Socioemotional behaviour of toddlers influenced by the sleep patterns: Prevalence study

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ABSTRACT

Background: This study investigates the influence of sleep duration and sleep patterns on the social-emotional behaviour of 3–70-month-old children. **Methods:** A Brief Infant Sleep Questionnaire (BISQ) and Ages, Stages Questionnaire: Social-Emotional (ASQ:SE) were filled by the participants through a web link. The internal consistency of the items used in the questionnaire was analysed using Cronbach's alpha and the effects of sleeping disorders on the likelihood of children having social-emotional problems were performed by binary logistic regressions. **Results:** The highest level of bedtime resistance and nocturnal awakening was observed in children of 27–32 months of age, while sleep anxiety was maximum in 42–53-month-old children. The logistic regression models were found to be statistically significant with χ^2 (3) =19.556 for 3–8-month-old children, χ^2 (3) =11.874 for 9–14-month-old children, χ^2 (3) =8.928 for 15–20-month-old children, χ^2 (3) =10.061 for 21–26-month-old children and χ^2 (3) =38.358 for 54–70-month-old children, $P < 0.0005$. **Conclusion:** Our findings imply that no statistically significant association was observed between sleep duration and social-emotional problems, however, sleep disorders significantly impacted social-emotional behaviour and also night-waking caused social-emotional behavioural issues in preschoolers.

Keywords: Emotional behaviour, sleep disorders, sleep duration

Introduction

Sleep-wake regulation and sleep states evolve rapidly during the first year of life with continued maturation across childhood.[1] Between the ages of 1 and 4 years, children continue to take daytime naps in order to achieve their sleep requirements.[2] The frequency of night-wakings is one of the main factors by which parents judge the quality of their child's sleep.[3] Towards age 5, daytime napping diminishes and a gradual decline in the overnight sleep duration throughout childhood due to a shift to later bedtimes with wake times remaining stable during the routine week occurs. Inadequate bedtime habits and sleep duration which were underneath the recommended levels were observed in toddlers.[4] However,

the sleep-wake patterns, driven by a complex interplay between biological processes, and environmental, behavioural and social factors, can vary widely.

Sleep problems affect children socially and emotionally and we find them to suffer from fear, anxiety, mentally unstable, autistic, lonely and insecure.[5] Studies relating to the socioemotional behaviour of children and parenting style have been reported.[6] Difficulty getting up in the morning, irritability, hyperactivity, depression, impatience, mood swings, impulse control issues, and aggressive are more subtle indications. Children need an adequate night to maintain alertness and responsiveness in social interactions. Several studies have associated partial sleep deprivation and health impairments with obesity, reduced cognitive performance and attention-deficit/hyperactivity disorder. Moreover, these alternations can influence a child's psychological, emotional, behavioural and cognitive development.[7] Tang *et al.*,[8] established that there exists a

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continuity between infant temperament and the development of adult personality.

Materials and Methods

Study population

This study was a population-based, cross-sectional study with data collected through a web-based digital data acquisition system made available to all Saudi women from July 2019 to December 2019. The survey population consisted of children from 1 to 70 months old who were classified into eight groups.

Sleep variables

The Brief Infant Sleep Questionnaire (BISQ)[9] was developed as a screening tool for infant sleep problems to be used in paediatric settings. The BISQ assesses a range of domains of infant sleep, and the following were included in the current study: (1) time to bed; (2) duration of wakefulness; (3) nocturnal settling time; (4) sleep duration; (5) number of nocturnal awakenings and (6) whether the mother considers her child's sleep to bed problem (response options: "a very serious problem", "a small problem", "not a problem at all"). The BISQ has demonstrated good psychometric properties as a brief sleep screening tool for clinical and research purposes in infants and toddlers (0–30 months).[9] For the present study, the sleep duration variable was divided into four categories sufficiently large for statistical analyses (<10, 10–12, 12–14, ≥14 h).

Demographic data

The demographical characteristics of the 428 samples were studied and the Chi-square tests of independence were conducted to evaluate the association between the demographics of the mother and child in the presence of sleeping problems in the child. Binary logistic regressions were performed to ascertain the effects of sleeping duration on the likelihood of children having social-emotional problems. The level of significance was set at $P \leq 0.05$.

Socioemotional behaviour

The Ages and Stages Questionnaire (ASQ) is an age-specific parent completed child monitoring system for socioemotional behaviour.[10] In the present study, 18 items were included to assess the socioemotional behaviour of the child and Cronbach's alpha[11] was used to analyse the internal consistency of the items in the questionnaire. Binary logistic regressions were performed to determine the effects of sleeping disorders such as bedtime resistance, anxiety during sleep and nocturnal awakening on the likelihood that the participants have social-emotional problems.

Results

Demographic and clinical characteristics of the samples

The association between the demographics of the mother and child with sleeping problems were analysed by Chi-square tests of independence from 428 samples. There was no significant association between the sleeping of the child as a problem with the location of stay in Saudi Arabia (χ^2 (N = 428) = 11.82), $P > 0.05$. Similar to this, within the characteristics of the mother, no significant association ($P > 0.05$) was observed between sleep problems in the child and mother's age at the time of childbirth (χ^2 (N = 428) = 1.884), educational level of the mother (χ^2 [N = 428] = 8.360), occupation of the mother (χ^2 [N = 428] = 3.652), type of delivery of the child (χ^2 [N = 428] = 0.041) and type of family (χ^2 [N = 428] =5.314). This implies that sleep problems are not affected by where the child lives, or how old the mother is, or how much educated the mother is, or whether the mother is working or not, or what type of delivery she had or the type of family. The association between sleep problems and the demographics of the child were also evaluated. The results show that only the age of the child has a statistically significant association with sleep problems (Pearson's Chi-square [N = 428] =28.586, $P < 0.05$). This implies that with the change in the age of the child, the sleep problems will vary. The children of age 9–14 months have the highest sleeping problems, followed by children from 3 to 8 months among children of all age groups. However, the other characteristics such as the gender of the child (χ^2 [N = 428] = 0.610), the order of birth of the child (χ^2 [N = 428] =3.842) and presence of siblings (χ^2 [N = 428] =3.341) had no relationship ($P > 0.05$) with sleep problems.

Sleeping characteristics of the children

Table 1 shows the frequency of children of different age groups with varying sleep durations and sleeping disorders. In terms of sleep durations, almost all the children in different age groups slept for less than 10 h and 10–12 h. The majority of children 9–14 months old (54.7%), 21–26 months (61.4%), 27–32 months (47.6%), 33–41 months (57.6%) and 54–65 months (48.6%) slept for almost 10–12 h each day. Within sleep disorders, the majority of children in all age groups showed bedtime resistance and sleep anxiety sometimes only and not frequently, however, the frequency of nocturnal awakening was low in all the groups. Among all the groups, the highest level of bedtime resistance (mean of 0.964 and standard deviation of 0.405) and nocturnal awakening (mean of 0.508 and standard deviation of 0.430) was observed in children of 27–32 months of age, while sleep anxiety (mean of 1.281 and standard deviation of 0.587) was maximum in 42–53 months old children.

Reliability analysis

The current study used Cronbach's alpha[11] to analyse the internal consistency of the items used in the questionnaire. This value always lies between 0 (none of the items in the scale is related to another) and 1 (the items in the scale are all the same); however, values greater than 0.6 are considered as acceptable, while values between 0.7 and 0.8 are considered satisfactory and more than 0.8 to less than 0.95 is considered to be good, beyond which they can be considered as redundant items testing the same question.[12,13]

Table 1: Frequency of different age groups of children with different sleep durations or with sleep disorders															
Age of the child	3-8 months n=86		9-14 months n=64		15-20 months n=41		21-26 months n=44		27-32 months n=21		33-41 months n=33		42-53 months n=32		54-65 months n=107	
	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n
Children < cut-off	12.8	11	4.7	3	7.3	3	11.4	5	19.0	4	6.1	2	50	16	9.3	10
Sleep Duration																
<10 h	47.7	41	39.1	25	53.7	22	34.1	15	38.1	8	39.4	13	53.1	17	46.7	50
10-12 h	41.9	36	54.7	35	36.6	15	61.4	27	47.6	10	57.6	19	43.8	14	48.6	52
12-14 h	10.5	9	4.7	3	7.3	3	4.5	2	14.3	3	0.0	0	3.1	1	3.7	4
>14 h	0.0	0	1.6	1	2.4	1	0.0	0	0.0	0	3.0	1	0.0	0	0.9	1
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Sleep disorder*																
Bedtime resistance	0.953	0.392	0.914	0.357	0.915	0.394	0.909	0.389	0.964	0.405	0.795	0.356	0.828	0.409	0.900	0.455
Anxiety	1.109	0.579	1.063	0.547	1.114	0.599	1.136	0.554	1.095	0.625	1.071	0.491	1.281	0.587	1.202	0.605
Nocturnal awakening	0.446	0.510	0.417	0.411	0.341	0.418	0.424	0.403	0.508	0.430	0.424	0.481	0.448	0.411	0.498	0.548

*Frequency of sleep disorder - 0=Never, 1=Sometimes, 2=Frequently

Our results on reliability analysis of the scales used for measuring the constructs in the study [Table 2] showed that all the scales used in the study for measuring various constructs are reliable, which indicates that the results of the study are also reliable.

Impact of sleeping duration on the social-emotional behaviour of children

Binary logistic regressions were performed to ascertain the effects of sleeping duration on the likelihood of children having social-emotional problems. As detailed in [Table 3a and b], the sleep duration did not influence the social-emotional behaviour of the children from various age groups as the level of significance for all the models was found to be more than 0.05, thereby, implying no statistical association between sleep duration and the social-emotional behaviour. The variance in the social-emotional behaviour ranging from 2.4% (Nagelkerke R^2) in the 21–26 month group to 30.5% in the 9–14-month-old group was explained by the models. The models, however, correctly classified the overall cases ranging from 56.3 to 95.3%.

Impact of sleeping disorders on the social-emotional behaviour of children

Similar to sleeping duration, another set of binary logistic regressions were performed to determine the effects of sleeping disorders such as bedtime resistance, anxiety during sleep and nocturnal awakening on the likelihood that the participants have social-emotional problems [Table 4a and b].

All the logistic regression models except those with children of age groups of 27–32, 33–41 and 42–53 months were found to be statistically significant with χ^2 (3) =19.556 for 3–8-month-old children, χ^2 (3) =11.874 for 9–14-month-old children, χ^2 (3) =8.928 for 15–20-month-old children, χ^2 (3) =10.061 for 21–26-month-old children and χ^2 (3) =38.358 for 54–70-month-old children, $P < 0.0005$. Thus, the overall sleeping disorders were observed to impact the social-emotional behaviour of small children.

Table 2: Reliability analysis of the study		
Factors	Cronbach's Alpha	n of Items
3-8 months	0.696	18
9-14 months	0.728	21
15-20 months	0.642	26
21-32 months	0.698	26
33-41 months	0.726	29
42-53 months	0.808	30
54-65 months	0.837	32

The models explained the varying range of variance (Nagelkerke R^2) in the socioemotional behaviour, ranging from 38.0% for 3–8-month-old children, 53.7% for 9–14-month-old children, 48.0% for 15–20-month-old children, 40.3% for 21–26-month-old children and 65.1% for 54–70 year-old-children.

In addition, all the models correctly classified overall 81.0% (27–32-month-old children) to 97.0% (33–41-month-old children) of the cases. Within 3–8-month-old children, the model precisely predicted the score of more than 45 better compared to the score of less than 45 (98.7% vs. 27.3%). In the case of 9–14-month-old, the model accurately predicted a score of more than 48 better compared to the children who scored less than 48 (100% vs. 33.3%). Similarly, the model successfully predicted the score of more than 50 better compared to the children who scored less than 50, which was the cut-off value for 15–20-month-old children (97.4% vs. 33.3%). For 21–26-year-old children, the model correctly predicted a score of more than 50 better compared to the children who scored less than 50, also the same cut-off value for this group of children (100.0% vs. 40.0%). In the case of 27–32-year-old children, the model accurately predicted a score of more than 50 better compared to the children who scored less than 50 (100.0% vs. 0.0%). Similarly, the model correctly predicted a score of more than 59 better compared to the children who scored less than 59 in 33–41-month-old children (10.0% vs. 50.0%). For 54–65-month-old, the model successfully predicted

Table 3a: Impact of sleeping duration on the social-emotional behaviour of children

Sleep duration	Model 1 (3-8 months child)[1]					Model 2 (9-14 months child)[2]					Model 3 (15-20 months child)[2]					Model 4 (21-26 months child)[1]				
	B	SE	Wald	Sig.	OR (95% CI)	B	SE	Wald	Sig	OR (95% CI)	B	SE	Wald	Sig.	OR (95% CI)	B	SE	Wald	Sig.	OR (95% CI)
<10 h	0.511	0.915	0.311	0.577	1.667 (0.277-10.025)	-18.761	40193.027	0.000	1.000	0.000 (-)	-19.357	40192.991	0.000	1.000	0.000 (-)	-19.331	28420.719	0.000	0.999	0.000 (-)
10-12 h	1.145	1.003	1.303	0.254	3.143 (0.440-22.454)	0.000	40763.168	0.000	1.000	1.000 (-)	0.000	41511.141	0.000	1.000	1.000 (-)	-19.123	28420.719	0.000	0.999	0.000 (-)
12-14 h	-	-	-	-	-	-20.510	40193.027	0.000	1.000	0.000 (-)	0.000	46410.862	0.000	1.000	1.000 (-)	-	-	-	-	-
>14 h	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Constant	1.253	0.802	2.441	0.118	3.500	21.203	40193.027	0.000	1.000	1.65	21.203	40192.991	0.000	1.000	1.604	21.203	28420.719	0.000	0.999	161547439.456
χ^2	1.446*					6.461#					3.939#					0.539*				
Level of significance	0.485					0.091					0.268					0.764				
Nagelkerke R^2	0.031					0.305					0.225					0.024				
Correct prediction %	87.2%					95.3%					92.7%					88.6%				

*Degree of freedom=2, #Degree of freedom=3

Table 3b: Impact of sleeping duration on the social-emotional behaviour of children

Sleep disorder	Model 5 (27-32 months child)[1]					Model 6 (33-41 months child)[2]					Model 7 (42-53 months child)[1]					Model 8 (54-70 months child)[2]				
	B	SE	Wald	Sig.	OR (95% CI)	B	SE	Wald	Sig.	OR (95% CI)	B	SE	Wald	Sig.	OR (95% CI)	B	SE	Wald	Sig.	OR (95% CI)
<10 h	-19.257	23205.422	0.000	0.999	0.000 (-)	0.000	41710.218	0.000	1.000	1.000 (-)	21.085	40192.760	0.000	1.000	1.653 (-)	-19.006	40193.943	0.000	1.000	0.000 (-)
10-12 h	-20.356	23205.422	0.000	0.999	0.000 (-)	-19.063	40192.972	0.000	1.000	0.000 (-)	21.491	40192.760	0.000	1.000	2.480 (-)	-18.718	40193.943	0.000	1.000	0.000 (-)
12-14 h	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-20.104	40193.943	0.000	1.000	0.000 (-)
>14 h	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Constant	21.203	23205.422	0.000	0.999	1.659	21.203	40192.972	0.000	1.000	1.65	-21.203	40192.760	0.000	1.000	0.000	21.203	40193.943	0.000	1.000	-
χ^2	2.205*					2.303*					1.732*					1.229#				
Level of significance	0.332					0.316					0.421					0.746				
Nagelkerke R^2	0.160					0.184					0.070					0.025				
Correct prediction %	81.0%					93.9%					56.3%					90.7%				

*Degree of freedom=2, #Degree of freedom=3, 1-12-14 h is reference category, 2->14 h is reference category

Table 4a: Impact of sleeping disorders on the social-emotional behaviour of children									
Sleep disorder	Model 9 (3-8 months child)					Model 10 (9-14 months child)			
	B	**SE**	**Wald**	**Sig.**	**OR (95% CI)**	**B**	**SE**	**Wald**	**Sig.**	**OR (95% CI)**
Bedtime resistance	-4.260	1.296	10.807	0.001	0.014 (0.001-.179)	-7.855	3.964	3.926	0.048	0.000 (0.000-0.919)
Sleep anxiety	-0.193	0.795	0.059	0.808	0.824 (0.174-3.913)	1.468	2.139	0.471	0.492	4.342 (0.066-287.371)
Nocturnal awakening	0.290	0.742	0.152	0.696	1.336 (0.312-5.720)	-0.543	2.198	0.061	0.805	0.581 (0.008-43.177)
Constant	6.935	1.706	16.523	0.000	1028.034	11.421	4.792	5.680	0.017	91208.818
χ^2*			19.556					11.874		
Level of significance			0.000					0.008		
Nagelkerke R^2			0.380					0.537		
Correct prediction %			89.5%					96.9%		

Sleep disorder	Model 11 (15-20 months child)					Model 12 (21-26 months child)			
	B	**SE**	**Wald**	**Sig.**	**OR (95% CI)**	**B**	**SE**	**Wald**	**Sig.**	**OR (95% CI)**
Bedtime resistance	-2.152	2.609	0.680	0.409	0.116 (0.001-19.329)	1.291	1.729	0.558	0.455	3.637 (0.123-107.703)
Sleep anxiety	-4.494	3.231	1.935	0.164	0.011 (0.000-6.282)	-2.821	1.347	4.385	0.036	0.060 (0.004-0.835)
Nocturnal awakening	2.165	1.779	1.481	0.224	8.717 (0.267-284.957)	-2.463	1.621	2.308	0.129	0.085 (0.004-2.043)
Constant	11.425	6.024	3.597	0.058	91592.430	6.157	2.296	7.188	0.007	471.796
χ^2*			8.928					10.061		
Level of significance			0.030					0.018		
Nagelkerke R^2			0.480					0.403		
Correct prediction %			92.7%					93.2%		

*Degree of freedom=3

Table 4b: Impact of sleeping disorders on the social-emotional behaviour of children									
Sleep disorder	Model 13 (27-32 months child)					Model 14 (33-41 months child)			
	B	**SE**	**Wald**	**Sig.**	**OR (95% CI)**	**B**	**SE**	**Wald**	**Sig.**	**OR (95% CI)**
Bedtime resistance	0.944	2.239	0.178	0.673	2.571 (0.032-(207.127)	0.285	2.855	0.010	0.920	1.330 (0.005-358.115)
Sleep anxiety	-0.386	1.154	0.112	0.738	0.680 (0.071-6.521)	-1.491	2.392	0.388	0.533	0.225 (0.002-24.466)
Nocturnal awakening	-2.156	2.173	0.984	0.321	0.116 (0.02-8.197)	-2.565	2.589	0.981	0.322	0.077 (0.000-12.301)
Constant	2.257	2.109	1.145	0.285	9.552	6.389	3.346	3.646	0.056	595.218
χ^2*			2.007					6.047		
Level of significance			0.571					0.109		
Nagelkerke R^2			0.146%					0.456		
Correct prediction %			81.0%					97.0%		

Sleep disorder	Model 15 (42-53 months child)					Model 16 (54-70 months child)			
	B	**SE**	**Wald**	**Sig.**	**OR (95% CI)**	**B**	**SE**	**Wald**	**Sig.**	**OR (95% CI)**
Bedtime resistance	1.232	1.079	1.303	0.254	3.427 (0.413-28.418)	-1.687	1.818	0.861	0.353	0.185 (0.005-6.527)
Sleep anxiety	-0.900	0.783	1.321	0.250	0.406 (0.088-1.887)	1.010	1.308	0.596	0.440	2.745 (0.212-35.624)
Nocturnal awakening	-1.488	1.052	2.000	0.157	0.226 (0.029-1.776)	-3.165	1.590	3.962	0.047	0.042 (0.002-0.953)
Constant	0.775	1.073	0.522	0.470	2.171	5.788	1.619	12.778	0.000	326.421
χ^2*			5.676					38.358		
Level of significance			0.128					0.000		
Nagelkerke R^2			0.217					0.651		
Correct prediction %			75.0%					96.3%		

*Degree of freedom=3

a score of more than 70 compared to those who scored less than 70 (99.0% vs. 70.0%).

The Hosmer–Lemeshow test showed a significance level of more than 0.05 in all the models, which implies that all the models are a good fit for this data.

Within the sleeping disorders, only bedtime resistance had a statistically significant, but the negative impact ($B = -4.260$) on the

socioemotional behaviour in the case of children in the age group of 3–8 and 9–14 months, whereas sleep anxiety and nocturnal awakening did not have any significant impact in these age groups. However, sleep anxiety significantly influenced the social-emotional behaviour of children in the age group of 21–26 months. In older children (age group of 54–70 months old), nocturnal awakening negatively affected the socioemotional behaviour. It can be suggested from the odd's ratio that for every one unit of increase in bedtime resistance in 3–8-month-old children, the odds of

falling in the target group of children with an ASQ-SE score of more than 45 becomes more likely by a factor of 0.014. Similarly, for every one unit of increase in sleep anxiety in 21–26-month-old children, the odds of falling in the target group of children with ASQ-SE score of more than 50 becomes more likely by a factor of 0.060 and for every one unit of increase in nocturnal awakening in 54–70-month-old children, the odds of falling in the target group of children with ASQ-SE score of more than 70 becomes more likely by a factor of 0.042. The rest of the sleep disorders were insignificant to the children of varying age groups.

Discussion

This study investigated the impact of sleep duration and sleep disorders such as bedtime resistance, sleep anxiety and nocturnal awakening on the social-emotional behaviour of 3–70-month-old children. The main findings of our study can be summarised into two major sections depending upon the sleep parameters such as sleep duration and sleep disorders. Our findings imply that no statistically significant association was observed between sleep duration and social-emotional problems in these young children, however, sleep disorders significantly impacted this social-emotional behaviour. Typically, small children are categorised into four types depending upon their age, such as young infants, mobile infants, toddlers and preschoolers.[14] The babies in the age group of newborn to 8 months fall under the category of young infants, while 9–15 months old children are called mobile infants. Then, come the toddlers which are in the age group of 15–50 months and older than those in the age group of 60 months are preschoolers.

In the present study, it was found that the young infants (3–8 months of age) of this study slept for lesser durations than the mobile infants (9–14 months of age), which is unusual as usually the amount of sleep decreases with increasing age and the newborns spend a majority of their time asleep.[15] Sleep duration is commonly associated with social-emotional behaviour in small children.[16,17] Our results show that the social-emotional behaviour of the children belonging to any age group was not impacted by their low level of sleep duration. This is contradictory to the findings of Hysing *et al*.[16] and Mindell JA *et al*.,[25] where short sleep duration was related to the higher odds of social-emotional issues in infants and toddlers.

In the case of sleeping disorders, our results showed that the type of sleeping disorders changes with the increase in age. Within infants, bedside resistance impacted the social-emotional problems, whereas sleep anxiety caused these issues in toddlers and nocturnal awakening negatively influenced the preschoolers. Therefore, a bedtime routine has been suggested to be beneficial in young children by Covington *et al*.[18] and Mindell and Williamsom.[26] Jansen *et al*.[19] reported that short sleep and bedtime irregularity like sleep disorders in toddlers are related to social-emotional problems, which is contradictory to our results, where bedtime resistance was found to be not related to these issues in toddlers. Low scores of bedtime resistance

were described by Hiscock *et al*.,[24] in 6-month-old infants, however, the lowest score for bedside resistance were observed in 33–41-year-old toddlers in our study. Due to the lack of studies in this regard, the results of sleep anxiety could not be compared with the other sample sets. Nocturnal awakening has been considered to be a serious sleeping disorder in children and has been reported to be correlated with emotional dysfunctioning[20] as well as behavioural issues.[21] Petit *et al*.[22] and Hysing *et al*.[16] reported that night-waking is heightened during the toddler years, which was also observed in our case. In a recent study, Morales–Muñoz *et al*.[23] construed high frequency of night awakening related more to the emotional regulation of toddlers. However, our results imply that night-waking causes social-emotional behavioural issues in preschoolers, instead of toddlers. Unfortunately, there are hardly any studies comparing infants, toddlers and preschoolers.

The research supports the relationships between socioemotional behaviour of infants and toddlers and their sleep patterns to ensure healthy social and emotional development.

Prior knowledge on the behaviour of infants can certainly diminish their sufferings and also enhance the social and emotional competence of toddlers as the early life of the child is connected to lifelong health.

Key points of practice, policy or research

- The outcome of this study emphasised that sleep patterns influenced a child's healthy development more than sleep duration.
- Most of the previous studies focused on sleep duration correlation.
- The sleeping disorders varied with an increase in age and it was also observed that nocturnal wakening had a positive correlation to the emotional behaviour of the child.
- The factors affecting sleep patterns should be identified and appropriate corrective measures should be considered.

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Conflicts of interest

There are no conflicts of interest.

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