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Review of "Do Preventive Interventions for Children of Mentally Ill Parents Work? Results of a Systematic Review and Meta-Analysis"

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INTRODUCTION

The Transgenerational transmission of mental disorders (TTMD) has been identified as a major risk factor for the development of a (severe) mental illness ((S) MI) across generations [1-3]. Studies have found multiple psychological and developmental risks such as lower academic achievement, increased stress-related somatic health conditions and internalizing/externalizing symptoms for children of parents with a mental illness (COPMI) [4-7]. Further, COPMI have a higher life-time risk for developing a SMI themselves ranging from 41-77% with subclinical symptoms occurring more often and earlier [1,2,8]. Hence, COPMI are likely to constitute the next generation of patients with a mental disorder if not intervened early on [8]. To meet the specific needs of COPMI various interventions have been developed and some empirical support for preventive interventions for COPMI can be found, but so far, studies and meta-analyses show mixed results [9-13].

Aim of the study was to improve the state of the literature by presenting a comprehensive, quantitative report on the efficacy of prevention programs for COPMI. Mother-infant interventions and interventions for children/adolescents were analyzed separately.

METHOD

Until January 2015, 96 randomized controlled trials with 50 independent samples for children of parents with a diagnosed mental disorder (current or previous), which reported either children's psychopathology or observations of mother-infant interaction were identified through a thorough literature review (for an extensive list [14]).

Children had to be either younger than 6 years of age (for the meta-analysis on mother-infant interaction) or below 18 years of age at the beginning of the intervention (for the meta-analysis on children's psychopathology). Reported psychosocial interventions had to address the parents, the children or both. Studies reporting on children with diagnosed disorders or other target groups were excluded.

For the meta-analysis on mother-infant interaction, outcome measures were observational data that was collected through an external observer during a situation in which the mother interacted with the infant, whereas for the meta-analysis on children's psychopathology, outcome measures were standardized tests for the diagnosis of mental disorders in children and adolescents.

For the meta-analyses, study characteristics (e.g. study participants (i.e., age, sex of parents/children, type of parental disorder, etc.), characteristics of the intervention, type of control group) and study quality (8 point scale) were coded with a standardized form for each study. To calculate inter-rater reliability, a subset of studies was coded by two independent raters. Inter rater agreement and intraclass correlations showed excellent agreement between raters.

For the meta-analysis on mother-infant interaction, the standardized mean difference Cohen's *d* was calculated and to correct for small sample bias, converted in Hedges' *g*. For the meta-analysis on children's psychopathology Morris' g [15] was calculated which corrects directly for small sample

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bias and pre-test differences between groups. Positive effect sizes indicate improvement in the children's functioning or better performance of the experimental than the control group.

RESULTS

Mother-infant interaction

20 independent intervention-control comparisons (moderate overall study quality with a score of 4.8) with *N*=1445 mother-infant dyads (*N*=712 intervention and *N*=733 control group) were identified. 40% of the interventions used cognitive-behavioral therapy, 15% interpersonal therapy and for 45% of the samples intervention type was not reported or not definable. Most of the interventions (90%) included elements that targeted an improvement of parental behavior of the mentally ill mother, respectively, an improvement of the mother-infant interaction (e.g. mother-infant interaction training with video feedback or training of recognition and sensitive reaction to infant's needs through mother-infant massages). The mean duration of the interventions was 11.1 sessions (SD=7.46, range 2-33) with session length varying between 15 and 300 min (M=70. 9 min, SD=70.5).

Analyzing the 20 independent intervention-control comparisons overall pre-post effects were found to be small (effect size=0.26). Slightly larger effects were found for mother's sensitivity (effect size=0.31) and children's behavior during interaction (effect size=0.31). For follow-up assessments (up to 12 months post-intervention) overall effects (effect size=0.22) and effects for mothers' behavior during interactions (effect size=0.33) were found to be stable.

Lower study quality, joint mother-child interventions, group or family settings were found to be significant moderators for larger effects. Intervention type and intervention length were not found to be significant moderators.

For single mothers, the mother's behavior during interactions showed greater improvement, again with larger effect sizes for joint mother-child interventions and family settings. Larger effects were also found for substance-abusing than for depressed mothers. When persons delivering the intervention had different professional backgrounds, infant's behavior during the interaction showed significantly greater effects.

Interventions for children and adolescents

A total of 33 independent intervention-control comparisons (moderate overall study quality with a score of 5.1) with *N*=3020 children and adolescents (*N*=1620 in the intervention and *N*=1400 in the control group) were identified. 51.52% of the interventions used cognitive-behavioral therapy, 9.1% interpersonal psychotherapy, 3.0% systemic approaches and for 36.4% of the samples intervention type was not reported. The majority of interventions (63.64%) included elements to improve parenting skills. The mean duration of the interventions was 16.2 sessions (SD=12.9, range 2-72) with session length varying between 25 and 180 min (M=74.0 min, SD=30.8).

Analyzing the 33 independent intervention-control comparisons overall pre-post effects for child psychopathology were found to be small (effect size=0.13). Effects were significant for internalizing (effect size=0.17), but non-significant for externalizing symptoms (effect size=0.10). For follow-up assessments, the total effect size increased with significant total effects at six (total effect size=0.23, internalizing symptoms effect size=0.28, externalizing symptoms effect size=0.17) and twelve-months follow-ups (total effect size=0.28, internalizing symptoms effect size=0.45, externalizing symptoms effect size=0.17). After exclusion of a relevant outlier and influential study, effects were also stable for total and internalizing symptoms at further follow-up assessments.

Higher socio-economic status (at 6 months follow-up), higher percentage of boys, lower study quality (both at 12 months follow-up) and type of control group (comparisons with no treatment vs. comparisons with TAU or alternative treatment) were found to be significant moderators for larger effects on internalizing symptoms. Again, intervention type and intervention length were not found to be significant moderators.

DISCUSSION AND CONCLUSION

Overall, we were able to replicate prior findings and to show that both mother-infant interventions and interventions for children/adolescents result in small, but significant pre-post effects. Only the effect of interventions for children/adolescents on externalizing symptoms did not reach significance at post intervention.

The meta-analysis on mother-infant interventions found significant effects at post and 12 months follow-up assessment for both mother's as well as children's behavior during interactions.

The meta-analysis on children's and adolescents' psychopathology found significant effects on global and internalizing symptoms at post-assessment. Effects increased over time and also reached significance for externalizing symptoms at 6 months and 12 months follow-up. Even though the found effects are significant; they are only small and thus not sufficient for reducing the risk of COPMI to develop a SMI themselves.

With only 96 articles with 50 independent samples included in the systematic review, the authors conclude that their analysis reveals a lack of high-quality interventions for COPMI. Therefore, future research and high-quality interventions are needed to reduce the high-risk of those children and adolescents. Currently the majority of studies uses psychopathology outcome measures such as the Child Behavior Checklist to assess intervention success. Such

measures are not very sensitive to change, especially in prevention programs. Prevention studies on COPMI might thus be improved if change sensitive measures are included such as assessments of quality of life, subjective well-being or academic achievement/performance. Such an approach is currently put into practice in the COMPARE study [16,17].

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