Prevalence and determinant of insomnia among family physician and nurses working in primary health care center of ministry of health in Jeddah in 2018, Cross sectional study

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Abstract

Introduction: Insomnia as lack of sleep or poor sleep quality affects psychological and physiological health among Health Care Personnel (HCP) primarily physicians and nurses that pose a threat on the quality of services their giving and safety to deal with patients.

Aim of the Study: To evaluate the prevalence of insomnia among physician and nurses working in Primary Health Care (PHC) centers of the Ministry of Health in Jeddah, Saudi Arabia as well as to increased insomnia awareness on its risk factors.

Materials and Methods: A cross-sectional study involving 144 physicians and nurses from 8 PHC centers in Jeddah. Self-administered questionnaire was used for data collection.

Results: Participants has average age of 35.06 ± 6.0, years of professional practice was 11.03 ± 6.7 (N=143). Insomnia prevalence among physicians and nurses working in PHC centers in Jeddah was 29.2%. In this study, insomnia or poor sleep quality was found significantly associated to demographic characteristics such as years in practice and presence of a child pre-existing health and metal conditions such as to emotional stress, chronic disease, bad moods and loss of interest in things interested before. Prediction models showed risk factors such as emotional stress, chronic disease, bad moods and years in practice were the most significant contributors to insomnia or poor sleep quality among participants.

Conclusions: Among these risk factors, emotional stressor, chronic disease, bad moods and years in practice were the most effective contributors to insomnia.

Keywords: Prevalence, Determinants, Insomnia, Primary health care center, Physicians, Nurses.

Introduction

Insomnia is a sleep disorder that includes trouble falling asleep, staying asleep, or waking too early, resulting in daytime impairment.[1, 2] It could occur in types namely as primary insomnia, comorbid insomnia and chronic insomnia.[2] It is primary insomnia if it exist without other medical or mental health causes while comorbid insomnia if it occurs along with other diseases or emotional stress. Chronic or long-standing insomnia if it can lead to significant daytime consequences and occurred at least 3 times per week for more than 3 months.[1-3] Etiology of insomnia however is quite wide that many patients are underdiagnosed and under-treated.[4]

An individual experiencing insomnia is found to have daytime dysfunction, distress or impairment in areas of functioning and tends to increase work accidents which is very dangerous especially in medical profession.[3- 6] In addition, according to Orzel-Gryglewska,[7] sleep deprivation affects the cardiovascular system, gastrointestinal system, endocrine function, immunity, increase the risk of obesity, diabetes and accidents (road traffic and machine operation).[7] Economically, insomnia condition affects the productivity cost due to work absenteeism and enhanced healthcare utilization worldwide.[8, 9]

Insomnia is more commonly found in females and older adults.[10, 11] According to Leger and colleagues, global prevalence rate of insomnia is estimated to be 10-56% in 2008.[12] The wide range of prevalence was attributed to the facts that different countries have differing working and living conditions.[13] In western industrialized countries, according to several studies, prevalence of insomnia is estimated to be between 5-13%.[13-16] On the contrary, studies conducted in the Middle East and the East Asian countries showed higher prevalence rate and estimated to be between 39-43%[17-19] and 15-69%,[20-24] respectively.

Insomnia is acknowledged as the most prevalent form of sleep disorder and commonly complaint in primary health care services, including health care personnel.[6,13,25] Health care personnel (HCP) such as physicians and nurses are normally engaged in shift work and unusual work schedule. Night-shift work leads to difficulties in maintaining sleep, shortened total sleep time and subsequent feeling of not having enough sleep compared to other shifts like those in the morning.[26] The lack of sleep in HCP can affect patient safety because patients may not receive appropriate treatment and may accidentally hurt themselves and the patients they served.[27]

Worse impact of insomnia on the psychological and physiological health among HCP will affect their quality of services and the safety to deal with patients. This alone warrants for investigation of the insomnia incidence and characteristics or factors that lead to insomnia among HCP. Insights in such studies would also help the institutional management in safeguarding the well-being of the employees and as well as in developing improved work-related strategies to deal with insomnia. Unfortunately, limited data regarding the prevalence of insomnia in physician and nurses working in primary health care (PHC) of Saudi Arabia are available such as those of Wali and colleagues[19] and Bashawri.[17] This further merits the need to

conduct a study that will contribute in the improvement of health among physician and nurses working in PHC.

Physicians and nurses are the front line in PHC centers and their performance reflects the quality and the safety of the services in that centers. The effects of insomnia on the physicians and nurses working on PHC centers are critical that this study aims to evaluate insomnia among them and increase their awareness of insomnia and its effects.

Materials and Methods

Study Design and Area

A cross-sectional study was carried out in the 8 PHCs in Jeddah City. It is one of the most important and largest city in Jeddah, Saudi Arabia. It has the largest sea port on the Red Sea and the second-largest city in Saudi Arabia after the capital city, Riyadh**.** There are 48 Primary Health Care Centers in Jeddah following 5 main Hospitals all are under Ministry of Health.

Study Population and Criteria

This study involves physicians and nurses working in Primary Care Centers in Ministry of Health in Jeddah City. Both genders, all nationalities and degrees are included. Those who are on leave during the study period and those assigned to work outside the center during the study period are excluded.

Sample Size and Technique

A total of 144 out of 1300 Physicians and Nurses working in PHC centers in Jeddah City was used as sample. Raosoft website was used in calculating the sample size considering the 6-10% worldwide prevalence of insomnia and 10% questionnaire non-responses as input. The Confidence interval and Error used was 95% and 5%, respectively. The 144 sample size was proportionally distributed among physicians and nurses.

The Ministry of Health primary health care centers in Jeddah follow 5 main hospitals. The researcher chose 8 Primary Health Care centers by stratified random technique and by taking two centers from the sectors containing more than 10 centers and one center from sectors with less than 9 centers. The 8 primary health care centers are: Alhamra, Alsafa1, Prince Abdulmajeed, Thowal, Khalid, Almahjar, Sharq Alkhat Alsarea and Alrabea & Altawfeeq.

Data Collection

Self-administered questionnaires was distributed to all health care providers involved in the study. The first part was about the title of the study and information plus contact number of the researcher. The second part was the consent and confidentiality approval. Then, the third part which consisted into three main sections: the first section is concerned with the biography information of the participants (age, gender, marital status, nationality, job title, educational level, experience, income, number of children, smoking). The second section was about the most common cause of secondary insomnia. The third section is concerned with the diagnosis of insomnia which was measured with Pittsburg Sleep Quality Index (PSQI). The questionnaire was translated to Arabic by Dr. Bashawry. Necessary modification was made to meet the objectives. Validity was obtained by 2 family medicine consultants and the reliability was tested by the internal consistency measurement.

Study Variables

The dependent factor is the insomnia was measured by the questionnaire. Independent variables involves the associated risk factors either physiological, psychological or mental problem.

Data Entry and Analysis

The data was entered and statistically analyzed using SPSS software version 23 (IBM Corporation, Armonk, New York). Demographic data was presented using Mean and Standard Deviation SD. Data was analyzed to test the significance of statistical difference. Chi-square test and Fisher's exact test was used for qualitative data. The test result was considered statistically significant if the P value is less than 5% ($P < 0.05$) at a confidence interval of 95%.

Pilot Study

A pilot study was conducted at Alhamdania Primary Health Care in Jeddah, 10% from the sample size was selected to outline the feasibility of data collection and to identify the practical difficulties and find ways of minimizing it. The result from the pilot study were excluded from the study.

Ethical Considerations

Permissions from the following authorities were taken before this study was carried out by the researcher:

1. Makkah joint program of family and community medicine
2. Directorate of Health Affairs of Jeddah Primary Health Care
3. Primary Health Care Center Director
4. Physicians and Nurses who are participating in the study by consent which was provided in the questionnaire.

All information was kept confidential and results was submitted to the department as feedback.

Results

Demographics

Out of the 144 prospective respondents, all of them responded in the survey, giving a 100% response rate.

Demographic characteristics of the sample population (N=144) are shown in Table 1. The age of the participants ranged from 24 to 56 years old with an average of 35.06 ± 6.0. The average years of professional practice was 11.03 ± 6.7 with 1 year as the minimum and 31 years as the maximum length of practice. Among the 144 total samples, majority were males (77.8%), Saudi national (97.2%), married (70.8%), nurses (72.2%) and holding a diploma qualification (62.9%). The number of respondents were almost equally the same and comprises 11-15% each

coming from the eight (8) primary health care facilities in Jeddah. The highest number of respondents came from Prince Abdulmajeed PHC (15.3%) and Alrabea & Altawfeeq PHC (14.6%). Almost half of the respondent falls under the "10,000-14,999 SR" monthly salary range (43.4%) followed by "15,000-19,999 SR" monthly salary range (31.5%). The least number of participants (2.8%) reported to have monthly salary range of "25,000-29,999 SR". Majority of the participants have children (68.5%). A great majority of the respondents are non-smoker (80.6%) and have chronic diseases (81.3%). On the other hand, during most of the days of the last two weeks, more than half of the respondents have experienced bad mood (53.5%) and have emotional stressor (55.6%) while almost half (44.4%) have observed lost interest in things they are interested before.

In terms of the chronic diseases, in this study the respondents reported a total of 8 types of comorbid disease. Most of the respondents reported having DM (29%), hypothyroidism (26%), asthma (15%) and hypertension (7%). On the contrary, a total of 23% of the respondents reported either having psoriasis, ear tinnitus, migraine, rheumatoid. Some of which reported having combinations of two disease such as asthma and depression and DM and hypertension (Fig. 1).

Sleep Characteristics of the Respondents

The mean number of minutes the respondents takes to fall asleep is 32.10 ± 28.1 having 1 minute as the minimum and 2 hours as the maximum. Figure 2 shows time the respondents go to bed to sleep. The 144 respondents showed high degree of variation in time they went to bed to sleep (11 different time). The most common time the respondents go to bed to sleep is around 00:00 midnight (25.7%), 23:00 (20.8%), 1:00 (16%) and 2:00 (15.3%) while the rarest is at 21:00 (1.4%). Moreover, 66% (94 respondents) reported to have taken medicine during the past month in order to fall asleep. Of the 94 respondents, 47 (40.1%) reported to have taken this medicine less than once a week, 29 (20.4%) once or twice a week and 8 (5.6%) three or more times a week.

Prevalence of Insomnia among Respond.ents

The overall PSQI score of the respondents was 7.37 ± 4.1 which indicates good sleep quality (≥ 5 total PSQI score). PSQI score is sum of all sleep domains such as sleep duration (1.43 ± 1.1), sleep disturbance (1.17 ± 0.6), sleep latency (1.45 ± 1.1), day dysfunction due to sleepiness (0.75 ± 0.8), sleep efficiency (0.53 ± 1.0), overall sleep quality (1.08 ± 0.9) and need meds to sleep (0.97 ± 0.9). Based on this results, the PSQI were able to account 29.2% (42 respondents) out of the 144 HCP among PHC in Jeddah, Saudi Arabia to have poor sleep quality. (Table 2)

Sleep Quality based on Demographic Characteristics

In this study, correlation test revealed that neither age nor years in practice affects the PQSI score. Table 3 shows the corresponding mean PQSI score in correlation to other demographic variables. Results of the analysis, also revealed no significant correlation between the mean PQSI score of the respondents with respect to gender, nationality, marital status, type of job, educational qualification, the PHC center where the respondents are working as well as the salary range and having a child or not.

Sleep Quality based on Habit and Health Characteristics

In terms of the habit and health characteristics of the respondents, the analysis revealed significant correlation of mean PSQI score (sleep quality) to all variables described in Table 3 except smoker or not. Mean PSQI score of respondents were found to have significant correlation at <0.05 level of confidence to characteristics like chronic diseases ($p=0.0090$), bad moods ($p=<0.001$), lost interests in things they are usually interested ($p=<0.001$) and emotional stressor ($p=<0.001$).

Risk Factors Associated to Insomnia

Demographic Factors

Table 4 shows the results of the analysis conducted to determine demographic factors that could affect the sleep quality. In this study, analysis revealed that among the 10 variables presented in Table 9, only the "years in practice" ($p = 0.026$) and "have children/not" ($p = 0.022$) showed significant results both at <0.05 level of confidence using Welch's t-test and Chi-square, respectively. In terms of years of practice as HCP, there is significant difference ($p= 0.026$) between the mean PSQI score of those having poor sleep quality (9.12 ± 5.20) to those having good quality sleep (11.83 ± 7.1).

Pre-existing Conditions of the Respondents

In this particular study, respondents with pre-existing health/mental/behavioral conditions like having chronic disease ($p=0.006$), bad mood ($p=<0.001$), lost interest in things interested before ($p=<0.001$) and emotional stressor ($p=<0.001$) showed significant difference using Chi-square test at <0.05 level of confidence in PSQI percentage of the respondents having poor sleep quality to those having good quality sleep. Results in the analysis (Table 4) specifies that all variables (except smoker or not) significantly affects the sleep quality of the HCP respondents. Based on this results, it is imperative also to say that conditions like chronic disease, bad mood, lost interest in things interested before and emotional stressor are significant risk factors to poor sleep quality of the respondents.

Prediction Analysis among Risk Factors

After having identified significant factors for both demographic characteristics and pre-existing conditions that influence sleep quality, prediction analysis to these factors were conducted to determine the most significant independent variables as well as the least significant that affects the poor sleep quality or insomnia.

Based on the results of the Binary Logistic Regression Model, with Backward Conditional Elimination having enter criteria=0.05 and elimination criteria=0.10, in this particular study, there are 4 out of 6 most significant risk

factors that positively contribute to poor sleep quality or insomnia among physicians and nurses (Table 5). Factors like "Year in Practice", "Do you have any chronic disease? (Yes)", "Bad mood (Yes)" and "Emotional stressor (Yes)" were found to be the most significant. Among these 4 most significant risk factors of insomnia identified, "Emotional stressor (Yes)" (p= 0.009) was found to be most effective contributor to insomnia, followed by "Do you have any chronic disease? (Yes)" (p= 0.013), "Bad mood (Yes)" (p= 0.020), then "Year in Practice" (p= 0.024). Meanwhile, the risk factors eliminated in steps 1 and 2 of the model process such as "Lost interest in things (Yes)" was the least significant contributor identified and "Do you have children? (Yes)" was the second least.

Table 1: Characteristics of the study population (N=144).

Demographic Characteristics		**Min**	**Max**	**Mean**	**SD**
Age		24	56	35.06	6.0
Years in practice		1	31	11.03	6.7
		Count		**%**	
Gender	Male	112		77.8	
	Female	32		22.2	
Nationality	Saudi	139		97.2	
	Non-Saudi	4		2.8	
	Missing	1			
Marital Status	Single	29		20.1	
	Married	102		70.8	
	Divorce	10		6.9	
	Widow	3		2.1	
Job	Physician	40		27.8	
	Nurse	104		72.2	
Qualification	Diploma	90		62.9	
	Bachelor	38		26.6	
	Master	4		2.8	
	Board Certified	11		7.7	
	Missing	1			
Center	Alhamra Primary Clinic	16		11.1	
	Sharq Alkhat Alsare PHC	16		11.1	
	Alsafa PHC	16		11.1	
	Alrabea & Altawfeeq PHC	21		14.6	
	Thowal PHC	17		11.8	
	Prince Abdulmajeed PHC	22		15.3	
	Almahjar PHC	19		13.2	
	Khalid PHC	17		11.8	
Salary	"5000-9999"	8		5.6	
	"10000-14999"	62		43.4	
	"15000-19999"	45		31.5	
	"20000-24999"	17		11.9	
	"25000-29999"	4		2.8	
	"30000 and more"	7		4.9	
	Missing	1			
Do you have children	Yes	98		68.5	
	No	45		31.5	
	Missing	1			
Habit and Health Characteristics					
Are you a smoker?	Yes		28		19.4
	No		116		80.6
During most days of the last two weeks, do you have bad mood?	Yes		77		53.5
	No		67		46.5
During most days of the last two weeks, do you lost interest in things you were interested before?	Yes		64		44.4
	No		80		55.6
During most days of the last two weeks, do you have any	Yes		83		57.6

emotional stressor?	No	61	42.4
Do you have any chronic disease?	Yes	27	18.8
	No	117	81.3

Table 2: Sleep quality of the respondents using Pittsburgh Sleep Quality Index.

Domains	**N**	**Min**	**Max**	**Mean**	**Sd**
Duration of sleep	144	0	3	1.43	1.1
Sleep disturbance	144	0	3	1.17	0.6
Sleep latency	144	0	3	1.45	1.1
Day dysfunction due to sleepiness	143	0	3	.75	0.8
Sleep efficiency	144	0	3	.53	1.0
Overall sleep quality	144	0	3	1.08	0.9
Need meds to sleep	144	0	3	.97	0.9
Pittsburgh Sleep Quality Index (PSQI) Total Score		0	18	**7.37**	4.1
		Count		**%**	
Pittsburgh Sleep Quality Index	Poor sleep quality	42		29.2	
	Good sleep quality	102		70.8	

Table 3: Relationship between the characteristics of the respondents to sleep quality

Demographic Variables		**Count**	**Pittsburgh Sleep Quality Index**	**p-value**
Gender	Male	112	7.54 ± 4.1	0.361
	Female	32	6.78 ± 4.0	
Nationality	Saudi	139	7.48 ± 4.0	0.189
	Non-Saudi	4	4.75 ± 5.5	
Marital Status	Single	29	7.03 ± 4.0	0.955
	Married	102	7.46 ± 4.2	
	Divorce	10	7.20 ± 3.2	
	Widow	3	8.00 ± 5.2	
Job	Physician	40	7.18 ± 4.1	0.727
	Nurse	104	7.44 ± 4.1	
Qualification	Diploma	90	7.29 ± 4.1	0.726
	Bachelor	38	7.82 ± 3.9	
	Master	4	5.50 ± 7.9	
	Board Certified	11	7.18 ± 3.1	
Center	Alhamra Primary Clinic	16	7.38 ± 2.9	0.520
	Sharq Alkhat Alsare PHC	16	7.13 ± 4.8	
	Alsafa PHC	16	7.88 ± 4.6	
	Alrabea & Altawfeeq PHC	21	8.57 ± 4.3	
	Thowal PHC	17	7.06 ± 4.8	
	Prince Abdulmajeed PHC	22	8.00 ± 3.7	
	Almahjar PHC	19	5.63 ± 3.2	
	Khalid PHC	17	7.06 ± 4.4	
Salary	"5000-9999"	8	7.88 ± 3.7	0.831
	"10000-14999"	62	7.47 ± 4.1	
	"15000-19999"	45	7.47 ± 4.2	
	"20000-24999"	17	6.06 ± 4.2	
	"25000-29999"	4	8.00 ± 6.7	
	"30000 and more"	7	8.00 ± 2.8	
Do you have children	Yes	98	7.55 ± 4.1	0.459
Habit and Health Variables				
Are you a smoker?	Yes	28	7.57 ± 4.2	0.771
	No	116	7.32 ± 4.1	
Do you have any chronic disease?	Yes	27	9.22 ± 4.0	0.009[a]
	No	117	6.94 ± 4.0	
During most days of the last two weeks, do you have bad mood?	Yes	77	9.01 ± 3.9	<0.001[a]
	No	67	5.48 ± 3.5	

During most days of the last two weeks, do you lost interest in things you were interested before?	Yes	64	8.88 ± 4.1	<0.001[a]
	No	80	6.16 ± 3.7	
During most days of the last two weeks, do you have any emotional stressor?	Yes	83	8.84 ± 4.0	<0.001[a]
	No	61	5.36 ± 3.4	
[a]-significant using Independent *t*-test@<0.05 level.				

Table 4: Demographic characteristics associated to poor sleep quality.

Demographic Variables		Count	Pittsburgh Sleep Quality Index		p-value
			Poor sleep quality	Good sleep quality	
Age		144	34.02 ± 4.5	35.49 ± 6.5	0.185
Years in practice		143	9.12 ± 5.2	11.83 ± 7.1	0.026[a]
Gender	Male	112	31(27.7%)	81(72.3%)	0.462
	Female	32	11(34.4%)	21(65.6%)	
Nationality	Saudi	139	39(28.1%)	100(71.9%)	0.339
	Non-Saudi	4	2(50.0%)	2(50.0%)	
Marital Status	Single	29	11(37.9%)	18(62.1%)	0.432
	Married	102	29(28.4%)	73(71.6%)	
	Divorce	10	2(20.0%)	8(80.0%)	
	Widow	3	0(0.0%)	3(100.0%)	
Job	Physician	40	13(32.5%)	27(67.5%)	0.585
	Nurse	104	29(27.9%)	75(72.1%)	
Qualification	Diploma	90	26(28.9%)	64(71.1%)	0.239
	Bachelor	38	10(26.3%)	28(73.7%)	
	Master	4	3(75.0%)	1(25.0%)	
	Board Certified	11	3(27.3%)	8(72.7%)	
Center	Alhamra Primary Clinic	16	4(25.0%)	12(75.0%)	0.486
	Sharq Alkhat Alsare PHC	16	6(37.5%)	10(62.5%)	
	Alsafa PHC	16	5(31.3%)	11(68.8%)	
	Alrabea & Altawfeeq PHC	21	4(19.0%)	17(81.0%)	
	Thowal PHC	17	6(35.3%)	11(64.7%)	
	Prince Abdulmajeed PHC	22	3(13.6%)	19(86.4%)	
	Almahjar PHC	19	8(42.1%)	11(57.9%)	
	Khalid PHC	17	6(35.3%)	11(64.7%)	
Salary	"5000-9999"	8	2(25.0%)	6(75.0%)	0.642
	"10000-14999"	62	19(30.6%)	43(69.4%)	
	"15000-19999"	45	11(24.4%)	34(75.6%)	
	"20000-24999"	17	7(41.2%)	10(58.8%)	
	"25000-29999"	4	2(50.0%)	2(50.0%)	
	"30000 and more"	7	1(14.3%)	6(85.7%)	
Do you have children	Yes	98	23(23.5%)	75(76.5%)	0.022[b]
	No	45	19(42.2%)	26(57.8%)	
Habit and Health Variables					
Are you a smoker?	Yes	28	9(32.1%)	19(67.9%)	0.699
	No	116	33(28.4%)	83(71.6%)	
Do you have any chronic disease?	Yes	27	2(7.4%)	25(92.6%)	0.006[b]
	No	117	40(34.2%)	77(65.8%)	
During most days of the last two weeks, do you have bad mood?	Yes	77	10(13.0%)	67(87.0%)	<0.001[b]
	No	67	32(47.8%)	35(52.2%)	
During most days of the last two weeks, do you lost interest in things you were interested before?	Yes	64	8(12.5%)	56(87.5%)	<0.001[b]
	No	80	34(42.5%)	46(57.5%)	
During most days of the last two weeks, do you have any emotional	Yes	83	11(13.3%)	72(86.7%)	<0.001[b]
	No	61	31(50.8%)	30(49.2%)	

stressor?					
[a]-significant using Welch's *t*-test@<0.05 level. [b]-significant using Chi-Square test @<0.05 level.					

Table 5: Regression analysis among significant risk factors

Variables in the Equation		B	Exp(B)	95% C.I. for EXP(B)		p-value
				Lower	Upper	
Step 1[a]	Year in Practice	0.073	1.075	0.997	1.159	0.059
	Do you have children?(Yes)	0.438	1.549	0.614	3.911	0.354
	Do you have any chronic disease?(Yes)	1.918	6.806	1.327	34.902	0.021[b]
	Bad mood(Yes)	1.138	3.122	1.028	9.485	0.045[b]
	Lost interest in things(Yes)	0.278	1.321	0.428	4.072	0.628
	Emotional stressor(Yes)	1.273	3.571	1.235	10.329	0.019[b]
	Constant	-1.618	0.198			0.003[b]
Step 2[a]	Year in Practice	0.075	1.078	1.000	1.162	0.050
	Do you have children?(Yes)	0.437	1.548	0.614	3.908	0.355
	Do you have any chronic disease?(Yes)	1.945	6.996	1.374	35.604	0.019[b]
	Bad mood(Yes)	1.234	3.437	1.207	9.787	0.021[b]
	Emotional stressor(Yes)	1.339	3.817	1.361	10.704	0.011[b]
	Constant	-1.627	0.196			0.003[b]
Step 3[a]	Year in Practice	0.084	1.088	1.011	1.170	0.024[b]
	Do you have any chronic disease?(Yes)	2.053	7.794	1.537	39.537	0.013[b]
	Bad mood(Yes)	1.235	3.437	1.212	9.746	0.020[b]
	Emotional stressor(Yes)	1.375	3.955	1.411	11.084	0.009[b]
	Constant	-1.461	0.232			0.005[b]

[a]-Variable(s) entered on step 1: Year in Practice, Do you have children?, Do you have any chronic disease?, During most days of the last two weeks, do you have bad mood?, During most days of the last two weeks, do you lost interest in things you were interested before, During most days of the last two weeks, do you have any emotional stressor?.
[b]-Significant using Binary Logistic Regression Model, with Backward Conditional Elimination with Enter Criteria=0.05, Elimination =0.10.

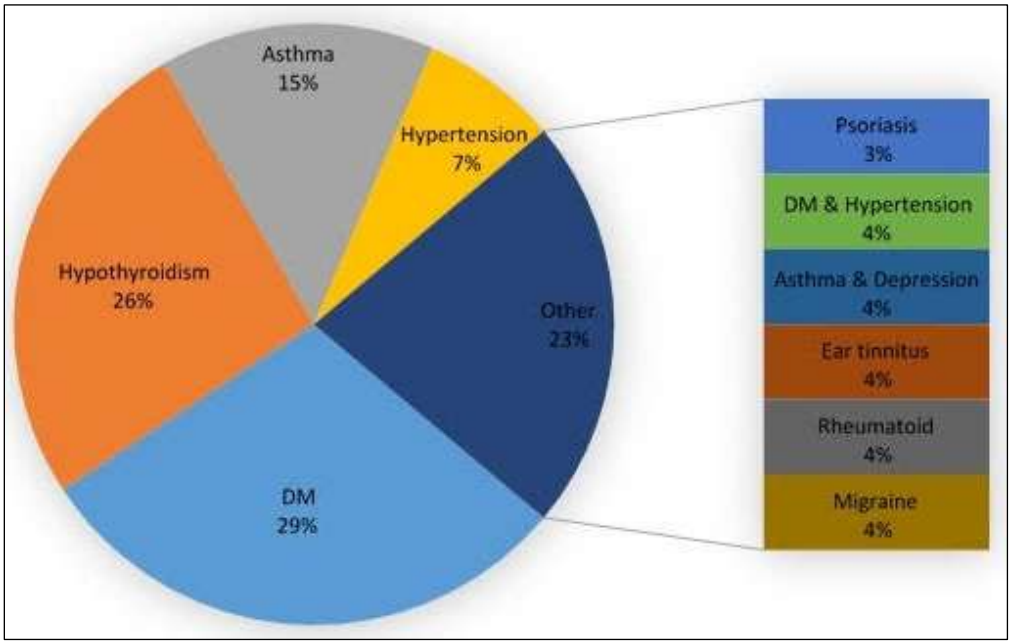

Fig. 1:

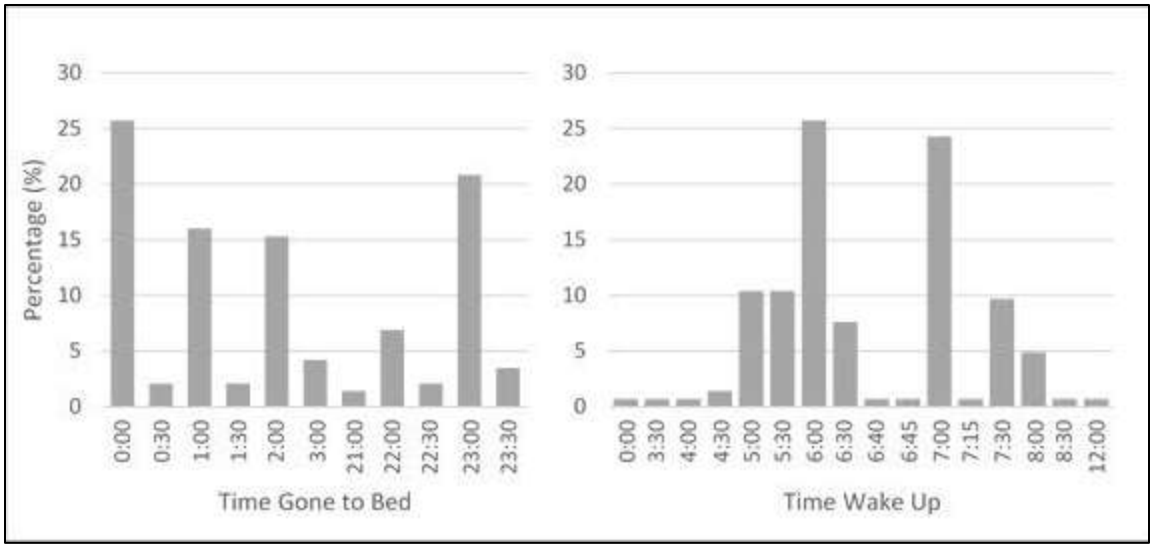

Fig. 2:

Discussion

Insomnia as a sleep disorder has a prevalence rate of 10-56% in the general population worldwide.[12] It is perceived to cause negative impacts physiologically, psychologically and even economically.[3, 5-7, 9, 28] Several studies reported incidence of insomnia to HCP such as those of Khade and collegues,[5] Kunzweiler and colleagues[13] and Tsai and colleagues.[23] HCP such as physicians and nurses are frontline staffs in health care centers. Knowingly of the effects of insomnia to an individual puts our physicians and nurses at higher risk in providing their services in health care facilities.

This particular study meant to evaluate the insomnia prevalence to HCP primarily physicians and nurses working in PHC facilities in Jeddah. Representatives from the different centers were evaluated in terms of their sleep quality over PSQI. A total of 144 physicians and nurses responded to the study and found that 29.2% are experiencing poor sleep quality during the past month. This result coincide with the insomnia prevalence of the general population reported by Leger and colleagues.[12] However, this prevalence rate was lower than the 39% previously reported prevalence rate of insomnia by Wali and colleagues in 1999.[19] The difference could have been due to the differing tools (questionnaires) used to measure insomnia in the study. Wali and colleagues utilized the ESS in measuring the level of daytime sleepiness and propensity to doze off or fall asleep while this present study used PSQI in measuring sleep quality. It is worth taking notes also that the previous study conducted included none medical personnel such as security guards of the hospital.

Nonetheless, prevalence of insomnia generated in this study will served as baseline data for the Saudi Arabian medical working adult population utilizing PSQI. This can also be supported on the basis of good representation of the samples described in both demographic and habit/health characteristics of the respondents, especially that 97.2% were Saudi Arabian nationality, wide age range (24-56 years old), representing different marital status, educational background, jobs and salary ranges. Respondents were also distributed to several PHC facilities and represents both with and without different pre-existing habit and health conditions.

Insomnia was reportedly found more common to females than male.[10, 11] In this particular study, although not significantly different, lower PSQI score were observed to females (6.78 ± 4.0) compared to males (7.54 ± 4.1) indicating that males possess better quality of sleep than females. Similarly, study conducted by Kunzweiler and colleagues in 2016 and Schlack and colleagues in 2013 also found that neither age nor gender was significant determinants of sleep quality.[13, 29] Presence of some chronic diseases reportedly experienced by the respondents such as hypertension and depression have also been reported in previous study to people experiencing sleep disorder.[2, 30, 31]

The sleep characteristics of the respondents such as the wide range of sleep time and different wake up time are commonly observed to people working in health facilities where shifting mode of work and 24 hours daily operation are required. In 2008, a study conducted by Chan on nurses working on rotating shifts revealed that 68.7% were having inadequate sleep.[20] Likewise, Ghalichi and colleagues also found significant association between poor sleep quality and working in shifts.[8] According to Tsai and colleagues, uncommon work schedule could possibly lead to lack of sleep and sleep disorders.[23]

In terms of sleep duration, the respondents have a lower mean sleep duration (5.67 ± 1.5 hours) than the average 8 hours sleep duration of most adults.[32] Awakening in the middle of the night or early morning was the most commonly and frequently (once/more in a week) experienced sleep disturbance of the respondents. This could be due to confused sleep pattern of the respondents due to shifting work schedule. According to some studies, night shift causes overall reduction of sleep quality because

this led to morning sleep making the sleep/wake cycle and normal biological circadian rhythm disordered.[33, 34]

Seemingly, all of this sleep characteristics have led to an alarming day dysfunction to 7.6% of the respondents who have big problem three/more times in a week as well as to the 10.4% of the respondents who have problems in keeping their enthusiasm during the past month. This percentage however almost coincides with the percentage of the respondent having poor sleep quality. It is possible that these are the same respondents that potentially need for a closer assessment and/or immediate intervention.

In this study also, analysis conducted based on the PSQI score have identified some demographic and health characteristics as significant determinant to sleep quality. Demographic characteristics analyzed such as "years in practice" and "have children/not" were the only factors that significantly determines poor sleep quality or insomnia. The longer years in practice (11.83 ± 7.1) were found to have better sleep quality compared to those with lesser years in practice. It is possible that these respondents were able to adjust well to their profession and shifting work schedule. Since longer years in practice are usually at the senior position and are more stable financially for example. According to the International Classification of Sleep Disorders, adjustment insomnia which are common in nurses are commonly caused by stressors such as career problems, financial hardships and health/family/relationship problems but tend to ceased when the stressor is gone.

Another significant determinant of sleep quality identified is the presence of a child among the HCP respondents. There is higher risk of poor sleep quality if there is a child and less if none. In a study conducted in 2016 on the factors influencing sleep quality among nurses the authors have suggested to include dependent children in the information for such factor may play a role in influencing sleep quality.[13] This risk factor however were found among the least significant contributor to poor sleep quality or insomnia based on the prediction model generated.

Furthermore, this particular study showed that pre-existing conditions such as emotional stressor being the most significant contributor, chronic disease, bad moods, and lost in interest in things interested before were found to be risk factors link to poor sleep quality among physicians and nurses working in PHC in Jeddah. This significant risk factors identified were also reported by several authors such as Ohayon and Punnoose and Golub.[2,16]

Conclusion

Based on the findings of this study, the insomnia prevalence of physicians and nurses working in PHC centers in Jeddah, Saudi Arabia was 29.2%. Demographic characteristics such as years in practice and presence of a child and pre-existing conditions such as chronic disease, bad moods, lost in interest in things interested before and emotional stressor were among the risk factor identified that significantly determines insomnia of the respondents. Among these risk factors however, emotional stressor, chronic disease, bad moods and years in practice were the most effective contributors to insomnia.

Recommendation

Based on findings of the present study, it is highly recommended to increased insomnia awareness. Availability of management interventions to minimize the effects and impact of insomnia should also be considered in health care facilities. Insomnia health check and help mechanism in health care facilities should also be known and readily available among physicians and nurses. Work related arrangements that minimized risks factors for insomnia is also worth exploring among health care facilities. Practice of activities that promotes good sleep quality should also be known and encouraged within the facility from time to time. Since study was only conducted in health care facilities within Jeddah, it might be as well conducted to other strategic locations for more holistic representation. Information like work schedules or set-ups are also worth included in future studies like this.

A closer assessment to those physicians and nurses that have poor sleep quality or insomnia is also suggested to avoid serious consequences caused by insomnia and for immediate proper care and management.

Conflict of Interest: None.

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