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RESEARCH ARTICLE

PREVALENCE OF INSOMNIA IN SAUDI GENERAL POPULATION.

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Abstract

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Introduction:-

Insomnia:-

Insomnia comprises complaints of disturbed sleep despite optimal time and conditions for sleep." According to the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV-TR®), primary insomnia is defined as difficulty initiating or maintaining sleep, or nonrestorative sleep, at least 3 times a week for at least 1 month that does not occur in the presence of another mental disorder or comorbid medical condition and results in next-day functional impairment. The patient's experience of insomnia may be related to sleep onset (difficulties in falling asleep) maintaining sleep (uninterrupted sleep without nocturnal awakenings), or total sleep time (inadequate amount of time asleep or waking too early). All of these circumstances can result in complaints of poor daytime functioning. More than one study showed that women were reported more than men to have insomnia with day time disfunction. Other study showed that People with severe nocturnal awakenings who were unable to return to sleep were more likely to suffer from daytime sleepiness (odds ratio [OR], 2.1), cognitive difficulties (OR, 2.8), moderate or

Severe fatigue (OR, 2.6), depressive disorders (OR, 2.5), or anxiety disorders (OR, 1.9) than were those who awoke frequently and could return to sleep. Insomnia associated positively with age, female gender and lower education. It is also found to be more in urban residents more than in rural people. About one forth is the prevalence of insomnia in studies were conducted USA, Austria, Taiwan and Poland.

Sleep apnea:

Obstructive sleep apnea (OSA) is a common disorder. There are important clinical consequences for affected individuals. A characteristic is repetitive collapse of the pharyngeal airway during sleep yielding hypoxia and hypercapnia and to reestablish airway patency arousal is required. Consequences are daytime sleepiness, decreased cognitive performance, decreased quality of life and a higher risk of car accidents. OSA may also lead to adverse cardiovascular consequences such as hypertension, myocardial infarction and stroke[3]. Sleep disordered breathing (SDB) is an abnormal breathing pattern during sleep that is often quantified as the apnea-hypopnea index (AHI). The presence of SDB and symptoms of sleep disruption are required for the clinical diagnosis of OSA. The term

SDB refers to the physiological abnormality observed in patients with the clinical syndrome of OSA[4]. In the general population the occurrence of SDB concerns about 9% of middle-aged women and 24 % of middle-aged men. Only 2% of women and 4% of men complain also of daytime sleepiness and meet the strict criteria for OSA. Older and more obese populations have a higher prevalence [4]. Diabetes and obstructive sleep apnea (OSA) are common disorders and coexist very often. The presence of the shared risk factors, i.e. obesity, may be the reason for this overlap. Maybe there is also a more complex relationship between these conditions in which an underlying metabolic disorder predisposes to both or in which metabolic and autonomic abnormalities associated with one influence the development of the other. There is a possibility that the presence of both conditions results in additive or even synergistic health risks, because diabetes and OSA are associated with increased cardiovascular morbidity and mortality. Patients with diabetes suffer very often from sleep apnea. According to research 50% of male patients with diabetes have sleep apnea [2] The prevalence of SDB (AHI>20) was 36% in patients with diabetes compared with 15% in normoglycemic subjects , reported in a study among middle aged men. Therefore increased awareness of symptoms and signs of OSA in a diabetic patient population[4].

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Statement of need:-

- Many studies were made worldwide to determine
- the frequency of insomnia , but none of these studies were done
- locally . This study was made to correct this
- defect.

Objectives:-**Specific Objectives:-****To Determine:-**

- The frequency of insomnia in a large Saudi population presenting directly to the general physician (GP).
- The impact of insomnia on the quality of life, on the use of health-care resources and on co-morbidity.
- To assess the prevalence of sleeping problems and their relation to sociodemographic characteristics in the Saudi population.
- To differentiate poor from good sleepers.
- To find the association between depression and insomnia.
- To assess the level of insomnia among Saudi population

Secondary Objectives:-

To assess whether co morbid factors were associated with sleep disorders in this population.

Methodology:-

This study was conducted at systemically random chosen primary care Centers, in Riyadh. patients who met our inclusion criteria were interviewed at each site.. The interviewer explained the objectives of the study and obtained patient consent for enrollment in the study. The data collection was carried out by personal interview, using a structured questionnaire adapted from earlier relevant published studies. All questions were accurately specified and thoroughly discussed and reviewed with the survey conductors before the study started.

This questionnaire has been translated into Arabic and validated.

Study Design:- Quantitative observational cross-sectional.

Sampling Method:-

The primary centers were chosen systemically random depending on the 5 region in that city (north, south ,west, east and central) . And the days of a week were chosen systemically random.

Study Subjects:-**Inclusion criteria:-**

We will enroll all patients of age >18 years.

Exclusion Criteria:-

1. Patient refusal.
2. Psychiatric disorders

Sample Size:-

We interview all consecutive patients who met our inclusion criteria at systemically chosen primary centers in Riyadh. Our aim is to have 400 patients.

Location and time :-

.....of this sample were taken from Iry care clinic in king Fahad National Guard hospital , Were taken from Iry care clinic in King Khalid hospital and were taken from Iry care clinic King Saud complex hospital the sample was divided to..... male and female in each hospital

The sample was selected mainly in the time from 7am to 4pm in all the hospitals.

Data Collection tool:- Questionnaire

The study questionnaire is divided into 5 sections as follows:

Section 1:-

Includes questions on common demographic characteristics such as age, gender, and height, weight, education level, marital status, employment, special habits.

Section 2:-

Includes questions in past medical history ,chronic illnesses and medication taken.

Section 3:-

Includes questions about insomnia. It consists of five validated questions[11] The first three questions about symptoms of insomnia, difficulties falling sleep. Awake up too early, if they have difficulty falling a sleep after awakening. The other 2 questions are about second daytime dysfunction (mood change, or tiredness) due to insomnia

Patients are considered having insomnia (level one) if answered yes to any of the first three questions and considered to have insomnia with daytime dysfunction (level two), if answered yes to at least four of the five questions.

Section 4:-

It is the Epworth Sleepiness Scale

The aim of this questionnaire is to get a measure of your sleepiness during the day. This helps distinguish between normal everyday tiredness and an abnormal level of sleepiness. For each of the situations below please indicate how likely you are to doze off or fall asleep. This refers to your usual way of life in recent times. If your sleepiness is variable (for example if you work shifts) then try and give an average. If you have not done some of these things, try and imagine how they would have affected you.

Use the following score to indicate the most appropriate Answer:-

- 0 = would never fall asleep in that situation.
- 1 =there is a slight chance of falling asleep in that situation.
- 2 = there is a medium chance of falling asleep in that situation.
- 3 =there is a high chance of falling asleep in that situation.

Section 5:-

Quality Index (PSQI) [13]. Nineteen individual items generate seven “component” scores: subjective sleep quality, sleep latency, sleep duration, habitual sleep efficiency, sleep disturbances, use of sleeping medication, and daytime dysfunction. The sum of scores for these seven components yields one global score.

Patients with a PSQI score >5 are conventionally defined 'poor sleepers', whereas those with a score <5 are considered 'good sleepers'.

Section 6:-

This section includes questions about depression using rapid screening for depression questionnaires developed for medical patients by Jefford, M et al .

Data Analysis:-

software used:-

sampling technique:-

▪ Pilot Study:

Report:-

The pilot study was conducted to test the translation of the questions, to see if there is any difficulty in understanding the questionnaire ,and to gain feedback from the participants.

We did the pilot study in period interval of 2 days from to in the same location as the main study was conducted, in primary care centers that were chosen by systemically random from Riyadh city, and the primary care centers were King Saud Complex Hospital, King Fahad National Guard hospital ,and King Khalid University Hospital.

We divided the team into three group ,each group composed of 3 to 4 students , and each group was given one location from the three main primary care center.

We interviewed the participants from 8 a.m. to 3 p.m. for 2 days, and the total participants were 50 person that have been chosen randomly , and the time taken for each interview was ranged from 8 to 20 minutes with average of 14 minutes.

The male participants were more cooperative and no difficulties were found in interview and giving feedback about the questionnaire.

Team observations:-

1. Getting permission will make the work more feasible, less time consuming, and of course more official.
2. Difficulties in contacting and communicating females, and no comments were earned
3. There were many refusals, because they were afraid to miss the scheduled appointment if they had the interview.
4. And also there were many interruptions because the participants had to stop the interview to see his or her doctor when the time of the appointment came.

Participants' suggestions:-

- First, many participant said that the interview method was a better way to understand the questions that the self-administered form.
- Second, most of them suggested to conduct the interview after the participant get out from his or her appointment to prevent any interruption.

Results:-

- After analyzing the answers given by the sample that we chose to conduct our study on, we came to these results:
- About 77% of the sample is suffering from insomnia in age (34.9 ± 14.5). It is been shown a high prevalence among the people who are poor sleepers ($PSQI > 5$). About 48% of insomniac has a depression (more in female) & BMI (27.3 ± 5.3). There is no deference between the insomniac & normal people according to their neck size (14.5 ± 2 : 14.8 ± 2), ESS & BMI. The ratio between male & female is almost equal.

Discussion:-

- The prevalence of insomnia in Saudi general population were similar to what has been reported in literatures.
- About 77% of the sample is suffering from insomnia in age (34.9 ± 14.5). It is been shown a high prevalence among the people who are poor sleepers ($PSQI > 5$). About 48% of insomniac has a depression (more in female) &

BMI (27.3 ± 5.3). There is no difference between the insomniac & normal people according to their neck size (14.5 ± 2 : 14.8 ± 2), ESS & BMI. The ratio between male & female is almost equal.

Table 1:-

Attributes	Insomnia		P-Value
	No (n=75)	Yes (n=245)	
Age(year)	31.4 ± 11.8	34.9 ± 14.5	0.0613
BMI	26.9 ± 6.1	27.3 ± 5.3	0.6567
Neck Size (inch)	14.8 ± 2	14.5 ± 2	0.3075
ESS	6.4 ± 4.1	6.3 ± 4.3	0.8318
PSQI*	4.6 ± 2.7	6.4 ± 3.2	0.0000
Sex (Male)	50 (67)	163 (67)	0.9830
Obese (BMI \geq 30)	19 (25)	71 (29)	0.539
ESS \geq 10	18 (24)	47 (19)	0.364
Poor Sleeper (PSQI $>$ 5)*	32 (43)	172 (70)	0.000
Depression	32 (42.7)	118 (48.2)	0.404

Comparisons on the basis of insomnia presence

Attributes	Sex		P-Value
	Male (n=213)	Female (n=107)	
Age(year)	35.1 ± 14.7	32 ± 12.2	0.0566
Neck Size (inch)	14.6 ± 2.1	14.6 ± 1.9	0.7922
BMI	27.4 ± 5.7	26.7 ± 5.2	0.2773
ESS*	5.9 ± 3.8	7 ± 4.9	0.0236
PSQI*	5.6 ± 2.9	6.7 ± 3.6	0.0022
Insomnia	163 (77)	82 (77)	0.9830
Obese (BMI \geq 30)	60 (28)	30 (28)	0.980
ESS \geq 10*	36 (17)	29 (27)	0.0320
Poor Sleeper (PSQI $>$ 5)*	127 (60)	77 (72)	0.030
Depression*	78 (37)	72 (67)	0.000

* p<0.05

Table2: Comparison on the basis of Sex

Conclusion:-

Insomnia in the population is a major health problem with a high prevalence among poor sleepers & depressed persons.

Poor sleeping & depression are risk factors to develop Insomnia. However, the problem is still under diagnosed in the population. Therefore, we recommend to train the GP in primary clinics to diagnose chronic sleep disorders such as Insomnia & do more health education for the society to know how problem is big.

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