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EFFECT OF A CONTINUOUS CARE MODEL (CCM) ON SLEEP QUALITY AMONG PATIENTS WITH TYPE 2 DIABETES MELLITUS IN A SELECTED HOSPITAL AT MANGALURU

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ABSTRACT A Quasi-Experimental pre test-post test control group design was used to determine the effect of a CCM on sleep quality among 60 patients with Type 2 DM. The aim of the study was to assess the effect of a CCM on the sleep quality among patients with type 2 DM in the experimental and control group. The investigator administered the tool to the participants using Baseline Proforma and Pittsburgh Sleep Quality Index. The screening for low sleep quality was done on 70 type 2 DM patients. The paired 't' value (t_{29}=12.5, p<0.05) showed that there is a significant difference between the pre and post interventional sleep quality among the type 2DM patients in the experimental group. The Unpaired 't' value (t_{58}=2.00, p<0.05) showed that there is a significant difference in mean post interventional quality of sleep score in the experimental and control group. The study showed that there was significant increase in the sleep quality of type 2 DM patients after administrating CCM.

KEYWORDS : Sleep quality; Type 2 DM Patients; Effect; CCM

Introduction

Diabetes remains one of the most important health problems in the world. According to the recent estimates of the International Diabetes Federation, approximately 415 million people (one in every 11 adults) have diabetes worldwide. Type 2 diabetes is the most common form of diabetes. It is estimated that about 91% of all adults with diabetes in high-income countries have type 2 diabetes. In this context, many governments have prepared national programs that support healthy lifestyle practices such as healthy nutrition, physical activity and weight control for prevention and control of diabetes.

Diabetes is associated with near frequent complaints of difficulty in initiating sleep (21.1%), difficulty in maintaining sleep (21.9%) and excessive daytime sleepiness (12.2%). The sleep complaints are often related to the presence of underlying sleep-disordered breathing (SDB), nocturia, physical complications of disease and underlying depression. Polysomnography done in diabetic subjects revealed more wakefulness, a high number of awakenings and fragmented sleep.

Objectives of the study

1. To determine the pre interventional and post interventional sleep quality among the type 2DM patients in the experimental and control group.
2. To find the effect of CCM on sleep quality among the type 2DM patients in the experimental group.
3. To compare the effect of CCM on the sleep quality among the type 2DM patients in the experimental and control group.
4. To find association of pre interventional sleep quality with their selected demographic variables in the experimental and control group.
5. To elicit the opinion of the type 2 DM patients regarding CCM in the Experimental Group.

Materials and methods

The research approach used by the investigator for this study was evaluatory approach. Based on the purpose of study, research approach and variables to be studied, a Quasi-experimental pre test – post test control group design was selected for the study. Samples comprised of 60 clients who fulfilled the inclusion criteria and purposive sampling technique was used for the selection of clients. The present study was conducted in inpatient department of medical and surgical wards of Father Muller Medical College Hospital at Mangaluru, scheduled from 6th of March 2017 to 31st of March 2017. The data collected was analyzed using descriptive and inferential statistics.

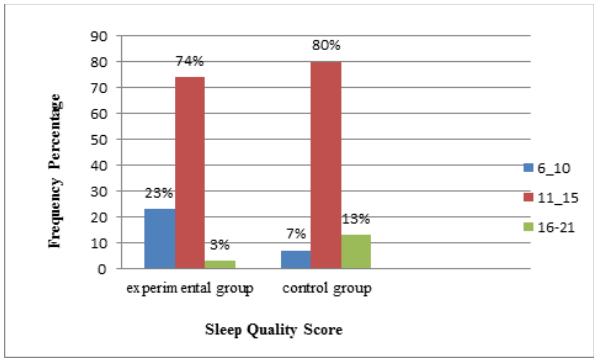
Results

Description of Baseline Characteristics

Among 70 clients screened, 53% belonged to the age group of 61years and above, 51% were males and 49% were females, 37% were Hindu, 61% were married, 49% had primary school education, 44% were skilled workers(driver, carpenter etc), 100% had mixed diet, 53% had family income ranging 5001-10000, 27% were having duration of illness < 3years, 100% were independent, 77% had expenditure for medication per month ranging 6000-10000, 56% had co morbidity, 61% did not have any chronic illness patient at home.

Determination of the Pre Interventional and Post Interventional Sleep Quality Among the Type 2DM Patients in the Experimental and Control Group.

Figure 1: Bar Diagram Showing the Distribution of Type 2 DM Patients According to their Sleep Quality Score.



Data figure 1 shows that 74%sleep score is 11-15 in the experimental group and control group 80% is 11-15.

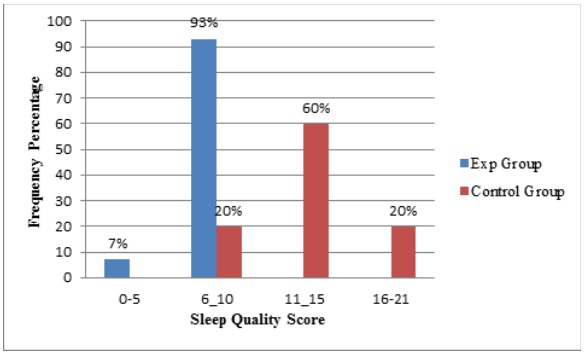
Table 1: Area wise Mean, Standard Deviation and Mean Percentage of Pre Interventional Sleep Quality among the Type 2DM Patients in the Experimental Group and Control Group.

n=30+30

Pre Interventional Sleep Quality						
	Experimental Group			Control Group		
Areas	Max score	Mean±SD	Mean %	Max score	Mean±SD	Mean %
Subjective sleep quality	1-3	2.2±0.61	73	1-3	2.4±0.62	80
Sleep latency	1-3	2.3±0.66	38	1-3	2.1±0.50	35
Sleep duration	2-3	2.4±0.50	80	1-3	2.2±0.69	73

Sleep efficiency	0-3	1.8±0.89	30	1-3	2.3±0.70	38
Sleep disturbance	1-3	1.6±0.60	53	1-3	1.9±0.76	63
Use of medication	0	0	0	0	0	0
Daytime dysfunction	1-3	2.1±0.60	35	1-3	2.4±0.56	40

Figure 2: Bar Diagram Showing the Distributionof Type 2 DM Patients According to their Post Interventional Sleep Quality Score in the Experimental and Control Group.



Data in figure 2 shows that 93% sleep score is 6-10 in the experimental group and in the control group 60% sleep score is 11-15.

Table 2: Area wise Mean, Standard Deviation and Mean Percentage of Post interventional Sleep Quality among the Type 2DM Patients in the Experimental Group and Control Group.

n=30+30

	Post Interventional Sleep Quality					
	Experimental Group			**Control Group**		
Areas	**Max score**	**Mean±SD**	**Mean %**	**Max score**	**Mean±SD**	**Mean %**
Subjective sleep quality	1-3	1.6±0.66	53	1-3	2.3±0.65	77
Sleep latency	1-3	1.6±0.72	27	1-3	2.2±0.69	37
Sleep duration	0-3	1.1±0.71	37	1-3	2.3±0.80	77
Sleep efficiency	0-3	0.9±0.92	15	0-3	1.7±1.14	28
Sleep disturbance	0-2	1.1±0.60	37	0-3	2.2±0.98	73
Use of medication	0	0	0	0	0	0
Daytime dysfunction	1-2	1.4±0.50	23	1-3	2.2±0.81	37

Effect of CCM on Sleep Quality Among the Type 2DM Patients in the Experimental Group

Table 3: Significant Difference Between the Pre Interventional and Post Interventional Sleep Quality Among the Type 2DM Patients in the Experimental Group.

n=30

Sleep Quality				
Experimental Group	**Mean**	**SD**	**'t' value**	**'P' value**
Pre test	12.6	1.99	12.5	0.001*
Post test	7.83	1.55		

t_{29}=2.04,p<0.05*=Significant

Data presented in table 3 shows that the calculated 't' value (t_{29}=12.5, p=0.001) is greater than the table value (t_{29}=2.04 p<0.05), there is a significant difference between the pre and post sleep quality among the type 2DM patients in the experimental group.

Comparison of the Effect of CCM on the Sleep Quality among the Type 2DM Patients in the Experimental and Control Group

Table 4: Significant Difference in Mean Post Interventional Quality of Sleep Score in the Experimental and Control Group

n=30+30

	Post Interventional Sleep Quality			
Groups	**Mean**	**SD**	**'t' value**	**'p' value**
Experimental Group	7.8	1.6	11.2	<0.001*
Control Group	13.1	2.1		

t_{58}=2.00, p<0.05 level of significance *= significant

Data presented in the table 4 shows that the calculated 't' value (t_{58}=11.2, p<0.001) is greater than the table value (t_{58}=2.00, p<0.05), there is a significant difference in mean post interventional quality of sleep score in the experimental and control group.

Association of Pre Interventional Sleep Quality with their Selected Demographic Variables in the Experimental Group and Control Group

There is no significant association of pre interventional sleep quality with their selected demographic variables in the experimental group and control group.

Discussion

In the present study the calculated 't' value on sleep quality in the experimental group (t_{29}=12.5, p=0.001) was greater than the table value (t_{29}=2.04) P<0.05. This showed CCM intervention had effect in increasing the sleep quality in type 2DM patients. This is supported by the findings of study conducted by Rahimi et al, on effect of implementing continuous care model on sleep quality of hemodialysis patients revealed that by applying the continuous care model, sufficient sleep was seen in 17.4% of patients before intervention, which showed significant increase (p=0.0001) to 55% after intervention.

In the present study the calculated 't'value on the effect of CCMsleep quality in the experimental and control group (t_{58}=11.2, p=0.001) was greater than the table value (t_{58}=2.00, P<0.05), which showed that there is significant difference in mean post interventional quality of sleep score in theexperimental and control group. This is supported by the findings of the study conducted by Alebiosu OC, Ogunsemi OO, Familoni OB, Adebayo PB, Ayodele OE on Quality of sleep among hypertensive patients in a semi-urban Nigerian community: a prospective study showed that the sleep score in the hypertensive subjects were "poor sleepers" mean PSQI of 5.03 ± 3.28 and this was significantly more than with a mean global PSQI of 3.10 ± 0.83.[62] It is also supported by the study findings conducted by Mehdizadeh S etal, on effect of using continuous care model on sleep quality in chemical warfare victims with bronchiolitis obliterians showed that there was significant differences between the experimental and control groups in the means of 'Subjective Sleep Quality', 'Sleep Disturbances', 'Use of Medications' and global scores after the intervention (P<0.05).

In the present study there was no association of pre interventional sleep quality with their selected demographic variables like age, gender, marital status, occupation, family income, duration of illness, expenditure of medication and comorbidity in the experimental group the calculated 'p' values were greater than the p>0.05. The study findings were congruent with study conducted by Alebiosu OC et al. who found that there was no statistically significant relationship between quality of sleep and severity of hypertension.

Conclusion

The study showed that there was significant increase in the sleep quality of type 2 DM patients after administrating CCM. So the findings prove statistically that CCM had effect in increasing the sleep quality in type 2 DM patients.

References:

1. Sathyanarayanan A, Benny E, Osborn J, Kumar S, Prabhu S, etal. Factors Associated with Poor Sleep Quality among Type 2 Diabetes Mellitus Patients on Insulin Therapy. Journal of Diabetes Mellitus, 5:206-10.
2. Koren D, O'Sullivan KL, Mokhlesi B. Metabolic and Glycemic Sequelae of Sleep Disturbances in Children and Adults. Current Diabetes Reports, 15:562.
3. Resnick HE, Redline S, Shahar E, Gilpin A, Newman A, etal. Diabetes and Sleep Disturbances Findings from the Sleep Heart Health Study. Diabetes Care, 26(3):702-9.
4. Song y, Ye X, Ye L, Li B, Wang L, et al. Disturbed Subjective Sleep in Chinese Females with Type 2 Diabetes on Insulin Therapy. Plos ONE, 8(1):e54951.
5. Guariguataa L, Whitingb DR, Hambletonc I, Beagley J, Linnenkampet U, etal. Global estimates of diabetes prevalence for 2013 and projections for 2035. Diabetes Research and Clinical Practice, 103:137–49.

6. Mallon L, Broman JE, Jerker H. High Incidence of Diabetes in Men With Sleep Complaints or Short Sleep Duration: a 12-year follow-up study of a middle-aged population. Diabetes Care, 28:2762–7.
7. Spiegel K, Leproult R, Copinschi G, Penev PD, Van CE. et al. Leptin levels are dependent on sleep duration: relationships with sympathovagal balance, carbohydrate regulation, cortisol, and thyrotropin. The Journal of Clinical Endocrinology &Metabolism, 89:5762–71.