Parenting intervention and the caregiving environment. Cumulative risk and process evaluation

Stolk, M.N.

Chapter 5

Discussion and conclusion

In this thesis, the role of the caregiving context in the development and prevention of externalizing problems in young children was investigated. There is convincing evidence that the development of externalizing problems in young children is dependent of the caregiving environment. Various theoretical models, such as Bronfenbrenner's (1979) ecological model, Sameroff's (1995) transactional model, and Belsky's model of the determinants of parenting (Belsky, 1984), pointed at the large number of elements in this environment that directly or indirectly shape both child development and parenting. At an early age, parental or family characteristics play an important role in child development. These characteristics, like marital discord, daily hassles, maternal educational level, maternal psychopathology, physical health problems, and lack of social support, are potential risk factors for child development when they increase the likelihood of negative developmental outcomes. In addition, not the type of risk factor but the co-occurrence of risks has been found to be related to child development. Finally, family context characteristics may also affect intervention effectiveness.

Within the context of the SCRIPT study, three central questions were addressed in this thesis. First, the association between accumulated family risk factors and child externalizing problems was investigated, using questionnaire data from the screening phase. Next, the effectiveness of the intervention program in enhancing positive parenting and decreasing child externalizing problems was related to the presence of cumulative family risk. This was investigated in a group of first-time mothers (primiparas), and compared to mothers with more than one child (multiparas). Finally, aspects of the implementation of the intervention were investigated in relation to parental change after the intervention. In this chapter we summarize and integrate the results of the previous chapters. Limitations of the studies are addressed and recommendations for future research are made.

Cumulative family risk in early childhood

The cumulative risk hypothesis, which suggests that it is not the type but number of risk factors that is relevant for child development, was tested in a sample of preschool children with externalizing problems. A large sample of 1-, 2-, and 3-year old children was followed over a period of two years. Parents reported on family risk factors. The hypothesis was confirmed: as the number of risk increased, the percentage of children with high levels of externalizing problems increased. Whereas cumulative risk in cross-sectional analyses predicted externalizing problems as strongly as single risk factors, in longitudinal analyses cumulative risk was the best predictor. These findings were similar to those reported in other studies on cumulative risk (e.g., Atzaba-Poria, Pike, & Deater-Deckard, 2004), although most of these studies investigated cumulative risk in middle childhood or adolescence (e.g., Deater-Deckard, Dodge, Bates, & Petit, 1998). Our study showed that also at an early age, contextual family risk matters, especially when different risk factors co-occur. In addition, the cumulative risk hypothesis was tested in the context of a parenting intervention. Cumulative risk was however not associated with changes in child or parent behaviors as a result of participation in the

VIPP-SD program. A previous study (Van Zeijl et al., 2006b) showed that marital discord and daily hassles were positively associated with intervention outcomes. In addition, as we reported in Chapter 3, satisfaction with social support was also associated with intervention outcomes. Still, the cumulative risk factor, including these and other risks, was not associated with improvements in parenting or child behavior.

These results are difficult to compare to the few existing studies that did find an effect of cumulative risk on intervention outcomes, because of wide variations in the type of samples and study designs. For instance, Nair, Schuler, Black, Kettinger, and Harrington (2003) investigated cumulative risk in a sample of substance abusing women and their children. Liaw and Brooks-Gunn (1994) worked with a sample with low-birth weight children in poor and non-poor families. Several non-intervention studies involved different types of samples as well. Atzaba-Poira and colleagues (2004) used a sample of Indian and English 7- to 9-year-old children, whereas in a study of Sameroff and colleagues (Sameroff, Seifer, Baldwin, & Baldwin, 1993), only mothers with mental illness were selected. Overall, these samples were more high-risk than the sample used in our study. Further, except for the studies of Liaw and Brooks-Gunn (1994) and Nair et al. (2003), none of these studies measured risk in early childhood (i.e. under the age of four). In addition, the type of intervention differs. The intervention in Nair's study (Nair et al., 2003) used weekly home visits during the first 6 months, biweekly from 6 to 24 months. The intervention aimed at child development and a stimulating play environment. The control group received brief monthly tracking visits. The 3-year intervention program of Brooks-Gunn and colleagues (Berlin, Brooks-Gunn, McCarton, & McCormick, 1998; Liaw & Brooks-Gunn, 1994) included home visits, parent-group meetings and child daycare, aimed at solving childrearing problems and play activities. It may be difficult to compare these intensive intervention programs and their contents to our short VIPP intervention program aimed at changing parental sensitivity and discipline. Nevertheless, our results are similar to Nair et al.'s (2003) findings: cumulative risk did not affect intervention effectiveness.

When predicting externalizing problems based on maternal reports, not the type of risk, but the number of risks appeared to matter most in our study. When we predicted change in externalizing behaviors and parenting after intervention, single risk factors made a difference, whereas the cumulative risk variable did not. One of the reasons for these diverging results may be that the first was based on maternal reports only, which may have led to stronger associations between context variables and child externalizing problems due to informant bias. The results concerning the intervention were based on observations of parenting and maternal reports of child behaviors. Outcome measures in our study also differ from outcome measures used in other studies. Whereas our study used observations of parenting behavior, other studies focused mostly on child behaviors or questionnaire measures of parenting (e.g., Nair et al., 2003). Differences in measurement also complicate comparisons between studies on cumulative risk. Another explanation for these results concerns the nature of the dependent variables. In the first set of analyses, we predicted the presence of child externalizing problems

at two time points, and in the second set we predicted change in parenting and child behaviors after an intervention program, i.e., we predicted the impact of contextual variables on the intervention process. Thus, the existence of problem behavior is best predicted by the number of risk factors, whereas only specific risk factors, in particular marital discord and daily hassles, positively influenced the intervention process and its outcomes.

This difference in results may also be due to the nature of the risk factors investigated in our study, both as single factors and as part of a cumulative factor. These factors were maternal educational level, maternal psychopathology, physical health problems, marital discord, daily hassles, and social support. Considering these risk variables, we may speculate that marital discord and daily hassles are most proximally related to the realities of daily parenting practices, especially when trying to change these practices. If the relationship between the parents is characterized by frequent arguments about the children and a lack of mutual support regarding parenting practices, mothers may be more open to support from the intervener and more motivated to make changes. Mothers reporting low marital discord may have been less inclined to form an alliance with the intervener because they may have felt that they could handle things with their partners. Similarly, mothers who were satisfied with the social support they received may also have been less inclined to invest in the relationship with the intervener, because they may have felt that they could get enough support elsewhere. For mothers who were dissatisfied with support, the supportive contact with the intervener may have increased their motivation to learn new practices. In addition, mothers who would normally have been capable of showing positive parenting may have failed to do so prior to the intervention due to daily hassles such as financial problems and problems at work. It is possible that mothers whose parenting practices were particularly influenced by daily hassles before the intervention only had to be reminded of positive strategies and encouraged to use them. For mothers reporting low daily hassles there may have been more deep-rooted reasons for their lack of positive parenting, which may therefore have been harder to change. Although the positive intervention effects in the case of marital discord, dissatisfaction with social support, and daily hassles were limited to changes in child behaviors, we assume that these changes were fostered by changes in parenting behaviors that were not captured by our observation measures.

Methodological issues

When the construct of cumulative risk is investigated, several methodological issues have to be considered. First, the effects of cumulative risk are likely to depend largely on the selection of risk factors. Risk factors may be selected from only one or from several levels of the caregiving environment. In our study, we included only maternal characteristics, based on the assumption that in the first four years of life child development is mostly dependent on family factors within the immediate caregiving context (Aguilar, Sroufe, Egeland, & Carlson, 2000; Maccoby, 2000; Rothbaum & Weisz, 1994). In other studies, child characteristics and sociocultural context variables

were also included in cumulative risk variables (e.g., Atzaba-Poria et al., 2004; Berlin et al., 1998). Interestingly, both the narrowly and broadly defined cumulative risk variables have shown to be predictive of child problem behaviors. Deater-Deckard et al. (1998) even showed that cumulative risk within each of the four ecological levels (child characteristics, sociocultural, parenting, and peer experiences) uniquely contributed to the prediction of middle childhood externalizing problems. Family context factors were most predictive of this type of problem behavior. These factors included parental style, parent-child relationship, and parental use of discipline. However, these studies were all conducted in middle childhood or adolescence, when more social influences affect child development.

After having decided on a narrow or broad definition of risk, the specific risk factors relevant to the chosen context level(s) have to be selected. Although most studies that focus on the same level of context include roughly similar selections of specific risk factors, the precise measurement and combination of these factors is never the same. For example, risk factors used in the study by Deater-Deckard and colleagues (1998) were derived from a large open ended interview. Lack of social support was coded on a 5-point rating scale, based on several questions in the interview, as was parental conflict. In contrast, other studies like our own have used questionnaires (e.g., Liaw & Brooks-Gunn, 1994; Sameroff et al., 1993), and these were mostly not the same ones across different studies. Further, our study included *general* daily hassles, which was not included in any of the other studies on cumulative risk, except for the study of Crnic, Gaze, and Hoffman (2005) who measured *parenting* daily hassles. Similarly, several studies included variables such as child temperament (e.g., Atzaba-Poria et al., 2004; Deater-Deckard et al., 1998), which was not assessed in the study of Liaw and Brooks-Gunn (1994), and Berlin and colleagues (1998). This hampers the interpretation of diverging findings in different studies, because it is unclear whether they reflect true differences or differences in risk factor selection. Because of the potential of cumulative risk as a powerful screening tool in health care services, it is important that these components are more precisely defined in the future. Just as the Child Behavior Checklist (Achenbach & Rescorla, 2000) has become a standard tool for assessing child problem behaviors, it would be very helpful to research and practice if a standard tool for assessing cumulative risk would be designed.

A second important methodological issue in the study of cumulative risk is the calculation of a cumulative risk factor or index. The most common approach is categorical, namely identifying the presence or absence of risks by means of applying cutoff scores to specific risk factors and summing these dichotomized risk factors to form a cumulative risk variable. Such an index has the disadvantages of reduced variance, and often arbitrary cutoffs are used to dichotomize the risk factors. The most widely used cutoff is the 75th percentile (e.g., Sameroff et al., 1993), but it is by no means certain that this is conceptually the best cutoff point to separate risk from non-risk groups. The advantage of the categorical approach is that the resulting cumulative variable is very attractive in terms of screening purposes. This variable reflects the number of risk factors that

apply to a family, and has led to speculations about how many risk factors represent the starting point from which families can be considered at risk (Greenberg, Speltz, DeKlyen & Jones, 2001; Rutter, 1979). However, the results of these endeavours are highly dependent on the content, the identification, and the number of specific risk factors included.

Another approach to calculate a cumulative risk index was used by Atzaba-Poria and colleagues (2004) and by Gerard and Buehler (1999). They centered each dimensional variable before summing them to form a cumulative risk index. This approach has the advantage of avoiding both arbitrary cutoffs and reduced variance. The disadvantage is that the cumulative variable is more difficult to interpret on its own, because it does not reflect an actual number of risk factors but an abstract score. In our study predicting externalizing problems from maternal support we tested both approaches. The continuous and categorical approach yielded similar results. In the study investigating intervention effectiveness, risks were standardized before summing them into a cumulative risk index. For the analyses a median split was used to distinguish high cumulative risk from low cumulative risk. When compared to the categorical approach, based on cutoffs at the 75th percentile, a high correlation between these approaches was found. If more studies were to directly compare these two approaches in terms of their specific merits and drawbacks, researchers would be able to make a more informed choice for one or the other, and the interpretation of results would be facilitated.

Primiparas versus multiparas

We investigated parity as a moderator of intervention effectiveness. Our interest was in investigating whether first-time mothers (primiparas) and mothers with more children (multiparas) responded differently to the intervention. We expected that the intervention would be more beneficial to primiparas, because they might be more open to the intervention than multiparas, but this was only partly confirmed. For multiparous mothers we found an 'iatrogenic' effect (Meisels, 1992), with multiparas in the control group improving in sensitivity, whereas the multiparous intervention group remained stable in their use of positive parenting. It remains unclear what exactly triggered the increase in sensitivity in the multiparous control group.

In addition, for primiparas the intervention appeared especially effective in decreasing child externalizing behaviors with families experiencing dissatisfaction with social support, a result not found for multiparas. Because primiparas deal with parenting for the first time, the contact with the intervener may have increased their sense of support. This may have encouraged them to change certain parenting behaviors. Conversely, for multiparas the support offered by the intervener may not have been enough to yield positive results. Their ideas about parenting may be more difficult to change. However, in multiparas experiencing high levels of daily hassles the intervention was effective, in particular in decreasing overactive child behaviors, an effect not found for primiparous mothers. A possible explanation may be in mothers' ideas and attitudes

about parenting. When good ideas about parenting practices were already present, but the experience of daily hassles impeded their daily practices, these mothers only had to be reminded of their positive parenting competence. In primiparas experiencing high levels of daily hassles, the limited number of intervention sessions may not have been enough to enhance positive parenting. Thus, when the experience of stress restrained mothers from practicing adequate parenting ideas, then helping them activate these ideas may have been enough to positively affect parenting. But when these mothers did not experience stress and showed negative parenting practices, their ideas (and practices) may have been more difficult to change.

The intervention resulted in different responses by primiparas and multiparas. Although not in all respects, primiparas seem to have gained most from our intervention program. The differential effectiveness of the intervention in these two groups indicates that parity may be a moderator of intervention response. When investigating differences between primiparous and multiparous mothers, knowledge about the characteristics of the other child or children of the multiparous mothers may be crucial to a full understanding of results. Children within a family are different and the specific characteristics of the preceding children are likely to affect maternal parenting attitudes. For instance, when the first child does not show any problem behaviors, mothers may be less inclined to take advice from an intervener, because things worked out fine for the first child (Scott & Hill, 2002). Further, the gender of the preceding children may be of importance to a mother's openness to intervention. In addition, the perception of problem behaviors of a girl may very well be influenced by a standard set by a first child who is a boy, and the other way around. Future research should include multiparas' experiences with raising their first child, as well as the behavioral characteristics and gender of the children preceding the target child. This may provide more insight into the differential effects of intervention programs (e.g., Seitz & Apfel, 1994). In sum, much more can be learned from differences in the effectiveness of interventions in primiparas versus multiparas, which may facilitate screening and intervention processes.

Monitoring the process of an intervention

The third focus of this thesis was a process evaluation of the VIPP-SD. We focused on mother-intervener alliance, active implementation of learned skills by the mother, father involvement, and program fidelity. Because all participating families received six home visits, the use of standardized manuals, and supervision by experienced interveners was provided, program fidelity was high and was therefore not used in the investiation. The alliance between mother and intervener predicted change in positive parenting (i.e., sensitivity). A more positive relationship with the mothers facilitated their receptiveness. How the intervener interacts with the mother, may serve as a model for the mother of how to interact with her child; an intervener who is pleasant to work with may also achieve more improvements in the mother's behavior. It is interesting to note that although in parenting interventions parents and interveners often have intensive contacts, research on this relationship is scarce. Whereas in therapy research

alliance is a central feature in testing therapeutic effectiveness (e.g., Hoagwood, 2005), in parenting intervention research few studies investigated the influence of alliance on intervention response (see Klein Velderman, Juffer, Bakermans-Kranenburg, & Van IJzendoorn, in press). In addition, research not always illuminates the nature of the alliance. In other words, why do interveners or mothers perceive their relationship as either positive or negative?

Maternal active implementation of skills taught by the intervener was not associated with changes in parenting after participation in the intervention. The use of a questionnaire to measure active implementation may have elicited socially desirable answers and may explain this finding. Also, it remains unclear how motivated the mothers were to adjust their parenting behaviors towards their children. Future research may monitor parenting in order to analyze when and how often parents apply the tips and skills taught by the intervener, to better understand the active involvement of the mothers (c.f., Korfmacher, Kitzman, & Olds, 1998). Finally, father involvement showed no association to changes in parenting. This may be not surprising, because fathers were only invited to participate in part of the intervention. When they would have been involved during the whole process, the results might have differed, either positively or negatively (Bakermans-Kranenburg, Van IJzendoorn, & Juffer, 2003). Future research may explicitly involve fathers to participate in the (entire) intervention.

The measurement of intervention process variables such as alliance and involvement or implementation of skills is particularly challenging. In our study, we used maternal reports for the assessment of active skills implementation, because these activities in daily life could not be readily observed by the interveners. For mother-intervener alliance we used intervener reports, because mother reports on alliance showed too little variation (almost all mothers were satisfied with the contact with the intervener). The use of parent reports may be problematic because of the risk of eliciting socially desirable answers. In essence, parents are asked to evaluate their relationship with the intervener and to reveal whether they have actually implemented any of the skills they were taught, knowing that their answers will be seen by the intervener's supervisor or even the intervener herself.

However, the use of intervener reports instead of parent reports has its own disadvantage, because these reports may be more easily confounded with intervention outcome variables. When rated by the intervener, there is always the risk that their perception of involvement and alliance is based at least partly on their observations of the progress that mother is making. It is likely that a mother who shows signs of improvement is also more likely to be seen as more involved. Indeed, these two constructs are very difficult to distinguish for somebody who is an intrinsic part of the process itself. Heinicke and colleagues (2000) used intervener ratings of mothers' involvement of the intervention (rated after each home visit). Involvement was found to be related to an increase in sensitive responsiveness. The reliability of this measure was tested by an independent rater based on an extensive narrative of that home visit. This is

however not an independent measure, because the intervener herself was the narrator, and the problems of separating involvement from progress still apply. A more objective rating of alliance or involvement, for instance rated by an independent observer, would potentially yield more valid data. This would require the application of systematic observation instruments to videotaped interchanges between interveners and parents.

Study limitations and implications for future research

The study has some limitations that have to be taken into account when interpreting the results reported in this thesis. First, the main limitation concerns the moderate response rates in the screening and intervention, and the accompanying overrepresentation of families with high educational levels in these samples. Families with lower educational levels often experience more risks (Berlin et al., 1998). The low response rates in the screening sample may have resulted from the time-consuming questionnaires, including many questions on different topics. Because non-response data were lacking we were unable to uncover differences between the response and non-response group in the screening sample that could have explained the moderate response rates. It is possible that the non-response group included families that could have benefited more from the intervention than some of the participating families. Further, for the intervention sample, the perspective of a full year of participation in a research project may have discouraged families from participating.

Another limitation concerning the sample is that the selection was based on families with both mothers and fathers living in the same household. Although some families broke up during participation in the study, single parenthood was an exclusion criterion at the time of the initial sample selection. This selection criterion was chosen because we were interested in the perspective of the fathers as well. Even though we found effects of cumulative risk on child externalizing problems, the low participation rates, high parental educational levels, and the inclusion of only two-parent families may have resulted in an underestimation of the occurrence of both externalizing problems and cumulative risk. In addition, the fact that we found few intervention effects might be due to the relatively homogenous sample, making it difficult to detect interaction effects or main effects, because there is less variation in risk, process, and outcome variables. Therefore, it is unclear to what extent our results may be generalized to other populations. Future research is needed to reach parts of the population that may be more in need of intervention efforts and may therefore stand to benefit more (e.g., families with low educational levels).

A next limitation concerns our measurements. Because of the often time-consuming measurements for parents and children, not all constructs could be measured at all times. For instance, the family context measures were only assessed during the screening phase. In addition, we were unable to capture the changes in parenting that elicited the decrease in externalizing child behaviors, and in particular overactive behaviors (c.f., Klein Velderman et al., in press-a). In a future study home observations of parenting

and child behaviors and multi-method measurements might uncover on this issue.

Finally, although father reports were included, these data were limited. We were unable to include fathers to the same extent as mothers, mainly because our focus has been on the caregivers spending the most time with the child, in our sample the mothers. To fully understand the caregiving context, observations of father-child interactions and an investigation of paternal characteristics would be a much-needed addition to parenting intervention research. Future research should extend our findings using repeated, multi-method, and multi-informant measurements to uncover how family characteristics affect child and parent behaviors as well as intervention effectiveness.

Conclusion

The current thesis revealed that even at an early age, family contextual risk predicts child externalizing problems, especially when these risk factors co-occur. Cumulative risk was not associated to intervention effectiveness. Parity did affect intervention outcomes, but the results were equivocal. Further, a positive alliance between mothers and interveners predicted change in positive parenting. Our results emphasize the importance of parenting and family contextual risk in the development of externalizing problems in early childhood, and provide suggestions for the future study of contextual moderators of intervention effectiveness.