Parenting and child psychosocial problems
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CHAPTER 7
General discussion
GENERAL DISCUSSION

This thesis aimed to contribute to the body of knowledge regarding the relationship between parenting and child behaviour. Moreover, we investigated the effectiveness of Primary Care Triple P (PCTP), level 3 of the Positive Parenting Program, in Preventive Child Healthcare (PCH). We conducted this research among parents of children aged 9-11 years after an initial screening for psychosocial problems. This chapter presents a summary of our findings, followed by a discussion of these findings and the methodological considerations. Finally, we propose implications for practice and suggestions for future research.

Main study findings

Research question 1: To what extent does area deprivation affect parenting stress, and are parents from deprived areas more likely to report parenting stress?

In this study, we showed that individual and environmental level factors were related to parenting stress as measured by the Parenting Stress Index (PSI). Parents living in deprived areas more frequently reported parenting stress than did parents in more favourable areas. Concerns about child behavioural and emotional problems demonstrated the strongest association with parenting stress. Urbanization did not play a significant role in this relationship. Furthermore, parenting stress was also associated with individual level variables such as child psychosocial problems.

Research question 2: Are parental internalizing problems associated with child psychosocial problems in a community sample?

We used a community sample to assess the association between parental internalizing problems and child psychosocial problems. Previous studies were restricted mainly to clinical samples. In our community sample, parental internalizing problems were found to be associated with child psychosocial problems. After adjustment for parental concerns, the initial correlation between parental depression and parental anxiety about child psychosocial problems disappeared, whereas the significant association of parenting stress with child psychosocial problems remained.

Research question 3: What are the psychometric properties of the Depression, Anxiety and Stress Scale (DASS-21) in a large non-clinical sample?

We assessed the scale structure of the DASS by using factor analyses and calculating the internal consistency of its scales and subscales. All items loaded on their corresponding factors and the three factors – depression, anxiety and stress – accounted for 48.8% of the variance. Confirmatory factor analysis also supported the three-factor structure of the DASS-21. Cronbach’s alphas for the depression, anxiety and stress subscales and the full scale were all higher than .76. We conclude that the psychometric properties of the short version of the Depression, Anxiety and Stress Scale in this population were satisfactory.

Research question 4: What is the effectiveness of Primary Care Triple P compared with that of usual care for child psychosocial problems in preventive child healthcare (PCH)?

We first explained the design of our study, as it was one of the first to examine the effectiveness of treatment after early detection in preventive child healthcare. We discussed several important
issues related to our randomized controlled trial, including: recruitment of the study population, inclusion and exclusion criteria, randomisation procedure, sample size, primary and secondary outcome measures, and the data collection procedure. Adequate reporting of randomized, controlled trials (RCTs) is essential for accurate evaluation of the validity and applicability of the results.³

Next, we conducted a multicenter RCT on the effectiveness of primary care Triple P (PCTP) for psychosocial problems of children in Dutch preventive child healthcare. For this study, we enrolled parents with children with an elevated score on the Strengths and Difficulties Questionnaire (SDQ). In four Dutch provinces participants were recruited from a normal-risk population of primary school children aged 9 to 11 years and their parents. Parents were assigned at random to the experimental group (PCTP) or to the usual care (UC) group. We found no significant difference between PCTP and UC on the primary outcome measure of child psychosocial problems. We also found no effects on the secondary outcome measures, parenting behaviour and parenting stress.

Discussion of the main findings

Parental internalizing problems and child psychosocial problems

In a community sample we found an association between parental internalizing problems (i.e. depression, anxiety, and stress) and child psychosocial problems. Although this association was already generally known from many clinical studies³⁴ our research using a community sample added further insight on this relationship. In the community sample parental internalizing problems and child psychosocial problems were found to be connected in such a way that intensification of one of these two types of problems corresponds with intensification of the other. It could be that parental internalizing problems cause child psychosocial problems and that child psychosocial problems in turn cause parental internalizing problems. For Preventive Child Healthcare (PCH) it is therefore important to pay heed to the psychosocial functioning of the child when a parent reports internalizing problems, and vice versa.

We found several factors to be associated with child psychosocial problems and parental internalizing problems. These factors were area deprivation, problem behaviour, and parental concerns. More specifically, we found that the occurrence of child psychosocial problems seems to be related to parental stress and area deprivation, while parental internalizing problems seem to be related to area deprivation, parental concerns, and child problem behaviour. Parental internalising problems mainly concerned symptoms of stress. Possibly these symptoms of stress reflect parental concerns about the child’s behavioural and emotional problem. For PCH, it could be useful to consider these factors during the well-child visits conducted by CHPs in Family Care Centers (FCCs); this would improve the detection of problems of both children and parents.

Regarding parental internalizing problems, we found that parental stress occurs more often particularly in very deprived areas, though prevalence rates in our community-based sample were rather low. The relationship between area deprivation and several aspects of both physical and psychosocial health has been demonstrated before.⁷⁸ Our research showed that although
variation in the occurrence of parental internalizing problems could be explained by individual and family characteristics (single-parent families, lower educated parents, non-Dutch parents, parental concerns about the child, specifically in deprived areas), the direct relation between just area deprivation and parental internalizing problems was not very strong. Individual and family characteristics seem to have a greater influence on parenting stress than the area in which people are living. Moreover, the direct relation between area deprivation and parental internalizing problems was mediated by child problem behaviour. Reversely, higher rates of emotional problems among parents living in these areas may also add to psychosocial problems of the child. Based on our cross-sectional design, we cannot discriminate between these two explanations. This implies that deprived areas are a good place to find parental internalizing problems as well as child problem behaviour that is related to parental internalizing problems.

For our research we used the Depression, Anxiety and Stress Scale (DASS) to measure parental internalizing problems. Our study showed the psychometric properties of the DASS in a normal population to be very satisfying, confirming previous findings in clinical samples and in community samples from other countries. Another study using a different valid measure of internalizing problems (i.e. the General Health Questionnaire) in relation to area deprivation yielded results similar to those of our study. This fact confirms the quality of our assessment of parental internalizing problems using the DASS, thereby corroborating the validity of our findings. Moreover, the DASS could be a valuable instrument to implement preventive healthcare.

A further important finding was that parental concerns about the child substantially mediated the relationship between parental internalizing problems and child psychosocial problems. Parental concerns are associated both with parenting stress and child psychosocial problems, and it is likely that both parental internalizing problems and child psychosocial problems contributed to the reporting of concerns by parents. Therefore, these parental concerns may be valuable indicators to help child healthcare professionals (CHPs) to detect both parental internalizing problems and child psychosocial problems, as has also been suggested in earlier research.

Nowadays, both child psychosocial problems and parental internalizing problems, combined with problems in effective parenting, are considered to be major public health issues. Gradually they have become a focal point of public health workers and policy makers, contributing to the development of a series of parenting support programs. Examples of such programs are Triple P, SOVA, and Stay cool kids. These parenting support programs in turn draw the attention of researchers interested in their effectiveness.

Effectiveness of Primary Care Triple P compared to the usual care in PCH
Primary Care Triple P (PCTP) is an intervention aimed at improving the effectiveness of parenting, including supporting parents in managing child problem behaviour (e.g. tantrums, disobedience). To provide optimal parenting support, it is important that the intervention corresponds with the problems that parents experience. Moreover, it is vital to identify which parents need support; our research shows that the presence of parenting stress, increased levels
of child psychosocial problems and parental concerns about child psychosocial problems are clear indicators of this need.

To detect child psychosocial problems, PCH uses the Strengths and Difficulties Questionnaire (SDQ), currently the best available instrument.\textsuperscript{22-24} Parents of children with mild psychosocial problems who recognized these problems participated in a randomized controlled trial to compare the effectiveness of PCTP with that of the usual care provided by PCH. This procedure aligns with routine PCH practice, which makes a general application of our findings to routine PCH more likely. It is also likely to reveal the lack of advantages of Triple P compared to CAU.

Although our study showed positive effects of Primary Care Triple P (PTCP), the intervention did not outperform the control condition; both treatment groups showed improvements. Earlier findings suggested that PTCP would be more effective. There are several possible explanations for this discrepancy. First, we compared the intervention with another treatment, i.e. CAU provided by CHPs, whereas most previous studies compared with a waiting list, i.e. with doing nothing.\textsuperscript{25,26} The improvements in both treatment groups in our study somewhat support this explanation: both treatments are linked with some improvement, but they do not outperform each other. The limited added value compared to CAU also holds for other Dutch interventions such as PMTO and MST.\textsuperscript{27} This may be due to the relatively good general quality of the Dutch care for children and parents.

Second, parents were included after an initial population-based screening on psychosocial problems of their child, whereas previous studies included only parents who explicitly requested advice about child behavioural problems or parenting issues. This might have resulted in a different study population in terms of the characteristics of the participating parents and the nature of the detected problems. However, this implies that Primary Care Triple P has no added value in indicated prevention of child psychosocial problems.\textsuperscript{18,28}

Third, we assessed our study outcomes using instruments independent of those used to monitor progression in parenting and child behaviour as part of the intervention. In previous studies, the same instruments were used both to measure treatment outcomes of both conditions and to monitor treatment progress in the PCTP condition. This may have too favourably biased the measurement of the effects of the Triple P condition.

Fourth, we obtained fewer participants than needed according to our power analysis. This smaller number of participants will have decreased the likelihood of finding a significant clinical effect of PCTP, if any. However, even if we had reached the intended sample size, it would be unlikely that we would have found the difference that we were aiming at. Therefore, the advantage of PCTP as compared with CAU seems to be limited.

A fifth explanation could be that some parents dropped out prematurely, suggesting that for them the intervention may have been less effective. PCTP is an intervention that follows a protocol, and treatment adherence is very important. Deviations in its execution would be likely to diminish its
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effectiveness\(^29\), though in our study we did not differentiate between parents who followed the whole intervention or only a part of it.

The need for parenting support appeared to be low in our community sample; approximately half of the eligible parents of children with psychosocial problems (based on the SDQ) indicated that they did not need such support. This indicates that although the SDQ has proven to be a valid instrument to detect child psychosocial problems, it cannot be translated one-on-one to a need for parenting support. Many parents were able to handle their child despite the psychosocial problems, and declined the offer of care.

Furthermore, a number of the parents dropped out prematurely. This may indicate that parents did not consider the intervention to correspond with the intensity of their child’s problems or with their need for parenting support. This explanation is supported by the fact that even before commencement of the study a substantial number of the non-participating parents of children with mild psychosocial problems found the intervention too comprehensive. Moreover, a four-session intervention aimed at only mild child psychosocial problems may be too intensive; in some cases fewer than four sessions could be sufficient.

Methodological considerations

Samples

The studies described in Chapters 2, 3 and 4 were based on cross-sectional data acquired by use of a questionnaire among 9453 parents prior to a routine health examination of their child. These parents comprised a large community sample with a high response of 65%, reducing the likelihood of selective response. Most background characteristics of the participating parents did not substantially differ from those of the total population. However, immigrant parents and children were somewhat under-represented. The fact that immigrant parents were less able to respond due to, e.g., language problems (the questionnaires were not translated into other languages) may explain this. This leaves a question as to whether our findings would similarly apply to non-Dutch parents.

Moreover, more highly educated parents were slightly over-represented in this sample. Since a higher educational level seems to protect against internalizing problems\(^30\), this could have affected our estimates of prevalence of parental internalizing problems. However, with only slight differences in background between respondents and non-respondents the impact of this bias is also probably small. In general, the representative nature of our community sample means that our findings are reliable and generalizable.

For our randomized controlled trial as described in Chapter 5, we included 92 parents of children with mild psychosocial problems whereas 162 families were needed. Initially we asked 821 respondents to participate in the study. Almost 50% refused and about 40% had to be excluded based on the previously formulated exclusion criteria; this means that only 10% of parents of children with psychosocial problems participated in the intervention study. This might have
resulted in a selective sample of parents willing to work on their parenting competences and the psychosocial problems of their child. However, as this mirrors the daily practice of PCH in the Netherlands it may therefore actually be favourable for the generalizability of the study.

Similar to many other trials, we had to deal with loss to follow-up. This is a problem because it negatively affects the internal validity of a trial. Such bias is especially a concern if there is a difference in loss-to-follow-up between the treatment arms.\textsuperscript{31} In our study, however, these differences were not statistically significant. Furthermore, some participants did not undergo all four PCTP sessions because the parent and the CHP decided to stop prematurely with the intervention. However, findings in analyses of participants who completed at least one or more post-measurements did not differ much from those of the intention-to-treat group. Moreover, repeating analyses after imputation of all missing follow-up measurements led to identical conclusions (see Table in Appendix 1).

Next, parents completed questionnaires to assess child psychosocial problems, parenting competences, and parenting stress. Due to the limited time span of our research we were unable to gather information from other sources such as teachers or health care workers. Practical circumstances made it impossible for us to personally observe parents and children to assess parenting behaviour and child behaviour. Such observation of parents and children in their own environment might have resulted in other, but not necessarily more objective, outcomes. For our research we used a broad array of measures covering many areas of child and parenting behaviour to assess possible intervention effects, and the questionnaires were offered to the parents separately from the treatment.

**Conducting RCTs in PCH: advantages and challenges**

**Advantages**

Conducting research in an everyday practice such as PCH has great advantages for the internal and external validity of the findings. In contrast to experimental research in a laboratory setting, our research is a ‘real life experiment’. Therefore, the results can be translated one by one to everyday practice. Also, because this approach generates practical insights into how the intervention works in practice it thus provides important process information. Another advantage of conducting research in PCH is that professionals (CHPs) can become experienced in performing the intervention preparatory to its implementation. This study showed that it was possible to conduct an RCT in everyday practice, despite a number of challenges. These challenges are described in the next paragraph.

**Challenges in conducting RCTs in PCH practice and lessons learned**

Conducting our RCT in everyday practice involved some challenges. The main ones were:

1. prevention of contamination of the control group;
2. prevention of information bias;
3. recruitment of a sufficient number of participants.
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Ad 1. Prevention of contamination

During this study, the intervention to be evaluated (PCTP) was gradually implemented by local health care organizations in a large part of the research area. As a consequence, the control population could already have been offered the PCTP intervention, implying ‘contamination’.\textsuperscript{32,33} To prevent such contamination, we excluded municipalities that implemented the intervention. Therefore, the occurrence of contamination in our research is very unlikely.

Ad 2. Prevention of information bias.

Another challenge in community-based research such as ours is to obtain valid information on outcomes in relatively uncontrolled settings. In our research, parents of children with mild psychosocial problems completed the questionnaires. Although to assess possible intervention effects we used a broad array of measures covering many areas of child and parenting behaviour, we did not obtain information from other sources such as teachers or health care workers. Our single source of information may have led to some information bias because the parents were aware that they were part of the PCTP group and experienced more intensive treatment. For practical reasons (lack of time and financial resources), we were not able to obtain reports from other informants such as teachers\textsuperscript{34}, or to observe parents and children to assess (changes in) parenting behaviour and child behaviour during and after the intervention. In a study on Stepping Stones Triple P (SSTP) among parents of children with borderline and mild intellectual disability, we found some short-term advantages of SSTP based on teacher-reported SDQs, but not based on parent-reported SDQs.\textsuperscript{34} However, the latter study also involved a more intensive intervention, consisting of ten sessions compared to the four of PCTP. Observation of parents and children in their own environment might have resulted in other outcomes, though an observational study by Schappin et al.\textsuperscript{35} also reported no effects of PCTP in comparison with a control group. In conclusion, although multi-informants may contribute to the reduction of information bias the role of observation is uncertain.

Ad 3. Recruitment of a sufficient number of participants

In any randomized controlled trial, the recruitment of eligible subjects is a challenge.\textsuperscript{36} In the case of our research the supply of eligible parents of children with mild psychosocial problems was lower than we had expected. An explanation could be that parents of children with mild psychosocial problems regard an intervention involving four individual meetings with a CHP as too intensive, in spite of recognizing some problems in their children. Another explanation for low response could have been the fear that participating in a parenting programme could involve stigmatization.

Implications for practice

Our findings provide more insight into the relationship between parenting behaviour and child psychosocial problems in a community sample. Because parenting stress occurs more often in
deprived areas, areas with a lower socio-economic status (SES) can be used as ‘finding places’ for parenting stress as well as for child psychosocial problems; this calls for awareness and sensitivity on the part of CHPs. To identify children with psychosocial problems, as well as related factors, is one of the main tasks of PCH. We anticipate that our study findings may reinforce greater investment in community-based interventions in deprived areas since these areas are important targets in contemporary health policy.

Furthermore, our research showed that parental internalizing problems are associated with child psychosocial problems. Early identification and treatment of parental internalizing problems can contribute to the quality of care offered to young children. Also, as parental concerns were found to affect the relationship between parental internalizing problems and child problem behaviour these concerns, together with child problem behaviour, are possibly among the most influential factors in explaining parental internalizing problems and vice versa. Especially for PCH, this could be an important outcome urging CHPs to verify parental concerns as an element of routine care.

Our research suggested the value of the DASS-21 as an instrument for measuring parental internalizing problems (depression, anxiety, and stress symptoms). The high quality of the psychometric properties in our sample confirms the adequacy of this scale. In preventive healthcare, such assessment of parental internalizing problems can be important because of their association with child psychosocial problems.

Parenting support focusing on the reduction of parenting stress and improvement of parenting skills may be an effective strategy to reduce child psychosocial problems. However, although PCTP was found to lead to a reduction in psychosocial problems in children it has as yet shown no statistically significant advantage over CAU (Care as Usual). In general, in both groups a few outcomes improved, and we found no negative effects of PCTP. Implementation of PCTP may still be justified since it could contribute to a more uniform approach to parents of children with psychosocial problems, leading ultimately to better outcomes of the provided care.

Our findings have several implications for the provision of parenting support for parents of children with mild psychosocial problems. First, the need for such support does not necessarily depend on deviant scores on questionnaires for child psychosocial problems (i.e. the SDQ). Further and better determination of the target population is necessary. Apart from child psychosocial problems, parenting problems need accurate assessment as part of the inclusion procedure for parenting interventions. High quality instruments as well as adequate digital filing are indispensable to enable PCH to assess child psychosocial problems and parenting problems and to identify the target group, the parents needing support. As our study has shown the relevance of verifying parental concerns about behavioural and emotional development of the child using two simple questions (In the past year, did you have concerns about your child’s behavioural or emotional development?), we would advise PCH to adopt these questions and to apply them in well-child clinics.
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Second, PCTP has been shown to be too comprehensive for some parents. This fact suggests the need to adapt the intervention to the level of the child psychosocial problems so that it corresponds better with the parents’ needs. Moreover, since the association between child psychosocial problems and parenting stress is bidirectional, some cases could require an intervention focused more on the child’s problem behaviour than on parenting skills.

To obtain better results when compared to care as usual, behavioural interventions like PCTP need further development and improvement. A possible approach would be first to identify the fundamental units of behavioural influence, the so-called kernels or active core elements of an intervention. Then, these core elements could be added to improve the effectiveness of the programme. It could also help to customize interventions, to provide support that better matches the needs of the parents. In the Netherlands, Family Care Centers (FCCs) offer such an opportunity to detect and treat child psychosocial problems with care suited to the needs of the parents. PCH can contribute to the further development and improvement of standardized interventions such as PCTP, and gain more experience with the intervention, leading in turn to better results. The CHPs participating in this study were, however, quite well trained in PCTP and the input based on their experiences in daily practice was indispensable. Our study showed that although Primary Care Triple P does not outperform the usual care of PCH it does seem to reduce child psychosocial problems, particularly conduct problems, and to have no serious adverse effects.

Implications for research

We found area deprivation to be associated with parenting stress, and parental internalizing problems to be associated with child problem behaviour. However, due to the cross-sectional nature of our data we could not assess whether these associations were causal. In future research, longitudinal data and pathway analyses are needed to verify the causal relationship between these variables. Ideally, the predictors as well as the outcomes should be measured at least at two time-points among the same respondents.

High quality registration of predictors and outcome measures from birth till adolescence of the child can contribute to the body of knowledge regarding child psychosocial problems and parenting stress and how they are mutually related. Moreover, to reduce parenting stress and child psychosocial problems related to area deprivation, one needs accurate mapping and epidemiological knowledge of the characteristics of these areas, along with individual and family characteristics. Additionally, reliable and validated instruments (such as the Strengths and Difficulties Questionnaire) are needed to assess child problem behaviour and parenting stress at established time points.

For our randomised controlled trial it was difficult to recruit the necessary amount of participants, and there was some loss to follow-up, which may to some extent have affected the validity of the study. Therefore, larger, multicentre trials with long-term outcomes and with active comparison groups (usual care and also other parenting programs) are still needed to estimate the value
of PCTP. Future effectiveness studies, particularly RCTs, should focus on prevention of loss to follow-up and improvement of recruitment. To minimize loss to follow-up it is important to make appointments with the respondents (i.e. parents) at home (house/home visits) and complete the questionnaires together with them. Incentives may help to promote participation in research but are usually not sufficient. To improve recruitment, it might be helpful to conduct a pilot study to test recruitment procedures and explore whether the intervention corresponds with the problem or request for support. Furthermore, we only collected data on parent-reported child behaviour and parenting behaviour. Future research could use a multi-informant and -multimethod design by acquiring information from other sources such as teachers or health care professionals and other methods such as observations or qualitative interviews to further reinforce the validity of findings.

A final criterion to decide upon further implementation could be to compare the costs of using PCTP with the costs of other parenting support programmes. More insight into these costs is needed. Furthermore, future research should focus on improving parenting interventions by revealing the active core elements - the so-called kernels - of the intervention. Further development of interventions for child psychosocial problems and parental internalizing problems might contribute to a decrease in the burden of these problems, their negative consequences on social, psychological and physical functioning of both child and parent. A good match between the intervention and the need for parenting support could significantly improve child healthcare.
General discussion

REFERENCES


General discussion


SUMMARY (EN)
SUMMARY

This thesis focuses on the relationship between parenting and child behaviour. Moreover, it investigates the effectiveness of Primary Care Triple P (PCTP), level 3 of the Positive Parenting Programme, in Preventive Child Healthcare (PCH). Our research was conducted among parents of children aged 9-11 years after an initial screening for psychosocial problems prior to and during well-child clinics.

In this thesis, the following research questions have been answered:

1. To what extent does area deprivation affect parenting stress and were parents from deprived areas more likely to report parenting stress?

2. Are parental internalizing problems associated with child psychosocial problems in a community sample?

3. What are the psychometric properties of the Depression, Anxiety and Stress Scale (DASS-21) in a Dutch non-clinical, community-based sample?

4. What is the effectiveness of Primary Care Triple P on child psychosocial problems in preventive child healthcare (PCH): a randomized controlled trial

The impact of area deprivation on parenting stress

In chapter 2 we investigated the relationship between area deprivation and parenting stress among parents of children age 9 to 11 years. We used neighbourhood-level and individual-level data in a cross-sectional multilevel study. Living areas were categorised into tertiles of deprivation, i.e. most, medium, and least deprived. We collected data on parenting stress using the Parenting Stress Index (PSI), the Strengths and Difficulties Questionnaire on child psychosocial problems, and on family background among 9453 parents prior to a routine health examination of their child (response: 65%). In the deprived areas parents reported parenting stress more often compared to the least deprived tertile (odds ratio, OR=1.23; 95 % confidence interval, CI=1.04-1.46). Adjusted for child problem behaviour the association decreases (OR=1.11; 95 % CI=0.92-1.34). A small clustering of parenting stress by area was found which increased when child and family characteristics were taken into account. Parents from deprived areas were most likely to report parenting stress. Differences by area deprivation were partially accounted for by child problem behaviour and parental concerns about the behavioural and emotional problems of the child.

Parental internalizing problems in a community sample: association with child psychosocial problems

In chapter 3 we investigated whether depression, anxiety, and stress symptoms in parents are related to child problem behaviour. Preceding a routine health examination, we obtained cross-sectional data from a representative sample of 9453 parents of children aged 9–11 years (response 65%). Parents completed a questionnaire on parental internalizing problems (Depression Anxiety Stress Scale), child psychosocial problems (Strengths and Difficulties
Parental internalizing problems were associated with child psychosocial problems in crude analysis and after adjustment for child, parent, and family characteristics (standardised regression coefficient, $\beta = .12$, 95%-CI = $.10 - .14$). Furthermore, parental concerns about their child’s emotional and behavioural problems were also strongly associated with child psychosocial problems. After adjustment for these parental concerns, the association of parental stress with child psychosocial problems remained, while the association of parental depression and anxiety symptoms with child psychosocial problems lost statistical significance. In line with findings in clinical samples, parental internalizing problems in a community sample are associated with child psychosocial problems. Parental concerns about the child seem to affect this association.

**Psychometric properties of the Depression, Anxiety and Stress Scale (DASS-21) in a large non-clinical sample**

In Chapter 4 we evaluated the psychometric properties of a short questionnaire on parental internalizing problems including symptoms of depression, anxiety, and stress. We obtained cross-sectional data in a non-clinical sample of 8037 adults and assessed the scale structure of the DASS using factor analyses and the internal consistency of its scales and subscales. Principal components factor analysis with varimax rotation revealed a simple factor structure for each of the three DASS subscales. All items loaded on their corresponding factors with factor scores of over .46. The three factors – depression, anxiety and stress – accounted for 48.8% of the variance. Confirmatory factor analysis also supported the latent three-factor structure of the DASS-21. Cronbach’s alphas for the depression, anxiety and stress subscales and the full scale were .83, .76, .82 and .90, respectively. The results of this study indicate that the psychometric properties of the DASS-21 are sound for assessing the symptoms of depression, anxiety and stress in adults in a general population. It can be used in non-clinical samples without adjustments.

**Design paper Effectiveness of Primary Care Triple P versus care as usual provided by preventive child healthcare**

In Chapter 5 we described the design of our randomized controlled trial on the effectiveness of Primary Care Triple P (level 3) versus care as usual provided by PCH. We discussed several important issues with respect to conducting randomized controlled trials in primary care including: recruitment of study population, inclusion and exclusion criteria, randomisation procedure, sample size, primary and secondary outcome measures, and data collection procedure. Adequate reporting of randomized, controlled trials (RCTs) is necessary to allow accurate critical appraisal of the validity and applicability of the results. Therefore, the basic principle for this trial was the CONSORT Statement to randomized trials of non-pharmacologic treatment.

**Effectiveness of Primary Care Triple P versus care as usual in preventive child healthcare**

Chapter 6 describes findings of a study on the effectiveness of Primary Care Triple P on child psychosocial problems in PCH. We conducted a multicentre, randomized, controlled trial in PCH in the Netherlands, enrolling parents of children with mild psychosocial problems. Screening
using the Strengths and Difficulties Questionnaire (SDQ) with a cut-off point of 11 or higher (that is, a subclinical score) identified the target population. We compared PCTP with usual care, UC, and measured the effects immediately after treatment and after 6 and 12 months. The primary outcome measures were the child psychosocial problems as measured by the SDQ and the Eyberg Child Behaviour Inventory (ECBI). In total, 81 families were recruited and randomized, and 67 provided post-intervention data. Both treatment groups improved after treatment, with the PCTP group improving only slightly more than the UC group on most measures. The maximum difference on the SDQ was 1.94 (95% CI = -0.30 to 4.19, P = 0.09) and 5.81 (95% CI = -3.37 to 14.99, P = 0.21) on the ECBI. None of the differences between PCTP and UC was significant. PCTP did produce a reduction in psychosocial problems in children but had no statistically significant advantage over UC. In general, a few outcomes improved in both groups. Analyses based on imputed data showed similar results. Based on this underpowered study, we cannot conclude that PCTP is more effective than UC in preventive child healthcare.

Discussion and implications
In Chapter 7 we summarized the answers to the research questions of this thesis and discussed our main findings. Furthermore, we described methodological considerations concerning our randomized controlled trial, the advantages and challenges of conducting RCTs in PCH and the implications for practice and future research.

We found that, in a community sample, parental internalizing problems (i.e. depression, anxiety, and stress) and child psychosocial problems are associated. The relationship between parental internalizing problems and child psychosocial problems was already known from many clinical studies. Our research adds insight on this bidirectional relationship in a community sample suggesting that by an increase in one of these two types of problems, the other outcome is more likely to be problematic as well. For Preventive Child Healthcare (PCH) it is therefore important to pay extra attention to the psychosocial functioning of a child if the parent reports internalizing problems, and vice versa.

We found several additional factors to be associated with child psychosocial problems and parental internalizing problems. These factors include area deprivation, problem behaviour, and parental concerns. The occurrence of child psychosocial problems seems to be related to parental stress and area deprivation, while parental internalizing problems seem to be related to area deprivation, parental concerns, and child problem behaviour. For PCH it could useful to include attention to these factors as part of the well-child visits conducted by CHPs in Family Care Centers (FCCs); this would improve the detection of both child psychosocial problems and parental internalizing problems. Our study findings may reinforce greater investment in community-based interventions in deprived areas since these areas are important targets for contemporary health policy. Since parental concerns about the child seem to be good predictors for parenting stress, CHPs could verify these concerns as an element of routine care.
In our research we used the Depression, Anxiety and Stress Scale (DASS) to measure parental internalizing problems. Our study showed that the psychometric properties of the DASS in a normal population are very satisfying, confirming previous findings in community samples in other countries, as well as in clinical samples. This confirms the value of the DASS as instrument in preventive healthcare to verify parental internalizing problems if considered necessary.

Nowadays, both child psychosocial problems and parental internalizing problems together with problems in effective parenting are considered to be important public health issues. This has resulted in increased attention by public health workers and policy makers, and has also contributed to the development of a series of parenting support programs such as the Positive Parenting Programme (Triple P).

Primary Care Triple P (PCTP, level 3 of Triple P) aims to support parents in managing child problem behaviour (e.g. tantrums, disobedience). Our study showed positive effects of PTCP, but the intervention did not outperform the control condition; both treatment groups showed improvements. Though Primary Care Triple P did not outperform the usual care provided by PCH, it is a short and standardized intervention that suits the competences of CHPs and showed no negative effects. However, it is advisable to adjust the intervention to achieve a better match with the need for parenting support. Further development of interventions for child psychosocial problems and parental internalizing problems could contribute to a decrease in the burden of these problems -- their negative consequences on the social, psychological and physical functioning of the child and the parent. A final criterion for decisions about further implementation could be comparison of the costs of using PCTP with the costs of other parenting support programmes or care as usual. More insight is needed into the costs of integral implementation of PCTP.
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SAMENVATTING

Dit proefschrift richt zich op de relatie tussen opvoeden door ouders en het gedrag van kinderen. Er wordt ingegaan op de relatie tussen het wonen in achterstandsgebieden en het voorkomen van opvoedstress en op de relatie tussen internaliserende problemen van ouders en het gedrag van kinderen. Verder is onderzoek gedaan naar de psychometrische eigenschappen van de Depression, Anxiety and Stress Scale (DASS) onder ouders van jonge kinderen. Tot slot werd onderzoek verricht naar de effectiviteit van opvoedondersteuning met behulp van het Positief Pedagogisch Programma niveau 3 (verder: Primary Care Triple P) in de Nederlandse Jeugdgezondheidszorg (JGZ). Het onderzoek werd gedaan onder ouders van kinderen met milde psychosociale problemen in de leeftijd van 9 tot 11 jaar voorafgaand aan en tijdens het periodiek gezondheidsonderzoek (PGO). Dat gebeurde door de afdelingen JGZ van de Gemeenschappelijke Gezondheidsdiensten (GGD) in Groningen, Fryslân, Drenthe en een deel van Overijssel.

In de inleiding van dit proefschrift wordt ingegaan op de definitie van psychosociale problemen bij kinderen en worden de gevolgen van psychosociale problemen bij kinderen beschreven. Daarnaast wordt ingegaan op de relatie tussen opvoeden en het probleemgedrag van kinderen. Ook wordt informatie gegeven over de vroege opsporing en behandeling van psychosociale problemen bij kinderen en over de setting waarbinnen deze studie plaatsvond: de JGZ uitgevoerd door de GGD. Vervolgens wordt informatie gegeven over bestaande opvoedinterventies in het algemeen en Triple P in het bijzonder en de beschikbare kennis over de effectiviteit van deze interventies. Het hoofdstuk sluit af met de onderzoeksvragen die in dit proefschrift worden beantwoord.

Onderzoeksvragen en de belangrijkste conclusies per hoofdstuk

Hoofdstuk 2
Onderzoeksvraag 1: Wat is de relatie tussen gebiedsdeprivatie en opvoedstress en rapporteren ouders in gedepriveerde gebieden vaker opvoedstress?

Om te onderzoeken of opvoedstress vaker voorkomt in achterstandsgebieden hebben we woongebieden opgedeeld in welvarend, gemiddeld en achterstand op basis van de sociaal economische status per postcodegebied zoals berekend door het Sociaal Cultureel Planbureau (SCP). We gebruikten gegevens op het niveau van de buurt en op het niveau van het individu in een dwarsdoorsnede onderzoek. We verzamelden gegevens over opvoedstress bij ouders met behulp van Nijmeegse Ouderlijke Stress Index Korte versie (NOSIK) en over psychosociale problemen bij hun kinderen met behulp van de Strengths and Difficulties Questionnaire (verder te noemen SDQ). Daarnaast beschikten we over achtergrondkenmerken van 9453 ouders over hun kinderen en hun gezinsituatie voorafgaand aan een periodiek gezondheidsonderzoek (respons 65%). achterstandsgebieden rapporteerden ouders vaker opvoedstress dan in de welvarende gebieden (odds ratio, OR=1,23; 95 % betrouwbaarheidsinterval, BI=1,04-1,46). De samenhang van gebiedsdeprivatie met opvoedstress nam af als voor probleemgedrag van kinderen wordt gecontroleerd (OR=1,11; 95 % BI=0,92-1,34).
Conclusie: ouders in achterstandsgebieden rapporteren vaker opvoedstress. Verschillen in opvoedstress naar gebied kunnen deels aan probleemgedrag van het kind en aan ouderlijke zorgen over de gedrags- en emotionele ontwikkeling van het kind worden toegeschreven.

**Hoofdstuk 3**

*Onderzoeksvraag 2: Is er samenhang tussen internaliserende problemen van ouders en psychosociale problemen van kinderen in een normale populatie?*

In deze studie is onderzocht of symptomen van depressie, angst en stress bij ouders samenhangen met psychosociale problemen bij kinderen in de algemene bevolking. Voorafgaand aan een regulier, preventief gezondheidsonderzoek verzamelden we gegevens onder 9453 ouders van kinderen in de leeftijd van 9 tot en met 11 jaar (respons 65%). Ouders vulden een vragenlijst in over internaliserende problemen (symptomen van depressie, angst en stress), psychosociale problemen van hun kinderen (SDQ), achtergrondkenmerken van ouder(s), kind en gezin en zorgen met betrekking tot het gedragsontwikkeling en de emotionele ontwikkeling van hun kind.

Internaliserende problemen van ouders hangen samen met psychosociale problemen van kinderen ook als gecontroleerd wordt voor een aantal kenmerken van kind, ouder en gezin (gestandaardiseerde regressie coëfficiënt, $\beta = 0,12$, 95%; betrouwbaarheidsinterval BI = 0,10 – 0,14). Tevens bleek dat ouderlijke zorgen over emotionele en gedragsproblemen van het kind sterk geassocieerd zijn met psychosociale problemen van het kind. De samenhang tussen symptomen van stress bij de ouder en psychosociale problemen van het kind blijft bestaan als wordt gecontroleerd voor deze ouderlijke zorgen, maar de samenhang tussen symptomen van angst en depressie bij de ouder en psychosociale problemen bij het kind bleek niet meer significant.

Conclusie: conform bevindingen in klinische studies, hangen internaliserende problemen bij ouders samen met psychosociale problemen bij kinderen. De samenhang verloopt gedeeltelijk via ouderlijke zorgen over het gedrag en de emotionele ontwikkeling van het kind.

**Hoofdstuk 4**

*Onderzoeksvraag 3: Wat zijn de psychometrische eigenschappen van Depression, Anxiety and Stress Scale (DASS) in een algemene, niet-klinische populatie?*

In deze studie onderzochten we de psychometrische eigenschappen van een korte vragenlijst over internaliserende problemen bij volwassenen over symptomen van depressie, angst en stress in een grote, niet-klinische groep volwassenen. Het betrof de verkorte versie van de DASS met 21 vragen (DASS-21). De oorspronkelijke versie bestaat uit 42 vragen. We verzamelden crossegegevens over symptomen van depressie, angst en stress in een algemene, niet-klinische groep van 8037 volwassenen. We onderzochten de structuur van de DASS-21 met behulp van factoranalyse en bepaalden de interne consistentie (Cronbach’s alpha’s) van de samenvattende schaal en de subschalen.
Principale componenten factoranalyse met varimax rotatie liet een simpele factor structuur zien met drie subschalen van de DASS-21. Alle items laadden het hoogst op hun corresponderende factor met factorscores van 0,46 en hoger. De drie factoren – symptomen van depressie, angst en stress – verklaarden 48,8% van de variantie. Confirmatorische factoranalyse (CFA) bevestigde de veronderstelde, latente drie-factoren structuur van de DASS-21. De Cronbach’s alfa’s voor de depressie, angst en stress subschalen en de totale schaal waren respectievelijk 0,83, 0,76, 0,82 en 0,90.

Conclusie: de resultaten van deze studie laten zien dat de psychometrische eigenschappen van de DASS-21 voldoende zijn. Dit instrument kan zonder aanpassingen worden toegepast voor het meten van symptomen van depressie, angst en stress onder volwassenen in de algemene bevolking.

Hoofdstuk 5

_Studieopzet: effectiviteit van het Positief Pedagogisch Programma niveau 3 (Primary Care Triple P, PCTP) in de Nederlandse JGZ._

In hoofdstuk 5 beschrijven we de opzet van de gerandomiseerde en gecontroleerde studie (RCT) naar de effectiviteit van PCTP in vergelijking met de reguliere zorg door de JGZ. Het uitgangspunt voor het beschrijven van deze trial was de zogenaamde CONSORT-richtlijn voor effectiviteitsonderzoek naar niet-farmacologische behandelingen. We beschreven een aantal zaken die van belang zijn bij het uitvoeren en implementeren van experimentele studie in de zorg zoals: het werven van respondenten, de inclusie- en exclusiecriteria, de randomisatieprocedure, de grootte van de verschillende behandelgroepen, de primaire en secundaire uitkomstmaten en de procedure van gegevensverzameling.

Hoofdstuk 6

_Onderzoeksvraag 4: Wat is de effectiviteit van het Positief Pedagogisch Programma niveau 3 (Primary Care Triple P, PCTP) in de Nederlandse JGZ: een gerandomiseerde, en gecontroleerde studie._

Om te onderzoeken of opvoedondersteuning met behulp van PCTP effectiever is dan de reguliere zorg door de JGZ, hebben we beide behandelingen met elkaar vergeleken in een gerandomiseerde en gecontroleerde studie. Ouders van kinderen met milde psychosociale problemen (SDQ totaalscore hoger of gelijk aan 11) werden uitgenodigd voor deelname aan deze studie na een screening door de JGZ. In totaal werden 81 ouders met hun kind geïncludeerd. De primaire uitkomstmaat was psychosociale problematiek bij het kind gemeten met de SDQ en met de Eyberg Child Behaviour Inventory (ECBI). Het maximale verschil tussen de twee behandelgroepen op de SDQ was 1,94 (95% BI = −0,30 to 4,19, P = 0,09) en 5,81 (95% BI = −3,37 to 14,99, P = 0,21) op de ECBI. PCTP liet een lichte verbetering zien in de psychosociale problemen van kinderen ten opzichte van de controle groep, maar we vonden verder geen significante verschillen tussen de PCTP en de controlegroep. Beide behandelgroepen lieten een verbetering zien. We kunnen op basis van deze studie niet concluderen dat PCTP effectiever is dan de reguliere zorg verleend door de JGZ.
Discussie en implicaties

In hoofdstuk 7 worden de antwoorden op de onderzoeksvragen nog eens samengevat en worden de bevindingen van de verschillende studies besproken. Verder beschrijven we enkele methodologische beperkingen van onze effectiviteitsstudie, de voordelen en uitdagingen van het uitvoeren van een experimentele studie in de dagelijkse praktijk en de implicaties van de bevindingen voor de praktijk en toekomstig onderzoek.

Samenvattend vonden we dat – evenals in klinische populaties – ook in een algemene populatie internaliserende problemen bij ouders (symptomen van depressie, angst en stress) samenhangen met psychosociale problemen van kinderen. Internaliserende problemen bij ouders lijden mogelijk tot toename in psychosociale problemen van kinderen en omgekeerd. Dit vraagt om extra aandacht in de preventieve JGZ voor het psychosociale functioneren van kinderen als ouders internaliserende problemen rapporteren, maar ook voor het psychosociaal functioneren van ouders als hun kind afwijkend scoort op psychosociale problematiek.

Verder laat ons onderzoek zien dat het psychosociale functioneren van kinderen en internaliserende problemen van ouders samenhangen met factoren zoals gebiedsdeprivatie, probleemgedrag van het kind en zorgen over de gedrags- en emotionele ontwikkeling van het kind. Psychosociale problemen van kinderen hangen samen met ouderlijke stress en gebiedsdeprivatie, terwijl internaliserende problemen bij ouders gerelateerd zijn aan gebiedsdeprivatie, ouderlijke zorgen en problematisch gedrag van hun kind. Voor de JGZ is het van belang elk van deze factoren mee te nemen in periodieke gezondheidsonderzoeken binnen de Centra voor Jeugd en Gezin. Daarmee kan de vroeg opsporing van psychosociale problemen bij zowel kinderen als ouders worden verbeterd.

Ons onderzoek laat zien dat de Depression, Anxiety and Stress Scale (DASS) een betrouwbaar instrument is om internaliserende problemen te verifiëren bij ouders en volwassenen in het algemeen. Indien er aanleiding voor is zou dit instrument in de preventieve zorg voor ouders en kinderen kunnen worden gebruikt voor het inventariseren van internaliserende problemen bij ouders.

Zowel psychosociale problematiek bij kinderen als opvoedproblematiek ervaren door ouders hebben in het laatste decennium veel aandacht gekregen van beleidsmakers en de politiek met een toename van het aantal opvoedinterventies zoals het Triple P als gevolg. Primary Care Triple P (PCTP) heeft als doel emotionele en gedragsproblemen bij kinderen (bijvoorbeeld driftbuien, ongehoorzaamheid) te voorkomen door het bevorderen van competent ouderschap. Onze studie liet positieve effecten zien van PTCP, maar de interventie werkte niet significant beter dan de reguliere zorg door de JGZ. De resultaten in beide behandelgroepen verbeterden. Desalniettemin is PCTP een korte en gestandaardiseerde interventie die goed aansluit bij de competenties van zorgverleners werkzaam in de JGZ. Bovendien heeft het geen negatieve effecten. Het verdient aanbeveling de interventie meer aan te passen aan de behoeften aan ondersteuning van ouders. Daarnaast is meer inzicht vereist in de kosten van implementatie van PCTP in vergelijking met de reguliere zorg.
DANKWOORD
DANKWOORD

Het doen van onderzoek in de praktijk gaat niet zonder hulp en ondersteuning van vele anderen. Vanaf deze plaats wil ik iedereen bedanken die op wat voor wijze dan ook een bijdrage heeft geleverd aan mijn onderzoek en aan de totstandkoming van dit proefschrift.

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**CV EDWIN SPIJKERS**


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