Revista Românească pentru Educație Multidimensională
ISSN: 2066-7329 | e-ISSN: 2067-9270
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2023, Volume 15, Issue 1, pages: 366-382 | https://doi.org/10.18662/rrem/15.1/701
Submitted: August 24th, 2022 | *Accepted for publication:* October 27th, 2022

Sleep Habits of Turkish Preschool Children

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Abstract: Purpose: This study aims to a) provide a detailed description of sleep habits and problems, b) to compare sleep habits and problems among 4-6-year-old typically developing Turkish children, c) to find out parental views on problem sleep behavior.
Methods: Participants consisted of 702 parents. Children's age ranged from 4 to 6 years. Demographics Information Survey and the Children's Sleep Habits Questionnaire (CSHQ) were administered to parents.
Results: Across different age groups bedtime was not different for weekdays. Bedtime during weekends, however, differed across different age groups. Older children were going to bed later. Wake-up time and bedtime for weekdays differed for children who attend preschool. Children attending preschool woke up earlier and went to bed earlier. Sleep duration did not differ for both weekdays and weekends. There was no gender difference in terms of bedtime, wake-up time, and sleep duration for both weekdays and weekends. However, girls' daytime sleepiness scores and sleep onset delay scores were higher.
Conclusions: Sleep problems are prevalent among young Turkish children. Comparing the CSHQ overall and subscale scores of this study with other studies, the most important differences were seen in the bedtime resistance and the sleep anxiety subscales. These discrepancies indicate a cultural difference in bedtime resistance and sleep anxiety of Turkish preschool children. Future research should investigate the effects of parenting and discipline on sleep behavior and problems. Effective intervention programs are needed in order to reduce problems related to bedtime resistance and sleep anxiety of Turkish preschoolers.

Keywords: *sleep habits; sleep hygiene; sleep problems; preschool children; child development.*

How to cite: Alat, K. (2023). Sleep Habits of Turkish Preschool Children. *Revista Românească pentru Educație Multidimensională, 15*(1), 366-382. https://doi.org/10.18662/rrem/15.1/701

Introduction

Sleep is one of the most important needs for a healthy growth and development. To serve its purpose, a good sleep requires an ideal sleep environment and sleep hygiene. If these conditions are not met, disruption may occur in the sleep pattern and duration. Causes of sleep problems vary from medical conditions, stress, or psychological disturbances to negative sleep habits. If continued, sleep problems have the potential to negatively affect all developmental areas in children. Sleep problems in preschool children are associated with increased internalizing and externalizing behavior (Reid, Hong, & Wade, 2009). In addition, inadequate sleep time, poor sleep quality, and other sleep problems can lead to behavioral or cognitive problems in preschool children and impairments in health-related quality of life (Dewald, Meijer, Oort, Kerkhof, Bögels, 2010; Williamson, et al. 2021). Preschool children with sleep problems experience daytime restlessness, attention problems, and exhibit tense, anxious or aggressive behavior, and poor school performance and academic skills (Dewald, et al., 2010; Komada, et al., 2011; O'Callaghan, et al., 2010; Ozvurmaz, & Calisir, 2018; Quach, Hiscock, Canterford, Wake, 2009; Reynaud, Vecchierini, Heude, Charles, & Plancoulaine, 2018). Similar problems were also reported for older age groups. For example, elementary school students' sleep problems have found to be negatively affecting their academic achievement and school functioning (Kocoglu, Kesgin, Tokur, Kulakci, 2010; Unalan, Ozturk, Ismailogullari, Akgul, & Aksu, 2013).

Most of the Turkish studies on sleep habits and disorders of preschool children focus on clinical populations. For example, there are studies investigating the sleep problems of children with developmental disorders such as autism and ADHD (Rodopman-Arman, Perdahli-Fis, Ekinci, & Berkem, 2011; Turkoglu, 2016; Yürümez & Kılıç, 2016) or hospitalized children (Akgün Kostak, Kocaaslan, & Bilsel, 2016). The limited number of studies on sleep habits of Turkish children have focused on school age children and adolescents (Unalan, et al., 2013, Perdahlı Fis, et al., 2010; Öztürk, Sezer, & Tezel, 2018). Studies investigating sleep habits of typically developing preschool children are relatively few (Cetin, et al., 2015; Gozun Kahraman & Ceylan, 2018). In a recent study investigating the sleep habits, physical growth and weight problems of 4-6-year-old Turkish preschool children, sleep anxiety and problems were found to be associated with higher BMI weight problems in children (Ozvurmaz & Calisir, 2018). However, this study did not attempt to fully describe the sleep habits of

Turkish preschool children. Similarly, a survey study of Turkish primary school students showed that almost 48% of the students had trouble waking up in the morning and 31% felt sleepy during the daytime. Children who felt sleepy during the daytime had lower academic achievement (Unalan, et al., 2013).

Sleeps habits are prone to change over time. A study comparing different cohorts (1985/1986, 2005/2006, and 2013/2014) report that Swedish children go to bed late and sleep less compared to earlier cohorts. The authors suggest further investigation of factors such as electronic media use, family structure, and lifestyle habits in explaining change in sleep habits (Norell-Clarke & Hagquist, 2019). Sleep habits are shaped by culture, values, beliefs, and practices (Owens, 2004). Social and cultural environments have great influence on sleep behavior. Therefore, it is important to understand sleep habits and problems across different cultures. The purpose of this study was to investigate the sleep habits of Turkish preschool children from the perspective of their parents and to reveal the factors affecting their sleep habits and problems. More specifically, this study aimed to a) provide a detailed description of sleep habits and problems, b) compare sleep habits and problems among 4-6-year-old typically developing Turkish children, c) find out parental views on problem sleep behavior.

Methods

Participants

Participants of this study consisted of 702 parents (560 mothers (79.8%) and 142 fathers (20.2%) living in Izmir province of Turkey. Parents' age ranged from 20 to 53 (M=32.86, SD=4.92). In terms of educational attainment 131 (18.7%) had elementary school degree or less, 62 (8.8%) secondary school, 205 (29.2%) high school, 51 (7.3%) two-year university, 220 (31.3%) university degree, and 33 (4.7%) had post-graduate degrees. In terms of educational attainment fathers had significantly higher levels of degrees. Of the 560 mothers 124 (22.1%) had elementary school degree or less, 56 (10.0%) secondary school, 166 (29.6%) high school, 43 (7.7%) two-year university, 152 (27.1%) university degree, and 19 (3.4%) had post-graduate degrees. Of the 142 fathers 7 (4.9%) had elementary school degree or less, 6 (4.2%) secondary school, 39 (27.5) high school, 8 (5.6%) two-year university, 68 (47.9%) university degree, and 14 (9.9%) had post-graduate degrees. Even though elementary education is compulsory for all citizens, 11 parents (10 female and 1 male), all of whom living in rural areas indicated that they have not attended or completed elementary school. Hence, to include these parents, a new educational category was created as "elementary school degree or less". Of the parents, 674 were married (96.0%) and living together with their spouse and children. Only 25 parents (3.6%) reported as being divorced or separated. Of the mothers, 331 (47.2%) were homemakers and were not working at the time of data collection. Parents' age ranged from 20 to 53 with an average of 32.86 years (*SD*=4.92).

Number of children per household ranged from 1 to 7 (*M*=1.91, *SD*=0.86). Of the children 337 were girls (48.0%) and 365 (52.0%) were boys. There were 115 girls and 109 boys in the 4-year-old group, 127 girls and 140 boys in the 5-year-old group, and 95 girls and 116 boys in the 6-year-old group. The mean age for all children was 4.98 years (*SD*=0.79). Thirty-five children with chronic health problems (asthma, allergies, epilepsy, cerebral palsy, and Familial Mediterranean fever) were excluded. None of the remaining children had severe health problems.

Instruments

Demographics Information Survey. All parents completed a demographic information survey both for themselves and their children. Questions for parents included age, gender, level of education, number of children, and number of people living in their household. Child survey included questions about age and gender of the child, whether child had any chronic health conditions, had his/her own bedroom, and received preschool education and care. In addition to demographics information, parents were asked whether they allow their children to watch TV during nighttime. Parents who allowed their children to watch TV at nighttime were also asked how many hours their children watch TV and until what time at the latest. Parents also responded to the questions if their children nap during the daytime and if so its duration.

The Children's Sleep Habits Questionnaire (CSHQ). CSHQ was used to investigate children's sleep habits. Developed by Owens, Sprito, and McGuinn (2000), CSHQ contains 33 questions in eight subscales. CSHQ subscales include: Bedtime resistance, sleep anxiety, sleep duration, sleep disordered breath, parasomnias, daytime sleepiness, night wakenings, and sleep onset delay. CSHQ is a parent-administered questionnaire. Parents are asked to recall their children's typical week and respond to each item on a three-point scale using 1) rarely, 0-1 time a week, 2) sometimes, 2-4 times a week, and 3) usually, 5-7 times a week. After recoding reversed items, higher scores on the CSHQ indicate sleep related problems. In addition, for each of the 33 items, parents were asked to indicate whether that item was a problem for them by circling Yes, No, or Not applicable. CSHQ has been translated and adapted to many languages including Turkish (Perdahlı Fis, et al., 2010). To eliminate translation related problems, adaptation study used translation-back translation method. Using 1st to 4th grade elementary school student sample, Turkish adaptation study provides an adequate reliability measure with an internal consistency of α=0.78 and test-retest reliability of 0.81. In the current study, internal consistency coefficients for the overall CSHQ were (α = 0.60), bedtime resistance (0.68), sleep duration (0.62), sleep anxiety (0.61), night wakenings (0.40), parasomnias (0.40), sleep disordered breathing (0.61), and daytime sleepiness (0.65).

Procedure

In order to ensure that no seasonal or climate effects on children's sleep habits, the data were collected during the same month, in June 2020. At the time of the data collection there were no longer lockdown measures due to the Covid-19 pandemic. Surveys were sent to preschools with an invitation to participate in the study. Preschools were randomly chosen from a list of public schools. Out of 600 surveys sent to preschools, 382 surveys were returned (%63.70 return rate). Additionally, to include children who did not attend to preschool, an online survey was administered to parents. Using Family Health Centers' database, online surveys were sent to the parents of 4-6-year-old children who resided in the same neighborhood as the preschools. Online administration of the surveys yielded 379 responses. Of the collected surveys, 24 of them were discarded because of missing data. After excluding 35 children with chronic health problems the final sample included 702 children between the ages of 4 to 6. Participation in the study was voluntary and informed consent was obtained from each parent prior to the data collection. The study was approved by the institutional review board of the Ege University.

Statistical Analysis

All statistical analyses were conducted using SPSS Statistics ver. 25. Descriptive statistics were used to find out sample characteristics such as mean age, sleep time and duration. Sleep duration was computed as the difference between bedtime and wake-up time. Bedtime, wake-up time, and sleep duration were computed in hour and minute format. Reliability analyses (Cronbach's α) were used to find out internal consistency coefficients for the overall CSHQ and subscale scores. ANOVA and t-test were used to compare CSHQ scores of different groups. Cohen's d and eta squared were calculated and effect sizes were accepted as small (.02), moderate (>= 0.5), and large (>=0.8) for Cohen's *d* and as small (>= 0.01), medium (>= 0.06), large (>= 0.14) for eta squared. All hypotheses were two-sided and statistical significance level is set at $p < .05$.

Results

Bedtime, Wake-up Time and Sleep Duration and Nighttime TV Viewing

Results indicated that average bedtime for the children in the sample was at 21:37 (95% CI, 21:32-21:42) during weekdays, and at 22:14 (95% CI, 22:09-22:19) during weekends (Table 1). Across different age groups, bedtime was not statistically different for weekdays. Bedtime during weekends, however, statistically differed across different age groups ($F(2,701) = 3.82$, $p=.022$, $\eta^2=.01$). Six-year-old children were going to bed later than the younger age groups.

Table 1. Sleep and wakeup time and sleep duration for different age groups (all values are shown in hours:minutes).

	Whole sample (n=702)		4 year olds (n=224)		5 year olds (n=267)		6 year olds (n=211)		ANOVA	
	M	CI (95%)	M	CI (95%)	M	CI (95%)	M	CI (95%)	F	η^2
Bedtime (weekdays)	21:37	21:32-21:42	21:41	21:33-20:50	21:31	21:22-21:40	21:42	21:34-21:49	2.19	.06
Bedtime (weekends)	22:14	22:09-22:19	22:08	21:59-22:16	22:11	22:02-22:20	22:24	22:17-22:31	3.82*	.01
Wakeup time (weekdays)	8:00	7:55-8:05	8:00	7:51-8:08	7:54	7:46-8:41	8:07	7:57-8:17	.77	.006
Wakeup time (weekends)	8:48	8:43-8:53	8:39	8:30-8:48	8:50	8:42-8:58	8:56	8:47-9:06	.31	.01
Sleep duration (weekdays)	10:21	10:16-10:25	10:18	10:09-10:27	10:20	10:12-10:27	10:25	10:17-10:33	2.30	.001
Sleep duration (weekends)	10:33	10:28-10:38	10:31	10:22-10:40	10:35	10:27-10:43	10:32	10:23-10:41	3.62**	.001

* $p < .05$; ** $p < .01$

Average wake-up time for weekdays was at 8:00 (95% *CI*, 7:55-8:05) and for weekends was at 8:48 (95% *CI*, 8:43-8:53). Wake-up times for both weekdays and weekends did not statistically differ across different age groups. However, wake-up time and bedtime for weekdays differed for children who attended preschool and those who did not ($t(700)=4.28$, $p=<.001$, $d=.60$). Children who attended preschool woke up earlier (M=7:53, 95% *CI*, 7:47-7:59; M=8:17, 95% *CI*, 8:07-8:27, respectively) and went to bed earlier than children who did not attend preschool (M=21:30, 95% *CI*, 21:25-21:36; M=21:56, 95% *CI*, 21:47-22:05, respectively). There was no significant difference in terms of gender for bedtime, wake-up time, and sleep duration for both weekdays and weekends.

Sleep duration was calculated for each child as the duration between bedtime and wake-up time based on their parents' reports. For the whole sample, average sleep duration was 10:21 hours (95% *CI*, 10:16-10:25) for weekdays and 10:33 hours (95% *CI*, 10:28-10:38) for weekends. In terms of sleep duration one-way ANOVA indicated no significant difference across different age groups for both weekdays and weekends. However, results showed that 4-year-olds sleep shorter ($M=10.18$) than 5-year-olds ($M=10.20$) and 6-year-olds ($M=10.25$) for weekdays. There was no gender difference in terms of bedtime, wake-up time and sleep duration for both weekdays and weekends. Only 37.7% of the children took naps. Of the children, 70 4-year, 11 5-year, and 14 6-year-olds regularly napped during the day. These children napped on an average of 1:39 hours (SD=22 minutes) during the daytime. Naptimes did not differ in terms of preschool attendance ($t(94)=0.56$, $p>.05$). Children who attended preschool had slightly longer naptimes (M=1:38 hours, SD=22 minutes) than those who did not attend to preschool (M=1:41 hours, SD=23 minutes).

Average nighttime TV viewing duration was 1.64 hours ($SD=1.07$) for weekdays, 1.88 hours ($SD=1.24$) for weekends, and 1.71 hours ($SD=1.07$) for the overall week. TV viewing was not significantly different according to child's gender or age. However, nighttime TV viewing was significantly different in terms of parents' educational level ($F(2,661)=11.69$, $p < 0.001$), $\eta^2=0.035$). As the education level increased, average nighttime TV viewing decreased from 2.02 hours to 1.53 hours. Parents with a degree of secondary school or less, spent 2.02 hours (SD:1.27) viewing nighttime TV, high school degree 1.71 hours ($SD=1.04$), and university degree 1.53 hours ($SD=0.92$).

Comparison of Sleep Problems

Mean scores and confidence intervals for CSHQ and subscales are provided in Table 2. Mean CSHQ total score was 45.17 (95% *CI*: 44.64-45.70) and did not statistically differ by age. However, there were statistical difference in terms of bedtime resistance ($F(2,701) = 4.07$, $p = .018$, $\eta^2=0.011$) and daytime sleepiness ($F(2,701) = 9.45$, $p = .001$, $\eta^2=0.026$). In terms of gender there were differences in daytime sleepiness ($t(700)=2.20$, $p= 0.028$, $d=.17$) and sleep onset delay scores ($t(700)=2.23$, $p= .026$, $d=0.17$). Girls' daytime sleepiness scores ($M=9.56$, 95% *CI*, 9.25-9.86) and sleep onset delay scores ($M=1.45$, 95% *CI*, 1.38-1.52) were higher than that of boys ($M=9.10$, 95% *CI*, 8.84-9.37; $M=1.34$, 95% *CI*, 1.28-1.41, respectively).

Table 2. Mean scores and confidence intervals for CSHQ and subscales.

	Whole sample (n=702)		4 year olds (n=224)		5 year olds (n=267)		6 year olds (n=211)	
	M	CI (95%)	M	CI (95%)	M	CI (95%)	M	CI (95%)
Total CSHQ score	45.17	44.64-45.70	45.03	44.11-45.94	45.26	44.44-46.07	45.21	44.16-46.27
Bedtime resistance	10.27	10.05-10.48	10.72	10.34-11.10	10.06	9.72-10.40	10.05	9.66-10.45
Sleep onset delay	1.39	1.35-1.44	1.42	1.33-1.51	1.40	1.33-1.48	1.42	1.33-1.51
Sleep duration	4.24	4.13-4.35	4.30	4.09-4.50	4.24	4.07-4.41	4.30	4.09-4.50
Sleep anxiety	7.20	7.03-7.36	7.28	7.00-7.56	7.11	6.86-7.36	7.28	7.00-7.56
Night wakening	4.37	4.27-4.47	4.43-	4.25-4.61	4.35	4.20-4.50	4.43	4.25-4.61
Parasomnias	8.78	8.66-8.91	8.78	8.55-9.01	8.73	8.53-9.93	8.78	8.55-9.01

Sleep-disordered breath	3.45	3.38-3.52	3.43	3.31-3.55	3.42	3.31-3.54	3.43	3.31-3.55
Daytime sleepiness	9.32	9.12-9.52	8.69	9.36-9.02	9.72	9.38-10.05	8.69	8.36-9.02

* $p < .05$; ** $p < .01$

Comparison of the total CSHQ scores of children who attended preschool to those who did not at the time of research revealed no statistical difference. However, there were differences in bedtime resistance (t(700)=3.69, p= .001, d=.31), sleep anxiety (t(700)=3.69, p= .006, d=.24), parasomnias (t(700)=2.13, p= .033, d=.17), and daytime sleepiness scores (t(700)=3.74, p= .001, d=.32). Children attending preschool had lower bedtime resistance scores (M=10.02, 95% *CI*, 9.78-10.27), sleep anxiety scores (M=7.05, 95% *CI*, 6.87-7.24), parasomnias scores (M=8.70, 95% *CI*, 8.56-8.84) compared to children who did not attend to preschool (M=10.92, 95% *CI*, 10.51-11.33; M=7.57, 95% *CI*, 7.25-7.89; M=9.01, 95% *CI*, 8.73-9.29, respectively). Children attending to preschool had higher daytime sleepiness scores (M=9.56, 95% *CI*, 9.32-9.80) than children who did not attend to preschool (M=8.70, 95% *CI*, 8.34-9.06).

In terms of parents' level of education there were statistically significant differences on overall CSHQ scores (F(2,609) = 4.56, p = 0.011, η^2= 0.013), and parasomnias (F(2,609) = 10.79, p = < 0.001, η^2=0.031) and night wakenings subscale (F(2,609) = 8.39, p = 0.007, η^2 =0.014) in favor of the parents with higher level of education. Children of parents with secondary school degree or less scored high on total CSHQ (45.98, 95% *CI*, 44.89-47.07), parasomnias (9.22, 95% *CI*, 8.96-9.49), and night wakenings (4.56, 95% CI, 4.36-4.76) subscales compared to parents with high school degree (total CSHQ (45.77, 95% *CI*, 44.74-46.80), parasomnias (8.80, 95% *CI*, 8.56-9.04), and night wakenings (4.44, 95% *CI*, 4.26-4.63), and university degree of above (total CSHQ (44.25, 95% *CI*, 43.52-44.98), parasomnias (8.50, 95% *CI*, 8.32-8.68), and night wakenings (4.20, 95% *CI*, 4.07-4.33).

In comparison of whether daytime nap have effects on children's sleep scores, there were differences in bedtime resistance (t(250)=2.47, p= 0.014, d=0.31) and sleep anxiety (t(250)=2.18, p= 0.030, d=0.27) subscales. Children who napped had higher bedtime resistance scores (M=10.67, 95% *CI*, 10.05-11.30) and sleep anxiety scores (M=7.48, 95% *CI*, 7.03-7.93) than non-napping children (M=9.78, 95% *CI*, 9.36-10.19, M=6.92, 95% *CI*, 6.62-7.21, respectively).

Prevalence and Parental Perception of Sleep Problems

In order to display prevalence of sleep problems, item mean score and percentages of sleep behaviors that occurred sometimes (2-4 times a week) and usually (5-7 times a week) are displayed in Table 3. Results showed that most prevalent sleep problems were bedtime resistance and anxiety. Bedtime resistance subscale showed that 53.80% of the children fell asleep in somewhere other than their bed, 67.60% of the children needed the presence of a parent in room to sleep, and 52.30% was afraid of sleeping alone. In the sleep anxiety subscale, more than half of the children needed parent in room to sleep (67.60%), and afraid of sleeping in the dark (52.30%). Among the parasomnia items, restlessness during the sleep was the most common problem (39.80%).

Table 3. Prevalence and parental perception of sleep behaviors that are observed in a week

		Prevalence (Sometimes, 2-4 times/ week, Usually 5-7 times a week)		Parental perception as a problem	
		n	%	n	%
Bedtime Resistance	1 Goes to bed at the same time	272	38.70	119	17.00
	3 Falls asleep in own bed	381	54.30	128	18.20
	4 Falls asleep in others' bed	378	53.80	138	19.70
	5 Needs parent in room to sleep	472	67.60	175	24.90
	6 Struggles at bedtime	175	24.90	218	31.10
	8 Afraid of sleeping alone	367	52.30	200	28.50
Sleep Anxiety	5 Needs parent in room to sleep	472	67.60	175	24.90
	7 Afraid of sleeping in the dark	367	52.30	165	23.50
	8 Afraid of sleeping alone	367	52.30	200	28.50
	21 Trouble sleeping away from home	299	42.60	169	24.10
Sleep Duration	9 Sleeps too little	207	29.50	113	16.10
	10 Sleeps the right amount	182	25.90	49	7.00
	11 Same amount of sleep everyday	290	41.50	40	5.70
Sleep Disordered Breath	18 Snores loudly	86	12.30	58	8.30
	19 Stops breathing	66	9.40	50	7.10
	20 Snorts and gasps	110	15.70	71	10.10

Parasomnias	12 Wets the bed at night	119	16.90	102	14.50
	13 Talks during sleep	195	27.70	35	5.00
	14 Restless and moves a lot	279	39.80	131	18.70
	15 Sleepwalks	17	2.40	26	3.70
	17 Grinds teeth during sleep	160	22.80	101	14.40
	22 Wakes up screaming and sweating	85	12.10	75	10.70
	23 Alarmed by scary dreams	188	26.80	113	16.10
Daytime Sleepiness	26 Wakes up by itself	256	36.50	55	7.80
	27 Wakes up in negative mood	261	37.20	110	15.70
	28 Others wake up the child	339	38.30	54	7.70
	29 Difficulty getting out of bed in morning	283	40.30	102	14.50
	30 Takes long time to be awake	220	31.40	81	11.50
	31 Seems tired	136	19.40	64	9.10
	32 Falls asleep watching TV	172	24.50	-	-
	33 Falls asleep riding car	5	0.70	-	-
Night Wakenings	16 Moves to others' bed at night	269	38.40	118	16.80
	24 Wakes up once during the night	340	48.50	54	7.70
	25 Wakes up more than once	157	22.40	59	8.40
Sleep Onset Delay	2 Falls asleep within 20 minutes	241	30.50	68	9.70

Presence of a sleep problem their child displayed did not necessarily cause a concern for all parents. According to parent reports, the behaviors that are seen as the most problematic are those related to sleep anxiety and resistance to bedtime. Parents stated that behaviors such as struggling at bedtime (31.10%), being afraid of sleeping alone (28.50%), needing a parent in the room to sleep (24.90%), trouble sleeping away from home (24.10%), and being afraid of sleeping in the dark (23.50%) were a concern for them. While sleep talking was prevalent in 27.70% of the children, only 5.00% of the parents indicated this as a problem. Sleepwalking was the least seen parasomnia behavior (2.70%) and 3.70% of the parents expressed concerns about sleepwalking.

Discussion

This study explored the sleep habits of young children in Turkey. Total sleep duration of Turkish preschool children was 10:21 hours for the weekdays and 10:33 hours for weekends. Total sleep duration did not differ in terms of age or gender. These averages are lower than those reported by a Swiss study. According to Zurich Longitudinal Study total sleep hours for Swiss children are as followed: 4 years (*M*=11.8), 5 years (*M*=11.4, 6 years (*M*=11.0) (Iglowstein, Jenni, Molinari, & Largo, 2003). However, relatively recent studies on sleep duration report sleep duration scores similar to the current study. For example, Singaporean children sleep (2-7 years) 10.8 hours, the Dutch children (10.66 hours) (Aishworiya, et al., 2012; van Litsenburg, Waumans, van den Berg, & Gemke, 2010). Iranian children are reported to sleep less (9:32 hours on weekdays and 9:44 hours on weekends) compared to 3-6 years old children in other countries. Iranian girls were found to be sleeping longer compared to boys (Jalilolghadr, et al., 2012). As the authors suggested Iranian children's sleep duration discrepancy can be explained by cultural and climate factors. A recent Dutch study on sleep duration reported that older children, boys, children who use screen media after dinner, and children whose parents had lower levels of education are at risk for shorter sleep duration (Komrij, et al., 2021).

Another finding of this study was that there was no age difference in terms of wake-up time for the 3-6 old children. However, attendance to preschool significantly affected their wake-up time and bedtime for all age groups. Similar results were also reported that school start time is the most important predictor in child's wake-up time (Zhang, Li, Fok, & Wing, 2010).

Results of this study revealed that sleep problems are prevalent among young Turkish children. Contrary to the other studies conducted in the US and China (Liu, Liu, Owens, & Kaplan, 2005), Germany (Schlarb, Schwerdtle, & Hautzinger, 2010), and the Netherlands (van Litsenburg, et al., 2010), Turkish children tend to have relatively higher rates of sleep related problems. Comparing the CSHQ overall and subscale scores of this study with other studies, the most important differences were seen in the bedtime resistance and the sleep anxiety subscales. For example, while Turkish children's bedtime resistance subscale mean score is 10.27, the same subscale mean is 6.74 for German, 6.83 for Dutch; 7.01 for US, and 7.92 for Chinese children. Similarly, on sleep anxiety subscale Turkish children had the mean score of 7.20, whereas this score is 4.81 for German, 5.10 for Dutch, 4.86 for US, and 5.58 for Chinese children. These discrepancies indicate a cultural difference in bedtime resistance and sleep anxiety of Turkish preschool children. Bedtime resistance was also found in studies conducted in Singapore and Taiwan (Iglowstein, et al. 2003; Lo, 2016). Literature suggests that bedtime resistance is associated with sleep hygiene problems for low-income U.S. preschoolers (Wilson, et al. 2015). Therefore, future studies may focus on cultural influences, parenting strategies and the child's temperament on sleep habits of preschool children.

Habits form during early childhood period and continue into adulthood. If left unattended sleep problems of preschool children may continue during school years with such consequences as attention problems and low school success. A recent study conducted in Turkey confirms this prediction by reporting that almost half of the primary school students had problems waking up in the morning and experience daytime sleepiness (31%). Students who had difficulties waking up in the morning and experienced daytime sleepiness and lower academic achievement (Unalan, et al. 2013).

Limitations

There are several limitations to this study. First, current study uses parent reports of children's sleep habit and problems. Parents may have a tendency to over report their children's conditions (Palermo, Witherspoon, Valenzuela, & Drotar, 2004). On the other hand, some studies suggested that parents' reports are reasonably accurate and provide valuable information (Sneddon, Peacock, & Crowley, 2013; Pless & Pless, 1995). Moreover, parents' reports may also be influenced by the duration of the recall and the seriousness of the event being recalled (Daly, Lindgren, & Giebink, 1994). Second, children who do not attend to preschool are underrepresented in this study. Furthermore, the research was conducted in a western province in Turkey. Even though measures were taken to ensure to represent the diversity within the province, sample size and diversity were insufficient to represent the whole country limiting the validity and generalizability of the results. Therefore, further research with more diverse and larger sample size and comprehensive data collection procedures are needed. Additionally, data collection method consisted of both paper-based and online administration of the questionnaires. As in all survey studies, parents with high motivation towards research topic might have biased the results. Finally, this study investigated whether TV viewing was among the factors affecting children's sleep habits. Although TV viewing is an important factor for children's sleep, it may be better to investigate the effect of "screen viewing" instead of "TV viewing" because of recent widespread use of information communication technologies. While there were no longer any COVID-19 lockdown measures at the time of the data collection, the lockdowns and restrictions in previous months might have potential adverse effects for the sleeping habits of children and other family members.

Conclusion

This study has added to the literature that there were no age or gender differences in typically developing Turkish children's sleep habits and problems. However, there were differences in terms of preschool attendance and both parents' employment. The fact that two major sleep problems are sleep anxiety and bedtime resistance indicates issues in parenting and discipline strategies of Turkish parents. Future research in Turkish context should investigate the effects of parenting and discipline on sleep behavior and problems. Thus, reaching a more diverse sample will be essential for further investigating the relationship between parent characteristics and children's sleep habits and problems. In terms of recommendations for practice, effective intervention programs are needed to reduce problems related to bedtime resistance and sleep anxiety of Turkish preschoolers.

Compliance with Ethical Standards

Financial Disclosure: None. This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

Disclosure of potential conflicts of interest: The author declares that there are no conflicts of interest.

Ethical approval: All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki Declaration and its later amendments or comparable ethical standards.

Informed consent. Informed consent was obtained from each participant prior to survey administration.

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