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Review article

A narrative review of interventions addressing the parental–fetal relationship

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ABSTRACT

Background: Expectant parents develop varying degrees of emotional affiliation with the unborn child. Interventions supporting this relationship may be beneficial given its link to maternal health behaviour during pregnancy, as well as the parental–infant bond after birth.

Aim: To identify and describe the effects of programmes and strategies that have addressed the parental–fetal relationship.

Method: English-language primary studies, published between 2005–2015, were identified and their methodological quality was assessed. Databases used included CINAHL, Cochrane Library, MEDLINE, PsycINFO and Web of Science. Key search terms included maternal/paternal–fetal attachment, prenatal bond, parental–fetal relationship and intervention. RCTs, non-RCTs, observational and non-comparative studies, before and after studies and case studies were included.

Findings: Twenty-seven papers were included. Studies evaluated the effects of various strategies, including ultrasound and screening procedures, fetal awareness interventions, social and psychological support techniques, educational programmes and relaxation strategies. Results are inconsistent due to the diversity of interventions and significant variation in methodological quality.

Conclusion: There is insufficient evidence to support definitive conclusions regarding the efficacy of any included intervention. A number of limitations, such as non-probability sampling, lack of blinding, and insufficient follow-up weaken the evidence. The inclusion of fathers in only three studies reflects the overall neglect of men in research regarding the prenatal relationship. Further in-depth study of the nature of the maternal/paternal–fetal relationship may be needed in order to allow for the identification of interventions that are consistently beneficial and worthwhile.

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Statement of significance

Issue

The degree of emotional affiliation that expectant parents develop towards their unborn child varies, and is influenced by psychosocial and contextual factors. Interventions supporting this relationship could have long-term beneficial effects.

What is already known

Previous research has suggested that a robust parental–fetal relationship is linked to more positive maternal health behaviour during pregnancy, as well as secure parental–infant bonds after birth.

What this paper adds

There is insufficient evidence to reach definitive conclusions regarding the efficacy of reviewed interventions. The construct of parental–fetal relationships lacks conceptual clarity. Inductive research may be necessary prior to the development of consistently beneficial interventions.

Abbreviations: RCT, randomised controlled trial; PFR, parental–fetal relationship; MFR, maternal–fetal relationship.

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1. Introduction

Over the past fifty years there has been increasing recognition that the development of the relationship between parents and their infants begins prior to birth, during the antenatal period.¹ Pregnant women adapt to their pregnancy, and their impending motherhood role, in varied ways, and there are individual differences in the degree of connectedness, or emotional affiliation, they develop towards their unborn child.² In this respect, the parental–fetal relationship (PFR) is thought to “be related to cognitive and emotional abilities to conceptualise another human being”,^{3(p185)} and to be influenced by the socio-cultural context in which it develops.^{4,5}

It has been hypothesised that studying the PFR offers a unique opportunity to understand the way in which the child is envisioned by each of his/her parents, which is uncomplicated by early parenting experiences and infant temperament.⁶ The importance of gaining knowledge about the development of the PFR during pregnancy lies in its surmised link to parental–infant attachment that occurs after birth. The PFR has been identified to be a predictor of subsequent postnatal bonding for both fathers⁷ and mothers.^{8,9} Furthermore, positive correlations have been found between the strength of the maternal–fetal relationship (MFR) and later observed maternal behaviour such as sensitivity,¹⁰ involvement with, and stimulation of, the infant,¹¹ as well as self-reported maternal concern¹² in the first year of the infant’s life. Through such pathways, the PFR is believed to play a critical role in the child’s well-being and emotional and cognitive development.^{7,8} The MFR is thought to also be associated with the mother’s health behaviours and self-care during pregnancy,¹³ with this relationship mediating the link between MFR and adverse neonatal outcomes, such as low birth weight and preterm birth.¹⁴

It has been widely suggested that the PFR is a cumulative process, developing over the gestational period.^{15,16} However, other predictors and correlates of the PFR are less certain, with related research being characterised by highly inconsistent results.^{2,15} It is, for instance, unclear how psychological health in the antenatal period may influence the PFR. While some research has suggested a link between psychological compromise and a less positive prenatal relationship,^{13,17,18} others have discredited such an association.^{19,20}

Attempts to link social support to the PFR have similarly been marred by inconsistencies. Tentative conjectures based on available research suggest that in vulnerable populations, such as adolescent mothers²¹ and socio-economically disadvantaged individuals,²² the MFR may be stronger in the presence of adequate social support. However, the influence of social support is less clear in non-vulnerable populations.^{23,24}

Such correlational inconsistencies may stem from contrasting conceptualisations of the bond,^{25,26} which has resulted in a plethora of tools measuring different aspects of the construct. Furthermore, the use of attachment theory as a guiding principle in existing conceptualisations has been questioned, with researchers objecting to the term ‘attachment’ being used to describe the parent-to-child aspect of familial relationships rather than the reverse. Fundamental to the attachment theory, as proposed by Bowlby,²⁷ is the bi-directional social and psychological interaction of a child with their caregiver in order to elicit protective and comforting behaviour. Conversely, the prenatal relationship is largely uni-directional, incorporating parental cognitive and emotional reactions to the unborn child.²⁵ This, and related dispute regarding the terminology used to talk about the prenatal bond, is the primary reason that it is referred to as the PFR throughout this paper, rather than parental–fetal attachment, as more commonly found in the literature. A final problem in the research area is the paucity of studies looking into the paternal

aspect of the prenatal relationship, despite the knowledge that fathers’, as well as mothers’, develop conceptualisations of, and express feeling of closeness towards, their infants in the prenatal period.²⁸

Despite these issues, a growing number of researchers have attempted to develop interventions to address the PFR. If the PFR indeed represents the beginnings of parental conceptions about the child, then supportive interventions of this kind could have important implications for both the parents and the child in the perinatal period and beyond. The purpose of the narrative review is to identify, and describe the effects of, programmes and strategies that have addressed the PFR.

2. Methods

2.1. Search strategy

A search strategy was formulated and searches of major relevant databases were conducted in November 2015. The databases used included CINAHL, Cochrane Library of Controlled Trials, MEDLINE, PsycINFO and Web of Science. Pertinent search terms, as illustrated in Fig. 1, were used in pre-determined combinations.

The relevance of the retrieved papers to the PFR was initially established through a screening of titles and abstracts. If it was determined that a paper might be eligible, the full text was obtained. The acquired papers were then read in their entirety to establish whether they met eligibility criteria for inclusion in the review. In addition, a manual search of the reference lists of relevant articles was carried out in order to identify further eligible publications, and search alerts were set up on the identified databases for notification of new results on saved searches.

Papers considered eligible for inclusion were those which: focused on an intervention that addressed the PFR; were published between 2005–2015; in English; and consisting of research of quantitative or mixed methodology. Randomised and non-randomised controlled trials (RCTs and non-RCTs), observational and non-comparative studies, before and after studies, and case studies were all included. Papers were excluded if they did not have a relevant outcome measured in the antenatal period, or if they took the form of editorials, commentaries, conference proceedings or features. Assessment of eligibility for inclusion was initially conducted by the primary author (NBC), and subsequently discussed with co-authors (JJ, RBX and AP) to reach a final decision.

Data was extracted through the use of a data collection form incorporating attributes of the research such as purpose and design, as well as strengths and limitations. Table 1 provides a detailed summary of the included papers.

2.2. Data quality assessment

The included papers were evaluated by the primary author (NBC) to assess the risk of bias within the research and to determine the extent to which their findings could be generalised to the source population. This helped determine the level of confidence that should be placed on the conclusions drawn. For assignment of a quality level to each eligible study the ‘quality appraisal checklist for intervention studies’ was used. This checklist forms part of the revised ‘Graphical Appraisal Tool for Epidemiological Studies (GATE)’, developed by Jackson et al.,²⁹ and revised by NICE.³⁰ It allows for the assignment of hierarchical scores to separately indicate the study’s internal and external validity. The scores range from ‘++’ through to ‘–’, as determined by whether vital criteria are fulfilled. Key aspects of study design are appraised, including population criteria, method of allocation to intervention

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