



The Correlation between Sleep Quality and Mental Health of Middle and High School Students in Tehran, Iran

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Dear Editor-in-Chief

Sleep disorder is one of the most common complaints of medical and psychiatric clients. This disorder can affect different aspects of life and also, daily performance and activity (1).

Even though sleep disorders in children have been studied, knowledge in this regard is scarce yet. Since there is a relationship between sleep and mental disorders (2). We aimed to investigate the prevalence and causes of sleep disorders among school students of Tehran, Iran and its correlation with mental health.

The study was conducted on 3987 intermediate to pre-university students in 2017-2018 after taking oral consent before giving the questionnaire in Tehran, Iran. In order to conduct the multi-stage cluster random sampling method, we divided the city of Tehran into five arbitrary geographical areas of the north, the south, the east, the west, and the center. These five areas were considered as the classes in the sampling. In each aforementioned district, there were 3, 5, 4, 3, and 4 educational areas respectively. In this study, the first-stage clusters were the educational areas within every five classes and secondary clusters

were the schools of each education area. The schools were randomly selected and one class of each level was selected to take part in the study.

Data were collected using a questionnaire consisting of three parts. The first part included demographic data such as age, gender, level of education, and parents' education. The second part "Insomnia Screening Questionnaire (ISQ)" is consisted of 18 items. Reliability of the ISQ was assessed by calculating Alpha Cronbach which was 0.79. The third part of the questionnaire was The Iranian version of the 12-Item General Health Questionnaire (GHQ-12) (3, 4). GHQ-12 is used to assess the general health of the students and detect students at risk of non-psychotic disorders. Individuals with GHQ-12 scores of 5.5- or higher indicated a "poor mental health status" (5).

Data were analyzed using statistical software (IBM Corp. Released 2017. IBM SPSS Statistics for Windows, Version 25.0. Armonk, NY: IBM Corp). Statistical significance was set at $P \leq 0.05$.

The highest prevalence of sleep disorder was Psychiatric disorder (1280, 72.46%) and the low-



est rate was seen in circadian disorder (591, 16.5%). About 1122 students (29.7%) had GHQ higher than cut off so at risk of non- psychotic disorders. Mean and standard deviation (SD) of GHQ-12 in males and females were 3.40 ± 2.42 and 4.52 ± 2.89 respectively ($t = -11.886$, $DF = 3726$, $P < 0.001$). Females (782, 35%) outnumbered the males (244, 20%) ($\chi^2 = 85.817$, $DF = 1$, $P < 0.001$). The neck size was also significantly higher among those with sleep disorder (32.66 ± 4.09) compared with the healthy one (32.33 ± 3.87) ($t = 2.327$, $DF = 3514$, $P < 0.001$).

The correlation between sleep disorder and items such as sex, age, grade of school, education of father and mother and also the results of GHQ-12 were investigated. A positive correlation was observed between sleep disorders and sex in both adjusted and unadjusted comparisons. On the other hand, sleep disorders increased by an increase in age.

The correlation between GHQ-12 and some demographic information as well as five sleep disorders were investigated (Table 1). Moreover, the comparison of the sleep disorder prevalence based on gender and grade is presented in Fig.1.

Table 1: The correlation between General Health Questionnaire-12 and sleep disorders and demographic data

Variables		<i>General Health Questionnaire-12</i>			
		Unadjusted		Adjusted	
		<i>P</i> value	95% CI	<i>P</i> value	95% CI
Gender(Female)		0.000 ^a	2.16(1.83-2.55)	0.003 ^a	2.98(1.44-6.18)
Age		0.166	1.03(0.98-1.08)	0.811	1.04(0.77-1.40)
Grad		0.901	0.99(0.86-1.15)	0.650	1.25(0.47-3.29)
Neck Size		0.677	0.98(0.91-1.06)	0.596	0.95(0.80-1.13)
Father Education	Illiterate	0.286	0.81(0.57-1.18)	0.698	1.36(0.29-6.30)
	Diploma	0.386	0.83(0.54-1.26)	0.882	0.917(0.29-2.87)
	High degree	0.566	-	0.785	-
Mother Education	Illiterate	0.590	0.90(0.62-1.30)	0.703	0.818(0.29-2.29)
	Diploma	0.714	0.94(0.69-1.28)	0.812	0.83(0.17-3.99)
	High degree	0.863	-	0.930	-
Insomnia		0.000 ^a	2.69(1.841-3.94)	0.024 ^a	2.73(1.14-6.55)
Psychiatric Disorder		0.000 ^a	6.19(3.04-12.60)	0.002 ^a	5.69(1.87-17.30)
Movement Disorder		0.000 ^a	2.05(1.45-2.89)	0.614	1.19(0.60-2.38)
Parasomnia		0.498	1.12(0.81-1.55)	0.522	1.23(0.65-2.34)
Circadian		0.000 ^a	3.97(2.61-6.06)	0.028 ^a	2.30(1.09-4.85)
Sleep apnea		0.000 ^a	2.85(1.95-4.18)	0.779	1.14(0.46-2.82)

^a Statistical significance was established at $P \leq 0.05$

Since sleep is one of the basic physiological needs of humans sleep disorder can threaten public health. Therefore, attention to the sleep will have a significant effect on the physical and mental

aspects of the people`s health. On the other hand, by treating mental problems, sleep disorders may conceal as well.

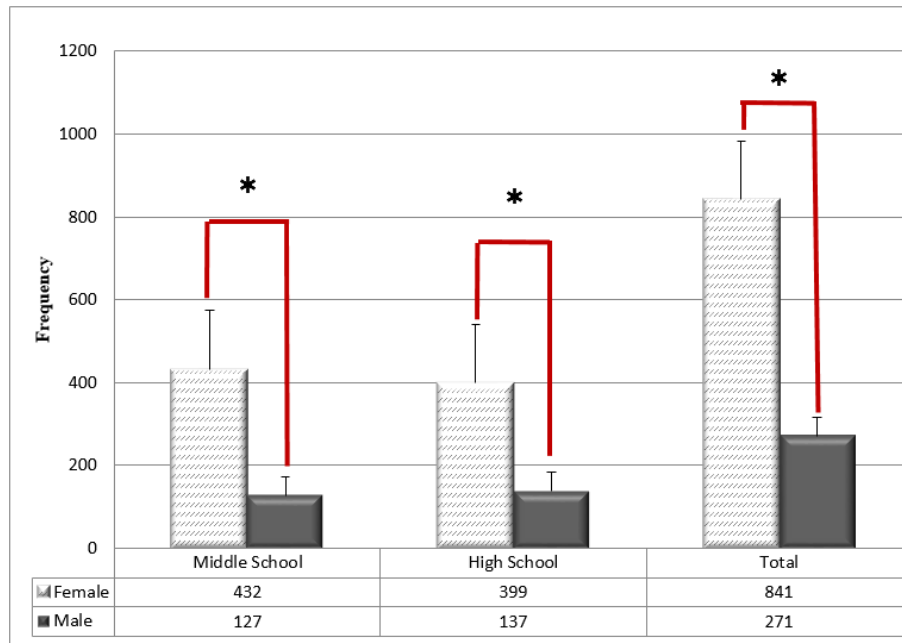


Fig. 1: The comparison of the sleep disorder prevalence based on gender and grade; * *P*-value consider significant at ≤ 0.05

Conflict of interest

The authors declare that there is no conflict of interest.

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