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Sleep Disturbance among Primary School Children as a Result of the COVID-19 Lockdown

Zeyad Tariq Al-Noimi
Lecturer / College of Nursing / University of Mosul
zeyad.tariq@uomosul.edu.iq

Abstract

Background and Aim: A significant portion of the world's population saw significant disruptions in their sleep patterns because of the COVID-19 lockout. The objectives are to assess differences in reported sleep patterns and disruptions in men and women, to evaluate the sleep disturbances in male and female, and to study the association between male and female sleep disturbance and their demographic characteristics.

Method: A descriptive design was carried out from 21th, December 2021 through 29th, March 2022 to accomplish the current study's aims .The subjects of the study consisted of 200 children, (100) male and (100) female, from Mosul city. The SDSC, The questionnaire has 26 Likert items, was created to identify particular sleep issues in children as well as to offer a general indicator of sleep disturbance that may be used for clinical screening and research.

Results: It was revealed that 20% of men reported issues starting and keeping their sleep, while 18% of females reported problems beginning and sustaining sleep. According to sleep breathing disorders, the result showed that 17% of males and 13% of females had sleep breathing disorders. 11% of males and 17% of females suffered arousal disorders or nightmares. Disorders of the sleep-wake transition affected 27% of males, and in females, it was 29 %. The results show that 18% of males and 20% of females had excessive somnolence. Sleep hyperhidrosis (nighttime sweating) in males was 7%, and in females, it was 3 %.

Conclusions: The data indicates that there were no disparities between the male and female groups' bedtimes on weekdays in the data prior to lockdown. There has been an apparent shift in bedtime throughout the lockdown. There were no variations in rising times during the weekdays before lockdown, most likely due to regular school schedules. The lack of binding rise time during the lockdown led to essential appearance differences.

Recommendations: It is necessary to organize a healthy sleep schedule for the family. We are reducing sleep, especially during the day. Avoid eating fatty meals before bed, and sleep in a dark room devoid of electronic devices, especially mobile phones.

Keywords: Sleep Disturbance, Primary School Children, COVID-19 Lockdown**.**

Introduction

The World Health Organization has labeled the coronavirus disease 2019 (COVID-19) epidemic a global pandemic. Starting in late January 2020, To avoid illness transmission, all Chinese citizens, including children, were told to "shelter at home." In particular, nationwide school closings forced 47 million toddlers to spend much of their time at home alone. It is generally recognized that the physical and emotional health of young kids suffers, as well as their vulnerability to illnesses owing to weakened immune systems, depend on getting enough sleep potential changes to family lives during home confinement may cause Sleep problems and disruptions in young children, Unrestricted sleep cycles, excessive screen time, a lack of outdoor activities and peer interactions, and increased stress and anxiety during a pandemic are all instances. On the other hand, home confinement could promote improved parent-child relationships, increased caregiver knowledge of and sensitivity to kids' needs, and greater alignment with children's sleep requirement [1,2,3].

China and the rest of the world had increasing stress and deteriorating depressed and anxiety symptoms throughout the COVID-19 epidemic [4,5].

Additionally, it has been recommended that one's sleep is one of the main targets to be influenced and a significant mediator of the consequences of mental health sleep in a setting where the rhythms of life are fundamentally disrupted [6]. Modern cross-sectional investigations on the psychosomatic effects of the

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COVID-19 pandemic concentrated on certain vulnerable populations, such as healthcare professionals [7], and referred to limited periods. The COVID-19 pandemic's widespread quarantine, which led to school closures, lost connections with family and friends, and fewer social and recreational opportunities, has profoundly impacted children's and teenagers' lifestyles, negatively affecting both their mental health and conduct [8]. Mainly, the COVID-19 lockdown significantly impacted numerous communities worldwide, affecting people of various ages and causing sleep problems [9–13]. Increases in psychopathological symptoms or a decline in quality of life were frequently linked to increased sleep problems [10,14,15].

Methodology

The lockdown could significantly burden psychological comfort, raising the danger of mental health issues. A descriptive design was carried out from 21th, December 2021 through 29th, March 2022 to accomplish the current study's aims. The study's aims were to look into the reported changes in male and female sleep patterns and sleep disturbances, to assess the participants' sleep difficulties and study the links between male and female sleep disturbances and demographic characteristics. Two hundred children from Mosul city made up the study, 100 were male, and 100 were female. The SDSC, which consists of 26 Likert items, was established to assess various forms of sleep disruptions in kids and provide a broad indication of sleep disruption that can be utilized for clinical testing and investigation [16]. The objects were classified into 6 categories based on factor analysis, which represent some of the most common sleep issues affecting children and adolescents: disorders of initiating and maintaining sleep, disorders of breathing during sleep, disorders of arousal/nightmares, disorders of sleep-wake transition, disorders of excessive somnolence, and disorders of sleep hyperhidrosis (nighttime sweating). The scale has been verified by 6 to 15-year-old juvenile groups.

Results:

Table 1. Demographics of the sample taking part in both measures

Demographic data \ Gender		Male	Female	Total
Age	**6-7 years**	20(20)	23(23)	43(21.5)
	8-9	**25(25)**	**25(25)**	50(25)
	10-11	15(15)	19(19)	34(17)
	12-13	18(18)	20(20)	38(19)
	14-15	22(22)	13(13)	35(17.5)
	Total	100(100)	100(100)	200(100%)
Respondent	**Mother**	20(20)	22(22)	42(21)
	Father & mother	**65(65)**	**69(69)**	134(67)
	Grandparent	15(15)	9(9)	24(12)
	Total	100(100)	100(100)	200(100)
Education level of respondent	**Graduation**	23(23)	19(19)	42(21)
	High schools	19(19)	23(23)	42(21)
	Middle schools	22(22)	**34(34)**	56(28)
	Elementary schools	**36(36)**	24(24)	60(30)
	Total	100(100)	100(100)	200(100)
Family income	**Low**	34(34)	39(39)	73(36.5)
	Middle	**54(54)**	**48(48)**	102(51)
	High	12(12)	13(13)	25(12.5)
	Total	100(100)	100(1000	200(100)
Siblings	**Only child**	13(13)	18(18)	31(15.5)
	2	26(26)	**30(30)**	56(28)
	3	**38(38)**	27(27)	65(32.5)
	≥4	23(23)	25(25)	48(24)
	Total	100(100)	100(100)	200(100)

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Table 2 comparison between male and female bedtimes before and during lockdown

		Male	Female
Bedtime weekdays before	**<8 p.m.**	0(0%)	2(2%)
	8–9	5(5%)	8(8%)
	9–10	11(11%)	15(15%)
	10–11	22(22%)	30(30%)
	11 p.m.–12 a.m.	40(40%)	38(38%)
	>12 a.m.	22(22%)	15(15%)
Bedtime weekdays during	**<8 p.m.**	1(1%)	1(1%)
	8–9	3(3%)	6(6%)
	9–10	8(8%)	13(13%)
	10–11	18(18%)	27(27%)
	11 p.m.–12 a.m.	31(31%)	33(33%)
	>12 a.m.	39(39%)	20(20%)

Table 2 illustrates the findings before to lockdown; no disparities in bedtime during the weekdays were identified between the male and female groups. Through the lockdown, there was an apparent change in bedtime, mainly after midnight; after 22% of the sleepers went to sleep, the percentage became 39%, which is an apparent effect of the lockdown. Likewise, 20% of females go to bed after midnight.

Table 3 comparison of male and female rising times on weekdays before and during lockdown

		Male	Female
Rise Time weekdays before	**<7 a.m.**	44(44%)	53(53%)
	7-8 a.m.	48(48%)	40(40%)
	8-9 a.m.	6(6%)	5(5%)
	9-10 a.m.	2(2%)	1(1%)
	>10 a.m.	0(0%)	1(1%)
Rise Time weekdays during	**<7 a.m.**	15(15%)	18(18%)
	7-8 a.m.	21(21%)	20(20%)
	8-9 a.m.	25(25%)	23(23%)
	9-10 a.m.	29(29%)	30(30%)
	>10 a.m.	10(10%)	9(9%)

Table 3 shows that there were no changes in risetime before lockdown on weekdays, most likely owing to typical school scheduling. The absence of binding rising time during the shutdown resulted in significant appearance disparities: When 44% of males woke up before 7 am, it became only 15%. Likewise, for females, after 53% of them woke up before seven in the morning, it became only 18%.

Table 4. Distribution of the study subjects' sleep disorders according to gender

Gender / **Sleep disorders**	**Male**	**Female**
Disorders of initiating and maintaining sleep	**20(20%)**	**18(18%)**
Sleep breathing disorders	**17(17%)**	**13(13%)**
Disorders of arousal/nightmares	**11(11%)**	**17(17%)**
Sleep wake transition disorders	**27(27%)**	**29(29%)**

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Excessive somnolence	**18(18%)**	**20(20%)**
Sleep hyperhidrosis (nighttime sweating)	**7(7%)**	**3(3%)**
Total	**100(100%)**	**100(100)**

Table 4 shows that 20% of men had problems beginning and sustaining sleep, whereas 18% of females had problems initiating and maintaining sleep. According to sleep breathing difficulties, 17 percent of males and 13 percent of females had them. Arousal/nightmare disorders affected 11% of males and 17% of females. Sleep-wake transition disturbances were seen in 27% of men and 29% of females. According to the findings, 18% of males and 20% of females exhibited extreme somnolence. Sleep hyperhidrosis (nighttime sweating) was observed in 7% of males and 3% of females.

Table 5. Association between the participants' socio-demographical characteristics and their sleep disorders

Sleep disorders / Demographic data	Disorders of initiating and maintaining sleep	Sleep breathing disorders	Disorders of arousal/nightmares	Sleep wake transition disorders	Excessive somnolence	Sleep hyperhidrosis (nighttime sweating)
Gender	**.358***	.213	.176	**.436***	.237	.136
Age	.269	**.**167	.008	.295	.052	.342
Respondent	.028	.020	.068	**.406***	.118	.183
Education level of respondent	.045	.283	.018	.022	.084	.116
Family income	.268	.261	.143	.273	**.366***	.089
Siblings	.084	.140	**.405***	**.366***	**.375***	.039

Table 5. The relationship between male and female demographical characteristics and emotional intelligence sleep disorders demonstrates a continuous, significant positive correlation between participants' Gender differences in sleep initiation and maintenance. There is also a significant correlation between arousal disorders/nightmares and the number of siblings. At the same time, sleep transition disorders are associated with respondents and siblings. There is also a significant correlation between excessive somnolence and family income and siblings.

Discussion:

The unanticipated The COVID-19 epidemic and subsequent lockdown might have serious long-term implications, including stress, emotions, and sleep difficulties [17]. Women consistently surpassed men in evaluations of sleep then mental health, particularly at the start of the lockout. It should be noted that this is not a unique feature of this beautiful age. Earlier study has indicated that women outperform males on the PSQI in a number of regions and nations [18 , 19, 20] Furthermore, females have the largest prevalence of insomnia complaints [21]. Long-term confinement at home, on the other hand, abridged the gender disparity in two ways. In one sense, it appeared that women were further resilient than males over time, with a little trend for improvement in sleeplessness, grief, concern, and distress towards the conclusion of the seven-week study period. During the lockdown, men had a surge in symptoms of insomnia and a decline in the quality of their sleep. Moreover, at the conclusion of the trial, male participants reported a significant increase in felt stress. Furthermore, women informed a higher incidence of medical problems such as sleeplessness and sadness during the first four weeks of the lockout, but the gender hole disappeared after 4 weeks [22]. All of these

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findings are constant with the findings of our study. Getting more sleep is regularly one of the most popular objectives. However, there is a problem: the present coronavirus outbreak has made obtaining enough sleep at night far more difficult. Some scientists have even dubbed it "corona insomnia" or "Covid insomnia." the phenomena that affects people all around the world, as they suffer from sleeplessness caused by the COVID 19 epidemic.

The WE/WD sleep pattern mismatch in the 2018 sample, Early study suggested abnormalities in sleep cycles on non-school days, particularly in young children. These findings, along with similar changes in bed/wake timings during home confinement, were consistent with this previous research [23, 24, 25]. Although we did not look at the parents' sleep, we think that delays in their sleep patterns because of changes in their jobs and other variables had a significant impact on the kids' sleep routines. This suggests that young children's sleep may be significantly impacted by a significant change in the daily schedule, even if it only lasts a short while. Unexpectedly, it was found that the COVID-19 sample had a much lower likelihood of sleeping during the day. This raises important questions regarding the average nap propensity in this age range as well as the possible influence of environmental factors on napping behavior. There were differences between the samples that could have affected napping patterns, such as the absence of a scheduled "nap opportunity," a lack of peer and caregiver expectations regarding naps at home versus school, lower levels of activity and cognitive/attentional effort during home confinement versus the typical school day. Daytime naps and their influence on development of the mind and emotional/behavioral control in children are being researched [26]. Other studies [27, 28] Children of less educated parents had greater sleep issues, which is consistent with our results that children of less educated mothers had more sleep disorders [29]. Other research found no link between parental education and sleep disturbances [30, 31]. The relationship between age and sleep disturbances is consistent with previous studies' findings, such as [32, 33]; in the studies by [31, 34], There was a link between sleep issues and the age of the youngsters. The prevalence of sleep disruptions varies by geography, ranging from 24% in Australia to over 40% in a 2013 Japanese survey and 43.1 percent in a 2016 Spanish poll [35, 33, 36]. Similar research in developing nations appraised the frequency of sleep disorders in the pediatric people to be 20% to 50%, which is similar with our findings [37]. Previous research in Iran discovered a 26 percent - 50 percent variety of sleep disruptions among kids in various parts of the nation [38, 39, 40]. Previous research has found no difference in sleep disorders between males and girls [38, 28, 40].

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