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Effective Services for Managing Infant Crying Disorders and Their Impact on the Psychological and Behavioural Development of Young Children

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Introduction

The sound of a baby's cry can provide information about his or her condition and nervous system integrity. However, the chief clinical concern has been with the amount or duration of infant crying, rather than its sound. In particular, prolonged unexplained infant crying is one of the earliest, most common, and most perplexing challenges for parents and the professionals who support them.[1] Three questions often arise which provide the focus for this article:

1. What is causing the crying?

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2. What should parents do about it?
3. What does it mean for the future — does it foretell a difficult or disturbed child?

Subject

Parents report that some 12–20% of apparently healthy 1–3 month-old infants in Western societies cry for long periods for no apparent reason.[2] This crying often worries these parents.[2] Because crying at older ages is much rarer and not as well understood, we will focus on crying during early infancy and its consequences, with some attention to crying in later infancy and childhood.

Problems

There are several reasons for seeking an evidence-based approach to unexplained crying in early infancy:

1. It distresses many parents, who view it as a sign that something is wrong with their baby and employ a variety of dubious remedies. Parents want proven advice.
2. Popular books give parents conflicting advice about how to manage infant crying, thereby compounding the problem.[3]
3. Some physicians attribute unexplained infant crying to reflux of stomach contents into the throat (Gastroesophageal reflux; GOR or GER) and treat this with medication, despite evidence that infant regurgitation is normal, reflux and crying are not related, and treatments for reflux are not effective in reducing crying.[4,5]
4. Because parents often seek professional help, the problem is costly for health services.[6] Cost-effective services for crying should conserve resources.
5. Parents who misinterpret their baby's crying as a sign of hunger may stop breast-feeding prematurely, or over-feed the baby.[7,8] The crying can also trigger parental distress and depression.[9,10] More rarely, exasperated parents shake or otherwise harm their crying baby, sometimes resulting in infant brain damage or death.[11] Preventive strategies are needed.
6. In some cases, adverse long-term parent–child relationships and child outcomes develop.[12] There is a need to understand the various outcomes and how to distinguish and help high-risk cases.

Recent Evidence

Unexplained crying in early infancy has traditionally been viewed as an infant problem attributable to gastro-intestinal disturbance, and often referred to as “infant colic.” Research has gradually qualified this view.[13]

Several studies have found evidence of untypical amounts of particular bacteria in the digestive systems of some babies who cry a lot – a finding which appears consistent with the notion of colic and gastro-intestinal disorder.[14,15] Some initial studies found, too, that feeding the babies particular probiotic (‘friendly’) bacteria seemed to reduce their crying. However, the largest and most rigorous study of probiotic supplements failed to find any benefits[16] and a review of the overall evidence concluded that adding probiotic bacteria to young babies’ diet is not recommended.[17] It remains feasible that gut bacteria are involved in some cases, but we don’t understand why this happens or how to distinguish them. This is an area for continuing research but not yet for clinical practice.

Likewise, although it is generally agreed that food intolerance, particularly involving cow’s milk, can give rise to infant crying, this is probably rare and there are no tests that identify such cases accurately. Diagnosis has to be based on a trial, for instance eliminating products containing cow’s milk from a breast-feeding mother’s diet, or substituting an extensive protein hydrolysate formula if infants are formula fed.[4,5,18] However, elimination of dairy products from the maternal diet may be challenging to achieve and there are no data to confirm how many mothers can comply. Changes to infants’ diets can cause adverse reactions, so that any such changes need to be monitored by a qualified professional.[18] Many infants with initial cow’s milk sensitivity will tolerate cow’s milk protein from 1–3 years of age, so that such infants should be reviewed at intervals until tolerance is developed.[18]

In sum, although it is generally agreed that digestive and other organic disturbances can give rise to infant crying, such disturbances are rare, occurring in about 1 in 100 infants overall, and about 5-10% of cases where parents seek professional help.[19,20] The evidence also challenges other long-standing assumptions, such as the belief that the crying signals underlying pain.[21] Instead, the feature that disturbs parents most is the ‘unsoothable’ nature of the crying, and parents’ attendant experience of losing control.[22,23] In particular, the long unsoothable crying bouts which occur in the first five months of infancy and then stop by themselves are the main source of parents’ frustration and are more important than the overall amount of crying.[24]

Several studies have found a crying peak in normal infants at around 4-6 weeks of age[2] and normal infants share many of the features of clinically referred cases. This suggests that, rather than being unwell, many referred infants are simply at the extreme of the norm for such behaviour. As a result, the search for causes has widened beyond the gut to include studies of the neuro-developmental changes that normally take place during early infancy.[25]

Prolonged crying in early infancy can occur in spite of excellent parental care[26] and does not usually predict long-term problems.[27] Indeed, the findings suggest that this crying is usually an acute, self-resolving phenomenon. Interventions geared towards reducing crying by changing Western parents' care methods have not produced reliable results.[28] Parenting which involves more holding and carrying, and greater responsiveness than is typical in Western societies does appear to reduce overall crying durations, but does not prevent the unsoothable crying bouts in early infancy which worry parents.[29] In the absence of infant organic disturbance, interventions targeting infant crying appear to be of questionable worth.

Because parental concern about crying is the presenting clinical complaint, it is important to recognize the parental, as well as infant, component of this problem. This involves distinguishing between 'prolonged crying' (which refers to crying duration) and 'excessive crying', (which refers to a parent's concern that a baby is crying too much and is a sign that something is wrong with a baby).[4,5] Infant crying that persists is stressful for most parents, but there is evidence that parental vulnerabilities increase both its impact on parents and the likelihood of the adverse outcomes listed above, such as parental depression, infant maltreatment, and long-term problems with child development. This evidence bridges the traditionally distinct areas of paediatrics (with its focus on infant crying) and adult wellbeing and mental health. In an important step forward, guidelines for clinicians have begun to recommend the need to assess parental circumstances, coping and wellbeing, as well as infant crying.[4,5]

Raising awareness and asking all parents to sign contracts not to shake babies produced significant reductions of Shaken Baby Syndrome (SBS) cases in a multi-centre trial[30] and other studies since have produced encouraging findings.[31,32] Recent programmes have widened their focus beyond SBS to include supporting parental knowledge and coping more generally.[33,34] It is too early to know whether programmes of this type will be cost-effective in general health services, but the evidence is promising.[31]

Most infants who cry a lot in early infancy do not have concurrent or later sleeping or feeding problems: the problems appear to be largely distinct.[35] However, the much rarer combination of persistent crying, sleeping, and feeding problems beyond 4 months of age and parental psychosocial risks has been found to predict adverse psychological and social development in later childhood.[36,37] Such infants have more extensive disturbances, and probably differ in etiology, from cases in which unexplained crying alone occurs solely in the first 4 months. The findings imply that infants over 4 months of age who both cry a lot and have multiple problems are at risk for developing long-term psychological and behavioural disturbances. The outcomes of irritable newborns from socio-economically disadvantaged families were improved by enhancing mother–infant interactions after 6 months of age in a carefully controlled study.[38] This finding is promising, but not yet translatable into cost-effective services.

Key Questions for Further Research

Questions for continuing research include the following:

1. How should practitioners identify and manage cases with an organic etiology? On current understanding, most young babies who cry a lot are in good health, but a minority (perhaps 5-10% of cases seen by clinicians) have an organic disturbance. Protocols for identifying and treating organic cases have been published,[4,5,39] but need to be evaluated in practice.
2. The distinction between “organic” cases, cases where parents are vulnerable, and low-risk cases depends on accurate assessment. Here too expert protocols have been proposed,[4,5,39] but need to be evaluated in everyday use.
3. Attempts to show whether infants who cry a lot are in pain have not found that is the case.[21] Moreover, a careful review concluded that young infants’ cries are ‘graded signals’ which convey the degree of their distress, but do not distinguish reliably between different causes, such as hunger versus pain.[40] Although that conclusion reflects current knowledge, we lack decisive methods for assessing infant pain. If a ‘neurological signature’ for infant pain can be found and tied to particular instances of crying, that would provide a compelling reason for clinical interventions in such cases.[4]
4. How can we explain the finding that many infants who cry a great deal go on to develop normally, while some suffer psychological and behavioural problems? Age and multiple risk factors appear to be important, but we need detailed understanding of the mechanisms involved and their implications for services.

5. Perhaps surprisingly, the question of how to evaluate treatments for unexplained infant crying and colic remains largely unresolved. Many studies have targeted reductions in crying compared to a control group, which seems necessary, but there is poor agreement on how this should be measured.[41] At least one treatment study found substantially reduced crying without any improvements in caregiver-reported problems.[42] To address unexplained crying and colic as a clinical complaint, we need to understand caregivers' perceptions of their infants. Measures of the infants' unsoothable crying bouts, of parent reported infant well-being, and of parents' satisfaction with interventions, need to be trialled and evaluated for general use.

Conclusions

Progress has been made in understanding infant crying and its impact on parents. Protocols for identifying and treating the small number of cases with organic disorders have been developed and need to be evaluated in practice. Most infants who cry a lot in early infancy are healthy and stop crying spontaneously. Interventions that target this crying have not proved effective. Instead, current recommendations for interventions with healthy infants focus on providing parents with information and support to manage the crying and their responses to it. Promising initiatives exist for preventing Shaken Baby Syndrome and providing parents generally with information and support, but it is not yet clear whether these programs can be integrated cost-effectively into routine health services. Prolonged crying after 4 months of age is rare and these infants are likely to have more extensive problems and a different etiology from cases in which crying alone occurs during the first 4 months. In combination, prolonged crying after 4 months of age and parental psychosocial risk predict adverse long-term child development. The reason for the crying in such cases, for good versus poor outcomes, and the contribution of infant crying per se to such outcomes, all require clarification.

Lastly, it is worth acknowledging the overall evidence that poor long-term psychological and behavioural development is typically the product of multiple and cumulative risks in the infant and family. Practices in the field are likely to be enhanced by continuing to consider crying together with other problems and risks in the infant and family, rather than by focusing on infant crying alone.

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