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Are the children of chronic pain patients more likely to develop pain?

Tiina Piira* a, b and Roy Pullukat** a, c

SUMMARY

This article reviews the current evidence on whether the children of chronic pain patients are more likely to develop pain problems than the children of pain-free parents. Genetic factors may have a role in some pain conditions, such as familial hemiplegic migraine and juvenile idiopathic arthritis. However, the literature suggests that in many instances environmental factors are likely to have a significant role and may render children whose parents have chronic pain more vulnerable to experiencing pain themselves. Many studies in this field are compromised by small samples and a reliance on retrospective reports.

Key-words: Child, Chronic pain, Parents.

RÉSUMÉ

Les enfants de patients atteints de douleur chronique sont-ils plus vulnérables à la douleur?

L'article recense les données qui assaient l'idée selon laquelle les enfants de patients souffrant de douleur chronique sont plus susceptibles de développer des problèmes de douleur que les enfants de parents sans douleur. Des facteurs génétiques peuvent avoir un rôle dans certains développements douloureux, comme c’est le cas de la migraine hémiplégique familiale, et de l’arthrite idiopathique juvénile. Mais la littérature suggère que, dans bien des cas, les facteurs environnementaux peuvent jouer un rôle significatif et rendre les enfants de parents souffrant de douleur chronique plus...
vulnérables eux-mêmes à l’expérience de la douleur. Beaucoup d’études dans ce domaine ont des résultats peu fiables en raison du petit nombre de cas rapportés ou du fait qu’elles s’appuient sur des données rétrospectives.

Mots clés: Enfant, Douleur chronique, Parents.

It is not uncommon for adult chronic pain patients to express concern over how their pain condition may be affecting their child. However, clinicians are often left fumbling to provide a sound response to this question. The current article reviews the evidence for an association between parent and child pain conditions, giving consideration to possible mechanisms for such an association.

Numerous studies have reported an aggregation between parent and child recurrent or chronic pain problems. [1-6] Amongst a paediatric rheumatology clinic sample, aged 6-19 years (n=89), more than 90% of children were found to have a parent reporting at least one chronic pain condition. [5] This figure seems remarkably high, particularly when considering that the general prevalence rates of chronic pain conditions in adult community samples have been reported at 17.1% for males and 20.0% for females. [7]

Children of chronic headache sufferers have been found to be more somatically focussed than children of illness-free parents. [4] Moreover, children who have parents with chronic pain have been found to themselves have more frequent abdominal pain and to use more medication than children of parents who do not have pain. [10] Interestingly, children of parents with chronic low back pain were more likely to complain about physical symptoms than children of diabetic parents or children of healthy controls, [11] suggesting that the nature of parental influence is likely to be more specific than simply due to the effect of having a parent with a chronic medical condition per se.

While many studies in this field are compromised by small samples and a reliance on retrospective reports, [12] a large-scale prospective, self-report study concurred with the above findings. [3] Goodman, McGrath and Forward (1997) [3] obtained data from 693 families (2,202 participants) using a 1-week parent and child self-report pain diary. Children whose parents reported more incidents of pain, more severe pain, and more disabling pain, were found to be at an increased risk of reporting pain and disability themselves. [3]

Adolescents with chronic pain have been found to be more likely to report pain in significant others and to have a higher number of significant others in pain than adolescents without chronic pain (matched for sex, age and educational level). [8] Moreover, the pain experienced by adolescents has been found to mirror the pain of their pain models in terms of location, frequency and intensity. [9]

The impact of parental modelling of pain behaviours on their child’s subsequent pain behaviour has been further illustrated in the experimental
work of Goodman and McGrath with healthy child-mother dyads. [13] Mothers were randomly assigned into one of the following three conditions: (i) instructed to slightly exaggerate their display of pain (ii) instructed to minimise their display of pain, or (iii) a control group not given specific instructions on how to display their pain. Children (aged 10-14 years) then observed their mothers complete the cold-pressor task (CPT), which involved mothers immersing their arm in cold (10 °C) water for a maximum of 4 minutes (they could take their arm out of the cold water at any time). After observing their mothers do the CPT, children were themselves administered the CPT. Children whose mothers had exaggerated their display of pain were found to have significantly lower pain thresholds than children whose mothers minimised their pain behaviours or were not told how to act. Given that such a brief experimental manipulation of maternal pain behaviour was found to have a significant effect on children’s subsequent pain behaviours, it would be surprising then if children who are exposed to parental pain behaviours over months and years are not influenced by these pain behaviours.

In contrast to the above-mentioned body of literature, a large cross-sectional survey did not find the children of pain patients to be at greater risk of developing pain than children whose parents did not have a pain condition. [14] Jones et al. (2004) recruited 1,326 children (12-15 years) from schools in the north west of England. Parental information was obtained for both parents for 681 (51.4%) children and for only one parent for 322 (24.3%) children. The study found that children whose parents both reported experiencing pain which lasted 1 day or longer during the past month were not significantly more likely to experience pain than children with neither parent experiencing pain in the past month (age adjusted RR=1.2; 95% CI: 0.9 to 1.6). The authors of the study went on to draw the rather paradoxical conclusions, that “Parental pain is not a risk for child pain. Pain behaviour is not learned. Rather, child pain is probably attributable to individual factors and the social environment” (p. 1152). [14] These conclusions seem contrary to the fact that many aspects of a child’s social environment are closely shaped by a variety of parental factors.

The results of the study by Jones et al. (2005) stand in contrast to the bulk of the literature in this area. One possible explanation for their findings may be that Jones et al. used quite a liberal criterion to assess pain problems in parents, asking parents the following question: “Thinking back over the past month, have you had any pain which lasted for 1 day or longer?” This definition may well include a variety of acute pain problems and not just chronic pain conditions. This may have resulted in a weaker association between parent and child pain. A stronger association between pain in parents and their children may be found in parents who experience more frequent, chronic pain.

Discrepancies in the literature regarding a possible association between parent and child pain conditions may also be partly attributable to many
studies not identifying specific genetic or environmental vulnerability factors that may be present in a only relatively small number of families within the study sample. For example, some families may share polymorphisms of genes in the serotonergic and catecholaminergic systems rendering them more vulnerable to fibromyalgia. [15] Other families may share certain environmental factors, such as an abusive home environment, that may potentially increase vulnerability to pain conditions (although evidence on the effect of abuse on the development of pain is mixed [16]). However, many community-based studies have assessed overall trends and hence the effects of such specific vulnerability factors tend to get averaged out.

While genetic factors may have a significant role in some pain conditions (e.g., familial hemiplegic migraine, [17] juvenile idiopathic arthritis [18]), twin studies suggest that environmental factors play a much greater role than genetics in accounting for differences in chronic widespread pain in children, [19] and in pressure pain threshold in adults [20]. A number of environmental influences may contribute to the aggregation of pain complaints within families, for example: (i) pain behaviours may be learnt through observing others displaying pain behaviours; [8] (ii) poor coping skills may be learnt from observing significant others, which may render individuals less able to deal with life's stressors such as pain; [21] (iii) shared lifestyle factors, such as poor nutrition [4] and lack of exercise, may impact on pain; and (iv) shared social factors, such as marital or familial tensions, [22], [23] or positive reinforcement contingencies for illness behaviours [24] may also render some families more vulnerable to pain problems. To date the majority of research in this field has been cross-sectional. Longitudinal studies are needed to establish causal mechanisms and to determine whether the shared vulnerabilities affect the onset, course or resolution of pain problems.

In conclusion, although the results are not unanimous [14], the evidence generally suggests that children of parents with pain conditions are likely to have a heightened vulnerability to developing pain conditions, as compared to children of pain-free parents. The nature of this vulnerability is not well understood. Nor is the research clear on whether certain protective factors can minimise such vulnerability. [25] Although genetic factors have been found to have a role in some pain conditions, environmental factors seem to be of particular importance. Identifying and addressing specific vulnerability and protective factors may prove a fruitful avenue for future research. Coaching adult pain patients to use more effective coping skills, [26] instructing patients and their families about the potential problems of unintentionally reinforcing pain and illness behaviours, [24], [27], [28] and addressing any marital issues precipitated by the pain problems, [22], [23] may prove beneficial not only for the patient, but also for their children. Help for parents in coping with their own pain may help prevent the development of at least some children’s pain problems.
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REFERENCES


