

Commentary: The Importance of Sleep in Pediatric Chronic Pain—A Wake-up Call for Pediatric Psychologists

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Historically, sleep problems were not commonly considered as a core component of pediatric chronic pain, in contrast to other well-established correlates, such as physical disability, depression, anxiety, and family disruption. At best, when they were considered, sleep disturbances were viewed as a secondary problem with questionable impact on pediatric pain management. It has been only recently that reviews and empirical studies have drawn our attention to the importance of sleep as a variable that can have a significant influence on, and be influenced by, pediatric chronic pain (e.g., Gagliese & Chambers, 2007; Huntley, Campo, Dahl, & Lewin, 2007; Lewin & Dahl, 1999; Meltzer, Logan, & Mindell, 2005; Miller, Palermo, Powers, Scher, & Hershey, 2003; Palermo & Kiska, 2005).

The four studies on sleep and pain published in this special issue (Long et al., this issue; Tsai et al., this issue; Valrie et al., this issue; Ward et al., this issue) together serve to reinforce and extend our current understanding of the importance of sleep in pediatric chronic pain. The studies apply diverse methodologies for assessing sleep (i.e., self-report questionnaires, daily diaries, actigraphy, and polysomnography) across several different chronic pain conditions (i.e., arthritis, musculoskeletal pain, sickle cell disease, and headache), yet the results send a consistent message. Sleep problems are common in children with chronic pain and are related to mood disturbances and difficulties with daily functioning. The application of advanced statistical techniques such as multilevel modeling (Valrie et al., this issue) further highlights the complex interrelationships among sleep, pain, and other variables such as mood.

It is important to point out that the samples of children included in these studies (with the exception of the Tsai et al. paper) were all preadolescent (i.e., 6–12 years of age). Given what we know about the surge in pain prevalence

across adolescence, particularly in girls (Perquin et al., 2000; Stanford, Chambers, Biesanz, & Chen, 2008), as well as the myriad of sleep difficulties encountered during the teenage years (Carskadon, 2002), we can only assume that the significance of the role of sleep disturbances in pediatric chronic pain becomes even more salient later in development. Unfortunately, little is known about the developmental trajectory of the relationship between sleep and pain problems across childhood and adolescence. Another important issue that is only alluded to briefly in these papers is the role of medications used to treat pain (e.g., nonsteroidal antiinflammatory agents, opioids, antidepressants) that may affect sleep quality or duration. Not knowing the kinds and quantities of medication used by children with chronic pain and how these relate to sleep changes is a significant gap that needs to be addressed with rigorous statistical analyses, in parallel to the previous analyses of other factors such as mood. In addition, one potential coping response that is only briefly addressed but that is a classic reaction to either or both poor sleep quality and/or pain is napping. Findings of increased daytime sleepiness in children with chronic pain suggest that naps are at least a possibility. If naps do occur, they can have a large impact on the measurement of total sleep and sleep quality; therefore, it is important for future research in this area to examine the full 24 hr cycle, in order to determine the extent to which naps may either compensate for or contribute to nighttime sleep difficulties.

Thanks in large part to the papers published in this special issue, we now have a strong descriptive base to conclude that sleep disturbances are indeed a significant problem for children with chronic pain. Research priorities should include the need to improve our understanding of the variety of specific ways that pain, sleep, mood, medications, and many other potential

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Journal of Pediatric Psychology 33(3) pp. 333–334, 2008

doi:10.1093/jpepsy/jsn001

Advance Access publication February 7, 2008

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variables (e.g., child sex) may interact. Achieving this goal will require the application of more coherent and integrated theory-driven models of these interactions. We need to address the question of causality and directionality in the sleep and pain relationship, as well as better appreciate additional sets of correlates that affect both sleep and pain. The kinds of analyses required, especially with respect to medication and the diversity of chronic pain conditions will require studies with very large sample sizes. The studies published in this special issue all have very small *n*'s for each specific pain condition. Large-scale, multisite studies are the only likely mechanism for addressing some of these issues in an adequate way.

We also need to build on the excellent descriptive work conducted to date, in order to examine whether interventions aimed at improving sleep problems in children can have a beneficial impact on pain and its related symptoms. There is only one small but promising trial of sleep hygiene as a treatment for children with migraine (Bruni, Galli, & Guidetti, 1999). The more systematic intervention work conducted with adults (Currie & Wilson, 2000; Currie, Wilson, & Curran, 2002) indicates that this could be a very worthwhile next step. Meanwhile, physicians and pediatric psychologists who work with children in pain should be made aware of the importance of sleep in pediatric chronic pain, and should consider ways of integrating the assessment and treatment of sleep difficulties into their pain management practices.

Acknowledgments

C.T. Chambers is supported by a Canada Research Chair and her research in the area of sleep and pain (in collaboration with Drs Corkum and Rusak) is supported by an operating grant from the Canadian Institutes of Health Research.

Conflicts of interest: None declared.

Received; revisions received; accepted January 4, 2008

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