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Association of Insomnia with Comorbidities among Patients Visiting Tertiary Care Hospitals Lahore

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ABSTRACT: *Insomnia is a condition that affects an individual by inability to get sufficient quality sleep or problem in maintaining sleep that is important for healthy functioning, performance and wellbeing. There is very scarce data regarding insomnia and its relation with different diseases. The present study was aimed to find out the association of insomnia with comorbidities among patients visiting Tertiary Care Hospitals, Lahore. A cross sectional study was conducted from May 2019 to September 2019 in Tertiary Care Hospitals district Lahore. Interviews were conducted by researchers to collect data through Pre-Tested Questionnaire. Informed consent was first taken from all participants. Data were analyzed by using Chi-square to find out the association of insomnia with comorbidities through SPSS version 25.0. Thousand (n=1000) patients suffering from different diseases randomly selected to participate, of which 43.6% were male and 56.4% were female. Results of present study revealed that association of insomnia with the diseases such as cardiovascular diseases (p=0.05), diabetes mellitus (p=0.001), gastrointestinal problems (p=0.034), premenstrual syndrome (p=0.00), joint pains (p=0.01) and prostate cancer (p=0.01) was found to be significant. While an insignificant association of insomnia was noticed with hypertension (p=0.850), hearing impairments (p=1.22), COPD (p=0.288). It was concluded that insomnia was most commonly present in the patients of cardiovascular diseases, diabetes mellitus, premenstrual syndrome, gastro-intestinal problems, joint pains and prostate cancer.*

Keyword: *Insomnia, Comorbidities, Cardiovascular Diseases, Diabetes Mellitus, Premenstrual Syndrome, Prostate Cancer, tertiary care unit.*

INTRODUCTION

Sleep is the essential component to maintain good health of an Individual (Chaput and Dutil, 2016). Insomnia is defined as a condition that affects an individual by inability to get sufficient quality sleep or problem in maintaining sleep that is important for healthy functioning, performance and wellbeing (Bos and Macedo, 2019). Insomnia can exist in healthy individual or may associate with other medical diseases (Araújo et al., 2017). It is described by trouble starting or potentially looking after rest, and is related with critical pain or daytime impedances, regardless of sufficient rest opportunity. Clinical analysis depends on the nearness of these abstract symptoms amid somewhere around three evenings for every week, for no less than three months (Fuller et al., 2016). It is spreading frequently among population and recognized as a serious health problem (Haaramo et al., 2014). Primary insomnia is disturbed sleep at initial stage with unknown cause, last for few days or weeks (Chaput and Dutil et al., 2016; Sake et al., 2019). Secondary insomnia lasts for more than a month and it may be because of any medical condition or it may lead to chronic diseases and other consequences such as CVD, hypertension (Taylor et al., 2005), dyslipidemia, diabetes, mood disturbance, day time impairment, depression (Javaheri and Redline (2017), heart failure, coronary heart disease, anxiety and recurrent acute coronary (Morin et al., 2012). Insomnia can influence at any age and gender (children, adults, women and men) but increasing with age in women more than men (Araújo et al., 2017; EtindeleSosso et al., 2017).

In reality, the majority of the psychological issues are brought about by brokenness in one or numerous physiological adjustment. Due to these dysfunctions, sleep impairments are created and their clinical result might be moderate or interminable. A solid way of life with customary physical action may guarantees a sound mind, and an amazing shield against both central nervous and peripheral disorders, and cognitive deterioration as well (Wickwire et al., 2019).

The prevalence of insomnia spans from 25-40% whereas, it is 9-12% approximately in the overall population. Moreover, there is an increase of insomnia in elderly people of the United States (Maust et al., 2017). There are 45% higher chances of insomniac patients suffering or dying from heart or heart vessel diseases. Approximately, 33% of 3,300 adult Australians have frequent problems falling or staying asleep (Kidwai and Ahmed, 2013). A total of 9% to 15% experience day time

consequences of insomnia and 8% to 18% are not satisfied with the quality of sleep and its duration. Primary insomnia spans at 2% and 4% in general population whereas, 1% to 3% prevalence of insomnia is due to psychological disorders. In Pakistan, according to a survey done at Agha Khan Hospital of Karachi, out of 1488 adults from 5 non rural and semi non rural areas of Karachi, 466 (31.3%) participants had insomnia out of which 141 (30.2%) were taking sleeping pills (Farazdaq et al., 2018).

The present study was aimed to identify the association of insomnia with comorbidities among patients which visited tertiary hospitals and also highlight the secondary factors that cause insomnia. Thus, after identifying the factors, awareness could be created through extensive health education to reduce the financial burden and severity of insomnia in the society.

METHODOLOGY

A cross sectional study was conducted through pre-tested questionnaire at The University of Lahore Teaching Hospital and Sir Ganga Ram Hospital, Lahore. Athens Insomnia Scale (AIS) was utilized to identify and categorized the insomnia among patients. A total of 1000 insomniac patients was selected suffering from different diseaseslike cardiovascular diseases (CVD), diabetes mellitus, prostate cancer, hypertension, chronic obstructive pulmonary disease (COPD), gastrointestinal problems, premenstrual syndrome, joint pains and hearing impairments attending different departments. All the participants wererandomly selected using non-probability convenient sampling technique. Interviewing techniquewith brief of questionnaires was used to collect the data from the participants. Among the participants 43.6% were male and 56.4% were female aged between 12 to 81 years. The study was conducted from May 2019 to September 2019 in Tertiary Care Hospitals district Lahore. Non cooperative and disabled (requiring attendant for the interview) were not selected for the study. Prior written informed consentswere taken from the participant.

Ethical Approval of the study

For this study ethical approval was taken from the institutional review board (IRB) of The University of Lahore, Lahore.

Statistical Analysis

Data were analyzed by using SPSS version 25.0. The qualitative variables were reported using percentages and frequencies. Frequencies were derived and chi-square was applied to find the association of insomnia with

comorbidities. *p*-value less than or equal to 0.05 was considered significant reference for all methodology.

RESULTS

Analysis revealed that 67.6% (n=676) of patients were with mild insomnia, 27.6% (n=276) were with moderate insomnia and 4.8% (n=48) have severe insomnia. The way by which mild and severe categories were identified shown in Table 1. Categorization was done according to the Athens Insomnia Scale.

Table 1: Categories of Insomnia among the participants

Categories	Frequency	Percentage
Mild	676	67.6
Moderate	276	27.6
Severe	48	4.8
Total	1000	100.0

The results showed that chronic diseases like cardiovascular diseases (CVD); p=0.05, diabetes mellitus; p=0.01 and prostate cancer; p=0.01, were having significant associations with insomnia categories. While hypertension; p=0.850 and chronic obstructive pulmonary disease (COPD); p=0.288 were having insignificant association with insomnia categories, as shown in Table 2.

Table 2: Association of insomnia with Chronic Diseases

Chronic Diseases		Categories of Insomnia			p-value
		Mild	Moderate	Severe	
CVD	Yes	93	583	676	0.05
	No	19	257	276	
Diabetes mellitus	Yes	120	21	7	0.01
	No	556	255	41	
COPD	Yes	61	21	7	0.288
	No	615	255	41	
Prostate cancer	Yes	4	6	3	0.01
	No	672	270	45	
Hypertension	Yes	178	76	14	0.850
	No	498	200	34	

As far as the non-chronic diseases were concerned gastrointestinal disorders; p=0.03, premenstrual syndrome; p=0.01, joints pains; p=0.01 were having significant associations with insomnia categories, while hearing impairment; p=0.12 had insignificant association with insomnia categories. Table 3.

Table 3: Association of insomnia with other Diseases

Other Diseases		Insomnia categories			p-value
		Mild	Moderate	Severe	
Hearing impairment	Yes	21	13	4	0.12
	No	655	263	44	
Gastrointestinal	Yes	139	68	17	0.03
	No	537	208	31	
Premenstrual syndrome	Yes	28	28	12	0.01
	No	648	248	36	
Joints pain	Yes	222	107	28	0.01
	No	454	169	20	

DISCUSSION

Insomnia along with comorbidities has and always been a major risk factor affecting the quality of life. Present study showed significant association between insomnia and cardiovascular disease (CVD) (p=0.05). Whereas according to Choi et al. (2018) there was no association between sleep quality and occurrence of CVD; however chronic sleep deprivation was associated with the risk of CVD. The current study revealed that there was significant association between insomnia and diabetes mellitus (p=0.01). Similar results were observed by a study and they investigated the risk of diabetes in patients with insomnia and without insomnia. It is stated that patients with insomnia had a higher risk of diabetes than patients without insomnia (Lin et al., 2018). Present study concluded significant association between insomnia and prostate cancer (p=0.01). These results were in accordance with the findings of Chung et al. (2019) also stated that significant association was

found between prostate cancer patients and sleep disorder patients. Current study showed that 62.6% patients were having mild insomnia among that 178 patients had hypertension, 27.6% patients were having moderate insomnia 76 of that were hypertensive and 4.8% were having severe insomnia out of which only 14 were hypertensive so concluded that association of insomnia with hypertension was insignificant (p=0.850). Whereas contradictory findings were observed from another study, reporting significant association of insomnia with hypertension, in which more than half of the patients were experiencing insomnia and 39% were experiencing daytime sleepiness (Uchmanowicz et al., 2019).

Another significant association was found between insomnia and gastrointestinal disease (p=0.034). Results were similar to the findings of Hyun et al. (2019) that sleep disturbances were associated with digestive symptoms especially with abdominal pains, acid regurgitation, abdominal distension and eructation (Hyun et al., 2019). According to the current study out of 1000 patients, 28 patients with mild insomnia reported premenstrual issues, in moderate category of insomnia 28 patients had premenstrual issues and in severe category of insomnia 12 had premenstrual issues, and a significant association was observed between insomnia and premenstrual syndrome (p=0.001). The findings are in accordance with the study by Jehan et al. (2016) which reported that women with PMS leads to an increase in the state of stress and anxiety, which caused sleep disturbance and affect the quality of life such as tiredness, fatigue and daytime sleepiness. Another important finding from current was that there was significant association between insomnia and having joint pains (p=0.01). Similar findings were observed by another study, that chronic joints and musculoskeletal pain increased the risk of insomnia whereas healthy lifestyle decreased the risk of insomnia and helps to maintain the quality of sleep (Skarpsno et al., 2018).

CONCLUSION

It was concluded that insomnia was most commonly present in the patients of cardiovascular diseases, diabetes mellitus, pre-menstrual syndrome, gastrointestinal problems, joints pain and prostate cancer. Insomnia was not most prevalent among the patients of hypertension, hearing impairments and COPD. However, detail of patients like age, family background, duration of suffering, use or not use of sleeping pills

and many more things must be recommended to investigate in future study.

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