

Editorial

Investigating mother-infant interaction

The psychological wellbeing of patients is now recognised as deserving of attention, particularly as it affects perceptions of pain and rates of recovery. The psychological wellbeing of ill infants and their parents, and the quality of interactions between the two, may have wider ramifications. The study reported by Gardner *et al* in this issue (page 56) considers the effects of congenital heart disease on infants' emotional development. The authors' account stimulates a number of questions, both methodological and interpretational. Before considering these, it is worth briefly reiterating the reasons for researchers' particular interest in early mother-infant interactions.

The importance of early infant interaction

The nature and importance of mother-infant interactions has been studied extensively since Bowlby stated in 1951 that "mother love in infancy and childhood is as important for mental health as are vitamins and proteins for physical health".¹ Bowlby's work stimulated research into children's responses to separation from their mother, who is usually taken to be the infant's main carer, resulting in the extremely influential studies and writings of Ainsworth *et al* on attachment.² Attachment theory postulates that early mother-infant interactions result in internal understandings and expectancies which affect the developing child throughout her life. Ainsworth *et al* described categories of attachment style which have remained remarkably stable over many replications of their study, and have consistently been shown to correlate with emotional and behavioural patterns in childhood and adulthood. In addition, early communication patterns have been shown to be important for the development of language, and cognitive processes.³ Thus it is now generally recognised that early mother-infant interaction can set the child on a particular developmental path. As Gardner *et al* note, there are good reasons for researching the incidence of particular difficulties in early interactional processes between parents and their infants with congenital heart disease. However, an appreciation of some of the issues arising in such research is important in assessing and interpreting results.

Measuring the quality of interaction

To identify difficulties in early interaction, the quality of the interaction between mother and infant needs to be measured. This firstly necessitates sampling the behaviour to give representative data; but immediately the problem arises—how can a researcher observe behaviour without influencing it? For instance, how far does a mother's confidence in her mothering ability affect her interaction "under lights"? Can good mothering behaviour be turned on for show? In addition, how can the researcher control for other contextual and situational factors that might have an effect on the interactions observed, such as length of time since the last meal, or the temperature of the

room; whether the mother had a row with her partner that morning, or is anticipating difficult days ahead—for example a major operation on her child?

To overcome some of these difficulties many studies of early interaction take a very large number of measures, and observe the mother-infant pair over a number of occasions and situations. For instance in Ainsworth *et al*'s longitudinal study the mother-infant pairs were observed for four hours every three weeks for the child's first year.² In addition to observations, studies have taken other measures of mother-infant characteristics—to take into account personality, life stresses, and observer ratings—giving up to 50 measures in all. Of course, many researchers do not have the resources to undertake studies of this magnitude, but "what is needed are multiple measures that are taken together to yield a new composite index of quality of infant-adult attachment that gains reliability and validity by avoiding exclusive reliance on behaviour observed in one context on one occasion".⁴

Coding observations

Given that observing mother-infant interaction is a necessary part of measuring the quality of that relationship, once the sampling of the behaviour is agreed a further methodological problem arises: how to categorise the observed behaviour. The use of video recorders to observe events time and again has meant that sophisticated coding systems can be used to provide a detailed analysis of sequences of behaviour both between and within individuals. Caldwell described a coding system which has nine specific behaviours in each of 74 categories (though Caldwell admitted that it requires such a long period of training and such determination and stamina to use that it represents the ideal rather than the practical).⁵ However, detailed analysis of video records does show the complexity of the sequences of interactions and the subtleties of communication between infants and mothers which more crude coding systems may fail to measure.⁶ On top of this, if a score representing the value of the mother-infant interaction is required, the behaviours need to be categorised as positive or negative, or, possibly, neutral. This requires the researcher to make value judgments, for example: is it bad to stop a baby dropping his dinner on the floor, and is something wrong if the baby then protests?

Unfortunately that is not the end of researchers' problems. Let us say that the sampling of the mother-infant interaction is satisfactory, and the coding and categorisation of the observed behaviours reliable and valid. The results then need to be interpreted, giving meaning to the observations in relation to the emotional development of the infant.

Factors affecting interactive styles

If a significant number of mothers and their infants with

congenital heart disease have interactional difficulties it will be useful to attribute the causes in order to take appropriate action. Studies on mother-infant interaction have shown the significance of maternal factors—for example personality, social support, and the impact of significant life stresses—whereas others have shown the effects of the infants' attributes—for example the extent of crying and vulnerability, and the importance of infants' wider social experiences. Thus there are many factors which may affect interaction—both intrapersonal and interpersonal—and similar behaviours may be due to different influences. Relevant factors to consider here might be maternal/familial responses to the congenital heart disease and infants' temperamental differences in coping with illness. This suggests the need for looking at, for instance, the rate of postnatal depression and mothers' perceptions of themselves as mothers, as well as maternal mood in the past three weeks and infant characteristics. Also parents may be reluctant to attach to a baby who they know may not survive.

Predictability

How useful are early interaction measures in predicting future emotional adjustment? Research has shown that early mother-infant interaction generally predicts later attachment style, but that the impact of early experiences can be ameliorated or exacerbated by subsequent events: the ability to predict future behaviour is only robust when there is stability in the quality of parent-child relations.⁴ Infants with congenital heart disease which may be corrected by surgery when young, and parents whose anxieties are allayed, are more likely to experience changes in the quality of their interactions than many others. It can not be predicted, therefore, what the long term effects of any early difficulties identified for these children will be. There is also the continuing problem of the relative value of interactional behaviours. How "negative" does the interaction have to be before the child is "damaged": none of us

can be perfect parents—at what point is parenting not good enough?

Intervention

Clearly there is more research to be done with infants with congenital heart disease: risk factors are present, and the study published in this issue indicates that some parent-infant pairs do have difficulties. Further detailed research will take resources and time to produce useful information that can guide us towards effective and targeted interventions. In the absence of such research, perhaps we should all continue to be aware of the impact a diagnosis of congenital heart disease has on parents and on the continuing development of the child. Ongoing support, information, and advice relating to the illness and the impact it has on all the members of the family is of great importance. However, the last thing parents need is the implication that their caring is not good enough. Reassuringly most infants form attachments to parent figures regardless of variations and even frank deficiencies in their quality of care and for the vast majority of children parenting is "good enough".

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