Research paper

Stressful life events and depressive symptoms in mothers and fathers of young children

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ABSTRACT

Background: Parents of young children generally report more depressive symptoms than parents of adult children or people without children, mainly because the presence of young children increases exposure to significant stressors (such as stressful life events). However, most studies on the depressogenic role of stressful life events in parents of young children have focussed on mothers.
Methods: Using data from 1138 families with young children in Norway, we investigated gender differences in the effect of stressful life events after a child's birth on the development of parental depressive symptoms in 3 follow-ups at child's ages 3–6 years. We also explored if gender differences in disposition (personality) may explain any gender differences in the depressogenic effect of life events.
Results: Nesting parents within families, we found a female gender bias for both neuroticism and depressive symptoms but no gender difference in the number of life events reported. Importantly, the number of stressful life events predicted the level and course of depressive symptoms similarly for mothers and fathers. Personality traits did not change the association between stressful life events and depressive symptoms in either mothers or fathers.
Limitations: Given the study design, causality cannot be inferred.
Conclusions: There was no gender difference in the depressogenic effect of stressful life events in our sample. There was no evidence for a female dispositional sensitivity to the depressogenic effect of stressful life events, either. Stressful life events put both mothers and fathers of young children at risk of depression.

1. Introduction

Depression is associated with a number of adverse cognitive, social and physical outcomes in both men and women (Moussavi et al., 2007). Depression in men and women with young children has attracted much interest because early exposure to parental depression is a powerful risk factor of poor child outcomes (Cummings et al., 2005; Goodman et al., 2011) and because the prevalence of depression is, in general, higher in parents of young children than in parents of adult children or people without children (Umberson et al., 2010). The primary explanation is that the presence of young children increases exposure to significant stressors, including the daily demands and time constraints of parenting, increased strain between parents, and work-family conflict (Evenson and Simon, 2005).

However, with the exception of few studies in the postpartum period (e.g., Escribà-Agüir and Artazcoz, 2011; Kamalifard et al., 2014), most of the research into the effect of stressors on depressive symptoms in parents of young children has focussed on mothers. We know very

little about the effect of stressors on depressive symptoms in fathers of young children. We also know little about gender differences in this effect, although it is increasingly recognised that the depressogenic impact of stressors may vary substantially for men and women (Kendler and Gardner, 2014; Kendler et al., 2001). We carried out this study to attempt to fill this gap. In a large cohort of more than 1000 families with young children in Norway, we explored gender differences in the effect of the number of stressful life events after a child's birth on the development of parental depressive symptoms in 3 follow-ups at child's ages 3 to around 6 years.

We also explored gender differences in the effect of the interaction between personality [neuroticism and extraversion, which, according to previous research, are associated with depression (Klein et al., 2011)] and number of stressful life events on this development. Typically, depression is seen as the result of an interaction between psychosocial stressors (such as stressful life events) and diatheses (genetic liability). Diatheses (sometimes simply approximated by personality traits) influence the risk of onset of depression, in part by altering the

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sensitivity of individuals to the depression-inducing effect of stressful life events (Hammen, 2005). Stressors have been shown to interact with both personality and gender to predict depression (Kendler et al., 2004), but, to our knowledge, no study has yet explored this three-way interaction in predicting depression in parents of young children. The findings of such an interaction analysis will have important implications for etiological models of depression as they will suggest a) if the impact of number of stressors on depressive symptoms is independent of the level of neuroticism/extraversion or whether it changes with the level of neuroticism/extraversion, b) if the impact of neuroticism/extraversion on depressive symptoms is independent of the number of stressors or whether it changes with the number of stressors, and c) if there are gender differences in these phenomena.

2. Methods

2.1. Participants and procedure

The data were drawn from the longitudinal Behavior Outlook Norwegian Developmental Study (BONDS), which tracks the development of 1159 children (559 girls) from 6 months. BONDS was approved by the Norwegian Social Science Data Services and the Regional Committee for Medical and Health Research Ethics. Recruitment took place through child health clinics in five municipalities in southeast Norway in 2006–2008. In Norway child health clinics are public and almost universally attended. Compared to the general Norwegian population, the BONDS sample was biased toward mothers with higher education, fewer immigrant parents, more firstborns and fewer single mothers (Nærde et al., 2014 for more details).

At the time of writing, follow-up assessments were conducted at children's ages 1, 2, 3, 4 and 5 years and at first grade (i.e., at the beginning of primary school, at around age 6 years). Participation rates were very high, at 98%, 95%, 92%, 93%, 84% and 82%, respectively. Data were collected through interviews with parents, except for the 5-year follow-up which was conducted by telephone. Both mothers and fathers were invited to the first interview at 6 months whereas fathers were targeted at 1 and 3 years and mothers at 2 and 4 years. The telephone interview at age 5 was conducted with either parent, and while fathers were targeted for the interview at the beginning of school, mothers were also asked to fill out a questionnaire. If the targeted parent was not able to take part in an interview, the other parent was asked to participate instead. In view of the objectives of the current study, the analytic sample (N = 1138) consisted of all BONDS families where both parents (living together or not) had completed at least one interview. Two families were excluded because the mother had died, 17 because the father did not live with the target child and did not participate in the study, and two because they withdrew their consent.

2.2. Measures

All measures described below were collected through self-report questionnaires at the interview assessments, and were available for both mothers and fathers.

2.2.1. Stressful life events

In BONDS, stressful life events were first measured at child's age 2 years. However, we could not measure them for both parents at the same time because of the design of BONDS. Therefore, we measured life events in the past 12 months at child's age 2 for mothers and at child's age 3 for fathers. The events, identical for both parents, were: Problems with friends/family; Serious illness in the home; Death of someone close; Mental/physical/sexual abuse; Caused someone hurt or pain; Something terrible has happened to me but I don't want to talk about it; Problems with housing; Problems with work; Problems with child care; Problems with finances; Problems with physical health; Problems with partner relationship; Alcohol problems with someone in the home;

Health problems in partner; Health problems in children; Problems with raising child; Problems with balancing work and raising child; Pregnancy/birth; Miscarriage. A summative score for each parent was created to indicate the number of stressful life events experienced in the past 12 months.

2.2.2. Parents' personality traits

Personality traits (extraversion and neuroticism) were measured at the 6-month assessment with the 30-item version of the Eysenck Personality Questionnaire (EPQ; Eysenck and Eysenck, 1975; Eysenck and Tambs, 1990). Extraversion and neuroticism were each measured with 10 dichotomous (yes/no) items.

2.2.3. Parents' depressive symptoms

Depressive symptoms were measured (as in Narayanan, and Nærde, 2016) with six items [(on four-point scales ranging from 1 (not at all) to 4 (extremely)] of the 10-item version of the Hopkins Symptom Checklist (HSCL), an abbreviated version of the original HSCL-90 (Derogatis et al., 1974; Tambs and Moum, 1993; Winokur et al., 1984). The HSCL asks about depressive symptoms in the last 2 weeks. In this study, we used data from the age 3, age 4 and first grade follow-ups, and we modelled symptoms on a continuum.

2.2.4. Covariates

These were: mother's and father's age (measured at child's age 2 years), mother's and father's education and ethnicity, presence of other young children (< 6 years old) in the family (measured at child's age 1 year), and history of depressive episodes (reported at child's ages 2 and 3 for mothers and fathers, respectively). A history of depressive episodes was defined as having ever experienced 3 or more symptoms (depressed/sad mood, no appetite or eating more than usual, lack of energy, feelings of worthlessness, and problems with attention or making decisions) for at least 2 weeks.

2.3. Analytic strategy

We modelled stressful life events as summative scores in line with the predominant research tradition in the field. To reduce measurement error we modelled depressive symptoms as latent variables loading on the HSCL depressive symptoms. It was not possible to model the personality traits as latent constructs, however, as the large number of parameter estimates caused severe delays and convergence problems. Therefore, we used instead the factor scores for neuroticism and extraversion derived from a confirmatory factor analysis (CFA) of the neuroticism and extraversion items. The factor scores for the two personality constructs were estimated jointly. The two factors were allowed to correlate with each other, but items were only allowed to load on one of the factors, and items loaded on one factor were not allowed to correlate with items loaded on the other.

CFAs were used to examine model fit for each of the latent variables before including them in the main analysis. Items (on, as explained, four-point scales ranging from 1 to 4) were included as categorical indicator variables and so the standard weighted least squares mean and variance adjusted (WLSMV) estimator was used for parameter estimation. Since depressive symptoms were measured for mothers and fathers and repeatedly over time we examined measurement invariance to ensure that factor loadings and thresholds in our CFAs were equal across time-points and parent genders. Invariance was tested using chi-square difference ($\Delta\chi^2$) tests. As $\Delta\chi^2$ is sensitive to sample size and is expected to become significant in large samples such as ours, we also examined the differences in comparative fit index (ΔCFI) and root mean square error of approximation ($\Delta RMSEA$). ΔCFI and $\Delta RMSEA$ are assumed to indicate sufficient measurement invariance when < .01 (Chen, 2007).

The main analysis focussed on the findings from a linear latent growth curve model (described in Fig. 1) fitted to describe and predict