



A CROSS-SECTIONAL STUDY ON THE SLEEP QUALITY AMONG TYPE 2 DIABETES PATIENTS ATTENDING TERTIARY CARE HOSPITAL IN TELANGANA.

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ABSTRACT Diabetes is one of the major global health challenges that world is facing today. Patients of diabetes type 2 frequently complain of Poor sleep, they have difficulty in various aspects of the sleep which include initiation and maintenance of the sleep, they also complain of daytime sleepiness. This study was conducted with the objectives to assess the quality of sleep among diabetic patients. It is a cross-sectional descriptive study undertaken at a tertiary care hospital. Pittsburgh sleep quality index was used assess sleep quality. Chi-square test and Student's t-test was used in the present study. Majority of the study participants which was about 45.5 %, belonged to the age group of 61–70 years followed by 26 % in 41–50 years. 33.4% of the study participants, had a history of diabetes for the past 6–10 years and 32.6% had a history of 11–15 years. The mean age of good sleepers was 61.46±9.62 years and poor sleepers were 52.46±8.54 years; this difference of age was statistically significant. About 45% of the males and 38% of the females had a poor sleep, the gender difference of sleep quality was statistically significant, overall 78% of the patients were poor sleepers, patients with longer duration of the disease slept poorly and scored a mean score of 8.65±4.38 when compared to good sleepers the mean score was 4.43±3.35, this difference was also statistically significant. 30.6 % who were poor sleepers were overweight or obese patients. About half of all the patients i.e. 52.5% of people with diabetic complications had poor sleep. About 26.4% patients on multiple drug regimen had poor sleep

KEYWORDS : Diabetes Mellitus, PSQI, Sleep Quality

INTRODUCTION

Diabetes is one of the major global health challenges that world is facing today. India is regarded as the diabetic capital of the world. Diabetes affects almost all the systems and organs of the human body. It is estimated by world health organization that about 300 million people worldwide, will be affected by diabetes by the year 2025. One of the Largest diabetic populations worldwide is in India, and it is estimated to rise to 70 million by the year 2025. [1]. The time trend studies indicate steady increase in type 2 diabetes mellitus prevalence in the Indian subcontinent region. [2] Patients of diabetes type 2 frequently complain of Poor sleep [3] The patients of type 2 diabetes have difficulty in various aspects of the sleep which include initiation and maintenance of the sleep, they also complain of daytime sleepiness. Studies also indicate the quality of sleep is reduced in patients of type 2 diabetes. [3] It was found in some case control studies, where the participants were matched for age and gender that the sleep disturbances were more frequent in those patients with type 2 diabetes when compared with the controls. [4] cortisol levels are increased by the Sleep deprivation which in turn inhibits insulin production which leads to poor control of diabetes. In the long run this acts as a predisposing factor which may lead to worsening of diabetes control. [5] The objective of the present study was to assess the quality of sleep among the diabetic patients.

MATERIALS AND METHODS

STUDY SETTING The current study was a cross-sectional descriptive- hospital based study. The study was under taken in the patients attending the outpatient department of tertiary care hospital in Telangana state. The study duration was for 2½ months (75 days). The Patients with established Type 2 diabetes mellitus for at least the last one year and those who were on treatment were included in the study. The patients were excluded from the study if they did not consent, the patients who did not respond also were excluded from the present study. Patients who were on anti-depressants or those having pre-existing psychiatric illness, pregnant women and patients who were seriously ill were excluded from the study.

CONSENT Informed and written consent was obtained from all the study participants. The participants were explained about the study in their own language and interviewed after taking informed consent. Confidentiality was maintained at all times.

SAMPLE SIZE A sample size of 150 was obtained after considering the prevalence of diabetes as 10.22%. [6] Sample size was calculated using the formula, $n = 4pq/L2$. $n = 146$, the sample size was rounded off to 150. A total of 150 participants were considered for the present study.

TOOLS FOR ASSESSMENT OF SLEEP QUALITY - In the present study, the tool used to assess sleep quality is “Pittsburgh sleep quality index (PSQI)” [7]. The sleep quality of last 30 days is assessed using the PSQI A total seven components are measured in PSQI which include; Sleep quality, sleep latency, sleep duration, sleep efficiency, sleep disturbances, use of sleep medication, and daytime dysfunction. A Likert scale of 0-3 is used for Scoring Each component, so the total scores range from 0 to 21; as the scores increase, the sleep quality decreases. A global PSQI score >5 has been found to have a sensitivity of 89.6% and specificity of 86.5% in differentiating good from poor sleepers.

STATISTICAL ANALYSIS Data was entered into the MS excel 2016 spreadsheet. For the continuous variables, Means and Standard Deviations (SD) were calculated. Percentages and Proportions were used to express the Categorical variable frequencies. Chi-square test was used and to compare the means, Student's t-test was used. PSQI ≤5 were considered “good sleepers” and PSQI >5 were considered “poor sleepers.”

Table 1 Showing distribution of study subjects according to the sociodemographic and clinical characteristics and quality of sleep.

VARIABLE	GOOD SLEEPERS (PSQI ≤5)	POOR SLEEPERS (PSQI >5)	Chi Square / T statistic	P VALUE
Mean Age	61.46±9.62	52.46±8.54	5.853	<0.001
Gender				
Males	55%	45%	1.009	0.317
Females	62%	38%		
Duration of diabetes	4.43±3.35	8.65±4.38	6.402	<0.001
BMI				
Normal	32%	12%	7.549	<0.001
Over weight	25.4%	30.6 %		
No of diabetic complications	47.5%	52.5%		
Type of treatment				
Oral hypoglycemic drugs	48%	20.5%	25.16	<0.001
Multiple regimens	5.1%	26.4%		

Chi square test and unpaired t tests are used

RESULTS-

In the present study, the total participants were 150, in which 54% were female patients and 46% were male patients. Majority of the study participants which was about 45.5 %, belonged to the age group of 61–70 years followed by 26 % in 41–50 years. Majority of the subjects, that is, 33.4% of the study participants, had a history of diabetes for the past 6–10 years and 32.6% had a history of 11–15 years. About 81.5 % of the study subjects were on oral hypoglycemic agents (OHA) and 17 % on both insulin and OHAs and only 1.5 % on insulin alone. Most of the study participants, that is, 42 % belonged to Class II socioeconomic status, 28.66% belonged to Class III, and only 3 % belonged to Class V according to modified BG Prasad classification. The mean age of good sleepers was 61.46±9.62 years and poor sleepers were 52.46±8.54 years; this difference of age was statistically significant. About 45% of the males and 38% of the females had a poor sleep, the gender difference of sleep quality was statistically significant, overall 78% of the patients were poor sleepers, patients with longer duration of the disease slept poorly and scored a mean score of 8.65±4.38 when compared to good sleepers the mean score was 4.43±3.35, this difference was also statistically significant. 30.6 % who were poor sleepers were overweight or obese patients. About half of all the patients i.e. 52.5% of people with diabetic complications had poor sleep. About 26.4% patients on multiple drug regimen had poor sleep [Table 1].

DISCUSSION

In the present poor sleep was reported by about 57% of patients, multiple studies conducted previously agreed with our study, other studies reported poor sleep to be between 45% and 67% of patients with type 2 diabetes, they had complaints of poor sleep quality and/or they had difficulty in initiation and/or maintaining sleep. [3,4,8,9]

In our study, we found that the younger age group patients had poor sleep quality. Patients who were males and had comorbidities had poor quality of sleep.

In our study, more than half 58 % of the study participants agreed that they would wake up to use the bathroom during the night 3 or more nights a week and about 32 % of participants reported having pain that disturbed sleep at least 1 time/week.

In the present study, the poor sleep quality and sleep disturbances in the participants with type 2 diabetes could be caused due to Multiple factors. the causes could be peripheral neuropathy which cause pain. Symptoms of urinary system such as Nocturia, polyuria, and dysuria may have been diabetes-related factors that could cause frequent nighttime awakenings. [10]. Sleep apnea and restless legs syndrome could be other factors that could have caused frequent nighttime awakenings. Many studies have reported that Sleep apnea is common in individuals with type 2 diabetes. [11]

CONCLUSION AND RECOMMENDATION

The quality of sleep includes various factors such as initiation, duration, and maintenance of sleep. In the present study it was seen that poor sleep quality is common among patients of type 2 diabetes. Any newly detected diabetic patient needs to be screened for sleep problems, a detailed assessment of the sleep quality of the patients have to be done and these patients should be taught various strategies to improve their sleep hygiene, which thereby improves their quality of sleep [12] also adequate counseling has to be done as part of diabetes management and treatment.

A dedicated counselor or the treating physician has to assess the quality of sleep and make sleep hygiene a part of the treatment and management of the diabetes.

LIMITATIONS AND IMPLICATIONS–

the present study is a hospital based study; therefore, the results cannot be generalized to the larger population in the community. Further research is needed on a larger scale to find out how sleep quality can be improved in diabetic patient.

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