

CURRENT TOPIC

Persistent infant crying

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Persistent infant crying is a common cause of maternal distress and family disturbance and has been linked with child abuse.¹ In addition, its treatment is expensive of both time and money.² Perhaps surprisingly, it is only recently that systematic attempts have been made to quantify and categorise such crying.

Epidemiology of infant crying

Brazelton's original data on 80 American cases in private practice³ have recently been supplemented by larger scale studies of normal communities in Canada^{4 5} and England⁶ and by a clinical data set of 68 cases.⁶ Important limitations are that all these data stem from maternal diaries and questionnaires combining crying and 'fretting'. There is broad agreement about the following findings:

(1) Crying levels increase from birth to a peak at about 6-8 weeks, following which there is a rapid decline. At two months, average total fuss and crying times of 2-2½ hours/24 hour day have been reported by the three studies. Prolonged crying is common at this early stage, with 29% of Northamptonshire infants crying for three or more hours a day during the first three months, declining to roughly 7-10% thereafter.⁶

(2) Rates of maternal distress and referral parallel these crying figures, so that in the first three postnatal months, 20% of Northamptonshire mothers reported being upset by their baby's crying in the preceding week, and 11% had sought recent clinical referral for such crying. The corresponding prevalences were 7-13% and 3-4%, respectively, during the remainder of the year.⁶

(3) Infant crying is not uniform across the day, but shows a circadian organisation from the first weeks onwards. In the first quarter, crying commonly clusters in the afternoon and evening. Of Northamptonshire infants, 21% were reported to cry for two or more hours between 6 pm and 12 am, declining to 3-5% thereafter.⁶

(4) In the Northamptonshire data, the afternoon and evening clustering of crying declined in the middle of the first year. At the age of 9 months, crying during the night became more common, but was confined to infants who were persistent criers more generally.⁶

(5) Infants referred to health visitors or general practitioners for crying problems cried two to three times longer than the mean community levels.⁶ These infants showed the same crying pattern features (such as the afternoon and evening peak) as the community

sample, but cried repeatedly throughout the day.

Because maternal observations are central to clinical practice, these figures and the methods used to obtain them seem likely to be useful in primary healthcare.⁷ So far as the aim is to draw specific conclusions about infant crying, it is becoming clear that a broader data base, together with clearer distinctions about patterns and types of crying, is needed. Crosscultural data from non-westernised societies are lacking and would help to establish the generality of the crying patterns noted here. To increase precision of measurement 24 hour voice activated tape recordings are useful, both for delineating crying and probing the bases for maternal reports. Although this method has so far been limited to small samples, it has confirmed the validity of two maternal findings: the six week afternoon and evening peak and high crying levels in clinical cases.⁶

Colic

The term 'colic' has three distinct meanings. The first refers simply to the amount and, to a lesser degree, the intensity of infant crying. For instance, the 'rule-of-threes' described by Wessel *et al* defines colic as 'paroxysms of irritability, fussing, or crying lasting for a total of more than three hours a day and occurring on more than three days in any one week'.⁸ In this sense the term colic overlaps with the term 'persistent crying' used in the present paper, although no account has been taken so far of the intensity of crying. At present there is no clear reason for the selection of three hours or days of the week for use in definitions and other criteria are also used.

A second use of 'colic' is to designate parental (usually maternal) referral for problem infant crying and associated behaviour.⁹ Because the likelihood that mothers will seek referral depends on maternal features and on the accessibility of referral services, cases of colic identified in this way will have a different prevalence, and may be of a different type, from those defined by infant behaviour.

The third use, reflecting the implication that colic is a syndrome of gastrointestinal disturbance, infers the existence of pain which is associated with digestion. As Illingworth noted, many reports have been published, which have failed to show intestinal or other abnormalities in infants diagnosed as having colic, so that this approach rests largely on the finding that the anticholinergic drug dicyclomine hydrochloride is an effective treatment in some cases.¹⁰ It is

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also unclear which aspects of behaviour are indicative of colic pain. For instance, evidence is lacking that colic crying is distinct from more general crying, while symptoms used diagnostically by some clinicians—expelling flatus or drawing up of the knees—are not considered symptomatic by others (H Keller, *et al.* The concept of colic and infant crying in paediatrics. Presented at Third International Workshop on Infant Cry Research, Helsinki, July 1989). Likewise, there are differences of view between nurses and mothers. Mothers link colic more specifically to crying that occurs at a particular time of the day—that is, in the evening (PA Field, D Gojmerac. Mothers' and nurses' idea of colic. Presented at the Third International Child Health Congress, London, March 1990).

Given this lack of consensus about how to define and measure colic, it is not surprising that estimates of its prevalence have ranged from 10 to 40%.¹¹ Arguably the term's etymological origin (Greek *kolikos*, the adjective of *kolon*) should confine its use to describing digestion related behaviour, in which case effective ways of distinguishing such behaviour are needed. It is unclear why digestion related crying should occur particularly in the evening; there should presumably be a systematic relationship between the periodicities of feeds, of digestive processes, and of related behaviours. One promising line of inquiry stems from the finding that a minority of infants (perhaps 4%) respond to cows' milk whey protein challenges with intense crying. This is consistent with an allergic response, so that if the mechanism can be specified the way is open for the establishment of a specific link between physiological processes and crying, albeit for a small number of infants. In the meantime it is important not to lose sight of a further, psychoprophylactic, use of the term 'colic'. Faced with unsoothable infant crying, many mothers and some professionals use the term to attribute the cause of the crying to short lived disturbances in a normal infant, as opposed to deficiencies of care. In this sense the concept of colic can be useful in alleviating feelings of inadequacy. Where neglect can be ruled out, it may be appropriate to respect this view until a more effective one is available.

Causes of persistent infant crying

PHYSIOLOGICAL DISTURBANCE

Crying is a 'final common pathway' for a variety of illnesses and physiological disturbances, but these are usually detectable by routine clinical practice.¹² Several studies have suggested that crying may be linked with certain suboptimal conditions during pregnancy and birth, but consistent evidence of such a link is lacking.¹³ The most promising evidence for an organic reason for infant crying comes from the finding of cows' milk whey intolerance in a minority of cases. Most infants who cry for prolonged periods do not seem to have organic disorders and grow up and develop normally.¹¹

TEMPERAMENT

The idea that some infants are constitutionally

predisposed to be difficult stems from the New York Longitudinal Study of Temperament.¹⁴ The authors emphasised, however, that difficult temperament is not synonymous with crying, but includes features such as irregularity of biological functions, withdrawal, unadaptability, and intensity of response.¹⁵ Further, crying as an individual characteristic lacks stability, which is generally agreed to be a defining feature of temperament. That is, most studies have found that there is little overlap between the infants who cry a lot during the first quarter and those who cry later in the first year.¹⁶ The stability requirement also means that temperament is unlikely to account for the predominant features of the clinical crying picture, that is, the age related and time of day crying peaks. It is possible that temperament contributes to other aspects of crying, such as crying vigour, or that, for instance, infants who need high levels of stimulation cry if such needs go unmet. Studies on temperament have, however, thrown little light on these issues so far.

MATURATION

Both psychologists and neurologists have proposed that important 'shifts' of neuro-behavioural organisation occur at about 3 and 9 months, and it is tempting to link the crying peaks at these ages to such shifts. Central to this approach is the idea that such transitions are a normal part of development, so that the crying is a reflection of the infant's transitional difficulties. In turn, this view highlights the question of what sort of resources, internal and external, the infant needs to complete the transitions effectively.

This conceptual framework is attractive because it deals with the main features of the clinical findings about persistent crying. Two versions have been put forward, with Lester and Boukydis attributing persistent crying to delayed development of the parasympathetic nervous system,¹⁷ and St James-Roberts attributing it to 'jet lag' occasioned by the transition from a four to a 24 hour, diurnally organised, sleep-wake cycle.¹⁸ There is supporting evidence for both theories, but they await a thorough test.

INADEQUACIES OF CARE

Many claims have been made about parental factors that cause infant crying and parents are nowadays faced with an array of often contradictory advice.

An important distinction should be drawn between caretaking variations within and between cultures. Because prolonged crying is a problem in a sizable minority of infants in our society, the question is whether this can be attributed to normal intracultural variabilities in care. There are several arguments against this. Firstly, there is a high degree of stereotyping in how parents respond to infant crying—that is, they generally go through the same sequence of responses (talking, touching, picking up, and so on).¹⁹ Secondly, infants are unstable in their crying patterns, without corresponding varia-

tions in parental care.⁶ Thirdly, most studies have not found a birth order effect on crying, which suggests that parental inexperience is not a factor.⁶ Lastly, in a study of infants referred because of their crying, the parents made more efforts to soothe their infants than other parents. It is notable that parents of control cases did not need to make such efforts: the infants settled themselves.²⁰

These findings do not rule out a contribution of methods of caring, and several treatment studies, reviewed below, suggest that care patterns that are relatively uncommon in our culture may limit infant crying. Rather, the findings imply that persistent infant crying can exist in spite of patterns of care that are effective for most infants in our culture.

Prevention and treatment

Dicyclomine hydrochloride was an effective treatment in some cases, but has been withdrawn because of side effects.¹⁰ Double blind control trials have shown that cows' milk whey protein given as formula or breast milk, increases crying in some infants, whereas a diet free of cows' milk reduces crying in such cases.²¹ This may be applicable in only about 4% of infants but warrants consideration, particularly if an allergic response is suspected. A hydrolysed casein formula was used and the authors caution against soya based alternatives.

Interventions that focus on mother-infant interaction are also effective. An increased amount of carrying during the first weeks prevents crying, with particularly pronounced effects on the six week afternoon/evening peak.⁵ Counselling that focused on responsive, self-reliant mothering proved effective as a treatment,²² and was more effective than a diet that did not contain cows' milk.²³ Carrying and responsive caring have proved equally effective as treatments in other studies.⁹

These studies suggest that both diet and mother-infant interaction are potential areas of treatment. As yet the mechanisms are unclear, so that it is not possible to adopt a treatment selectively. Parent support remains a central

goal and the diaries and questionnaires used in recent studies should help parents and professionals to develop a clearer picture of the crying and to identify strategies for coping that meet the family's needs.^{4 6}

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