b>R</b>	<b>R<sup>2</sup></b>	<b>Adj. R<sup>2</sup></b>	<b>df</b>	<b>F</b>	<b>Sig.</b>
model 1	.200	.040	.038	2; 1026	21.434	.000
model 2	.203	.041	.038	3; 1025	14.635	.000

Table 5: Coefficients from the regression equation of the model with friendship quality being the dependent variable and gender, experienced support, and an interaction between gender and experienced support being the independent variables.

	<b>Slope (b)</b>	<b>Std. error of slope</b>	<b>Standardized slope (β)</b>	<b>t</b>	<b>Sig.</b>
constant	-21.175	4.076		-5.195	.000
gender	3.351	1.060	.041	1.274	.203
experienced support	.348	.108	.150	3.227	.001
gxe	.151	.148	.046	1.017	.309

Table 6:  $R$ ,  $R^2$  adjusted  $R^2$ ,  $df$ ,  $F$  and significance of the effect of experienced support on friendship quality for males and females.

	<b>R</b>	<b>R<sup>2</sup></b>	<b>Adj. R<sup>2</sup></b>	<b>df</b>	<b>F</b>	<b>Sig.</b>
males	.146	.021	.019	1; 488	10.598	.001
females	.205	.042	.040	1; 537	23.623	.000

Four steps need to be taken to establish that a mediating relationship exists (hypothesis 3), when gender is the predictor variable,  $X$ , friendship quality the outcome variable,  $Y$ , and experienced support the mediator variable,  $M$  (Miles & Shevlin, 2006, p. 187). First, gender has to be a significant predictor of friendship quality, using regression analysis.

Figure 5 and table 7 and 8 show that there is reason to assume that there is a very small but significant correlation between gender and friendship quality at  $p < .05$ . The slope coefficient is 3.119 ( $\beta = .094$ ;  $p = .002$ ), with females experiencing slightly higher levels of friendship quality than males. Secondly gender has to be a

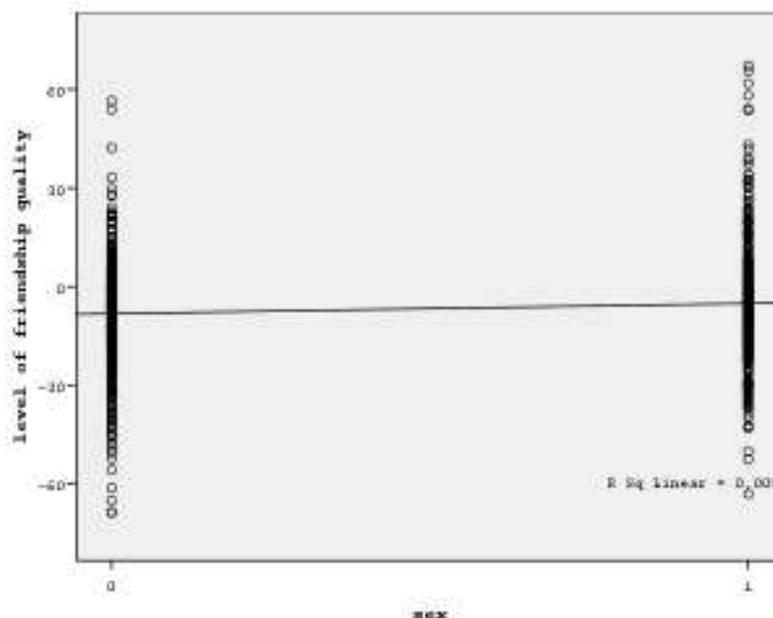


Figure 5: the relationship between gender and friendship quality with 0 indicating male and 1 indicating female participants.

significant predictor of experienced support, using regression analysis, which was already established ( $R = .295$ ;  $p < .001$ ) and can be seen in table 3. Then experienced support has to be a significant predictor of friendship quality, using regression analysis, when controlled for gender. Multiple regression analysis was carried out, using gender and experienced support as predictors and friendship quality as the outcome, and a small correlation ( $R = .197$ ;  $p < .001$ ) between experienced support and friendship quality was found, as can be seen in table 9. These results indicate that experienced support acts as a mediator between gender and friendship quality, with the effect that experienced support has on friendship quality higher for adolescent females than for adolescent males. Lastly, it has to be established if experienced support is a complete mediator of the relationship between gender and friendship quality, which is the case if the effect of gender when controlled for experienced support is zero, or a partial mediator. The standardized slope coefficient for gender was not significant at  $p < .05$  ( $\beta = .040$ ;  $p = .214$ ), as can be seen in table 10, so it can be established that experienced support is a complete mediator of the relationship between gender and friendship quality.

Table 7:  $R$ ,  $R^2$  adjusted  $R^2$ ,  $df$ ,  $F$  and significance of the effect of gender on friendship quality.

<b>R</b>	<b>R<sup>2</sup></b>	<b>Adj. R<sup>2</sup></b>	<b>df</b>	<b>F</b>	<b>Sig.</b>
.094	.009	.008	1: 1027	9.202	.002

Table 8: *Coefficients from regression equation of gender and friendship quality.*

	<b>Slope (b)</b>	<b>Std. error of slope</b>	<b>Standardized slope (β)</b>	<b>t</b>	<b>Sig.</b>
constant	-8.238	.744		-11.068	.000
gender	3.119	1.028	.094	3.033	.002

Table 9: *R, R<sup>2</sup> adjusted R<sup>2</sup>, df, F and significance of the effect of experienced support on friendship quality, when controlled for gender.*

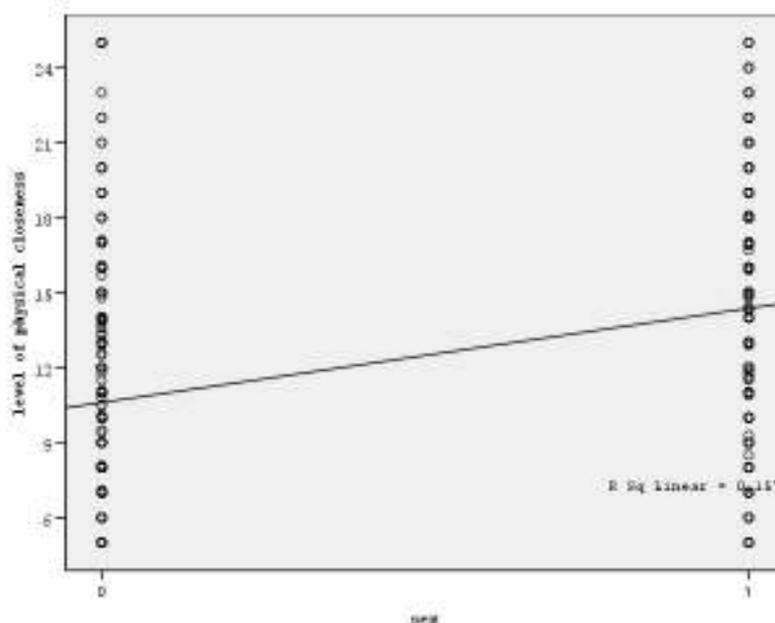
<b>R</b>	<b>R<sup>2</sup></b>	<b>Adj. R<sup>2</sup></b>	<b>df</b>	<b>F</b>	<b>Sig.</b>
.197	.039	.038	1: 1027	41.304	.000

Table 10: *Coefficients from regression equation of experienced support and friendship quality, when controlled for gender.*

	<b>Slope (b)</b>	<b>Std. error of slope</b>	<b>Standardized slope (β)</b>	<b>t</b>	<b>Sig.</b>
constant	-24.517	2.833		-8.655	.000
experienced support	.455	.071	.197	6.427	.000
gender			.040	1.242	.214

### Results regarding physical closeness

The same relationships needed to be tested using regression analysis regarding physical closeness, namely whether gender has a linear relationship with physical closeness in friendship (hypothesis 4), if gender then has a moderating relationship with friendship quality via physical closeness (hypothesis 5) and whether gender has a mediating effect on friendship quality via physical closeness (hypothesis 6). In order to test

Figure 6: *the relationship between gender and physical closeness with 0 indicating male and 1 indicating female participants.*

hypothesis 4 a scatter plot was drawn, as can be seen in figure 6. This plot shows that there

is a linear positive correlation between gender and physical closeness. Being female has more positive influence on the level of physical closeness in friendship than being male, indicating that females are physical closer with their best friend than males. Table 11 shows the results of regression analysis. It can be seen that that the strength of the relationship between gender and physical closeness is rather large ( $R = .396$ ;  $p < .001$ ) and that 15.7% of the variance in physical closeness can be explained by gender. The slope coefficient of the analysis comparing males to females is 3.768 ( $\beta = .396$ ;  $p = .000$ ). Since this is a positive number, indicating that the level of physical closeness increases when comparing males to females, as can be seen in figure 6, these results indicate that females are physically closer than males.

Table 11: *Results of the regression analysis of the effect of gender on physical closeness.*

<b>R</b>	<b>R<sup>2</sup></b>	<b>Adj. R<sup>2</sup></b>	<b>df</b>	<b>F</b>	<b>Sig.</b>
.396	.157	.156	1: 1027	191.100	.000
	Slope ( <i>b</i> )	Std. error of slope	Standardized slope ( $\beta$ )	<i>t</i>	Sig.
gender	3.768	.273	.396	13.824	.000

Another scatter plot was shown in order to test hypothesis 5, namely whether gender has a moderating relationship with friendship quality via physical closeness. Is this the case an interaction effect between gender and physical closeness should exist when the dependent variable is friendship quality. Figure 7 shows that there is reason to assume that this is the case. Therefore two models were tested using regression analysis; model 1 with gender and physical closeness as independent variables and model 2 where an interaction effect between gender and physical closeness was as a third independent variable. This interaction effect was

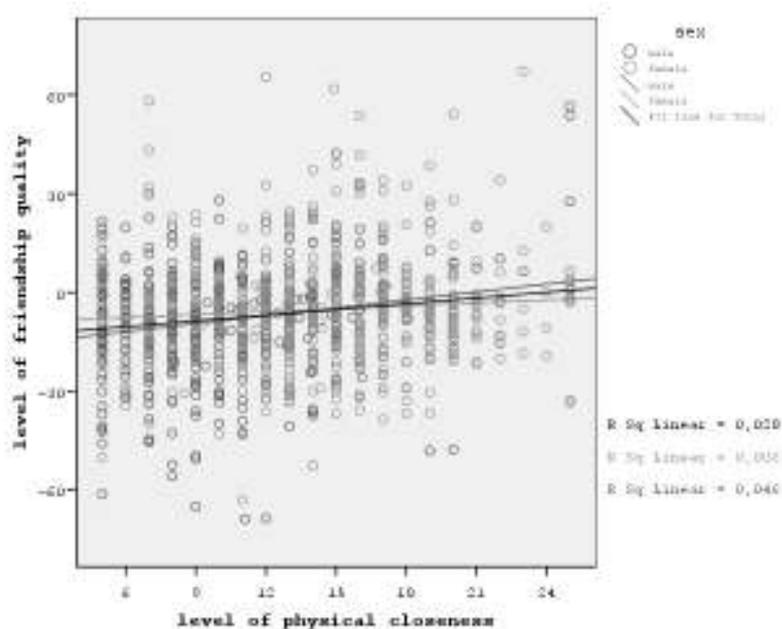


Figure 7: *the relationship between physical closeness and friendship quality with the dark grey line being for males and the light grey line for females.*

calculated the same way as it was during the analysis of experienced support. Regression analysis shows that the change in  $R^2$  between these models is equal to .004 ( $F = 11.774$ ;  $df = 3; 1025$ ;  $p < .001$ ) which is significant at  $p < .05$ , as can be seen in table 12. The second model, with the interaction effect, is therefore significant. Also, as can be seen in table 13, the standardized slope coefficient of the interaction effect ( $\beta = -.102$ ;  $p = .030$ ) is significant at  $p < .05$  so it can be concluded that an interaction effect occurs between gender and physical closeness. Therefore it can be concluded that gender is a moderator of physical closeness on friendship quality. A separate regression analysis for males as well as females was conducted with physical closeness as the independent and friendship quality as the dependent variable. The results can be seen in table 14. The effect of physical closeness on friendship quality is significant at  $p < .05$  for males ( $R = .215$ ;  $p < .001$ ) but not for females. ( $R = .078$ ;  $p = .070$ ). For males this effect is small with physical closeness being able to explain 4.6% of the variance in friendship quality. However, since being female has more positive influence on the level of physical closeness in friendship than being male (see hypothesis 4) and since higher levels of physical closeness coincide with higher levels of friendship quality (see Boersma et al., 2007), the mediating effect for females should be higher for females than for males. Therefore it must be that some other influence is playing a part here. It could be that gender has a mediating effect on friendship quality via physical closeness, with the effect for females higher than for males, which is exactly the assumption of hypothesis 6.

Table 12:  $R$ ,  $R^2$  adjusted  $R^2$ ,  $df$ ,  $F$  and significance for the models with friendship quality being the dependent variable and gender and physical closeness (model 1), or gender, physical closeness, and an interaction between gender and physical closeness (model 2) being the independent variables.

	<b>R</b>	<b>R<sup>2</sup></b>	<b>Adj. R<sup>2</sup></b>	<b>df</b>	<b>F</b>	<b>Sig.</b>
model 1	.170	.029	.027	2; 1026	15.230	.000
model 2	.183	.033	.030	3; 1025	11.774	.000

Table 13: Coefficients from the regression equation of the model with friendship quality being the dependent variable and gender, physical closeness, and an interaction between gender and physical closeness being the independent variables.

	<b>Slope (b)</b>	<b>Std. error of slope</b>	<b>Standardized slope (β)</b>	<b>t</b>	<b>Sig.</b>
constant	-16.773	1.946		-8.621	.000
gender	1.009	1.108	.030	.910	.363
physical closeness	.805	.170	.231	4.739	.001
gxp	-.508	.233	-.102	-2.179	.030

Table 14: *R*, *R*<sup>2</sup> adjusted *R*<sup>2</sup>, *df*, *F* and significance of the effect of physical closeness on friendship quality for males and females.

	<b>R</b>	<b>R<sup>2</sup></b>	<b>Adj. R<sup>2</sup></b>	<b>df</b>	<b>F</b>	<b>Sig.</b>
males	.215	.046	.044	1: 488	23.648	.000
females	.078	.006	.004	1; 537	3.296	.070

Four steps need to be taken to establish that a mediating relationship exists (hypothesis 6), when gender is the predictor variable, *X*, friendship quality the outcome variable, *Y*, and physical closeness the mediator variable, *M* (Miles & Shevlin, 2006, p. 187). The first step, establishing that gender is a significant predictor of friendship quality using regression analysis, and the second step, establishing that gender is a significant predictor of physical closeness using regression analysis, were already confirmed, as can be seen in figure 5 and table 7 and 8 and figure 6 and table 11 respectively. Then physical closeness has to be a significant predictor of friendship quality, using regression analysis, when controlled for gender. Multiple regression analysis was carried out, using gender and physical closeness as predictors and friendship quality as the outcome, and a small correlation ( $R = .167$ ;  $p < .001$ ) between physical closeness and friendship quality was found, as can be seen in table 15. These results indicate that physical closeness acts as a mediator between gender and friendship quality, with the effect that physical closeness has on friendship quality higher for adolescent males than for adolescent females. Lastly, it had to be established if physical closeness is a complete mediator of the relationship between gender and friendship quality, which is the case if the effect of gender when controlled for physical closeness is zero, or a partial mediator. The standardized slope coefficient for gender was not significant at  $p < .05$  ( $\beta = .033$ ;  $p = .320$ ), as can be seen in table 16, so it can be established that physical closeness is a complete mediator of the relationship between gender and friendship quality.

Table 15: *R*, *R*<sup>2</sup> adjusted *R*<sup>2</sup>, *df*, *F* and significance of the effect of physical closeness on friendship quality, when controlled for gender.

<b>R</b>	<b>R<sup>2</sup></b>	<b>Adj. R<sup>2</sup></b>	<b>df</b>	<b>F</b>	<b>Sig.</b>
.167	.028	.027	1: 1027	29.472	.000

Table 16: *Coefficients from regression equation of physical closeness and friendship quality, when controlled for gender.*

	<b>Slope (b)</b>	<b>Std. error of slope</b>	<b>Standardized slope (B)</b>	<b>t</b>	<b>Sig.</b>
constant	-13.914	1.439		-9.666	.000
physical closeness	.581	.107	.167	5.429	.000
gender			.033	.994	.320

In sum, figure 8 shows the relationships between gender, experienced support, physical closeness, and friendship quality. It can be seen that gender has an influence on friendship quality via physical closeness and via experienced support and that gender has an influence on the effect that physical closeness, but not experienced support, has on friendship quality.

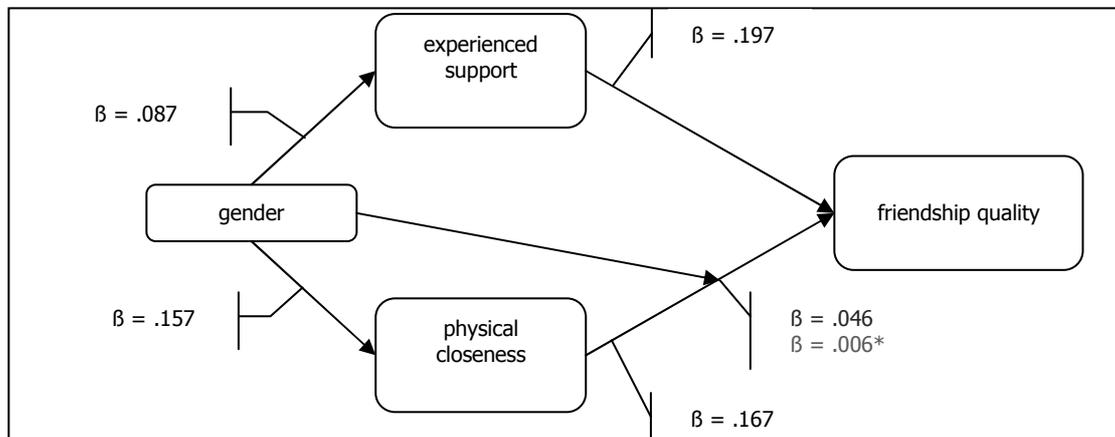


Figure 8: the relationships between gender, experienced support, physical closeness, and friendship quality with gender having a moderating (via physical closeness) and a mediating effect (via experienced support and physical closeness) on friendship quality where the dark grey standardized slope coefficients are for males and the light grey ones for females (\* means non significant).

### Results regarding cultural influences on all variables

Finally, three ANOVA's were carried out to ensure that culture does not have an interaction effect with gender on experienced support, physical closeness and friendship quality and therefore can be left out of consideration. The results are shown in table 17. Firstly, significant main effects at  $p < .05$  of gender on experienced support ( $F = 104.806$ ;

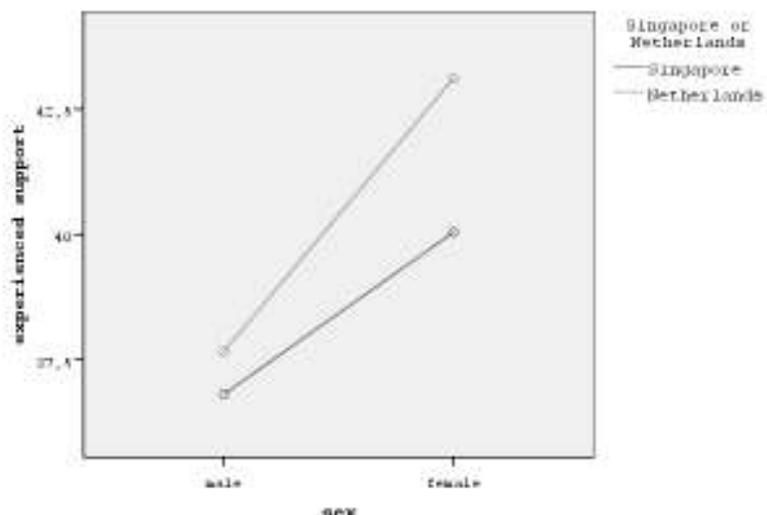


Figure 9: the relationship between experienced support and gender with the dark grey line being for participants from a collectivistic culture (Singapore) and the light grey line for participants from an individualistic culture (The Netherlands).

$p < .001$ ) and of culture on experienced support ( $F = 21.435$ ;  $p < .001$ ) and a small significant interaction effect between gender and culture on experienced support ( $F = 6.804$ ;  $p = .009$ ) were found. Figure 9 shows that Singaporean males experience the least of support in their best friendships, followed by Dutch males. Dutch females experience the most support in their best friendship. However, the difference between the Singaporean males and females is smaller than the difference between the Dutch males and females. This indicates that living in a collectivistic culture makes males as well as females less likely to be experiencing support in their best friendship but that living in an individualistic culture makes the difference in experienced support in best friendships between males and females larger. Secondly, a significant main effect at  $p < .05$  of gender on physical closeness ( $F = 201.498$ ;  $p < .001$ ) and of culture on physical closeness ( $F = 35.283$ ;  $p < .001$ ) but no significant interaction effect between gender and culture on physical closeness were found ( $F = 3.811$ ;  $p = .051$ ). Lastly, a significant main effect at  $p < .05$  of gender on friendship quality at  $p < .01$  ( $F = 8.603$ ;  $p = .003$ ) but no significant main effect of culture on friendship quality ( $F = .223$ ;  $p = .637$ ) and no significant interaction effect between gender and culture on friendship quality ( $F = .393$ ;  $p = .531$ ) were found.

Table 17: *Results of the test of between subject effects of gender and culture with experienced support, physical closeness, and friendship quality as the dependent variables.*

	<b>df</b>	<b>F</b>	<b>Sig.</b>
experienced support: gender	1	104.806	.000
experienced support: culture	1	21.435	.000
experienced support: gender x culture	1	6.804	.009
physical closeness: gender	1	201.498	.000
physical closeness: culture	1	35.283	.000
physical closeness: gender x culture	1	3.811	.051
friendship quality: gender	1	8.603	.003
friendship quality: culture	1	.223	.637
friendship quality: gender x culture	1	.393	.531

Levene's test of homogeneity of variances shows that these results are not influenced by problems with heterogeneity of variances. Although differences in variances between groups in experienced support and friendship quality are most likely not based on chance at  $p < .05$  ( $F = 7.763$ ;  $df = 3$ ;  $1025$ ;  $p < .001$  and  $F = 2.722$ ;  $df = 3$ ;  $1025$ ;  $p = .043$ ) this does not have to be considered a problem due to the large sample size of  $N = 1029$  (Baarda, De Goede & Van Dijkum, 2003, p. 149). Overall it can be said that culture can not be totally left out of consideration since gender and culture were found to significantly interact on the level of experienced support in best friendship.

## **DISCUSSION AND CONCLUSION**

### **Discussion concerning the hypothesis**

The first hypothesis, that gender is a predictor of experienced support in friendship, with the level of experienced support higher for adolescent females than for adolescent males, is accepted. An average relationship between gender and experienced support was found, namely that 8.6% of the variance in experienced support in the population can be explained by gender. Females overall experience a little more support in their relationship with their best friend than males. These results are consistent with earlier findings (e.g. Aukett et al., 1988; Buhrmester, 1998; Caldwell & Peplau, 1982; Clark and Ayers, 1993; Kuttler et al., 1999; Pagano & Hirsch, 2007; Sanderson et al., 2005).

The second hypothesis, that gender is not a moderator of experienced support, since the effect of experienced support on friendship quality is equal for adolescent females and males, is accepted. No interaction effect between gender and experienced support on friendship quality was found indicating that the effect of experienced support on friendship quality is equal for males and females. However, the third hypothesis, that gender has a mediating effect on friendship quality via experienced support, with the effect for adolescent females higher than for adolescent males, is also accepted. This indicates that, although the effect that experienced support has on friendship quality is the same for males and females, a difference in the level of friendship quality exists because females experience more support from their best friends than males and experienced support has a positive effect on friendship quality. These results are consistent with what could be expected from earlier findings (e.g. Buhrmester, 1998; Weisz & Wood, 2005).

The fourth hypothesis, that gender is a predictor of physical closeness in friendship, with the level of physical closeness higher for adolescent females than for adolescent males, is accepted. A rather large relationship between gender and physical closeness was found, namely that 15.6% of the variance in physical closeness in the population can be explained by gender. Females are overall more physical close in their relationship with their best friend than males. These results are consistent with earlier findings (e.g. Derlega et al., 1989; Ting-Toomey, 1991; Williams, 1985).

The fifth hypothesis, that gender is a moderator of physical closeness, with the effect of physical closeness on friendship quality higher for adolescent females than for adolescent males, is partially accepted. Indeed, gender is a moderator of physical closeness, but the effect of physical closeness on friendship quality is significant for males but not for females, indicating that, contrary to the hypothesis, this moderating effect is higher for males than for females. For males this effect is small with physical closeness being able to explain 4.4% of the variance in friendship quality in the population. However, the sixth hypothesis that gender

has a mediating effect on friendship quality via physical closeness, with the effect for adolescent females higher than for adolescent males, is completely accepted. This gives a complicated picture where on the one hand the effect of physical closeness on friendship quality is higher for males and on the other hand the effect of physical closeness on friendship quality is higher for females. Judging from earlier findings females should experience more physical closeness and this indeed appeared to be true (see hypothesis 4). But no earlier research has focused on gender-differences in the effect of physical closeness on friendship quality, meaning that present findings provide new information about the relationship between physical closeness and friendship quality for males and females. Before anything can be concluded a closer look at moderating and mediating effects is necessarily. A moderating effect can in this case be seen as a direct effect since being male or female has its direct influence on the influence that physical closeness has on friendship quality. A mediating effect can then be seen as an indirect effect since gender has its effect on friendship quality via physical closeness. Consequently then for females there is no direct effect of physical closeness on friendship quality but there is an indirect effect of physical closeness on friendship quality, with higher levels of physical closeness indicating higher levels of friendship quality, since they experience higher levels of physical closeness in their best friendships than males do. For males there is a direct as well as an indirect effect, with physical closeness having a positive effect on friendship quality and higher levels of physical closeness indicating higher levels of friendship quality. It appears that male friendship quality profits double from high levels of physical closeness. However, since regression analysis only uncovers a relationship but does not give the direction of that relationship (Miles & Shevlin, 2006; Sanderson et al., 2005), this connection between physical closeness and friendship quality could very well be the other way around. Since a taboo lies on male touching, especially in contemporary Western cultures (Strikwerda & May, 1991), it seems likely that males simply have to be very close friends, and therefore experience high levels of friendship quality, before they become physically close with one another.

The seventh hypothesis, that gender does not have an interaction effect with culture on experienced support is rejected. The interaction effect between gender and culture on experienced support is found to be small but significant at  $p < .05$  ( $F = 6.804$ ;  $p = .009$ ). Apparently, although females overall experience more support than males, living in a collectivistic culture makes males as well as females less likely to be experiencing support in their best friendship. Also, living in an individualistic culture makes the difference in experienced support in best friendships between males and females larger. Contrarily, the eighth hypothesis, that gender does not have an interaction effect with culture on physical closeness, and the ninth hypothesis, that gender does not have an interaction effect with culture on friendship quality, are accepted. These results indicate that, although culture has been found to supersede race as an organizer of friendship (Crosnoe, 2000) and

adolescents are, despite of their cultural background, all found to be behaving as collectivists (Boersma et al., 2007), culture cannot be totally left out of consideration, since gender and culture interact a little on the level of experienced support in best friendship. However, in the one variable in which an interaction effect was most likely to be found, namely physical closeness since the earlier mentioned taboo on male touching in contemporary Western cultures, no interaction effect between gender and culture was found, even although main effects for culture as well as gender were found. Also, the interaction effect of culture and gender on experienced support was found to be small, indicating that perhaps this result could be due to other factors than to an actual interaction in the population, like methodological issues which are discussed later on.

### **Discussion of the results in supplement to research of Boersma et al. (2007)**

Present research first of all uncovered there to be no interaction between gender and culture on physical closeness and friendship quality. However, there seemed to be some interaction between gender and culture on experienced support, with Singaporean males experiencing the least of support in their best friendships, followed by Dutch males, and Dutch females experiencing the most support in their best friendship. It was being expected that high allocentrics, which are the Singaporean as well as the females, would experience more support since they are more attentive and sensitive to others compared to low allocentrics, which are the Dutch as well as the males. However, it appears that being female, compared to being male, indeed has a positive influence on the level of experienced support but that being a low allocentric has more positive influence on the level of experienced support than being a high allocentric, especially for females. It could be that socialization processes make females in individualistic cultures more likely to display supportive behavior than females in collectivistic cultures. It could also be that, since face-saving is very important in collectivistic cultures, females in collectivistic cultures do not show a need for support, making them less likely to experience getting support. These results are consistent with the conclusion of Yamaguchi et al. (1995; in Verkuyten and Masson, 1996), namely that there is not a great deal of parallelism between gender- and cultural differences.

Secondly, the gender-difference in the effect of experienced support or physical closeness on friendship quality is different. While gender only has an effect on friendship quality via the mediator experienced support, with the effect for adolescent females higher than for adolescent males, it has a moderating effect for as well as a mediating relationship with physical closeness, with the moderating effect higher for males and the mediating effect higher for females. Perhaps this difference is subject to the influence of another factor that Boersma et al. (2007) found to be an important indirect contributor of friendship quality, namely time sharing with friends (explaining 12% of the variance in the Netherlands and 15% in Singapore) since it seemed to improve those aspects of friendship that adolescents

consider important, including experienced support and physical closeness, even although adolescents who spend more time together were not necessarily better friends. This could also explain why of the variance in friendship quality in the population 38% can be explained by experienced support and gender, while for males only 1.9% and for females only 4.0% of the variance in friendship quality can be explained by experienced support. It seems that other factors than gender influence the level of experienced support in friendship. It could for example be that experiencing support, but being physical intimate as well, is much more important for females while males' friendships profit more from spending time together, which is consistent with many earlier findings (e.g. Kuttler et al., 1999; Verkuyten & Masson, 1996; Youniss & Smollar, 1985, p. 97)

Lastly, the relative low and somewhat contradictory differences in physical closeness in best friendships between cultures, that Boersma et al. (2007) found, as well as between genders, that present research found, can possibly be explained in terms of masculinity and femininity. While males as well as females express intimacy differently in highly masculine cultures they do not differ significantly in feminine cultures (Ting-Toomey, 1991). Although the Netherlands is much more feminine than Singapore, which are an individualistic and a collectivistic country respectively, both have a low masculinity score (14 for the Netherlands and 48 for Singapore) when compared to the world average (50), indicating that gender-differences in the expression of intimacy in these countries are probable to be small or non-significant. However, a main effect of gender as well as culture on physical intimacy was found in present research, which does not support the results of Ting-Toomey (1991). This could be due to the possibility that masculinity and femininity are separate dimensions instead of them opposing each other on the same scale (Ting-Toomey, 1991).

### **Methodological discussion**

Since data of Boersma et al. (2007) were used, the methodological strengths and weaknesses that they mention also apply to present research. Their instructions were not always clear and had to be supplemented orally, their survey was very long and required a lot of reading (skills), some items were multi-interpretable and it was hard for the participants to choose which of their friends they considered their best friend. Present findings could have been colored by this since research of Verkuyten and Masson (1996) has shown that cultural values do not have an influence on self-disclosure in best friend relationships but do affect self-disclosure in less close friendships. Since participants were asked to select the friend who is of the same sex and about the same age and is no relative with whom they felt they had the best relationship with (making it likely that they did not select their true best friend), and since self-disclosure plays an important part in intimate friendship, this could have had its effect on cultural differences. However, since the focus of present research lies on gender-

differences this could have only given complications for the last hypothesis testing interaction effects between gender and culture.

Another weakness that came forward during present research was that 12 items (1 of the Support scale and 11 of the Friendship quality scale) of the original questionnaires that Boersma et al. (2007) used were unjustly not included in their survey. However, the scales were found to be highly reliable, indicating that this, and all of the earlier mentioned weaknesses, did not have a significant influence on the results. Also, the high amount of participants was a great strength.

However, an important weakness can be found in the "high female character" of the survey, on which especially the Dutch male participants commented and which seemed to demotivate them to fill it in seriously or sometimes to even fill it in at all. This was especially a concern with the items concerning physical closeness. It could be that adolescent male friends simply display less physical intimacy than females do (Derlega et al., 1989), indicating that the gender-difference found applies to the population as well. It seems that both, earlier findings that males are less physical intimate as well as the reaction of the Dutch male participants of Boersma et al. (2007), are due to the taboo against males touching in contemporary Western cultures as a result of males being blocked in pursuing intimacy with other males because of fears involving their sexuality, especially culturally inbred homophobia. (Strikwerda & May, 1991). Still, another thing to keep in mind regarding the "high female character" of the survey is that there is a possibility that males and females define friendship differently (Calwell & Peplau, 1982), which would imply that the gender-differences found may actually be the result of gender-differences in language usage instead of in actual behavior. However, emotionally close and trusting relationships, which can be expected to be high in friendship quality, can most often be identified by the exchange of emotional support and intimate counsel for males as well as females (Stanton-Salazer & Spina, 2005), indicating that in present implicit research it does not really matter what language was used since the survey was composed of statements about actual behavior and not of definitions or opinions.

The last issue to consider is that the age group under which the research was done was somewhat heterogeneous. Although the mean age of the participant was 15.1 years, which was the target age of present research, participants' ages ranged from 12.6 to 19.3 years and there also was a significant difference in the mean age between the Dutch and the Singaporean sample. Since friendships are highly developing during adolescence and specifically increase in their levels of intimacy (Sharabany, Gershoni and Hofman, 1981; in Kuttler et al., 1999), and emotional support (Reid, Landesman, Treder and Jaccard; 1989; in Kuttler et al., 1999) age might have influenced the results. However, all participants were in about the same classes in school indicating that within classes participants of different ages might have influenced each others' development and that between classes at least the

participants' intellectual development can be expected to be comparable. Therefore it is likely that age-differences might not have had such a great influence on present results. Also, there was no significant difference in the number of males and females divided over different age classes. As a result it is being expected that results of present research might overall be stronger or weaker than could be expected if the age group was more homogenous, but that age has not really had its influence on gender-differences since male and female ages were comparable.

### **Recommendations for further research**

As Boersma et al. (2007) point out much of their data can be related to one other in order to conduct completely different or related research. Very interesting results could for example be found when looking at differences between ethnicities in Singapore and differences between school levels in the Netherlands. Also it would be interesting to look at cultural and gender-differences in conflict resolution styles since their research on that subject contained methodological flaws. However, two important issues have to be kept in mind during further research, namely the possible influence of age, since friendships are highly developing during adolescence, and of course the female character of their survey, which has influenced the data set. It would be useful, and is recommended, to add more research to the data of Boersma et al. (2007) set in order to be able to control for these influences.

### **Conclusion**

It was being expected that gender-differences in intimacy levels in adolescent friendship, in individualistic as well as collectivistic cultures, account for differences in friendship quality. Indeed, a difference in the level of friendship quality between males and females was found, with the level of friendship quality higher for females. Differences in levels of experienced support and physical closeness, which are being considered indicators of intimacy levels, were also found. Females experience more support and are physical closer with their friends than males, which is all consistent with earlier research. There is also reason to assume that gender-differences in these levels can account for differences in friendship quality. Gender was found to have a relationship with friendship quality through the mediator experienced support, indicating that the difference in the level of friendship quality exists because experienced support has a positive effect on friendship quality and females experience more support from their best friends than males do. Gender was also found to be a moderator of physical closeness and to have a mediating relationship with physical closeness on friendship quality, as was expected based on earlier findings. These results were not surprising either. However, the moderating effect of physical closeness on friendship quality only existed for males, while it was being expected that both effects would be larger for females. Indeed, the

mediating effect was found to be larger for females. These results indicate that physical closeness only has its effect on friendship quality for females since it has a positive effect on friendship quality and females are physically more intimate with their best friends than males are. For males are high (or low) levels of physical closeness also related to high (or low) levels of friendship quality since physical closeness has a direct effect on friendship quality. However, them being male also has its influence on the effect that physical closeness has on friendship quality. It seems likely that this relationship should be considered the other way around, namely that males have to be very good friends before they become physically close, since socialization processes make males less likely to be physical intimate with each other.

A couple of things to keep in mind regarding this conclusion are that it is possible that differences in levels of allocentrism, instead of gender- and cultural differences, play a part in differences in experienced support, that for males friendship is structurally different than for females, with spending time together being more important than intimate behaviors, and that there are some noteworthy methodological shortcomings to present research.

In conclusion it can be said that indeed some gender-differences in the level of intimacy in best friendship exist, indicating that it seems likely that males and females could supplement each others development of interpersonal skills such as collaboration, taking different perspectives, and empathy. This means that it would be useful to promote the possibility of the arising of cross-gender friendships by mixing male and female adolescents in their daily lives in schools, clubs, and all other organizations that deal with youngsters. However, it seems that adolescents' intimacy and sensitivity with same-gender friends transfers to relationships with cross-gender friends (e.g. Sullivan, 1953; in Sieffge-Krenke, 1993, p. 83). Apparently other factors are more important for the development of interpersonal skills in adolescent friendship. Reciprocity is likely to be one of them since reciprocal friendships are found to be more beneficial for the development of adolescents than nonreciprocal friendships. It has been found, for example, that the number of best friends that were reciprocal was positively related to feelings of emotional support for early adolescent females (Frankel, 1990; in Clark & Ayers, 1993) and that the opportunity to develop interpersonal skills such as collaboration and empathy can exist only in relationships characterized by mutual liking or reciprocity-of-liking (Clark & Ayers, 1992; Clark & Ayers, 1993).

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## APPENDIX A

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### Experienced support scale (the numbers between brackets correspond with the items of the original scale)

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1. How much does your best friend admire and respect you? (1)
2. How certain are you that the friendship with your best friend will last no matter what happens? (2)
3. How much time do you spend having fun with your best friend? (3)
4. How much does your best friend teach you how to figure things out and resolve issues? (4)
5. How much do you share your secrets and feelings with your best friend? (5)
6. How much does your best friend care for you? (6)
7. How much does your best friend show you that you are capable of doing a lot of things? (7)
8. How much does your best friend appreciate the things you do? (9)
9. How much does your best friend think you are worth listening to? (10)
10. How much does your best friend think you have good ideas? (11)
11. How much does your best friend think he/she can learn a lot from you? (12)

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Based on: Reliable Alliance subscale of the Network of Relationship Inventory by Furman & Buhrmester, 1985

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### Physical closeness scale (original scale)

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1. I touch my best friend when I am greeting him/her, for instance by giving a hug, holding his/her hand, giving a kiss etc.
2. I touch my best friend when I am telling him/her a story, for instance by touching his/her shoulder, his/her arm etc.
3. I touch my best friend when we are going out, for instance by dancing with him/her, holding his/her hand, walking arm in arm etc.
4. I touch my best friend when he/she needs comfort, for instance by hugging him/her, put an arm on his/her shoulder etc.
5. I touch my best friend when I am helping him/her, for instance by lifting him/her, holding him/her etc.

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Source: Boersma et al., 2007

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### Friendship quality scale (the numbers between brackets correspond with the items of the original scale)

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1. We always sit together at lunch (2)
  2. He/she gets mad a lot (3)
  3. We always pick each other as partners for things (7)
  4. He/she sometimes says mean things about me to others (9)
  5. We talk about how to get over being mad at each other (11)
  6. We always tell each other our problems (14)
  7. He/she talks to me when I am mad about something that happened to me (16)
  8. We help each other with chores a lot (17)
  9. We do special favors for each other (18)
  10. We do fun things together a lot (19)
  11. We argue a lot (20)
  12. He/she can be counted on to keep promises (21)
  13. We go to each other's homes (22)
  14. We always sit together at recess (23)
  15. He/she gives advice with figuring things out (24)
  16. We talk about the things that make each other sad (25)
  17. We make up easily when we have a fight (26)
  18. We fight a lot (27)
  19. We share things with each other (28)
  20. We talk about how to make ourselves feel better if we are mad at each other (29)
  21. We bug each other a lot (31)
  22. We lend each other things all the time (33)
  23. He/she helps me so I can get things done quicker (34)
  24. We get over arguments really quickly (35)
  25. We can count on each other for good ideas on how to get things done (36)
  26. He/she doesn't listen to me (37)
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27. We tell each other private or personal things (38)

28. We help each other with schoolwork a lot (39)

29. We tell each other secrets (40)

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Based on: Friendship Quality Questionnaire by Parker and Asher, 1993

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## APPENDIX B

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### **Ervaren steun scale (the numbers between brackets correspond with the items of the original scale)**

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1. Bewondert en respecteert je beste vriend(in) je? (1)
  2. Hoe zeker ben je ervan dat de relatie met je beste vriend(in) zal blijven bestaan, wat er ook gebeurt? (2)
  3. Hoeveel trek je op en maak je plezier met je beste vriend(in)? (3)
  4. In welke mate leert je beste vriend(in) jou om dingen uit te zoeken en op te lossen? (4)
  5. Deel jij je geheimen en persoonlijke gevoelens met je beste vriend(in)? (5)
  6. Hoeveel geeft je beste vriend(in) echt om je? (6)
  7. In welke mate laat je beste vriend(in) je merken dat je veel dingen goed kunt? (7)
  8. Geef je om je beste vriend(in)? (8)
  9. Waardeert je beste vriend(in) de dingen die je doet? (9)
  10. Vindt je beste vriend(in) het de moeite waard om naar je te luisteren? (10)
  11. Vindt je beste vriend(in) dat je goede ideeën hebt? (11)
  12. Vindt je beste vriend(in) dat hij/zij veel van je kan leren? (12)
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Based on: Steun subscale of the Network of Relationship Inventory by Utrecht University based on the Network of Relationship Inventory by Furman & Buhrmester, 1985

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### **Fysieke nabijheid scale (original scale)**

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1. Ik raak mijn beste vriend(in) aan wanneer ik hem/haar groet, door middel van bijvoorbeeld een knuffel, een hand, een zoen etc.
  2. Ik raak mijn beste vriend(in) aan wanneer ik hem/haar een verhaal vertel, bijvoorbeeld door zijn/haar schouder/arm/etc. aan te raken.
  3. Ik raak mijn beste vriend(in) aan wanneer we uitgaan, bijvoorbeeld door met hem/haar te dansen, zijn/haar hand vast te houden, arm in arm te lopen etc.
  4. Ik raak mijn beste vriend(in) aan wanneer hij/zij steun nodig heeft, bijvoorbeeld door hem/haar een knuffel te geven, een arm om zijn/haar schouder te leggen etc.
  5. Ik raak mijn beste vriend(in) aan wanneer ik hem/haar help, bijvoorbeeld door hem/haar op te tillen, vast te houden etc.
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Source: Boersma et al., 2007

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### **Vriendschapskwaliteit scale (the numbers between brackets correspond with the items of the original scale)**

---

1. We zitten altijd bij elkaar tijdens de lunch (2)
  2. Hij/zij wordt vaak boos (3)
  3. We kiezen altijd elkaar om mee samen te werken (7)
  4. Hij/zij zegt soms gemene dingen over me tegen leeftijdsgenoten (9)
  5. We praten met elkaar over hoe we niet meer boos op elkaar zouden hoeven te zijn (11)
  6. We vertellen elkaar altijd onze problemen (14)
  7. Hij/zij praat met me als ik boos ben over iets wat me is overkomen (16)
  8. We helpen elkaar vaak met klusjes (17)
  9. We doen soms dingen speciaal voor elkaar (18)
  10. We doen veel leuke dingen samen (19)
  11. We maken vaak ruzie (20)
  12. Hij/zij is betrouwbaar wanneer het aankomt op het houden aan beloften (21)
  13. We komen bij elkaar thuis (22)
  14. We zoeken elkaar altijd op in de pauze (23)
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15. Hij/zij geeft advies over hoe ik dingen aan moet pakken (24)
  16. We praten over dingen die ons verdrietig maken (25)
  17. We maken het gemakkelijk goed als we ruzie hebben (26)
  18. We vechten vaak (27)
  19. We delen dingen met elkaar (28)
  20. We praten over wat ons een beter gevoel zou geven wanneer we boos op elkaar zijn (29)
  21. We zitten elkaar vaak dwars (31)
  22. We lenen elkaar altijd van alles (33)
  23. Hij/zij helpt me zodat ik sneller klaar ben met dingen (34)
  24. We leggen discussies snel naast ons neer (35)
  25. We kunnen op elkaar rekenen voor goede ideeën over hoe dingen gedaan kunnen worden (36)
  26. Hij/zij luistert niet naar me (37)
  27. We vertellen elkaar persoonlijke en privédingen (38)
  28. We helpen elkaar veel met schoolwerk (39)
  29. We vertellen elkaar onze geheimen (40)

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Based on: Friendship Quality Questionnaire by Parker and Asher, 1993

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