Prevalence Of Insomnia and Anxiety Among the Medical Students: Acrosectional Studyat Al-Kindy College of Medicine 2016

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Abstract

Background: Medical student's population is believed to be at an increased risk for sleep deprivation. Therefore insomnia can be precipitated by or co-morbid with other psychiatric disorders including anxiety.

Objective: To both insomnia and anxiety have negative professional and personal consequences, hence there's strong need to assess the prevalence of insomnia and anxiety.

Patients and Methods: Across sectional study was conducted to all student in al-kindy college of medicine. The study was conducted from1stmarch to 1stmay 2016. 406 students were included in our study .Athens scale questionnaire for insomnia was used for assessing insomnia while Hamilton scale questionnaire was used to assess anxiety.

Results: The prevalence of both insomnia and anxiety was (67.24%) it was higher in females, No.=173(72.6%) than males, No=100(59.5).There was significant association between insomnia and anxiety among the medical students should be recognized and attempts should be made to alleviate them to promote health among medical students of Al-kindy medical college.

Conclusion: The prevalence of insomnia and anxiety were high among medical student and there was significant correlation between gender and both insomnia and anxiety. Females are more liable for developing insomnia and anxiety. The need for establishing clinical evaluation of insomnia and anxiety for proper management and care. Further studies among other colleges and societies are needed.

Key words: Insomnia and anxiety, prevalence, medical students.

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Introduction

Medical student's population is believed to be at an increased risk for sleep deprivation[1].Their sleep pattern characterized by insufficient sleep duration ,delayed sleep onset and occurrence of napping episodes due to their exposure to significant level of pressure from academic demands[2].Amongst medical students stress has been reported also to be due academic demands, exams , inability to cope, helplessness , increased psychological pressure , mental tension and too much workload[3].

Therefore, insomnia can be precipitated by or co-morbid with other psychiatric disorders including anxiety [4].

Insomnia which can be defined as unsatisfactory of sleep[5],the most frequently reported sleep disorder ,is characterized as a state of hyperarousalin which stress is believed to activate the hypothalamic-

pituitary-adrenal axis[5]. Those with insomnia had increased secretion of corticotropin and cortisol throughout the sleep-wake cycle [6]. Additionally, N of zinger and colleagues, using positron emission tomography (PET) studies to assess regional cerebral glucose metabolism , demonstrated that insomnia also is associated with greater whole- brain metabolism during both sleep and wake period sand, notably, a failure of wake-promotingstructurestodeactivateduringthetran sitionfromwakingto sleep states[7] Structures regulating the sleep-wake cycle, such as the brainstem, hypothalamus, and basal forebrain, are abnormally over active during sleep. The ventral emotional neural system also is hyper active during wakefulness in patients with primary insomnia and insomnia associated with depression, and this abnormal activity persists into NREM sleep [8]. These PET findings of whole brain hypermetabolism during sleep and wake states ,and reduced waking metabolism in the prefrontal cortex of patients with insomnia ,suggest that they have chronic in sufficient sleep, which may explain daytime symptoms of fatigue[7]. The results also may explain why cognitive factors (eg, worry) and environmental cues (eg, light exposure and unstable sleep schedules) perpetuate insomnia [9].

Anxiety or stress, which is an emotional state or responses to certain situations can cause the sympathetic nervous system to be over activated as a complete unit which is called a mass discharge and this may lead to many physical symptoms such as rapid heart rate, palpitations , increase in blood pressure and …*etc.* [10].

Both insomnia and anxiety have negative professional and personal consequences, include: poor academic performance, physical health and psychosocial well-being, decline in empathy and ethics, negative influence on their choice of specialty and high incidence of medical errors [11].

Hence there's strong need to assess the prevalence of insomnia and anxiety to recognize these behavioral problems, identify the predisposing factor and attempts should be made to lessen them and improve medical students' quality of life.
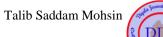
Patients and Methods

Across sectional study was conducted to all students in AL-kindy College of medicine. An effort was made to include all the students (774) however those students who were on leave or absent due to any reason were excluded from the study .The study was conducted from 1st of March to 30th of April 2016, 406 students were included in our study. Data collection was done by a pre designed, pre structured and pretested questionnaire. Prior approval was sought from the ethical committee of the institute and written consent was obtained from study subjects .The study subjects were explained the purpose of the study and were assured about the confidentiality and anonymity of the information so obtained.
Athens scale questionnaire for insomnia was used for assessing insomnia among subject and accordingly a score of 6 or above would be considered as insomniac while Hamilton scale [11]. Questionnaire was used to assess anxiety level and according to which a score of 17or less considered as mild, a score of 18 to 24 considered as moderate and of 25 or greater considered as severe .The questionnaire also included grade, gender, age, residences, smoking habits and coffee consumption.

Statistical analysis

Statistical analysis was done by using SPSS software version17.00. Chi-square test was used. Frequencies along with percentages were calculated for categorical variables .Tests of significance were applied wherever applicable .A p value <0.05was

considered significant .This research project was approved by the scientific and ethical committee in AL-kindy college of medicine, University of Baghdad.

Results

A total of 774 students were included in this study only 406 participate in the study.

Table (1): Demographic profile of the study.

Demographic characteristic Of study	Male No. (%)	Female No. (%)	Total
Gen	168(41.3%)	238(58.6%)	406(100%)
Grade :-1st	30(33.7%)	59(66.29%)	89(100%)
2$_n$	30(37.5%)	50(62.5%)	80(100%)
3$_r$	51(46.78%)	58(53.22%)	109(100%)
4$_t$	26(45.61%)	31(54.39%)	57(100%)
5$_t$	25(47.16%)	28(52.84%)	53(100%)
6$_t$	6(33.33%)	12(66.66%)	18(100%)
Residence:			
Ho me	147(42.12%)	202(57.87%)	349(100%)
Ho	21(36.84%)	36(63.15%)	57(100%)
Smoki	40(97.56%)	1(2.43%)	41(100%)
Coffee consumption	63(38.18%)	102(61.81%)	165(100%)

Table (2): Prevalence of insomnia in relation to gender.

Gender	insomnia		p value
	yes	No	
Male (168)	100(59.5%)	68(40.4%)	0.0054
Female (238)	173(72.6%)	65(27.4%)	

Table (2) shows that the prevalence of insomnia in relation to gender. Insomnia in females 173(72.6%) was higher than males 100 (59.5%) and it was found to be statistically highly significant (p-0.0054).

Table (3): Prevalence of anxiety in relation to gender.

Gend er	Anxie			Total	P
	Mild	Moderate	Severe		
Male (168)	123(73.21%)	32(19.04%)	13(7.73%)	168(100%	0.0003
Female (238)	131(55.04%)	61(25.63%)	46(19.32%)	238(100%	

Table (3) shows that the prevalence of anxiety in its different degrees in relation to gender. Females were more severely affected 46 (19.32%) and it was found to be statistically highly significant (p-0.0003).

Table (4): Association of both insomnia and anxiety with gender.

Gender	Insomniac	association between insomnia and anxiety			p value
		anxiety			
		Mild	moderate	severe	
(168) Male	100(59.5%)	66(66%)	24(24%)	10(10%)	0.0041
Female (238)	173(72.6%)	82(47.4%)	50(28.9%)	41(23.7%)	

Table (4) shows that the students that have both insomnia and anxiety (mild moderate-severe) and it was statistically significant for both male and female (0.0041).

Table (5): Prevalence of insomnia and anxiety (separated) in relation to stages.

| Stage | Insomnia | p value | anxiety | | | p value |
			Mild	moderate	severe	
1^{st}(89)	65(73.03%)		58(65.16%)	23(25.84%)	8(8.98%)	
2^{nd}(80)	67(83.75%)		34(42.5%)	24(30%)	22(27.5%)	
3^{rd}(109)	71(65.13%)	0.01	71(65.13%)	17(15.59%)	21(19.26%)	0.000
4^{th}(57)	31(54.38%)		47(82.45%)	7(12.28%)	3(5.26%)	
5^{th}(53)	28(52.83%)		41(7735%)	7(13.2%)	5(9.43%)	
6^{th}(18)	11(61.11%)		11(61.11%)	5(27.77%)	2(11.11%)	

Table (5) shows that the number and percent of six stages of medical college with insomnia and anxiety and it was statistically significant.

Table (6): Association of both insomnia and anxiety with stages.

| stage | insomnia | association between insomnia and anxiety | | | p value |
| | | anxiety | | | |
		Mild	moderate	severe	
1st	65(73.03%)	40(61.5%)	19(29.2%)	6(9.2%)	
2nd	67(83.75%)	26(38.8%)	20(29.9%)	21(31.3%)	
rd	71(65.13%)	38(53.5%)	19(26.8%)	14(19.9%)	0.064
4th	31(54.38%)	22(71%)	6(19.4%)	3(9.7%)	
5th	28(52.83%)	17(60.7%)	6(21.4%)	5(17.9%)	
6th	11(61.11%)	5(45.5%)	4(36.4%)	2(18.2%)	

Table (6) shows that the students that have both insomnia and anxiety in each stage and we notice that p value was significant.

Table (7): Prevalence of insomnia in relation to residence.

| Residence | Insomnia | | p value |
	Yes	No	
Home (349)	226(64.75%)	123(35.25%)	
Hostel residence (57)	47(82.45%)	10(17.25%)	0.014

Table (7) shows that the Hostel residence was suffering from insomnia (82.45) More than home residence.

Table (8): Prevalence of anxiety in relation to residence.

| Residence | anxiety | | | Total | p value |
	Mild	moderate	severe		
Home(349)	220(54.18%)	80(19.7%)	49(12%)	349(100%)	
Hostel residence(57)	34(59.64)	13(22.8)	10(17.54)	57(100)	0.612

Table (8) shows that the hosteller and non-hosteller student that have insomnia and anxiety with p value of no significance.

Table (9): Association of both insomnia and anxiety with residence.

Residence	Insomnia	association between insomnia and anxiety			p value
		anxiety			
		Mild	moderate	severe	
Home(349)	226(64.75%)	122(54%)	61(27%)	43(19%)	0.000
Hostel residence(57)	47(82.45%)	26(55.3%)	13(27.7%)	8(17%)	0.161

Table (9) shows that the percent of both insomnia and anxiety in hosteller and non-hosteller student and we see that p value is significant in non-hosteller student (0.000) while it's not in Hosteller student (0.161).

Table (10): Prevalence of insomnia and anxiety (separated) in relation to smoking.

Smoking	insomnia	p value	anxiety			p value
			Mild	moderate	severe	
Smokers(49)	37(75.51%)	0.188	33(67.34%)	12(24.48%)	4(8.16%)	0.402
Non-smokers(357)	236(66.1%)		221(61.9%)	81(22.68%)-	55(15.4%)	

Table (10) shows that the percent of insomnia and anxiety in smokers and non-smokers students And the p value of no significance.

Table (11): Association of both insomnia and anxiety with smoking.

Smoking	insomnia	Association between insomnia and anxiety			P value
		Anxiety			
		Mild	moderate	severe	
Smokers(49)	37(75.51%)	23(62.2%)	11(29.7%)	3(8.1%)	0.317
Non-smokers (357)	236(66.1%)	125(53%)	63(26.7%)-	48(20.3%)	0.000

Table (11) shows that the percent of both insomnia and anxiety in smokers and non-smokers and the p value for smokers (0.317) of no significance.

Table (12): Prevalence of insomnia and anxiety (separated) yin relation to coffee Consumption.

Coffee cons.	Insomnia	p value	anxiety			p value
			Mild	moderate	severe	
Coffee cons.(165)	109(66.06%)	0.675	108(65.45%)	27(16.36%)	30(18.18%)	0.017
non-coffee cons.(241)	184(76.34%)		146(60.58%)	66(27.38%)	29(12.03%)	

Table (12) shows that the percent of both insomnia and anxiety to coffee and non-coffee consumption student .and p value of no significance.

Table (13): Association of both insomnia and anxiety with coffee consumption.

Coffee cons	insomnia	Association between insomnia and anxiety			P value
		Anxiety			
		Mild	moderate	severe	
Coffee cons.(165)	109 (66.06%)	62(56.9%)	21(19.3%)	26(23.9%)	0.
non-coffee	184 (76.34%)	86(46.73%)-	73(39.67%)	25(13.58%)	0.0 01

Table (13) shows that the student that have both insomnia and anxiety and we see that p value of Significance for coffee and non-coffee consumption (p - 0.004, p 0.001) respectively.

by Krystal AD,2003 who recorded that , An important contributing factor is that insomnia can occur in association with hormonal changes that are unique to women, such as those of menopause or the late-luteal phase of the menstrual cycle. Another consideration is that women are more likely to suffer from major depression and anxiety disorders, which are also associated with insomnia [14].

It may be because females are more likely to report concern, stress due to self-expectation, and feeling of lack of competence. Compared to males females are much more subjected to fluctuating hormone levels which are associated with an increased risk of developing insomnia and anxiety [15] .also another study suggested that anxiety disorders are not only more prevalent but also more disabling in women than in men[16].

Highest level of insomnia and anxiety were found to be more in 1st ,2nd and 3rd stages (73.03%),(83.75%),(78.02%) respectively and decreased level in the last three stages with peak insomnia and anxietywasfoundin2ndstage about(83.75%) suffering from insomnia and anxiety and the lowest was found in 5th stage about (52.83%).This could be due to better coping strategies adopted by senior students as well as maturation , managing of study time and coping with society.

Discussion

A Total of 774 students from 1st to 6th stage were included in this study only 406 of students participated in the study. More than half of all students were found to be suffering from both insomnia and anxiety (67.24%) [(67.24% insomniac) and 100% anxiety (62.5% mild anxiety, 22.9% moderate anxiety, 14.5% severe anxiety)] and it was compared with another study on medical students of a private university of Karachi in Pakistan where 70% of students were suffering from insomnia and anxiety [12]. Insomnia and anxiety were found to be more in females than in males.

Female gender was significantly correlated with development of anxiety and insomnia (72.6%insomniac female) (100% with anxiety) similar to Western studies which reported psychological distress higher among female students. Also similar to study done by Zang and Wing. 2006 who were reported that women complain more frequently of insomnia than do men [13].

We found that the association between both insomnia and anxiety also higher in females than males (it means student that have both insomnia and anxiety) [(insomniac with mild anxiety 47.4%), (insomniac with moderate anxiety 28.9%) , (insomniac with severe anxiety 23.7%)] table3.these description were in parallel with a study done

Both anxiety and insomnia were found to be more in hostellers students (82.45%) as compared to non-hostellers (64.75%) this is in agreement with the study of new Delhi medical college in India where the hostellers students were suffering from insomnia and anxiety more than non-hostellers students , p value is of no significance.

Smoking was found to be not effective in affecting insomnia and anxiety among smokers (75.51%) compared to non-smokers (66.1%), p value was of no significance. In contrast, Jeffrey had been reported that heavy cigarette smoking was associated with higher risk of anxiety, and depressive disorders [17].

We found that insomnia and anxiety in non - coffee consumption students (76.34%) more than coffee consumption students (66.06%) and the p value of no significance, while other study showed higher caffeine intake was associated with insomnia [18].

In conclusion, the prevalence of insomnia and anxiety were high among medical student. There was significant correlation between gender and insomnia and anxiety. Females are more liable for developing insomnia and anxiety. There was no correlation between coffee consumption and smoking habits with insomnia and anxiety. The peak of insomnia and anxiety was limited in2nd stage and decreased in the last three stages and there was a correlation between insomnia and anxiety with residence.

There was close association between both insomnia and anxiety and reduced brain activity that is why we need to establish clinical evaluation of insomnia and anxiety for proper management and care. Further studies among other colleges and societies are needed.

References

[1] Nojomi M, GhalheBandi MF. Sleep pattern in medical students and residents. Arch Iran Med. 2009; 12(6):542-9. PubMed PMID: 19877745.

[2] Abdulghani HM, Alrowais NA. Sleep disorder among medical students: Relationship to their academic performance. Med Teach. 2012; 34Suppl1:S37-41.

[3] Malathi A, Damodaran A. Stress due to exams in medical students--role of yoga .Indian J Physiol Pharmacol. 1999; 43(2):218-24.

[4] Wilson SJ, Nutt DJ. British association for psychopharmacology consensus statement on evidence based treatment of insomnia, para insomnia and circadian rhythm disorders .Journal of psychopharmacology 2010; 24(11) 1577-1600.

[5] Harsh JR, Hayduk R. The efficacy and safety of armodafinil as treatment for adults with excessive sleepiness associated with narcolepsy. Curr Med Res Opin. 2006; 22:761-774.

[6] Vgontzas AN, Bixler EO. Chronic insomnia is associated with nyctohemeral activation of the hypothalamic-pituitary-adrenal axis: Clinical implications. J Clin Endocrinol Metab. 2001; 86:3787-3794.

[7] Nofzinger EA, Buysse DJ. Functional neuroimaging evidence for hyperarousal in insomnia. Am J Psychiatry. 2004; 161:2126-2128.

[8] Nofzinger EA, Buysse DJ. Alterations in regional cerebral glucose metabolism across waking and non-rapid eye movement sleep in depression. Arch.Gen. Psychiatry. 2005; 62:387–396.

[9] Roth T, Roehrs T, Pies R. Insomnia: pathophysiology and implications for treatment .Sleep Med Rev. 2007; 11:71–79.

[10] Guyton AC, Hall JE. The autonomic nervous system and the adrenal medulla .In: Elsevier Saunders(ed).Text book of medical physiology. 11th ed. Philadelphia, 2006: 757-758.

[11] Johns MW, Dudley HA, Masterton JP. The sleep habits, personality and academic

performance of medical students. Med Educ. 1976 May; 10(3):158-62. Available from: http://www.ncbi.nlm.nih.gov/pubmed/12681 20.

[12] Khan MS, Mahmood S. Prevalence of depression, anxiety and their associated factors among medical students in Karachi, Pakistan. 2006; 56(12):583-6.

[13] Zhang, Wing, sex difference in insomnia:-A Meta–Analysis SLEEP. 2006; 29(1):

[14] Suhail HJ. Prevalence of Anxiety among Al-Qadisia Medical Students. Kufa Journal for Nursing Sciences.2011; 8(1): 118.

[15] Krystal AD. Insomnia in women, Clin Cornerstone. 2003; 5(3):41-50.

[16] Carmen PM, Anu A, Brett TL, Stefan G. Hofmanj gender difference in anxiety disorders; prevalence, course of illness, co morbidity and burden of illness.

[17] Jeffrey G. Association between Cigarette Smoking and Anxiety Disorders during Adolescence and Early Adulthood, JAMA. 2000; 284(18):2348-2351.

[18] Mi-JooJin. The Relationship of Caffeine Intake with Depression, Anxiety, Stress, and Sleep in Korean Adolescents Korean J Fam Med. 2016; 37(2): 111-116.