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Antenatal psychological and socioeconomic predictors of breastfeeding in a large community sample

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ABSTRACT

Background: Despite much work to publicise the benefits of breastfeeding most women do not persist for the first 6 months, as recommended by the WHO. Successful breastfeeding for 6 months may depend on several factors, including perinatal mental health. We aimed to investigate the impact of antenatal depressive symptoms, attitudes towards breastfeeding and socio-demographic factors in predicting breastfeeding for 6 months in a large community sample.

Methods: The sample was based on the Avon Longitudinal Study of Parents and Children ($n = 9479$), a large-scale birth cohort. Breastfeeding was assessed at multiple time-points, from postnatal day 1 until 6 months postnatal. Self-reported symptoms of maternal depression were assessed at 18 and 32 weeks gestation and at 8 weeks postnatal. Antenatal attitudes towards breastfeeding were assessed at 32 weeks gestation. Antenatal, obstetric, psychosocial and socio-demographic variables were also assessed.

Results: Antenatal depressive symptoms at both 18 and 32 weeks gestation were associated with decreased breastfeeding initiation and duration. However, the prediction of breastfeeding by these symptoms was confounded by socio-demographic and psychosocial covariates. A positive antenatal attitude towards breast-feeding was the strongest predictor and was associated with a 20–30% increase in breastfeeding initiation and maintenance at all time points.

Conclusion: This study highlights the wide range of factors that independently predict breastfeeding, and suggests that an intervention program to improve antenatal attitudes especially warrants investigation.

1. Introduction

Breastfeeding is widely acknowledged as beneficial for the physical health and emotional well-being of babies and children [1,2,3,4,5,6]. For example, it has been associated with higher infant cognitive development [7] and lower blood pressure and lower BMI in children [8], and may also protect against obesity and diabetes in later life [9]. Exclusive breastfeeding is recommended for the first 6 months of life [3] but few women achieve this [10,11].

Breastfeeding for the infant's first 6 months depends on several factors associated with the mother, the baby and the social environment [11]. Perinatal mental illness is one probable cause that may interfere with a mother's decision to breastfeed and to maintain breastfeeding, and this is supported by several studies [12,13]. If poor perinatal mental health is a robust predictor of breastfeeding, then there are potentially sizeable implications for public health, as approximately

15% of women are depressed or anxious in the antenatal period [14,15].

An association between postnatal depression and breastfeeding has been widely reported. In several studies [16,17,18,19], a shorter duration of breastfeeding was associated with postnatal depression. It has also been reported that postnatal depression increases breastfeeding difficulties and decreases breastfeeding self-efficacy [20]. However, the findings on the association between antenatal depression and breast-feeding are inconsistent [10,11,21]. Pippins and colleagues [22] found that antenatal depression predicted early cessation of breastfeeding and other studies [23,24,25,26] indicated that antenatal depression was associated with reduced breastfeeding initiation; non-significant associations have also been reported [21]. These discrepant findings may be explained by different research methodologies for assessing depression or breast-feeding, and variation among studies in the intensiveness of measurement and the consideration of confounding psychological and

socio-demographic factors. Therefore, further prospective longitudinal research with large samples is needed, which considers antenatal mental health, psychological and socio-demographic predictors and confounds.

It has been reported that the majority of women (82–97%) decide on the infant feeding method during pregnancy [21,27,28]. Of those who have a favourable attitude towards breastfeeding at this time (75–97%), the majority do initiate breastfeeding after birth [11,29]. Previous research [30,31] has shown that maternal infant feeding attitudes are frequently strong predictors of choice of infant feeding method and duration of breastfeeding [32]. However, the aforementioned research did not consistently consider the likely confounding influence of antenatal mental health and socio-demographic predictors. Several socio-demographic factors have been linked to higher rates of prolonged breastfeeding, including older age and higher education [11,2], whereas other factors are negatively associated with breastfeeding practices, notably low socioeconomic status, smoking, previous problems with breastfeeding, mother's return to work and low social support [11,2,17]. The degree to which antenatal mental health and attitudes towards breastfeeding predict independently of these socio-demographic factors is not yet clear [33].

Antenatal depression was previously found to be associated with higher intention to formula feed [24]. Similar evidence was also found linking postnatal feeding attitudes to postnatal maternal mood [34], reporting a possible impact of depression on attitudes towards breast-feeding [35]. The possibility that attitudes towards breastfeeding may be conditioned by depression, or that these variables might moderate or affect each other, should be considered, since it may help to better understand the independent role played by depression and attitudes towards breastfeeding in terms of predicting breastfeeding.

Identifying factors that may contribute to shorter breastfeeding duration, especially if they are modifiable, is a high research priority. Parental attitudes as well as maternal prenatal depression may provide much greater potential as intervention targets than unmodifiable demographic factors. Recently it has been shown how essential breastfeeding is for the improvement of children's survival rate in low, middle and high-income countries [36], but up to now, the extent to which prenatal depression influences breastfeeding has not been clear. Therefore, we sought to understand which antenatal factors are relevant to breastfeeding continued practices. The current study aims to clarify the independent impact of multiple potential antenatal and postnatal predictors of breastfeeding, namely self-reported smoking, mother and partner's education, mother's age at delivery, parity, mother's return to work, ethnicity, length of breastfeeding of previous baby, baby's sex and baby's head circumference, on breastfeeding practices while assessing breastfeeding for 6 months postnatally. By doing this, we intend to clarify inconsistencies in the literature. The possibility to evaluate depressive symptoms from 18 weeks prenatal through 8 weeks postnatally together with a wide range of covariates in a large prospectively followed community sample provides considerable methodological advantages. We hypothesise that maternal age, antenatal depression and attitudes towards breastfeeding will be significant predictors of breastfeeding practices.

2. Methods

2.1. Sample

The sample was obtained from the Avon Longitudinal Study of Parents and Children (ALSPAC), which is a large-scale study investigating biological and environmental influences affecting a person's health from pregnancy until later life. The study included all pregnant women living in the former county of Avon, South-West England who had an estimated delivery date between 1 April 1991 and 31 December 1992 and who agreed to take part. It was estimated that 80–95% of the population participated, resulting in a cohort of 14,541 pregnancies and

13,988 (52% boys and 48% girls) singletons/twins still alive at 12 months of age [37]. For our analysis, we used $N = 9479$ participants for whom data were available on all variables of interest. Participants had been followed via postal questionnaires since recruitment. The ALSPAC study website contains details of all of the available data through a fully searchable data dictionary (http://www.bris.ac.uk/alspac/researchers/data-access-data-dictionary/).

Ethical approval for the study was obtained from the ALSPAC Law and Ethics Committee and local research ethics committees before commencement of the study. Written informed consent was obtained at recruitment.

2.2. Measures and procedures

2.2.1. Maternal depressive symptoms

Maternal depressive symptoms were assessed using the Edinburgh Postnatal Depression Scale [38], a widely-used 10-item self-report questionnaire designed to measure postnatal depressive symptoms. This measure was successfully validated for use during and outside of the postnatal period [39], and each item is rated on a 4-point Likert scale (0–3), with a total score ranging from 0 to 30. Scores on the EPDS index clinical disturbance based on diagnostic criteria [40].

2.2.2. Breastfeeding

Self-reported information on breastfeeding for day 1, week 1, week 2, week 3 and week 4 was assessed as exclusive breastfeeding, mixed (breastfeeding and formula) feeding, or exclusively formula feeding; because of our interest in exclusive breastfeeding, we re-scored responses to indicate exclusive breastfeeding (1 = yes, 0 = no). At 6 months, mothers were asked if they engaged in any breastfeeding (1 = yes, 0 = no). Due to the different response sets, data on breastfeeding were analysed separately for day 1 through week 4 and at 6 months.

2.2.3. Attitudes towards breastfeeding

Attitudes towards breastfeeding were measured at 32 weeks gestation using the Attitudes to Infant Feeding scale, a measure designed and validated by the ALSPAC team [41]. This is a self-report questionnaire measuring positive or negative maternal attitudes towards breastfeeding. It consists of 7 items rated on a 5-point Likert scale (1–5, strongly agree to strongly disagree). The statements in the questionnaire are "Breast-feeding stops a mother from having the freedom to do what she wants", "Bottle-feeding allows the father to share the child more", "Breast-feeding is difficult", "Breast-feeding gives the mother a special relationship with her baby", "A mother who does not breast-feed is inferior", "Bottle-feeding is more convenient for the mother" and "Breast milk is better for the baby". A factor analysis indicated two factors: positive attitudes (e.g., "Breast milk is better for the baby") and negative attitudes (e.g., "Bottle-feeding is more convenient for the mother") towards breastfeeding. The two factors were highly correlated ($r = 0.58$) and showed similar associations with predictor variables and covariates (not tabled). Accordingly, we reverse-scored the negative attitude items to create a single scale, which had an internal consistency (Cronbach's alpha) of 0.73.

2.2.4. Covariates

Many potentially relevant antenatal, obstetric and psychosocial variables were included in the analysis. These variables were identified based on evidence from the literature regarding breastfeeding [42,43,44]. These included: *Self-reported smoking*, defined as tobacco smoked in the first 3 months of pregnancy, collected at 18 weeks gestation, rated on a scale from 1–5 and coded as 1 = no, 2 = yes for cigarettes, 3 = yes for cigars, 4 = yes for pipe, 5 = yes for other; *mother and partner's education*, collected at 32 weeks gestation, rated on a scale from 1–5 and coded as 1 = CSE (Certificate of Secondary Education), 2 = Vocational education, 3 = O-level (Ordinary level,