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# First-time mothers' confidence mood and stress in the first months postpartum. A cohort study



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#### ABSTRACT

Objectives: The aims were to describe first-time mothers' confidence, mood and stress 2 and 6 months postpartum and to investigate the extent to which the tools measuring maternal confidence and maternal mood used alone or together at 2 months postpartum predict first-time maternal confidence, mood and stress 6 months postpartum.

Design: A cohort including 513 first-time mothers' self-reported questionnaires concerning three scales: The Karitane Parenting Confidence Scale (KPCS), the Edinburgh Postnatal Depression Scale (EPDS), and the Parental Stress Scale (PSS) collected 2 and 6 months postpartum. Descriptive statistic, simple and multiple linear regression analysis were used.

Results: First-time mothers' with confidence scores below the clinical cut-off (KPCS < 40) fell significantly from 25% to 14% (p < 0.001), symptoms of depression above the clinical cut-off (EPDS  $\ge$  8) fell significantly from 16% to 12% (p < 0.001), and parental stress as a mother fell significantly from a mean of 32.88 to 30.98 (p < 0.001). The KPCS assessed at 2 months postpartum was the strongest predictor for both maternal confidence ( $R^2 = 0.38$ ) and parental stress ( $R^2 = 0.26$ ) 6 months postpartum.

Conclusion: The results support the assumption that parenthood is a complicated period for first-time mothers characterised by low confidence, symptoms of depression and high stress which improve over time for the majority of mothers. The KPCS at 2 months postpartum was the strongest predictor of the measures used. Further research is needed to identify parents who are struggling, especially for health professionals' whose role is to support parents in their parenthood the first period after birth.

#### Introduction

Becoming a mother can be an overwhelming experience characterised by happiness as well as strain [1,2]. Low maternal confidence [3], symptoms of depression [4] and parental stress [5] have been identified as aspects that may affect the early mother-infant relationship and impact the infant's future health [6–8]. Studies have documented how parenting behaviour and the quality of the parent-infant relationship may influence the building of a healthy early relationship [4,9,10]. First-time mothers tend to show lower levels of maternal confidence and higher levels of stress than multiparous mothers [3,11]. Levels of and changes in first-time mothers' confidence and parental

stress levels in the first months after birth are unknown [12], but an interview study suggests that maternal confidence increases and parental stress decreases as mothers become more comfortable and skilled in parenting [12]. High maternal confidence has been shown to be associated with higher maternal sensitivity [5], which can be characterised as being alert, attentive and responsive to the infant's small cues in the parenting role [13]. Associations have been found between a postnatal depressive diagnosis in the mother and her infant's cognitive and emotional development [6,8,14,15]. Among Danish first-time mothers, 7–8% have symptoms of postpartum depression 5 weeks after birth measured by the EPDS  $\geq$  12 [16]. International studies find that a first-time mother's symptoms of postpartum depression improves over

Abbreviations: EPDS, Edinburgh Postnatal Depression Scale; KPCS, Karitane Parenting Confidence Scale; PSS, Parental Stress Scale

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time from a prevalence of about 8% in the first week to about 2% 6 months after birth measured by the Edinburgh Postpartum Depression Scale (EPDS)  $\geq$  12 [17].

During the postpartum period, first-time mothers express that they have an unmet need for guidance [3,12,18]. The World Health Organization [19] recommends that families are supported to increase parents' competences. Identifying mothers struggling with low confidence, low mood and high stress in the postpartum period is therefore important for health professionals who are expected to promote well-being among new families in their work. However, only few standardised screening tools have been evaluated in a community setting to assess maternal confidence, maternal mood and parental stress. One of these tools is the EPDS, developed to assess maternal mood [20–22]. Even though the EPDS is the measure most widely used by health professionals, its ability to identify symptoms of postpartum depression has not yet been tested in a Danish context [23]. That also applies to the newly developed screening tool, the Karitane Parenting Confidence Scale (KPCS), developed to assess parenting confidence [24].

The objective of the present study was to investigate levels of and changes in maternal confidence, maternal mood and parental stress from 2 to 6 months postpartum among first-time mothers. Another objective was to investigate the extent to which the two screening tools, the KPCS and the EPDS, used alone or together at 2 months postpartum predicted first-time maternal confidence, maternal mood and parental stress at 6 months postpartum.

#### Methods

#### Study design and setting

The present study used data from the comparison group in a quasi-experimental study and included data from 513 first-time mothers [25]. Using a cohort design, we obtained self-reported data from mothers at 2 and 6 months postpartum. The study was conducted in a community setting comprising six municipalities in the Central Denmark Region. In the comparison group, participants received standard care in the Danish home visiting programme, which provides universal prevention with three or more home visits by health visitors during the first 6 months postpartum [26]. As a part of the quasi-experimental study, the intervention group of first-time mothers received supplemental intervention, and these mothers were not included in the study population [23].

#### Participants, data collection and questionnaires

All first-time mothers who gave birth and were living at home in the study period were invited to participate at the first home visit by the health visitor. In the present study, we excluded mothers in need of psychological or psychiatric treatment and therefore admitted to hospital, family institution or prison, as well as mothers who had moved out of the study area or had insufficient Danish skills.

Data were collected online, except for two mothers who got a paper version because they had no mail access. Data were collected from September 2013 to December 2014. The baseline and follow-up self-reported questionnaires were sent by e-mail with a link to the online questionnaire 2 and 6 months postpartum, respectively. Reminders were sent once by e-mail and once by text message 2 and 3 weeks after the first questionnaire had been forwarded. Standardised questions were used whenever possible; non-standardised items and the order of the questions were pilot-tested to ensure relevance, acceptability and comprehensibility; and they were revised once.

#### Measures

Background variables related to both mother and infant were assessed at baseline. Maternal factors included age, education level, employment status, cohabitation, smoking status, self-perceived health,

planned pregnancy, abortion consideration and the mother's previous infant care experience. Self-perceived health was measured using a single item from the FS-36 addressing general health: "How is your health in general?" [27]. The five response categories were dicotomised into two groups: Very good/good or fair/bad/very bad. Planned pregnancy and abortion consideration were measured using two single items: "Was this pregnancy planned?" The two response categories were: Yes or no. Those mothers who answered no were furthermore asked: "Have you seriously considered having an abortion?" The two response categories were: Yes or no. Previous infant care experience was measured using a single item: "Have you tried to care for an infant? The four response categories were dichotomised into two groups: Yes often/sometimes or seldom/never. Severe life events were measured using a single item: "Have you in the past 2 years experienced a severe life event? The two response categories were: Yes or no.

Infant factors included infant's sex, gestational age and if the mother and the infant had been separated for > 2 h postpartum.

Outcome variables were related to the mother and were assessed at baseline and follow-up at 2 and 6 months postpartum.

Maternal confidence was measured using the KPCS. The KPCS is a 15-item task-specific questionnaire tailored to parents with infants up to 12 months old [24]. Each item is rated on a scale from 0 to 3. The clinical cut-off point is KPCS score (< 40). The KPCS has not been validated in a Danish context but in the English language in an Australian context, showing a good level of sensitivity (86%) and specificity (88%) [28]. Internal consistency across the 15 items in the current sample was acceptable with a Cronbach's alpha coefficient of reliability of 0.78 at 2 months and 0.74 at 6 months [29].

Maternal mood was measured using the EPDS. The EPDS is a 10item questionnaire where each item is rated on a scale from 0 to 3 [20]. Although the EPDS has not been validated in a Danish context, the EPDS has been validated internationally in a number of languages [23]. The clinical cut-off points in different language versions of the EPDS range from 7 to 14 [23]. Although internationally the most commonly used clinical cut-off is an EPDS score ≥12, in the present study we defined a clinical EPDS at ≥8 according to Danish health visitors' definition in clinical practice. A Norwegian validation of the EPDS in a community sample showed an excellent sensitivity of 96% and an acceptable specificity of 78% [30]. A Swedish validation of a community sample showed a similar sensitivity of 96%, but an unacceptable specificity of 49% [31]. The internal consistency of the EPDS score across the questionnaire in the current sample showed that Cronbach's alpha coefficient was acceptable at 2 months, 0.79, and good at 6 months, 0.83 [29].

Parental stress was measured using the Parental Stress Scale (PSS). The PSS is a 18-item questionnaire, and each item is rated on a scale from 1 to 5 [2]. A clinical cut-off point for the PSS has not been recommended. The PSS has not been validated in a Danish context, but the internal consistency of the PSS has been validated among Spanish first-time mothers showing an acceptable Cronbach's alpha coefficient of 0.76 [29]. Its internal consistency across the 18-item scale in the current sample revealed a good Cronbach's alpha coefficient at both 2 months, 0.85, and 6 months, 0.84.

#### Statistical analysis

For the first objective, descriptive statistics of background variables and differences in maternal mood, maternal confidence and parental stress between 2 and 6 months postpartum were tested with paired ttests for continuous variables and Fisher's exact test for categorical variables. Effect sizes for changes in KPCS, EPDS and PSS were based on comparison of means using Cohen's d with Cohen's d>0.2 indicating small, >0.5 indicating moderate and >0.8 indicating larger effect size [32]. Pearson correlation coefficients (r) were calculated to investigate how strongly the three measurements (KPCS, EPDS and PSS) were internally related at both 2 and 6 months postpartum. Results are

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