

**Sleep/Wake Patterns and Sleep Problems in South
Australian Children Aged 5-10 Years:
Biopsychosocial Determinants and Effects on
Behaviour**

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Thesis submitted in fulfilment of the requirements for degree of Doctor of Philosophy

In the Discipline of Paediatrics

School of Paediatrics and Reproductive Health

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Submitted October, 2009

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ABSTRACT

In 1913, Lewis Terman and his colleague, Adeline Hocking published a paper asking a seemingly simple question “But exactly how much sleep is required by this developing organism (*child*) for its healthy functioning and growth?” (Bracketed italics added). Almost 100 years later, this question remains largely unanswered. Whilst it is well acknowledged that sleep duration decreases as a child ages, changing sleep practices are determined not only by biological processes, but also by cultural and social influences. Few studies to date have adequately addressed this. It is also well acknowledged that sleep problems in childhood are common, yet research is limited due to lack of standard methodological protocols. Accurate knowledge of poor sleep/wake habits and prevalence of sleep problems may be vital to ensuring the behavioural well-being of many children.

The following thesis presents the results of the South Australian Paediatric Sleep Survey (SAPSS); a study designed to address the above limitations and examine sleep/wake patterns, sleep problems and behavioural associates in a large community sample of school-aged children in Australia. Using a combination of previous tools and author devised items, a sleep, health and behaviour questionnaire was developed and subjected to rigorous psychometric testing. Exploratory factor analysis revealed six robust factors: Sleep Routine, Bedtime Anxiety, Morning Tiredness, Night Arousals, Sleep Disordered Breathing, and Restless Sleep. These sub-scales demonstrated good internal reliability, face validity, and test-retest reliability at 6, 12 and 18 months.

The SAPSS questionnaire was distributed to parents of children through schools and provides the first indication of normative sleep/wake patterns in a representative sample of school-aged children in Australia (N=1904; mean age 7.7±1.7yrs). The results of this study add to the discussion that the process of sleep is embedded in cultural and social norms, with differences reported between Non-Caucasian and Caucasian children, as well as between weekend and school nights. These results also confirm the postulation that sleep and behaviour are inextricably linked. Bedtime anxiety, restless sleep, night arousals, bruxism, hyperhydrosis and sleepwalking were all associated with behavioural deficits, either independently or comorbidly.

Moreover, the SAPSS adds considerably to the current state of knowledge by revealing a regular sleep routine, in otherwise healthy children, has the strongest effect on daytime functioning. In addition to the traditional indicators of sleep/wake patterns, the current study examined sleep schedules, in particular the consistency of bedtimes, risetimes and sleep duration. More children reported poor sleep schedules than traditional indicators of poor sleep habits and a change in bedtimes greater than 2 hours across the week or a poor sleep routine resulted in up to four times the risk of reported behavioural problems.

The current paradigm regarding sleep in children is that „one size fits all“, however the current study demonstrates that sleep/wake patterns are largely dependent on cultural and social norms, and that there is a need for a focussed debate on what constitutes healthy sleep in children. The thesis presented below argues that new strategies for education and health information addressing healthy sleep in children are needed.

DECLARATION

I declare that this work contains no material which has been accepted for the award of any other degree or diploma in any university or other tertiary institution and, to the best of my knowledge and belief, contains no material previously published or written by another person, except where due reference has been made in the text.

I give consent to this copy of my thesis, when deposited in the University Library, being made available for loan and photocopying, subject to the provisions of the Copyright Act 1968.

Sarah Biggs

Date

ACKNOWLEDGEMENTS

There are so many people who have had a profound influence on this achievement. Unfortunately I cannot thank everyone in this limited space, however I would be remiss if I did not acknowledge the following:

Firstly, I would like to thank Mr Phil Dean, mathematician extraordinaire and quintessential (& favourite) teacher. I would not be here if it wasn't for your guidance and early belief in me. You saw something special in an awkward teenager no-one else did and gave me the confidence to strive to be a „big-kid“. To me, you are better than a starting gate full of Pharlaps. Thank you for your ongoing support over the last 20 years.

Thank you to my Supervisors for all their help and support. Dr. Cameron van den Heuvel, you have become like an older brother to me. Like any sibling relationship, we may have bickered, but I always knew you had my back. Dr. Kurt Lushington, you have been my „rock“. Thank you for your patience, understanding and invaluable advice. Dr. Declan Kennedy, you have been an inspiration. I will always admire your passion and drive. A special thanks to Dr. James Martin. Your confidence in my ability and pragmatic approach sprinkled with a unique sense of humour has kept me sane.

To Dr. Mark Kohler, thank you for listening, understanding and helping me through some of the tougher times, both practical and emotional. My one goodwill wish for all human kind is that everyone has a Mark Kohler in their life.

To my mentor, colleague, confidant and dear friend, Dr. Jill Dorrian, no thanks is enough. I couldn't have done this without you.

Thank you to my family for your unconditional love, support and unwavering belief in me. See Mum, it only took 300 pages to say kid"s need to go to bed at Big Dog time.

Finally, to my beautiful wife, Kim. The thing I am most thankful for is that you are in my life. Thank you for holding my hand through this and congratulations, you can finally get your degree in putting up with me. I love you with all my heart and soul.

**The amount of sleep required by the
average person is five minutes more –**

Wison Mizener