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"Effect of Therapeutic Back Massage on Quality of Sleep among Elderly''

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Abstract : The elderly is susceptible to declining sleep quality. Aging is associated with several well-described changes in patterns of sleep. Typically, there is a phase advance in the normal circadian sleep cycle, older people tend to go to sleep earlier in the evening but also to wake earlier. They may also wake more frequently during the night and experience fragmented sleep. The prevalence of many sleep disorders increases with age. Insomnia, whether primary or secondary to co existant illness or medication use, is very common among elderly people. There are several causes of decreased sleep qualities such as increasing sleep latency, decreasing sleep efficiency, waking up earlier and unable to back to sleep. One of the non- pharmacological methods, Therapeutic Back Massage, helps the patient to increase their sleep quality. Moreover, it represents a positive experience of the individual to improve relaxation and sleep quality. This research used a quasi-experimental design. There were 40 elderly who have sleep problems. There were two groups which were categorized into (treatment & control). This research used Purposive Sampling Technique. Moreover, it used Therapeutic Back Massage as an independent variable and improvement of sleep quality as the dependent variable. Besides that, this research uses the Modified Pittsburgh Sleep Quality Index (PSQI) questionnaire to collect the data. The final analysis shows that Therapeutic Back Massage was effective in improving the quality of sleep.

Key Terms: Therapeutic back massage, Quality of sleep, Elderly people ,Old age home

I. INTRODUCTION

Sleep disturbances in the elderly can lead to changes in the physiological systems, such as a reduction in the production of appropriate hormones, like the growth hormones, and also a decline in the metabolic functioning. The effects of these changes also differ widely among individuals. While approximately 85% of the aging population experience chronic conditions, only about 20% experience significant impairment in their ability to function. Therapeutic back massage will be effective for improving the quality of sleep.

II. OBJECTIVE

1. To assess the quality of sleep among elderly
2. To evaluate the effect of therapeutic back massage on quality of sleep among the elderly
3. Association of quality of sleep among elderly with selected demographic variable

III. RESEARCH METHODOLOGY

The study was conducted using Quantitative approach, Quasi experimental, pre-test and post-test control group design. 40 elderly were selected from which 20 were kept in experimental and 20 were kept in control group and selected by purposive sampling technique and data was collected by using Pittsburgh Sleep quality index. Therapeutic back massage will be given just prior to bed for 15 minutes for 7 days by means of manipulation of muscles in the thoraco lumbar region by means of effleurage, petrissage, kneeding, vibration, friction, tapotment and tapping.

IV. RESULT

The effect of therapeutic back massage on quality of sleep among elderly at selected old age home between experimental and control group were statistically tested by using unpaired 't' test to analyze the difference between the mean Post-test score of quality of sleep in control and experimental group. The mean Post-test value of experimental group was 5.35 which is lesser than the mean post value 13.10 of control group . The obtained 't' value was -8.21 when compared to the table value 1.68 is high which is significant at 0.05 level. This indicates the difference between the Post-test means in both the experimental and control group is a true difference.

V. CONCLUSION

The study concluded that providing therapeutic back massage to the elderly people was effective on quality of sleep. Therefore the investigator felt that more importance should be given for therapeutic back massage to improve quality of sleep among elderly. Based on observation the study analyses the difference between the mean Post-test score of quality of sleep in control and experimental group indicates the difference between the post-test means in both the experimental and control group is a true difference. In this study it was also found that there was no significant association between socio demographic variables (age, gender, dietary pattern, personal habits ,substance abuse, daytime napping, co-morbid disease) with quality of sleep. Conceptual Framework used in a modified form was based on J.W Kenny's open system model.

1.1Population and Sample

Total population of study was 40. The sample size consists of 20 Experimental samples and 20 control group samples, both male and female elderly people of the selected old age home.

According to Krejeie and Morgan, 1970 the table is constructed using the following formula for determining sample size:

$$S= X^2 N. P (1-P) \% d (N-1) + X^2 P (1-P).$$

1.2 Data and Sources of Data

The data was collected from the 40 samples at a time in which 20 samples were kept in experimental group and 20 were kept in control group. A formal written permission was obtained from the Director of Aastha Old Age Home, Lucknow, to conduct the study. The data collection period was from 01.08.2023 to 07.08.2023.
Consent was obtained from the samples. The data was collected with the help of modified Pittsburgh sleep quality index after brief self- introduction, explain the purpose of the study and obtained informed consent from the subjects from both the groups experimental and control.

1.3 RESULT

ANALYSIS AND INTERPRETATION OF THE DEMOGRAPHIC VARIABLES OF THE SAMPLES.

Table-4.1 Frequency and percentage Wise Distribution of samples Based on demographic Data. [N=40]

DEMOGRAPHIC DATA	CATEGORY	GROUPS					
		Experimental		Controls		Total	
		F	%	F	%	F	%
Age in years	a)60-65 years	8	40.0%	6	30.0%	14	35.0%
	b)66-70 years	5	25.0%	5	25.0%	10	25.0%
	c)71-75 years	2	10.0%	2	10.0%	4	10.0%
	d) 76 and above	5	25.0%	7	35.0%	12	30.0%
	Total	20	100.0%	20	100.0%	40	100.0%
Gender	a) Male	11	55.0%	13	65.0%	24	60.0%
	b) Female	9	45.0%	7	35.0%	16	40.0%
	Total	20	100.0%	20	100.0%	40	100.0%
Dietary Pattern	a)Vegetarian	10	50.0%	14	70.0%	24	60.0%
	b)Mixed	10	50.0%	6	30.0%	16	40.0%
	Total	20	100.0%	20	100.0%	40	100.0%
Personal habits	a)Reading Novels	4	20.0%	3	15.0%	7	17.5%
	b)Listening music	6	30.0%	8	40.0%	14	35.0%
	c)Using mobile phones	4	20.0%	8	40.0%	12	30.0%
	d)None of the above	6	30.0%	1	5.0%	7	17.5%
	Total	20	100.0%	20	100.0%	40	100.0%

Substance abuse	a)Consuming Alcohol	1	5.0%	1	5.0%	2	5.0%
	c) Tobacco	1	5.0%	3	15.0%	4	10.0%
	d) Consuming tea or coffee	13	65.0%	14	70.0%	27	67.5%
	e)None of the above	5	25.0%	2	10.0%	7	17.5%
	Total	20	100.0%	20	100.0%	40	100.0%
Day time Napping	a)Less than half an hour	8	40.0%	10	50.0%	18	45.0%
	b)Half an hour to 1 our	6	30.0%	5	25.0%	11	27.0%
	c)1 to 2 hours	2	10.0%	2	10.0%	4	10.0%
	d)More than 2 hours	4	20.0%	3	15.0%	7	17.5%
	Total	20	100.0%	20	100.0%	40	100.0%
Comorbidity	a)No	5	25.0%	4	20.0%	9	22.5%
	b)Yes	15	75.0%	16	80.0%	31	77.5%
	otal	20	100.0%	20	100.0%	40	100.0%

Table 4.1 Reveals, the frequency and percentage distribution of samples according to demographic variables such as Age in years, Gender, Dietary pattern, Personal habits, substance abuse, daytime napping ,Co- morbid disease.
Result shows, in experimental group according to age 8 (40.0%) belonged to 60-65 years of age group, 5 (25.0%) belonged to 66-70 years of age , 2 (10.0%) belonged to 71-75 years of age , 5 (25.0%) belonged to more than 76 years of age group. According to age, 6 (30.0%) belonged to 60-65 years of age group, 5 (25.0%) belonged to 66-70 years of age group, 2 (10.0%) belonged to 71-75 years of age group, 7 (35.0%) belonged to more than 76 years of age group. According to gender, 11(55.0 %) were male, 9 (45.0%) were female. In control group according to gender 13(65.0%) were male and 7 (35.0%) were female. According to dietary pattern 10 (50.0%) were vegetarian, 10 (50.0%) were mixed. In control group according to dietary pattern 14 (70.0%) were vegetarian and 6 (30.0%) were mixed.According to personal habits 4(20.0%) had habit of reading novels, 6 (30.0%) had habit of listening music, 4 (20.0%) had habit of using mobile phones and none of the above were 6 (30.0%). In control group according to personal habits 3 (15.0%) had habit of reading novels, 8 (40.0%) had habit of listening music, 8 (40.0%) had habit of using mobile phones, and none of the above were 1 (5.0%). According to substance abuse, 1(5.0%) were consuming alcohol, 1 (5.0%) were consuming tobacco, 13 (65.0%) were consuming tea or coffee and 5 (25.0%) were none of the above. In control group according to substance abuse , 1 (5.0%) were consuming alcohol, 3 (15.0%) were consuming tobacco, 14(70.0%) were consuming tea or coffee and 10.0% were none of the above. According to day time napping , 8 (40.0%) were sleeping less than half an hour , 6(30.0%) were sleeping half an hour to one hour, 2(10.0%) were sleeping 1-2 hour , 4(20.0%) were sleeping more than 2 hours. In control group according to day time napping , 10 (50.0%) were sleeping less than half an hour , 5(25.0%) were sleeping half an hour to one hour, 2(10.0%) were sleeping 1-2 hour , 3(15.0%) were sleeping more than 2 hours.in experimental group 5 (25.0%) were not having co-morbidity, 15(75.0%) were having co- morbidity. In control group 4 (20.0%) were not having co-morbidity, 16(80.0%) were having co- morbidity.

TABLE 4.2 Frequency and percentage distribution of Pre test quality of sleep among elderly people of Experimental group and control group.

n= 40

CATEGORY	**Groups**			
	EXPERIMENTAL		**CONTROL**	
	FREQUENCY	**%**	**FREQUENCY**	%
Good quality of sleep (<5)	0	.0%	0	.0%
Poor quality of sleep (>5)	20	100.0%	20	100.0%

Above descriptive table shows that the pre-test quality of sleep among 40 subjects in which 20 experimental group had poor quality of sleep and 20 subjects in control group had poor quality of sleep.

TABLE 4.3 Frequency and percentage distribution of Post test quality of sleep among elderly people of experimental and control group.

n=40

CATEGORY	GROUPS			
	EXPERIMENTAL		CONTROL	
	FREQUENCY	%	FREQUENCY	%
Good quality of Sleep (<5)	16	80.0%	3	15.0%
Poor quality of Sleep (>5)	4	20.0%	17	85.0%

Above descriptive table shows that the Post test quality of sleep score of experimental group 16(80.0%) had good quality of sleep and 4(20.0%) had poor quality of sleep. In control group 3(15.0%) had good quality of sleep and 17(85.0%) had poor quality of sleep.

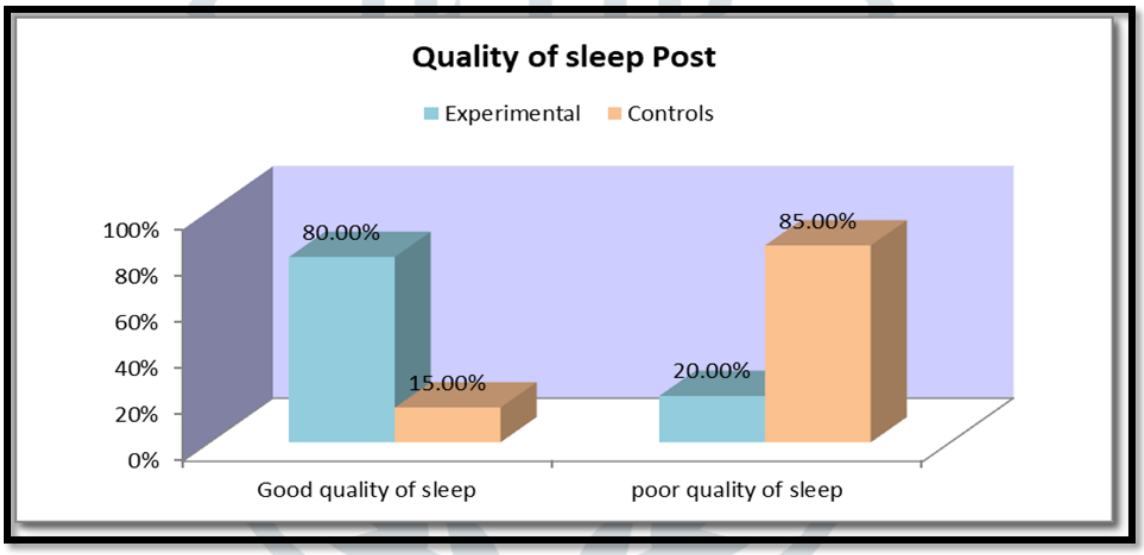

Fig. 1: Percentage distribution of Post test quality of sleep among elderly.

TABLE 4.4 Comparison of pretest and posttest quality of sleep among elderly people using paired t-test

n = 20

EXPERIMENTAL GROUP	Mean	SD	Mean Difference	df	Paired t value	P value	Table value at 0.05
Pre test	16.00	1 1. 59	10.65	19	22.85	<0.001	1.729
Post test	5.35	1.27					

**** Significance at 0.05 level**

Above table shows effect of therapeutic back massage on quality of sleep among elderly at selected old age home . The mean pre test of sleep was 16.00. After providing therapeutic back massage mean score was 5.35. Improve in the quality of sleep was statistically tested by paired 't' test .The calculated 't' value 22.85 with the degree of freedom 19 at p <0.05 is higher than tabulated value 't' value 1.729 , which indicates therapeutic back massage was effective. Hence it proved that therapeutic back massage was effective in improving the quality of sleep among elderly at selected old age home.

TABLE 4.6 Comparison of mean pre-test and mean post-test quality of sleep among samples in control group using paired t test

n= 20

Control Group	Mean	SD	Mean difference	df	Paired t value	p-value	Table value at 0 0.05
Pre-test	16.75	1.58	3.65	19	4.67	<0.001	1.729
Post-test	13.10	4.02					

Above table shows the comparison of pre test and Post-test scores of quality of sleep in control group.
The mean pre test score is 16.75 and the mean Post-test score is 13.10. The obtained 't' test value was 4.67 when compared to table value (1.729) is low. The findings shows that without therapeutic back massage there is no significant difference between pre test and Post-test scores of quality of sleep in control group.

TABLE 4.7 Ccomparison of mean post-test score of quality of sleep in control group and experimental group using unpaired t – test.

GROUP	Test	Mean	SD	df	Unpaired t value	p-value	Table value at 0.05
Experimental Group	Post test	5.35	1.59	39	-8.21	<0.001	1.68
Control Group	Post test	13.10	4.02				

Above table shows the effect of therapeutic back massage on quality of sleep among elderly at selected old age home between experimental and control group. It shows calculation of unpaired 't' test to analyze the difference between the mean Post-test score of quality of sleep in control and experimental group. The mean Post-test value of experimental group was 5.35 which is lesser than the mean post value 13.10 of control group . **The obtained 't' value was -8.21 when compared to the table value 1.68** is high which is significant at 0.05 level. This indicates the difference between the Post-test means in both the experimental and control group is a true difference

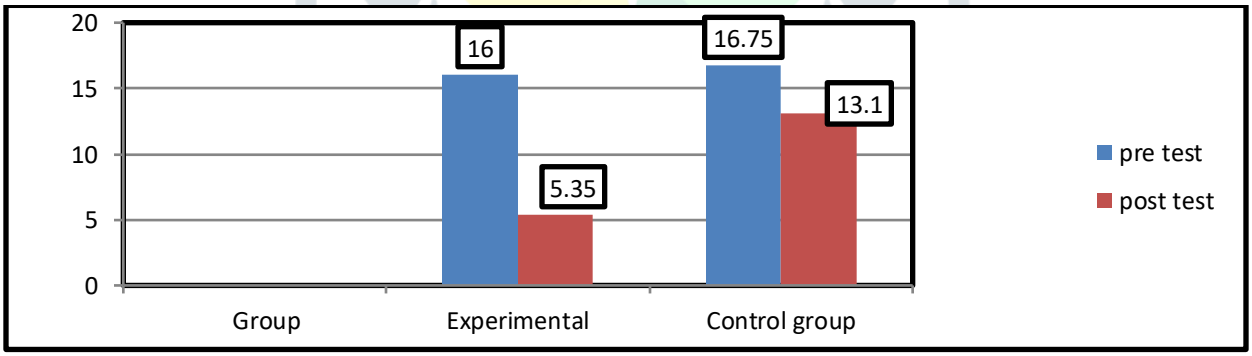

Fig.2 Effect of therapeutic back massage on quality of sleep

TABLE 4.8 Association of post- test quality of sleep among elderly people with selected demographic variables using chi square test in experimental group.

Demographic variable	Category	Quality of sleep (Experimental Group)				$\chi 2$ value (df)	p-value
		Good quality of sleep		Poor quality of sleep			
		F	%	F	%		
Age in years	60-65 years	7	43.8%	1	25.0%	2.03 (3)	0.56
	66-70 years	3	18.8%	2	50.0%		
	71-75 years	2	12.5%	0	.0%		
	>=76	4	25.0%	1	25.0%		
Gender	Male	9	56.2%	2	50.0%	NA	1.00
	Female	7	43.8%	2	50.0%		
Dietary Pattern	Vegetarian	8	50.0%	2	50.0%	NA	1.000
	Mixed	8	50.0%	2	50.0%		
Personal habits	Reading Novels	3	18.8%	1	25.0%	1.77 (3)	0.621
	Listening music	4	25.0%	2	50.0%		
	Using mobile phones	4	25.0%	0	.0%		
	None of the above	5	31.2%	1	25.0%		
Substance abuse	Consuming Alcohol	1	6.2%	0	.0%	1.92 (3)	0.589
	Tobacco used	1	6.2%	0	.0%		
	Consuming Tea or coffee	11	68.8%	2	50.0%		
	None of the above	3	18.8%	2	50.0%		
	Total	16	100.0%	4	100.0%		
Day time Napping	less than half an hour	5	31.2%	3	75.0%	3.59 (3)	0.309
	Half an hour to 1 hour	6	37.5%	0	.0%		
	1 to 2 hours	2	12.5%	0	.0%		
	more than 2 hours	3	18.8%	1	25.0%		
	Total	16	100.0%	4	100.0%		
Comorbidity	No	5	31.2%	0	.0%	NA	0.530
	Yes	11	68.8%	4	100.0%		
	Total	16	100.0%	4	100.0%		

Above descriptive table discloses the association of post test quality of sleep among elderly people with selected demographic variables like Age in years, Gender, Dietary pattern, Personal habits Substance abuse, Day time napping, Co morbid disease.
The obtained X^2 value for age (2.03), gender (NA), dietary pattern (NA),personal habits (1.77), substance abuse (1.92) ,daytime napping (3.59)and co-morbid disease (NA) were lesser than the table value at 0.05 level of significance. Therefore, was concluded that there was no significance association between posttest quality of sleep among elderly people with age, gender, dietary pattern, personal habits ,substance abuse, day time napping, co morbid disease.

DISCUSSION

The present study was conducted to evaluate the effectiveness of Therapeutic Back Massage on quality of sleep among elderly in selected old age home at Lucknow city. The investigator collected the samples by Non- Probability Purposive Sampling Technique. The investigator collected the data by using Modified Pittsburgh Sleep Quality Index Scale for effectiveness of Therapeutic Back Massage on quality of sleep among Elderly in selected old age home at Lucknow city .The investigator using Quasi experimental, pre-test post-test control design. The tool consists of demographic variables, Modified Pittsburgh Sleep

Quality Index to assess the quality of sleep. The data was collected from the 40 samples at a time in which 20 samples were kept in experimental group and 20 were kept in control group . A formal written permission was obtained from the Director of Aastha Old Age Home, Lucknow, to conduct the study. The data collection period was from 01.08.2023 to 07.08.2023.
Consent was obtained from the samples. The data was collected with the help of Modified Pittsburgh sleep quality index after brief self- introduction, explain the purpose of the study and obtained informed consent from the subjects from both the groups experimental and control. On the first day quality of sleep among elderly people was assessed using modified Pittsburgh sleep quality index in both the groups, those were having > 5 score therapeutic back massage (intervention) was provided by the researcher for 15 minutes till 7 consecutive days from same day of pre-test only to the experimental group and control group did not received intervention. On 7th day post test was conducted by using the same modified Pittsburgh sleep quality index in both the groups.

CONCLUSION

The study concluded that providing therapeutic back massage to the elderly people was effective on quality of sleep. Therefore the investigator felt that more importance should be given for therapeutic back massage to improve quality of sleep among elderly. Based on observation the study analyses the difference between the mean Post-test score of quality of sleep in control and experimental group indicates the difference between the post-test means in both the experimental and control group is a true difference. In this study it was also found that there was no significant association between socio demographic variables (age, gender, dietary pattern, personal habits ,substance abuse, daytime napping, co-morbid disease) with quality of sleep.

Conflict of interest: The authors declare that they have no competing interests.

Ethics declarations
Ethics approval and consent to participate.
Era College of Nursing, Ethics Committee reviewed this study and granted ethical approval. Consents has been obtained from participants.

Consent for publication
Written consent for publication was obtained from each participants.

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