Problem behavior during early adolescence and child, parent, and friend effects: a longitudinal study
Reitz, E.

Citation for published version (APA):

General rights
It is not permitted to download or to forward/distribute the text or part of it without the consent of the author(s) and/or copyright holder(s), other than for strictly personal, individual use, unless the work is under an open content license (like Creative Commons).

Disclaimer/Complaints regulations
If you believe that digital publication of certain material infringes any of your rights or (privacy) interests, please let the Library know, stating your reasons. In case of a legitimate complaint, the Library will make the material inaccessible and/or remove it from the website. Please Ask the Library: http://uba.uva.nl/en/contact, or a letter to: Library of the University of Amsterdam, Secretariat, Singel 425, 1012 WP Amsterdam, The Netherlands. You will be contacted as soon as possible.
Chapter 5:

General Conclusions and Discussion
Chapter 5: General Conclusions and Discussion

According to the ecological model of Bronfenbrenner (1979, 1986), the child is nested within a complex network of systems. Three main systems within this model have been discussed in the previous chapters: the adolescent self (problem behavior), parents, and friends of the adolescent.

The central aims of the present thesis were to examine (1) the structure and stability of externalizing and internalizing problem behavior during early adolescence; (2) the relations between parenting and adolescent externalizing and internalizing problem behavior; and (3) the reciprocal effects of parenting and best friends’ deviance, on the one hand, and adolescent externalizing and internalizing problem behavior, on the other hand. Longitudinal data were used to examine these aims.

In this final chapter, main findings and conclusions of the three studies will be presented in line with the three systems of the ecological model. These findings will be discussed and the chapter concludes with limitations and recommendations for future research.

5.1 Adolescent problem behavior

Structure of problem behavior

The study in Chapter 2 examined the structure of adolescent problem behavior and tested whether externalizing and internalizing problem behaviors belong to one
single factor of general deviance (one-factor model), whether they should be considered as two separate constructs (two-factor model), or whether they can be conceptualized as two separate constructs belonging to one factor of general deviance (two-factor higher-order model). Results showed that the factor model with the higher-order factor (the third model) fitted the data best, on both measurement waves. The structure was also stable over time when analyzed for boys and girls separately. This indicates that externalizing and internalizing problem behavior are two distinct constructs with multiple indicators, although they ultimately belong to the same higher-order factor of general deviance. Our findings extend conclusions of previous research by including different types of problem behavior and by including a higher-order factor in the analyses.

One might argue that it is not surprising to find a higher-order factor structure, because it resembles the structure of the questionnaire that is used to measure problem behavior: the Youth Self-Report (YSR). This questionnaire is composed of different small-band syndromes that belong to one of two broad-band syndromes: Externalizing or Internalizing. These two syndromes can be summed up to provide a Total problem behavior score, which implies the existence of a higher-order factor. Two reasons can be listed to refute this argument.

The first reason is that the YSR is originally developed for the clinical practice. The structure of the items is examined in a sample of clinically referred adolescents. Principle components analyses were conducted to establish the small-band and broad-band syndromes. Although norms have been provided for a normal population (e.g., Verhuist, van der Ende, & Koot, 1996), the structure of problem behavior has not been statistically tested in this group and might be dissimilar from the clinical group. Clinically referred children may show more co-occurrence between externalizing and internalizing problems than children from the general population, because subjects with multiple disorders are more likely to be hospitalized than those with single disorders, the so-called Berkson's bias (Berkson, 1946; Zoccolillo, 1992). This can result in different factor structures for the two groups. Furthermore, the possibility of a higher-order factor has never been statistically analyzed, both for clinical and normal groups. A two-factor model could thus have been an equally satisfying solution. A previous study of Hartman et al. (1999) found such a model when analyzing the Child Behavior Check-List (CBCL), the version that assesses problem behavior of children as reported by parents.

The second reason for the fact that the higher-order factor structure may not be inherent in the YSR is that not only items from the YSR were used to examine problem
behavior, but also two new scales were added to study problems that occur frequently in non-clinical groups: School problems and Disobedience. Seven small-band syndromes instead of five were now included, which could have led to a different factor-structure than is implied in the YSR.

**Stability of problem behavior**

Two types of stability can be distinguished: relative and absolute stability. The first type, relative stability, refers to the extent to which individuals retain their rank order or relative position within the group. Pearson correlation coefficients were computed to determine the relative stability of problem behavior. The stability coefficients of different types of problem behavior were consistent with previous research (Verhuist & Van Wattum, 1993). Fisher Z-transformation tests indicated no significant differences between boys and girls. It can be concluded that the relative stability is moderate, indicating that a large number of adolescents retain their relative position within the group.

The second type of stability, absolute stability, refers to the extent to which a construct's absolute level remains consistent across time. A repeated measures model indicated differences over time as well as gender differences. Scores on Delinquent Behavior, School Problems, and Disobedience were higher at Time 2 compared to Time 1, whereas scores on Aggressive Behavior and Somatic Complaints were lower over time. Gender differences were found on internalizing problem behavior: girls scored higher.

It was further tested whether adolescents who scored in the clinical, subclinical, and normal range of problem behavior at Time 1 changed or remained stable in their position at Time 2. In general, many adolescents who scored in the normal range remained in that position, both for externalizing and internalizing problem behavior. Also, a moderate level of stability was found for the deviant range of externalizing and internalizing problems behavior. Some adolescents who scored in the deviant range at Time 1 changed their position to the subclinical or normal range, thus showing less problem behavior over time. Other adolescents increased their levels of problem behavior and changed their position from the normal range to the subclinical or deviant range. Overall, the absolute stability seemed to be moderate to high, although some adolescents were quite unstable. These levels of stability seem to be somewhat higher than is found in other studies that examined absolute stability (Verhuist & van Wattum, 1993; Ferdinand et al., 1995).
In sum, both types of stability are moderate or high, indicating that a large number of adolescents show the same levels of problem behavior over time and retain their relative position within the group. Previous levels of problem behavior thus seem to be highly predictive of subsequent levels of problem behavior. This is consistent with findings of other studies that show predictive effects of previous levels of problem behavior on subsequent levels (e.g., Pomerantz, 2001; Scaramella, Conger, Spoth, & Simons, 2002). In Chapters 3 and 4, it was also found that former levels of problem behavior were the best predictors of later levels of problems. Thus, problem behavior appeared to be the best determinant of subsequent levels of problem behavior. There are also other factors that can be predictive of the level of problem behavior. One of those factors lies within the system of the parents, namely child rearing, which will now be discussed.

5.2 Parents

The second system within the ecological model of Bronfenbrenner (1979, 1986) that is examined in this thesis is that of the parents of the adolescent, assessed from the adolescent's perspective. The study in Chapter 3 examined the relations between childrearing, consisting of several important parenting dimensions, and adolescent problem behavior. This study extends previous research by including these parenting dimensions simultaneously, as unique predictors of adolescent problem behavior. Four parenting dimensions were analyzed: parental involvement (consisting of responsiveness, quality of parent-adolescent relation, and parental knowledge), parental strictness, emotional autonomy granting, and decisional autonomy granting. Not only parenting effects on problem behavior were examined, but also child effects on parenting and moderator effects. These latter effects have been rarely examined in previous studies during adolescence.

It appeared that decisional autonomy granting was related only to externalizing problem behavior, but not to internalizing problem behavior. In general, the two constructs show a positive relation: High levels of decisional autonomy granting lead to high levels of externalizing problem behavior and high levels of externalizing problem behavior lead to high levels of decisional autonomy granting. A moderator effect showed that parents who grant low levels of decisional autonomy tend to allow more autonomy to adolescents with high, rather than low levels of externalizing problem behavior. These positive relations are consistent with findings from previous research.
who show that high levels of decisional autonomy granting are related to greater deviance (Lamborn, Dornbusch, & Steinberg, 1996; Beyers & Goossens, 1999). It should be noted however, that decision-making is defined in this thesis as a unilateral construct. It seems that adolescents are better adjusted when parents and adolescents make joint decisions. This indicates an open and flexible communication style, which corresponds more with an authoritative parenting style and is associated with less deviance (Lamborn, Dornbusch, & Steinberg, 1996).

As opposed to relations between decisional autonomy granting and adolescent problem behavior, none of the analyses in Chapter 3 showed any association between emotional autonomy granting and problem behavior. This is in contrast with previous research that found negative relations between these constructs (e.g., Gray & Steinberg, 1999; Garber & Little, 2001). An explanation might be the timing of autonomy: the process of individuation from parents might become more important during middle adolescence than in early adolescence, when the adolescent becomes more mature and is more striving for independence. A second explanation might lay in the conceptualization of emotional autonomy granting. Some studies measure psychological control and recode the scores to indicate levels of emotional autonomy granting (Gray & Steinberg, 1999; Garber & Little, 2001). In the study in Chapter 3, the scale was designed to measure emotional autonomy granting, where high scores indicate high levels of autonomy granted by parents.

Whereas decisional autonomy granting related only to externalizing problem behavior, parental strictness was only related to internalizing problem behavior. Parental strictness seemed to be especially important for adolescents who exhibit high levels of internalizing problems. For these adolescents, higher levels of strictness lead to increasing engagement in problem behavior over time. This finding supports the assumption that overly strict parenting is not appropriate during adolescence, a period were adolescents need sufficient space for their psychosocial development (Baumrind, 1991a).

Finally, the fourth parenting dimension, parental involvement, was associated with externalizing as well as internalizing problem behavior. It seems that high levels of parental involvement function as a protective factor for externalizing problem behavior over time. This is consistent with previous studies that found that high levels of attachment to parents (Laible, Carlo, & Rafaelli, 2000), warmth (Greenberger, Chen, Tally, & Dong, 2000), and parental knowledge (Kerr & Stattin, 2000), are all related to lower levels of problem behavior. A moderator effect was found for internalizing problem behavior. Findings showed that for adolescents with high levels of
internalizing problem behavior, higher levels of parental involvement lead to an increment of problems over time. In contrast, for adolescents with low levels of internalizing problem behavior, lower levels of parental involvement lead to an increment of problems over a one-year period. Adolescents with high levels of internalizing problem behavior tend to have parents who might be overinvolved, which causes adolescents to react with even higher levels of problem behavior (e.g., Stubbe et al., 1993; Hirshfeld et al., 1997). In general, high levels of parental involvement can be a risk factor for internalizing problem behavior, but can also function as a protective factor when levels of internalizing problems are low.

While most research has focused on the relation from the parent to the child, in this thesis analyses were also conducted to investigate child effects on parenting. Lower levels of internalizing problem behavior and higher levels of externalizing problem behavior significantly predicted an increase in parental involvement. A moderator effect showed that highly involved parents diminish their levels of involvement in response to externalizing behavior of the adolescent, whereas externalizing problem behavior elicits increased involvement attempts from parents who are low on levels of involvement. In conclusion, problem behavior of the adolescent interacts with parenting and can either increase or diminish the parenting behavior, depending on previous levels of problem behavior.

Because involvement was found to be the only dimension that showed strong relations with both types of problem behaviors, this dimension was also incorporated in Chapter 4. In this study, the reciprocal relations between parental involvement, on the one hand, and externalizing and internalizing problem behavior, on the other hand, were investigated. Consistencies and inconsistencies between the findings of the two studies will now be discussed.

As in the study reported in Chapter 3, the study in Chapter 4 also showed that high levels of parental involvement are a protective factor for externalizing problem behavior. Further, low levels of internalizing problem behavior predicted an increase in parental involvement over time. Two findings are inconsistent, however. The first inconsistency concerns the effect of externalizing problem behavior on parental involvement. In Chapter 3, externalizing problem behavior predicted levels of parental involvement one year later. In Chapter 4, the effect of externalizing problem behavior on parenting was no longer significant. Two reasons may account for this difference in findings. One of the possible reasons is that in Chapter 4, the reciprocal relations between problem behavior and parenting are examined simultaneously, whereas separate analyses were conducted in Chapter 3, one for parenting effects and one for
child effects. The effect of externalizing problem behavior on parental involvement might have been discounted in favor of other effects in the model, when analyzed simultaneously. In separate analyses, the effects can still reach significance. Another reason might be that only relations between parenting and problem behavior were examined in Chapter 3, whereas the study in Chapter 4 examined both friends' and parenting effects within the same analyses. Other effects within the model might then be more important. Furthermore, because only adolescents who could be paired with a best friend were involved in the analyses in Chapter 4, the sample that was included differed for the two chapters, with fewer subjects included in Chapter 4.

A second inconsistency across the studies concerns the effect of parental involvement on internalizing problem behavior. Parental involvement did not predict levels of internalizing problem behavior one year later in Chapter 3, but the effect of parenting on internalizing problem behavior was significant in Chapter 4. It should be noted, however, that in Chapter 3, although no main effect was found for parental involvement, we did find a significant interaction effect between involvement and internalizing problem behavior. This indicates that parental involvement has an effect on internalizing problem behavior in both chapters. The interpretation of these findings differs, however. In Chapter 4, the negative relation between parental involvement and internalizing problem behavior indicates that lower levels of involvement lead to higher levels of internalizing problems. This interpretation also holds for part of the interaction-effect that was found in Chapter 3: Low levels of parental involvement increase the level of internalizing problem behavior one year later, but this is only true for adolescents with lower levels of problems. For adolescents with high levels of internalizing problem behavior, parental involvement will only lead to more problems a year later. What conclusion can we draw from these findings?

The interaction-effect is interpreted by plotting simple regression lines for high \((M + SD)\) and low \((M - SD)\) levels of variables. This means that the regression lines are based on scores from adolescents who are in the higher and lower regions of problem behavior. The interaction-effect that was found in Chapter 3 indicates that high levels of parental involvement increase the level of internalizing problems for adolescents who score in the high range. In other words, the effect seems to arise for adolescents who approach or are in the clinical range of problem behavior. In other cases, it seems that high levels of parental involvement are a protective factor for the development of internalizing problem behaviors, which is consistent with previous studies (e.g., Laible, Carlo, & Rafaelli, 2000). Understanding of these relations is important for the clinical
practice. Our findings suggest that high levels of parental involvement in clinical subjects might be counterproductive in reducing problem behavior.

In general, not only are adolescents’ previous levels of problem behavior predictive of subsequent levels of problem behavior, parenting behaviors also seem to be a significant determinant of problem behavior one year later. It is found that different parenting dimensions exert unique effects on adolescent problem behavior. Decisional autonomy granting only related to externalizing problem behavior, whereas parental strictness only related to internalizing problem behavior. Parental involvement was associated with both types of problems. Not only do parents have an effect on the behavior of their child, children also have an effect on the behavior of their parents. Furthermore, moderator effects were also found, effecting both subsequent levels of problem behavior and subsequent levels of parenting. When analyzed simultaneously in one model (Chapter 4), reciprocal effects were found between parental involvement and internalizing problem behavior, whereas only a unilateral effect was found between parental involvement and externalizing problem behavior.

Thus far, effects have been discussed of two out of three systems within the ecological model. The third system will be discussed in the following section.

5.3 Friends

The third and final system within the ecological model of Bronfenbrenner (1979, 1986) that is examined in this thesis is that of the friends of the adolescents. One of the most important predictors of adolescent problem behavior is the association with deviant friends (Berndt & Keefe, 1995; Keena et al., 1995; Fergusson & Horwood, 1999). In Chapter 4, best friends’ deviance was assessed by asking friends themselves to report on their own behavior, rather than asking the adolescent to report on their friends’ behavior. Previous research has shown that adolescents tend to inflate the degree of similarity between themselves and their friends (Mounts & Steinberg, 1995). Having friends reporting on their own behavior might lead to more realistic estimations of peer effects.

Reciprocal effects between friends’ deviance and adolescent problem behavior were examined, but only an unilateral effect was found: Problem behavior of the adolescent had an effect on friends’ deviance one year later, but friends’ deviance did not have an effect on problem behavior over time. This pattern of findings suggested the existence of a selection effect, where the adolescents select their friends, a process
that seems initially the most important in creating friendships (Bauman & Ennett, 1996). Considering the fact that early adolescents participated in the study and that, in this period, they move from primary to secondary school where new friendships are emerging and developing, this finding is not unexpected.

In addition to examining best friends’ effects, in Chapter 4 we also examined parenting effects on problem behavior. In this way, the relative effect of parents and friends could be investigated. Studies that made use of adolescent reports of their friends’ behavior, have found higher relative effects of deviant peers on adolescent problem behavior than the relative effects of parenting on problem behavior (e.g., Bauman, Carver, & Gleiter, 2001; Beal, Ausiello, & Perrin, 2001; Deković, Reitz, & Meijer, 2002). The results in Chapter 4 showed that these studies might have overestimated peer effects. When friends own reports were used, parenting and best friends’ effects were comparable.

Stability of friendship relation

High quality friendship relationships are characterized by high levels of prosocial behavior and intimacy, and low levels of conflict and rivalry. High quality of friendship relations is not equal to stability of friendships, but in most cases (though not always), these friendships involve frequently positive interactions and are therefore often very stable over time (Berndt, 1999). In Chapter 4, it is tested whether the reciprocal relations between parenting and best friends’ deviance, on the one hand, and adolescent internalizing and externalizing problem behavior, on the other hand, is different for stable and unstable friends. The stability coefficients in the unstable friends model were much lower than in the stable friends model, which can be explained by the fact that stability is based on different friends at two assessments for adolescents with unstable friends, and on the same friends at both assessments for adolescents with stable friends. More interesting is the finding that the relationship between parenting and externalizing problem behavior was somewhat higher for unstable than for stable friends. It seems that adolescents with unstable friendships are more influenced by their parents than adolescents with stable friendship relations. It might be that these adolescents are less inclined to change their behavior to make the friendship relationship more satisfying (Urberg et al., 2003), and remain influenced to a higher degree by the ones most close to them: their parents.

In this thesis, adolescents were paired with a nominated friend, regardless whether this friendship was reciprocal or not. One might argue that friendship effects may also differ for reciprocal and unilateral friendships, where both friends nominate
each other as best friend (reciprocal), or one adolescent nominates a friend but that friend does not nominate the adolescent (unilateral). A main reason why these types of friendships were not differentiated is that adolescents nominate someone as friend with whom they identify and spend time (Kiesner et al., 2002). These nominated friends are important to them and to their development and therefore will have an effect on the behavior of the adolescents, regardless whether these nominations are reciprocal or not.

5.4 Gender differences

Externalizing problem behavior

During adolescence, externalizing problem behavior is often found to be more prevalent in boys than in girls (e.g., Zahn-Waxler et al., 2000; Moffitt et al., 2001). The findings in Chapter 2, however, showed that boys and girls do not differ in levels of externalizing problem behavior. A first reason might be that many items that are included in the delinquency and aggression scales seem to tap less severe problem behavior. Examples are for instance 'I talk too much', and 'I lie or cheat', items on which girls might also score high or even higher than boys. To check this assumption, t-tests were performed that confirmed this hypothesis: on many items, girls scored equally high or even higher than boys. To check this assumption, t-tests were performed that confirmed this hypothesis: on many items, girls scored equally high or even higher than boys. To check this assumption, t-tests were performed that confirmed this hypothesis: on many items, girls scored equally high or even higher than boys. Many of these items include minor problem behaviors, like 'I am stubborn', 'I talk too much', and 'I shout and scream a lot'. Boys, on the other hand, seem to score higher on more deviant/aggressive items like 'I set things on fire', 'I steal outside of home', and 'I fight a lot'.

A second reason for the equal magnitude of externalizing problem behavior for boys and girls might be the fact that nowadays, girls tend to become increasingly antisocial (Sheldon & Chesney-Lind, 1993). This has also been suggested by Tiet et al. (2001): girls are approaching the antisocial behavior of boys, lessening the sex differences in this type of problem behavior.

A final reason has to do with maturation. Girls mature earlier than boys, which can lead to the experience of higher levels of stress related to the simultaneously occurring changes (e.g., pubertal development, socio-cognitive development) (Leadbeater et al., 1999; Petersen, Sarigiani, & Kennedy, 1991). This might make girls more vulnerable for the development of problem behavior than early boys in this developmental period (Hops, Sherman, & Biglan, 1989; Rutter, 1986). This reason
might also explain the fact that girls showed higher increases in levels of externalizing problem over time than boys.

**Internalizing problem behavior**

Regarding internalizing problem behavior, previous studies have shown that girls are more likely than boys to become anxious and depressed (e.g., Lewinsohn et al., 1993; Zahn-Waxler et al., 2000). The results in Chapter 2 confirmed these findings by showing that girls scored higher on internalizing problem behavior than boys.

Gender differences regarding the higher-order factor structure of problem behavior were examined and it appeared that the structure was not identical across gender for both Time 1 and Time 2. On both measurement waves, the factor loadings regarding the different types of internalizing problem behavior where higher for girls than for boys, which can be explained by the fact that girls showed higher levels of those problems. Also, correlations of the first-order factors with the higher-order factor were higher for girls, which included both internalizing and externalizing problem behavior. This seems to indicate higher comorbidity rates for girls than for boys. A review of Loeber and Keenan (1994) also showed higher comorbidity rates between different types of problem behaviors for girls than for boys and explained these findings with the gender paradox, that is, the gender with the lower prevalence of a disorder is at higher risk of poor outcomes (see also Loeber & Stouthamer-Loeber, 1998; Tiet et al., 2001).

Compared to externalizing problem behavior, girls also showed more increases in levels of internalizing problem behavior over time than boys. Again, a reason might be the earlier maturation of girls as compared to boys, which can lead to the experience of higher levels of stress related to the simultaneously occurring changes (e.g., pubertal development, socio-cognitive development) (Leadbeater et al., 1999; Petersen, Sarigiani, & Kennedy, 1991), which might make girls more vulnerable for the development of problem behavior (Hops, Sherman, & Biglan, 1989; Rutter, 1986). This also might explain the finding that parental involvement has a stronger effect on internalizing problem behavior of boys than of girls. Girls' problem behaviors seem to be more influenced by their pubertal and socio-cognitive development (Ge et al., 1994). Because boys' pubertal development starts at a later age than girls', they might still be more influenced by their parents and less by other developmental difficulties.

In general, boys and girls are encouraged to conform to traditional masculine and feminine roles (gender intensification hypothesis: Hill & Lynch, 1983). Thus, when boys show high levels of internalizing problem behavior (which is not traditionally masculine), parents might react stronger to boys' internalizing problems than to girls'
internalizing problems. This is what we found in Chapter 4. The relation between parental involvement and internalizing problem behavior was stronger for boys than for girls.

In conclusion, it has been shown that there are gender differences in the structure and stability of problem behavior and that there are gender differences in the reciprocal effects between parenting and internalizing problem behavior. Several explanations have been given for these findings, which might have enriched the perspectives on the differences between boys and girls.

5.5 Limitations

There are several limitations of the present studies worth mentioning. First of all, all the measures that are included in this thesis are derived from adolescents' self-reports with the exception of the reports about the behavior of the best friends. These are derived from self-reports of the friends themselves. The rationale for using adolescents' reports to measure problem behavior is that many problems that adolescents experience remain unnoticed by their parents or teachers. Findings of Verhulst and Van der Ende (1992) show that adolescents reported more problems about themselves than their parents did about them. Furthermore, Youngstrom, Loeber, & Stouthamer-Loeber (2000) found that male youth reported higher levels of internalizing behavior problems than did teachers or primary caregivers, and more externalizing behavior problems than did teachers. Thus, it seems important that adolescents report on their own functioning.

Self-reports of adolescents are also used to describe the behavior of their parents. Shared method variance than becomes a problem, which refers to the association between two or more constructs that is solely due to the method used. A reason to include these self-reports is that some authors have argued that children's perceptions of their parents' behavior are as important influences on their behavior as are parents' actual behavior (e.g., Bronfenbrenner, 1979). Another reason is that studies have demonstrated that adolescent reports on how they perceive their family behavior are not inherently inferior to more objective measures (Steinberg et al., 1994; Chen et al., 1998). Parents might give more often than adolescents' socially desirable responses about their own behavior and thus may be biased even more. It has been found that parents tend to exaggerate their involvement and participation with their children (Gecas & Schwalbe, 1986), overrate their levels of support and monitoring
(Barnes & Farrell, 1992) and perceive themselves to be very accepting and use firm levels of discipline (Jessop, 1981). Also, parents might not be very perceptive of more subtle aspects within their behavior, for example withdrawal of parental affection (Maccoby & Martin, 1983). In conclusion, adolescent reports on how they perceive their parents thus seem to be superior to more objective measures.

A second limitation considers the attrition group. In general, there were more boys than girls in every attrition group across studies. They consistently scored higher on delinquent behavior and they scored more negatively on parenting dimensions. This means that the most seriously troubled youth are underrepresented in the studies, which might have influenced the results (e.g., weaker associations due to less variance). Attrition of problematic youth has also been a problem in other studies: dropouts scored higher on externalizing and internalizing problem behavior (Aseltine, 1995) and lower on nurturant and involved parenting (Scaramella et al., 2002). There are only a few studies that have retained most of their subjects in their longitudinal study (e.g., Loeber et al., 1998).

A final limitation in all three studies concerns the sample. This sample is quite homogenous, consisting of mostly Dutch adolescents. The results can therefore not be generalized to other ethnic groups. Replication of the findings is needed in more ethnically diverse samples.

5.6 Recommendations for future research

Although Chapter 2, 3, and 4 are aimed to examine distinct research questions, and focus on diverse systems within the ecological model (adolescent, family, and friends), one of the findings that seems to be consistent across the three studies is that problem behavior is stable over time. Correlations coefficients range from 0.31 to 0.64 across all chapters, demonstrating moderate to high (relative) stability of problem behavior during early adolescence. Early adolescence is an important risk period for the development of more severe internalizing and externalizing problem behavior, because of the multiple and simultaneously occurring changes (pubertal development, school transition, socio-cognitive development). The prognosis of the development of problem behavior seems to be even worse later in adolescence. Research on the age-crime curve state that there is a peak of problem behavior at mid-adolescence, with a steady decline from mid-adolescence until young adulthood (Moffitt, 1993; Loeber et al., 1998). The findings of the present thesis suggest that the starting point of the
curve is already established during early adolescence. More longitudinal research is needed to establish whether the age-crime curve also exist in a normal population of Dutch adolescents, and whether this curve holds for different types of problem behavior.

Regarding friends, our focus has been on one best friend of the adolescent. Other authors, however, have argued that adolescents often have a few best friends and when only one of those friends is assessed, this will lead to a distorted view of friends’ influence (e.g., Berndt, 1999). This friendship group or clique might have more influence on adolescent problem behavior, than one friend alone. Future research should address this question.

Besides the number of friends, friends’ influence might also be different across contexts. For instance, having delinquent friends outside the school might be a higher risk factor for problem behavior, than having delinquent friends in the school. Different friendship contexts are found to play unique roles in adolescent adjustment (Kiesner, 2003). In this thesis, only friends within the same school are paired. It is interesting to find out whether friends’ influence differs across contexts.

The studies within this thesis have extended existing research in many ways. First of all, evidence for a higher-order structure is sparse in the literature. Most studies examine a first-order factor structure, neglecting the investigation of a possible higher-order factor. Findings in Chapter 2 suggest that it is worth investigating.

Secondly, it is well established that parents influence their children. Although many theories recognize the interactional nature of the parent-child relationship, few researchers have actually tested the interaction between parenting dimensions and adolescent problem behavior. Furthermore, child effects on parenting are also not often examined, though it seems logical that children also influence the behavior of the parents. Results from Chapters 3 and 4 indicate that these moderator effects and child effects do exist and can be found. These effects can offer a more comprehensive representation of the reciprocal relationship between the parent and the child. Also, inclusion of multiple parenting dimensions can give a more complete picture of parenting effects on adolescent adjustment.

Finally, use is made of friends’ self-reports about their own behaviors, instead of asking the adolescent to report on their friends’ behaviors. Because these latter reports are often biased (adolescents tend to inflate the degree of similarity between themselves and their friends) a more realistic estimate can be made of friends’ effects when self-reports of friends are used in the analyses.
In sum, the prospective longitudinal study that is conducted in this thesis shows several strengths that are worthwhile to incorporate in future research. In addition, more measurement waves, different types of samples, and multiple sources of data are needed to disentangle the processes that are involved in the problem behavior of adolescents.