

Pattern and Profile of Co-Sleeping in School-Aged Children

This cross-sectional study was conducted among parents of children aged 5-12 years to determine the prevalence and pattern of co-sleeping among children, and sleep problems associated with it. Out of 275 children, 269 (97.8%) co-slept. Among co-sleepers, bed-sharers were 131 (48.7%) and room-sharers 138 (51.3%). Factors associated with bed-sharing were child's age and socio-economic status. Wake-up resistance and night terrors were more in bed-sharing children.

Keywords: *Bed sharing, Sleep hygiene, Sleep pattern, Sleep problem.*

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Co-sleeping is defined as a child sleeping along with parents/siblings/other family members and includes 'bed-sharing' (sharing the same sleeping surface) and 'room-sharing' (sharing the same room). Co-sleeping in infants has been shown to promote mother-infant bonding and breastfeeding, and to promote a sense of security and well-being in older children [1]. Prevalence of co-sleeping in school age children has been reported by studies in India but there is not much data on pattern of co-sleeping viz., bed-sharing and room-sharing [1]. Although, co-sleeping is reported as beneficial, some studies report sleep problems associated with co-sleeping in older children [2,3]. This study was conducted to study the prevalence and pattern of co-sleeping, and sleep problems associated with it in children aged 5-12 years.

This survey was conducted from March-June, 2019, after Institute ethical clearance, in the pediatric inpatient and outpatient unit among willing parents of stable children aged 5-12 years. We excluded critically ill, those with chronic or debilitating illness, and children with disability. Using the prevalence of co-sleeping as 79.7% from previous study [4], 5% allowable error, CI of 95, and 10% drop out rate, sample size was calculated as 275.

By systemic random sampling, parents of every third child were interviewed by an investigator using a pretested semi-structured questionnaire, validated for face validity, and pretesting and back translation. The Cronbach alpha for sleep items was 0.761. Sleep history pertaining to the one week prior to their hospital visit was obtained from the participants, after written consent, and when children were interviewed, assent was obtained from them. The questionnaire included demographic particulars, bedtime, wake-up time, night sleep duration, co-sleeping pattern and common sleep problems.

Data were analyzed using SPSS software version 21. Chi-square test was used for categorical variable and *t*-test for continuous variables. Participants were classified as bed-sharers and room-sharers. Multivariate logistic regression was used to

find factors influencing bed-sharing. *P* value <0.05 was considered significant.

The mean (SD) age of the 275 children was 8.7 (2.3) years. Out of these 269 co-slept (97.8%). Among the co-sleepers, 131 (48.7%) were bed-sharers and 138 (51.3%) were room-sharers. Preference of children and parents with respect to sleep arrangement and reasons for the same are given in **WebTable I**. The sleep habits and sleep problems of bed-sharers and room-sharers are shown in **Table I**. The weekend sleep duration was significantly longer in bed-sharers than room-sharers [10.4 (1.4) vs 10.0 (1.4) hours, *P*=0.03]. Similarly wake-up resistance (*P*=0.03) and night terrors (*P*=0.04) were significantly higher in bed-sharers than room-sharers (**Table I**). There was no statistical difference in other sleep habits and other reported sleep problems. With respect to parents, sleep problems in the form of altered sleep schedule, frequent night awakening, reduced sleep duration, or marital distress were reported by 63 overall (22.9%), out of which 36 (57.1%) were bed-sharers and 27 (42.9%) room-sharers (*P*=0.12). On multivariate analysis, only younger age [aOR (95% CI) 2.4 (1.45-3.97); *P*=0.001] and upper socioeconomic class [aOR 95% CI) 2.14 (1.15-3.98); *P*=0.0017] were found to be significantly associated with bed sharing.

Prevalence of co-sleeping was 97.8% in the present study. Other studies in India have shown rates between 67-80% [1,4].

Table I Sleep Characteristics of Bed sharers and Room sharers

Variable (n, %)	Bed-sharers (n=131)	Room-sharers (n=138)
Weekday sleep duration ^a	9.4 (1.0)	9.3 (1.0)
Weekend sleep duration ^{a,b}	10.4 (1.4)	10.0 (1.4)
Late bedtime ^c	48 (36.6)	60 (43.5)
Late wake up time 7 AM	26 (19.8)	16 (11.6)
Reduced sleep duration ^c	29 (22.1)	39 (28.3)
Bedtime TV	85 (64.9)	101 (73.2)
TV time >2 h	13 (9.9)	25 (18.1)
Screen time duration ^a	1.3 (0.9)	1.4 (1.1)
No. of sleep problems ^a	1.4 (1.4)	1.2 (1.2)
Wake up resistance ^b	52 (39.7)	38 (27.5)
Snoring	16 (12.2)	23 (16.7)
Nightmares	17 (13.0)	24 (17.4)
Night terrors ^b	20 (15.3)	10 (7.2)
Sleep talking	31 (23.7)	22 (15.9)
Day time sleepiness	23 (17.6)	18 (13.0)
Bedwetting	23 (17.6)	26 (18.8)

Data expressed as no. (%) or ^amean (SD). ^b*P*<0.05. ^cas per reference 5.

Li, et al. [6] in their study among Chinese children with mean age of 8.5 years reported higher solitary sleeping (47.7%), while a co-sleeping prevalence of 12-50% were observed in other studies [6-8]. In our study the prevalence of bed-sharing was 48.7% and room-sharing was 51.3%, much higher than that reported by Li, et al. [2]. Gupta, et al. [4] reported higher bed-sharing, nearly in 3/4th of the study subjects in another study from India [4].

Wake-up resistance shown to be higher in bed-sharers may be due to the good duration of sleep associated with bed-sharers. In the study by Li, et al. [2], bed-sharing was associated with later bedtime, later wake-up time, and shorter sleep duration. Jiang, et al. [9], reported bed-sharing was associated with bedtime resistance, daytime sleepiness and sleep anxiety [9]. Generally, bed-sharing is reported to alleviate night terrors but in our study it was observed more in bed-sharers. It could be related to anxiety and overprotection and this may be a contributory factor to bed-sharing. Mishra, et al. [1] observed that co-sleeping was protective in that it increased the quality and duration of sleep and showed lesser incidence of nightmares due to the increased sense of security [1]. Andre, et al. [10] observed that perceived sleep quality was better in bed-sharing. A previous study [8] showed that co-sleeping was associated with higher couple distress, unlike ours where marital stress consequent to co-sleeping was reportedly low. Under-reporting could be one factor but it could be related to parental perception also as co-sleeping is culturally acceptable and preferred practice. Kim, et al. [3] reported 52% of co-sleeping mothers had sleep problems and reported lower self-efficacy.

Socio-economic status and younger age in children were significantly associated with bed-sharing in our study, similar to previous observations [3,6]. Jiang, et al. [9] reported positive parental attitude as the most important determining factor for bed-sharing. In the present study, co-sleeping was not only the norm but was also highly acceptable and preferred by both parents.

Limitations of the study were single-center hospital-based sample with parental reporting of children's sleep problems, and using non-validated questionnaire.

Ethics clearance: Institutional ethics committee; No. IEC/PP/2018/12/132 dated June 5, 2018.

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Web Table I Reasons for Co-sleeping/Solitary sleeping Among the Study Participants (N=275)

<i>Variables</i>	
<i>Parental preference</i>	
Co-sleeping	251 (91.3)
Solitary sleeping	24 (8.7)
<i>Child's preference</i>	
Co-sleeping	256 (93.1)
Solitary sleeping	19 (6.9)
<i>Parents' reasons for co-sleeping (n=251)^a</i>	
Emotional bonding	98 (39)
Security of children	97 (38.6)
Tradition norm	29 (11.6)
Economic use of available space	20 (8.0)
Child fears sleeping alone	4 (1.6)
Perceived comfort and wellbeing of the children	2 (0.8)
<i>Parents' reasons for solitary sleeping (n=24)^b</i>	
To develop a sense of independence in the child	17 (70.8)
For privacy	3 (12.5)
Difference in bedtime due to academic schedule	2 (8.3)

^aAllows for timely sleep in one family; ^bOne family each reported differences in lighting preferences and mother had a surgery.