Might prevention be better than cure?

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Perspective on the paper by Hiscock *et al* (see page 952)

It is normal for infants to wake and feed at night during the first few months, especially when breast fed. Indeed, such behaviour is adaptive, since it secures the nutrition necessary for physical development and brain growth, and is particularly important for vulnerable infants.¹ These adaptive aspects of frequent night waking become increasingly less important as the infant grows, and by around 6 months of age infants are usually able to sustain prolonged periods of sleep when they do not wake to feed, without any costs in terms of their physical development. Nevertheless, a substantial proportion of infants aged 6 months and older may wake and then have difficulty settling back to sleep without their parents' active intervention (see Stein and Barnes² for a review). In fact, it is this settling difficulty, rather than the awakening per se, that is the key factor distinguishing between infants with and without sleep problems.³⁻⁵ Although there are cultural variations, daytime demands on parents in many societies are such that getting the infant to sleep throughout the night without the need to actively intervene is often a high priority. Indeed, it is well-established that sleep difficulties in infants, and the associated reduction in parental sleep, are associated with impairments in family relationships, lower parental mood and poorer daytime functioning^{3, 6, 7}; and when infant sleep problems are marked, they are predictive of subsequent child behaviour problems.⁸⁻¹⁰

The development of infant sleeping habits is a complex matter: individual differences in infant state-regulation capacities, and in the ability to shut out stimulation, can directly affect the ease with which the infant can slip smoothly into a sleep state without active parental intervention, as well as the likelihood that the infant will sleep through environmental disruptions.^{3, 11} Aside from infant characteristics, however, there is good evidence that parenting behaviours, and particularly strategies implemented around the time of initially getting the infant off to sleep, or in response to night waking, are important. Active parental involvement and support to the infant

during the transition to sleep (eg, feeding, rocking, stroking) may limit the development of skills that enable the infant to manage awakening and resettling independently, or else it may establish learned associations for the infant between the act of falling asleep and parental intervention.¹²⁻¹⁴ Helping infants to develop good capacities to self-regulate their state and become accustomed to shifting to a sleep state in the absence of parental ministrations is, therefore, desirable. How easily this can be achieved will depend, in part, on individual differences in infant state-regulation capacities, but it is also likely to depend on parental characteristics, such as depression or the degree to which parents may experience anxiety when encouraging their infant to settle independently.¹⁵ Finally, broader life style variations are relevant: for parents living in crowded or chaotic conditions, where their own diurnal rhythms may not be clear cut, and where opportunities to settle infants to sleep separately may be limited by constraints on space, it may be difficult to achieve those patterns of infant care that promote prolonged night-time sleep.^{16, 17} There is, therefore, a need for effective interventions that are acceptable to parents across a broad socioeconomic spectrum, that can be readily implemented and, ideally, that are deliverable within the primary care context, thus ensuring maximum access. The study of Hiscock and colleagues aimed to achieve these objectives, as well as to bring about improvement in maternal depressive symptoms.

A number of aspects of Hiscock and colleagues' study are notable. Firstly, the intervention was taken up and implemented by a large proportion of the target population (who came from a broad sociodemographic range), the intervention was delivered by primary health care nurses, and it brought about significant and sustained improvements in infant sleep patterns. Further, there was some evidence of the treatment's cost effectiveness when compared to routine care. Nevertheless, although there was some improvement in maternal depressive symptoms and in associated disability, the absolute size of the differences

between intervention and control groups on these outcomes was small, and the clinical significance of these findings is therefore uncertain. This is consistent with research into treatments for post-natal depression, which shows that dealing with infant problems alone does not necessarily lead to improvements in maternal mental state,¹⁸ suggesting that it may be important for interventions to target depression directly, where relevant.

Most notable in Hiscock and colleagues' study are features of the intervention itself. First, the identification, in the course of a nurse consultation, of infant sleep habits, and the formulation of a plan of action that was specific to the infant and family, contrasts with approaches providing uniform information (see Ramchandani *et al*¹⁹ for a review). This aspect of the intervention is line with the evidence base on the role of infant individual differences, and of particular practices and learned associations that parents and infants may have evolved over the previous months, in the development and maintenance of sleep problems. Similarly, the fact that parents were offered a choice of intervention approach, that is, "controlled crying", a type of extinction programme which involves the infant being left to cry and fall asleep alone for increasing time intervals, versus "camping out" where parents could be present but progressively reduced the time spent with the infant, addresses a problem encountered in previous studies that have involved only controlled crying, where achieving good compliance can be difficult; this is principally because parents find the procedure distressing or consider it unkind.²⁰⁻²³ Consistent with evidence-based accounts of the development of sleep problems, those aspects of the intervention parents considered most helpful allowed them to gain a focused and specific understanding of their own infant's behaviour, that is, profiling the infant's difficulties, learning what made the infant's sleep better or worse, and actively practising strategies designed to promote the infant's capacity to manage sleep transitions. Advice that was more generic (eg, on well-being, on the nature of sleep cycles, and general information on infant sleep) was perceived to be less useful. Most striking, however, was the frequency with which emotional support was endorsed as being important, an aspect of treatment that seems likely to have been particularly important in maintaining compliance.

Although the intervention of Hiscock and colleagues was successful in reducing the rate of infant sleeping problems, a note of caution is required. The fact that infants were left to cry in the principal

intervention adopted does raise possible concerns; attachment research, investigating the early relationships formed between infants and their primary caregivers, has shown the importance of responsive parenting, and particularly responsiveness to distress.²⁴ These early relationship bonds are critical to the healthy development of infants, and we do not know if there are longer term consequences of leaving infants alone when distressed, in terms of the development of insecure attachment relationships. To our knowledge, no studies have examined infant attachment as an outcome of interventions to promote better sleeping patterns. Given this uncertainty, it might be reasonable to assume that some parent-child dyads might be more susceptible to problems caused by using extinction than others. For example, a week of crying in the context of an otherwise secure and positively predictable relationship might be fine, but perhaps it may be problematic for those with poor existing relationships. That being said, if infants are frequently waking their parents, thereby placing them under considerable strain, and if extinction-based strategies solve the problem within a few weeks, adopting such procedures may be beneficial overall.

Nevertheless, preventive approaches should also be considered. Thus, while it is inadvisable to seek to reduce infant night feeding itself in the early months, how the infant is handled subsequent to feeding, and the way in which the infant is settled, may have a significant impact on the subsequent rates of developing sleep problems.²⁵ An increasing number of studies now suggest that offering parents sleep education and prevention strategies during the antenatal period or the first few months of the infant's life may prove an effective intervention.²³⁻²⁶ It is becoming increasingly clear that interventions during the antenatal period and early infant life can have a significant impact on various aspects of parental health and child health and development. While there will always be

families and infants who develop difficulties, we may be moving towards a time where efforts to prevent these difficulties, including infant sleep problems and maternal depression, become the norm rather than the exception.

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