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[Archived] Sleep Disorders in Young Children: Impact on Social/Emotional Development and Options for Treatment. Commentary on France, Wiggs and Owens

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Introduction

The first 5 years of life are accompanied by profound changes in the length, distribution, and character of sleep. The varied landscape of normal development during these years makes distinctions between normal and abnormal, benign and consequential, cause and effect — often taken for granted in more established areas of health service research – all the more challenging. Yet initial data suggest that a basic understanding of these issues could, one day, have substantial public health impact. Among childhood sleep disorders, several are highly prevalent, most can be readily diagnosed, and virtually all can be treated. Results of treatment are likely to

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provide substantial benefit to children and their families, sometimes for many years and well into adulthood.

The past 10 years have been a time of fruitful investigation regarding early childhood sleep problems, their impact upon development and behaviour, and their treatment. Karyn France, Neville Blampied, Luci Wiggs, and Judith Owens have each made critical, original contributions in these areas.[1-3] In their current texts, these authors highlight recent research on the nature and treatment of sleep problems in infants and young children.

Research and Conclusions

In their overview, France and Blampied provide a concise, insightful overview of the fundamental characteristics that define a "good sleeper." They then describe how age-related changes in sleep and the complex interrelationships between child, family, environment, and culture may influence attainment of this goal. The division between psycho-social sleep disturbances and those that are more biological, neurological, or maturational is useful conceptually and in the current discussion, but should not obscure the fact that dozens of specific sleep disorder diagnoses exist for young children, or that important areas of overlap between the two broad categories can exist. In their discussion of available evidence, France and Blampied are justified in highlighting the effectiveness of behavioural interventions, in contrast to the virtual absence of demonstrated indications for medication. Similarly, the emphasis on parental preparation for sleep interventions is certainly warranted.

Wiggs provides additional context information that is essential to understanding the importance of childhood sleep problems: these conditions affect one quarter to one half of young children, and the adverse impact usually extends to other family members too. In contrast to France and Blampied, Wiggs places greater emphasis on the fact that prospective, longitudinal studies with objective, independent measures have not yet been performed to determine "the causal relationship between sleep disorders and pathological child development." She also correctly notes that much remains to be discovered with regard to any underlying physiological mechanisms that may link sleep disorders with their impact on behavioural, social, and emotional development. Long-term studies of intervention efficacy have yet to be performed, as do investigations into the limitations of current treatments. Without such studies, clinicians often prescribe medications despite concerns about drug tolerance, side effects, and rebound sleeplessness; parents may decline safe and effective behavioural treatments, such as extinction

(the process of eliminating or reducing a conditioned response by not reinforcing it), due to the perception that harm will result to their child.

Owens also comments on the high prevalence of sleep problems in early childhood, and on evidence that such problems can persist and become chronic in later years. She makes the critical point that childhood “sleepiness” — the state which results from inadequate or insufficient sleep — is known to be associated with adverse mood swings, behaviour, and cognitive functions mediated by the prefrontal cortex. Owens suggests that sleep disturbances or sleepiness may cause these outcomes. Most sleep specialists would agree, but the emphasis at this point should probably be on the word “may”. Double-blind, placebo-controlled, randomized trials have not yet proven cause-and-effect, or effectiveness of intervention. Owens goes on to make several unique but critical observations. Children who may be most vulnerable to sleep problems may be those least likely to have them identified or addressed. “Problematic” sleep has not yet been adequately defined in young children, in part because the ranges of “normal” and “pathologic” appear to be so wide and subject to socioeconomic, family, or cultural contexts. Owens ventures an important and reasonable summary of existing research in writing that extinction and parent education are established, effective approaches to sleep problems. As determined by Chambless criteria (criteria for empirically evaluating psychological treatments), graduated extinction and scheduled awakenings are probably efficacious, and positive routines are a promising intervention.

Implications

Together, French, Blampied, Wiggs, and Owens create a cogent argument to support policies and services that effectively address a class of health conditions (early childhood sleep disorders) that are highly prevalent, diagnosable, and treatable. Specific recommendations made by each author are all justified. Children aged 0 to 5 years spend nearly half of their time satisfying the need of the developing brain to sleep: it is no surprise that when sleep goes awry, so might development of behaviour, cognition, social interaction, and emotional regulation. Available evidence strongly supports the effectiveness of behaviour-based interventions for the most common causes of childhood sleeplessness. The authors are correct to emphasize that widespread efforts to prevent such problems from appearing, in roughly one third of children, deserve study and may prove cost-effective. Prevention, like treatment, will most likely require better education of clinicians and parents about the importance of sleep, good sleep habits, and parent–child interactions likely to foster good sleep. Most parents already discuss sleep with

their pediatricians or family physicians, but only in the context of acute medical illness. Symptoms of chronic sleep disorders are rarely mentioned, primary sleep diagnoses are seldom established, and effective treatment rarely instituted.[4] Sleep medicine education is nearly non-existent in medical school curricula and residency training programs.[5-7] Meanwhile, a poll of nearly 1,500 US parents by the National Sleep Foundation in 2003 found that 2/3 identified some sleep problem in their child, and 3/4 would change something about their child's sleep if they could, according to the *2004 Sleep in America Poll,* conducted by the National Sleep Foundation in Washington DC. When sleep problems are presented to pediatricians or family physicians, many respond by prescribing off-label medications that have little published support for use in children.[3]

The articles by French, Blampied, Wiggs, and Owens largely confine their descriptions of the "services and programs" mentioned in the title to the individual interaction between a clinician and a referred child. Unfortunately, large-scale programmatic efforts to address sleep problems in children have been rare. Exceptions include the Back to Sleep Campaign that dramatically reduced the incidence of sudden infant death syndrome, and the 2002 the American Academy of Pediatrics recommendation that all families be asked whether their children snore. The effectiveness of behavioural interventions for common "psycho-social" sleep problems argues for research into broad, school, pre-school, and community-based programs to educate parents about prevention and treatment. Considerably more research is needed to determine whether the "social and emotional development" of young children is in fact impaired *because* of sleep disorders; if so, what aspects are impaired; how often; by what mechanisms; and due to which specific sleep-related diagnoses. The epidemiology and potential impact outlined by these articles suggest that such research should be a top priority.

Public policy should support research in normal human sleep and medical sleep disorders. Sleep medicine is a young field, and within it pediatric sleep medicine is younger still. Basic unanswered questions include how much sleep youngsters need, and how best to determine this quantity for a particular child. Insufficient sleep is believed to have fundamental impact on adults, but its impact in young children is not equally well researched, even though long-term developmental concerns are likely to compound those related to immediate or next-day function. The National Sleep Foundation poll generated notable attention when it reported that infants, toddlers, and pre-schoolers were, on average, receiving about 1 to 2 hours less sleep than the number of hours usually considered necessary. Although medical sleep disorders are less

common than behavioural sleep disorders, their untreated impact may include pervasive, irreversible ramifications into adulthood. Research in pediatric sleep disorders could affect broad areas essential to societal well-being, ranging from the frequency of tonsillectomies in children[8] to school performance[9] and childhood aggression.[10]

At the University of Michigan, recognition of the complex interactions between sleep and behaviour has led many children to be referred to a Multidisciplinary Pediatric Sleep and Behaviour Clinic. On the same morning, children and their families see both a medical sleep specialist (neurology or pulmonary medicine) and a behavioural sleep specialist (child psychology or a behavioural pediatrics). Case conferences at the end of each clinic provide an opportunity for specialists from all backgrounds to evaluate and synthesize the information obtained. The results often include multi-faceted approaches that ideally address the complicated, intersecting pathologies that most children have developed. Health systems often do not reimburse such time-intensive clinical efforts in a cost-effective manner. In view of the diverse benefits that effective treatment of early childhood sleep disorders may have, health systems should devise innovative ways to support the necessary cross-disciplinary approaches that are most likely to prove cost-effective to society in the long run.

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