African Journal of Biological Sciences

Journal homepage: http://www.afjbs.com

Research Paper   Open Access

Effectiveness of BME (4-7-8 Breathing, Meditation, Education) on Sleep quality, Knowledge and Health promoting behaviors of nurses in a selected hospital of Vijayapur Karnataka, India.

Information regarding Author

Dr Ninganagouda G Patil

Professor, Department of Pediatric Nursing, B.V.V.S Sajjalashree Institute of Nursing sciences, SNMC Campus, Navanagar, Bagalakot, Karnataka, India.
Email: ngpgnp999@gmail.com

Abstract:

Background: Nurses have the more work load in hospital settings by taking care of patients. Some times they feel stress, burn out in their working area due to many reasons and it having impact on their health status. Some are having good coping strategies and some are not to overcome this kind of stress and burnout. Sometimes they don't have time to take care of their health status when it is deteriorated. Due to stress and burn out they might feel lack of sleep. Many nurses have health promoting life style to overcome work related psychological problem. Many staff nurses they don't have much knowledge regarding this kind of problem and how to overcome.

Objectives: 1) To Find the effectiveness of BME on sleep quality, health promoting life style factors and knowledge in interventional group. 2) To compare the post test sleep quality, health promoting life style factors and knowledge scores between experimental and control group **Methods:** A Quasi experimental study with a sample of 180 nursing staffs was selected by Purposive sampling Technique. 90 samples in each group. The data was collected by using Pittsburgh sleep quality index Scale, health promoting life style profile II, structured knowledge questionnaire was used.

Results: The Wilcoxon signed ranks test value is 7.719, p <0.001 it shows there is a significant difference between pre test knowledge scores and post test knowledge scores in experimental group. The significant difference were found in pre test and post test of life style profile by Wilcoxon Signed Ranks Test.(Spiritual growth 4.032, p<0.001, Health responsibility 5.288, p<0.001, physical activity 6.934, p<0.001, Nutrition 6.212, p<0.001, Interpersonal relations 5.706, p<0.001, stress management 7.018, p< 0.001, overall 6.766, p<0.001) in experimental group. There is a post test significant difference between all factors of health promoting life style factors between experimental group and control group of nursing personal. The significant difference were found by Mann whitney U test (Spiritual growth 3012.000, p<0.001, Health responsibility 2062.500, p<0.001, physical activity 1522.500, p<0.001, Nutrition 2377.500, p<0.001, Interpersonal relations 3241.500, p<0.001, stress management 1878.500, p< 0.001, overall 1928.500, p<0.001).). The significant difference P value of all factors are less than 0.05 level of significance. There is significant difference between pre test and post test sleep quality index scores found by Wilcoxon Signed Ranks Test namely in

the area like (sleep latency 6.006, p<0.001, sleep duration 4.145, p<0.001, sleep efficiency 2.493, p<0.013, sleep disturbance 5.539, p<0.001, use of sleep medication 2.788, p<0.005) in experimental group. There is significant difference between post test sleep quality index scores found by Mann Whitney's U Test namely in the area like (sleep latency 2429.000, p<0.001, sleep duration 2427.500, p<0.001, sleep disturbance 2183.000, p<0.001, use of sleep medication 2.788, p<0.005) between experimental group and control group.

Conclusion: BME is effective intervention for enhancing sleep quality, knowledge and health promoting life style factor among staff nurses. So the intervention can be conducted for prolonged period of time to know its effect

Key words: Sleep quality, health promoting life style factor, Breathing, meditation, education, staff nurses, knowledge

Introduction:

Occupational stress and burnout is a recognized problem in health care workers[1]. Nursing has been identified as an occupation that has high levels of stress[2]. This seriously impairs the provision of quality care and the efficacy of health services delivery[3,4]. Stress has a cost for individuals in terms of health, wellbeing and job satisfaction as well as for the organization in terms of absenteeism and turnover, which in turn may impact the quality of patient care[5,6]. Stress is not inherently deleterious, however. Each individual's cognitive appraisal, their perceptions, and interpretations, gives meaning to events and determines whether events are viewed as threatening or positive[7]. Poor sleep quality is common among nurses. This problem possibly results in negative emotional and psychological consequences in nurses which secondary affect their work performances[8]. Sleep quality is a measure of the feeling that a person would have of being energetic, active, and ready for a new day[9]. Nurses are often scheduled to do healthcare activities during the day, evening, and night times. This results in abrupt deviations from the normal timing of sleep often disrupting their internal biological clock that leads to poor sleep quality that has an impact on their day-to-day functioning[10]. This condition leads to a negative consequence of physiological, mental, and social aspects that could result from an early sign of underlying health problems[11]. This impact leads to impairment in learning, focusing, safe functioning, and decision-making skills and increase the likelihood to make medical errors, work-related accidents or injuries, and absence from the workplace[12]. Various study results from different countries showed that the magnitude of poor sleep quality among nurses in the US 66%[13], the United Kingdom (UK) 78%[14], and Italy 54.6%[15]. In another cross-sectional study from Asian countries, China hospitals 76.3%[16], and in South Korea 79.8% of nurses had poor sleep quality[17]. In addition, in Africa, Nigeria 77.1%[18] and Ethiopia 70.6%[19] of nurses were affected by poor sleep quality. Many studies have shown a link between poor sleep quality and various risk factors among nurses such as being female, shift work[19,], working in emergency departments[20], age[23], substance use like khat chewing[21,22] having anxiety symptoms[24,25], depressive symptoms[24], years of experience[21], and stress[19].

Nurses are at the frontline of public health and spend considerable time promoting healthy lifestyle behaviours to patients and their families. However, studies of lifestyle behaviours in nurses have typically shown a pattern of non-adherence to public health guidelines around physical activity (PA), sedentary behaviour (SB), diet, smoking and alcohol consumption[26,].Overweight and obesity have been found to be significantly higher amongst nurses than other healthcare professionals and those working in non-health-related occupations[27]. A national survey showed that 25% of English nurses are obese (BMI: body mass index ≥30.0), with obesity rates higher than those for other healthcare professionals[28]. Obesity increases the risk of diseases including diabetes, heart disease, osteoarthritis and cancer[29], and increases the risk of musculoskeletal (MSK) problems. MSK is a leading cause of sickness absence [30,31] and is prevalent in nurses[32,33], but could be improved with lifestyle changes such as exercise[34]. A recent secondary analysis of nationally representative cross-

sectional data from the United Kingdom (UK) has suggested an upward trend in the health-related behaviours of nurses relative to the general working population. This showed improved habits relating to smoking, fruit/vegetable intake, and physical activity (PA), but not for alcohol consumption; although overall adherence to public health guidelines remains inadequate[35]. Nurses' knowledge about healthy lifestyle behaviours does not necessarily result in healthier lifestyle behaviours[27], and lifestyle choices outside of the workplace (e.g., low levels of leisure-time PA) are not necessarily compensated for by the nature of the job role (e.g., nursing work is predominantly comprised of light-intensity PA)[36]. Although many studies have assessed the efficacy of yoga in older individuals, minimal research has focused on how nurses use yoga to improve sleep quality and to reduce work stress after work hours[37].

Methodology

Methods: It was a quasi experimental study with an aim to compare the post test **Sleep quality, knowledge and health promoting behaviours** scores between experimental and control group. A sample of 180 was selected by Purposive sampling Technique (90 in each group)

Study participants: The study participants were nursing staffs from selected hospital at Vijayapur District.

Setting of the data: Based on the investigator's familiarity, availability of the subjects and feasibility to conduct the study, the present study was conducted in selected hospital of Vijayapur.

Sampling technique: The sample was selected by Purposive sampling Technique.

A total of 180 nursing staffs will be recruited for this study (90 samples are randomly selected in experimental group and 90 samples are selected in control group)

Data collection instruments:
1) Health Promoting Behaviors of Staff nurses will be assessed by **Health Promoting Life style Profile-II**
2) Knowledge of staff nurses will be assessed by structured knowledge questionnaire
3) **Pittsburgh sleep quality index** (C-PSQI) to assess the sleep quality

Data collection procedure: Data collection was done from 29-06-2022 to 20-08-2022 at selected hospital of Vijayapur. A formal Permission was obtained from the Principal and medical superintendent of Shri BM Patil Medical college hospital and research centre Vijayapur. The investigator given self-introduction and explained the purpose of data collection to the subjects and subject's willingness to participate in the study was ascertained. The subject was assured the anonymity and confidentiality of the information provided by them. The 4-7-8 breathing technique, also known as "relaxing breath," involves breathing in for 4 seconds, holding the breath for 7 seconds, and exhaling for 8 seconds. **How to do it:** Before starting the breathing pattern, adopt a comfortable sitting position and place the tip of the tongue on the tissue right behind the top front teeth.

To use the 4-7-8 technique, focus on the following breathing pattern:

Empty the lungs of air

Breathe in quietly through the nose for 4 seconds

Hold the breath for a count of 7 seconds

Exhale forcefully through the mouth, pursing the lips and making a "whoosh" sound, for 8 seconds. Repeat the cycle up to 4 times in the beginning days later they can extend up to 10

Meditation: The meditation will be given for seven days. Every day 15 minutes with OM chanting Music with the help of expert.

Education: The education content including how to practice the health promoting behaviors, factors affecting stress and burn out and how to relive it.

Ethical clearance: Ethical clearance certificate was obtained from Institutional ethical clearance committee, B M Patil Institute of Nursing Sciences (ref No. 26/2022-23 Dt:09/04/2022) written consent of participation was obtained from participants before data collection.

Statistical analysis: The data was analysed using SPSS version 25. The obtained data was entered in MS excel sheet. The data was edited for accuracy and completeness. The categorical responses were coded with numerical codes. The data was presented with frequency and percentage distribution tables and diagrams. The description of **Health Promoting Life style Profile-II, structured knowledge questionnaire, Pittsburgh sleep quality index scale** was presented with frequency, and percentage distribution, mean and standard deviation. Mann Whitney's U test was used to compare the post test of **Health Promoting Life style Profile-II, structured knowledge questionnaire, Pittsburgh sleep quality index scale** scores between experimental and control group. The chi-square (X^2) test will be used to find out the association between the demographic variables with the **Health Promoting Life style Profile-II, structured knowledge questionnaire, Pittsburgh sleep quality index scale** scores. **Wilcoxon Signed rank test:** Used to compare two related samples or to conduct a paired difference test of repeated measurements on a single sample to assess whether their population mean ranks differ

Results:

Table No 1: Demographic data of experimental group   and control group N=180

S No	Variables	Experimental group		Control group	
1)	**Age in Years**	F	%	F	%
A	<30 years	04	4.44	15	16.66
B	30-40 years	53	58.88	55	61.11
C	40- 50 years	31	34.44	18	20
d	>50 years	02	2.22	02	2.22
2)	**Gender**				
A	Male	68	75.55	39	43.33
B	Female	22	24.45	51	56.66
3)	**Education Qualification**				
A	GNM	79	87.77	69	76.66
B	B Sc Nursing	10	11.11	17	18.88
C	M Sc Nursing	01	1.11	04	4.44
4)	**Years of experience**				
A	<01 year	01	1.11	10	11.11
B	01-03 year	02	2.22	03	3.33
C	3-6 year	08	8.88	12	13.33
D	>6 year	79	87.77	65	72.22
5)	**Working area**				
A	General ward	11	12.22	27	30
B	Emergency ward	22	24.44	05	5.55
C	Critical ward	32	35.55	34	37.77
D	OT	21	23.33	23	25.55
E	OPD	00	00	00	00
F	Others	04	4.44	01	1.11
6)	**Monthly income in**				

	rupees				
A	<10000	26	6.66	23	25.55
B	10001-20000	5	5.55	32	35.55
C	20001-30000	49	54.44	24	26.66
D	>30000	10	11.11	11	12.22
7)	**Marital Status**				
A	Married	88	97.77	81	90
B	Unmarried	02	2.22	07	7.77
C	Widow	00	00	00	00
D	Widower	00	00	02	2.22
8)	**Type of family**				
A	Nuclear	25	27.77	23	25.55
B	Joint	65	72.22	67	74.44

Objective wise data analysis:

a) **Assess the health promoting behaviours, sleep quality and knowledge level before and after intervention of BME in experimental and control group**

Table no 2: Assess the life style profile in Experimental (Pre) and Control (Pre) groups

Comparison of LIFE STYLE PROFILE—Pre test	EXPERIMENTAL GROUP		CONTROL GROUP	
	Mean	**Std. Deviation**	**Mean**	**SD**
SPIRITUAL GROWTH	2.954	0.679	2.925	0.779
HEALTH RESPONSIBILITY	2.804	0.666	2.718	0.7575
PHYSICAL ACTIVITY	2.518	0.723	2.529	0.7521
NUTRITION	2.560	0.750	2.697	0.752
INTERPERSONAL RELATIONS	2.632	0.808	2.887	0.821
STRESS MANEGEMENT	2.567	0.7197	2.672	0.781
OVERALL	2.677	0.6105	2.743	0.720

Table no 3: Assess the LIFE STYLE PROFILE between Experimental (Post) and Control (Post) groups   N=90

Comparison of LIFE STYLE PROFILE—Post test	EXPERIMENTAL GROUP		CONTROL GROUP	
	Mean	**Std. Deviation**	**Mean**	**Std. Deviation**
SPIRITUAL GROWTH	3.323	0.293	3.003	0.697
HEALTH RESPONSIBILITY	3.315	0.368	2.816	0.658
PHYSICAL ACTIVITY	3.352	0.392	2.687	0.666
NUTRITION	3.239	0.290	2.7913	0.686

INTERPERSONAL RELATIONS	3.264	0.316	2.983	0.740
STRESS MANEGEMENT	3.4222	0.368	2.834	0.793
OVERALL	3.317	0.610	2.743	0.720

Table no 4: Assessment of SLEEP QUALITY between Experimental and Control groups (Pre-test)   **N=90**

Sleep quality	Experimental group		Control group	
	Mean	Sd	Mean	S d
Sleep quality	0.76	0.825	0.93	0.884
Sleep latency	1.60	0.872	1.60	0.909
Sleep duration	1.32	0.897	1.50	0.986
Sleep efficiency	0.81	0.860	0.64	0.940
Sleep disturbance	1.26	0.628	1.28	0.750
Use of sleep medication	0.38	0.712	0.66	0.950
Day time dysfunction	1.07	1.058	0.61	0.803

Table no 5: Assessment of SLEEP QUALITY between Experimental and Control groups (Post test) N=90

SLEEP QUALITY	Experimental Group		Control Group	
	Mean	SD	Mean	SD
SLEEP QUALITY	0.64	0.605	0.88	0.832
SLEEP LATENCY	0.67	0.750	1.22	0.700
SLEEP DURATION	0.67	0.835	1.23	0.835
SLEEP EFFICIENCY	0.53	0.722	0.50	0.691
SLEEP DISTURBANCE	0.53	0.657	1.13	0.657
USE OF SLEEP MEDICATION	0.69	0.774	0.53	0.767
DAY TIME DISFUNCTION	0.80	0.851	0.61	0.803

Table no 6: Assessment of Total sleep quality between Experimental and Control groups (Pre test) N=90

Sleep Quality	Experimental Group		Control Group	
	Mean	SD	Mean	SD
SLEEP QUALITY	7.19	3.097	7.22	3.075

Table no 7: Assessment of Total SLEEP QUALITY between Experimental and Control groups (Post test) N=90

Total SLEEP QUALITY	Experimental Group		Control Group	
	Mean	SD	Mean	SD
Total SLEEP QUALITY	4.53	1.609	6.11	2.377

Assessment of Knowledge score before and after in Experimental group
    Table no 8: Knowledge level in experimental group   **N=90**

Level of knowledge	scores	Pre test		Post test	
		f	%	f	%
Poor	0-5	00			
Average	6-10	11	12.22		
Good	11-15	28	31.11	02	2.22
Excellent	16-20	51	56.66	88	97.77
Total		90	100	90	100

Table no 9: Knowledge level (Pre test and post test) in control group N=90

Level of knowledge	Scores	Pre test		Post test	
		f	%	f	%
Poor	0-5	02	2.22		
Average	6-10	05	5.55		
Good	11-15	24	26.66	06	6.66
Excellent	16-20	59	65.55	84	93.33
Total		90	100	90	100

Table no 10: Assessment of Knowledge score before and after in experimental group N=90

KNOWLDGE ASSESSEMENT	Pre test		Post Test	
	Mean	SD	Mean	SD
KNOWLDGE	15.47	3.898	18.40	1.389

Table no 11: Assessment of Knowledge score before and after in Control group   N=90

KNOWLEDGE ASSESSEMENT	Pre test		Post Test	
	Mean	SD	Mean	SD
KNOWLDGE	15.30	3.530	18.02	1.792

b) **To find the effectiveness of BME on Sleep quality, knowledge and health promoting behaviours of staff nurses in experimental group**

Table no 12: Comparison of LIFE STYLE PROFILE between Pre and post intervention in Experimental group   N=90

Comparison of LIFE STYLE PROFILE—Post test	Pre test		Post test		Wilcoxon Signed Ranks Test	P value
	Mean	SD	Mean	S D		
SPIRITUAL GROWTH	2.954	0.6798314	3.323457	0.2930955	4.032	0.001*
HEALTH RESPONSIBILITY	2.803	0.6658443	3.314815	0.3680430	5.288	0.001*
PHYSICAL ACTIVITY	2.518	0.723444	3.35278	0.392869	6.934	0.001*
NUTRITION	2.560	0.7500703	3.239506	0.2908467	6.212	0.001*
INTERPERSONAL RELATIONS	2.632	0.8084113	3.264198	0.3162838	5.706	0.001*

STRESS MANEGEMENT	2.567	0.719707	3.42222	0.368424	7.018	0.001*
OVERALL	2.677	0.6105992	3.317094	0.2111402	6.766	0.001*
*: Statistically Significant						

Table no 13: Comparison of SLEEP QUALITY before and after in Experimental group N=90

SLEEP QUALITY	Pre test		Post Test		Wilcoxon Signed Ranks Test	P Value
	Mean	Std. Deviation	Mean	Std. Deviation		
SLEEP QUALITY	0.76	0.825	0.64	0.605	1.006	0.314
SLEEP LATENCY	1.60	0.872	0.67	0.750	6.066	0.001*
SLEEP DURATION	1.32	0.897	0.67	0.835	4.145	0.001*
SLEEP EFFICIENCY	0.81	0.860	0.53	0.722	2.493	0.013*
SLEEP DISTURBANCE	1.26	0.628	0.53	0.657	5.539	0.001*
USE OF SLEEP MEDICATION	0.38	0.712	0.69	0.774	2.778	0.005*
DAY TIME DISFUNCTION	1.07	1.058	0.80	0.851	1.756	0.079
*:Statistically Significant						

Table no 14: Knowledge score before and after intervention in Experimental group N=90

KNOWLDGE ASSESSEMENT	Pre test		Post Test		Wilcoxon Signed Ranks Test	P Value
	Mean	Std. Deviation	Mean	Std. Deviation		
KNOWLDGE	15.47	3.898	18.40	1.389	7.719	0.001*
*:Statistically Significant						

c) **To compare the post test health promoting behaviours, sleep quality and knowledge level scores between experimental and control group**

Table no 15: Comparison of LIFE STYLE PROFILE between Experimental (Post) and Control (Post) groups N=90

Comparison of LIFE STYLE PROFILE— Post test	EXPERIMENTAL GROUP		CONTROL GROUP		Mann-Whitney U test	P value
	Mean	Std. Deviation	Mean	Std. Deviation		
SPIRITUAL GROWTH	3.323	0.293	3.003	0.697	3012.000	0.003*
HEALTH	3.315	0.368	2.816	0.658	2062.500	0.001*

RESPONSIBILITY						
PHYSICAL ACTIVITY	3.352	0.392	2.687	0.666	1522.500	0.001*
NUTRITION	3.239	0.290	2.7913	0.686	2377.500	0.001*
INTERPERSONAL RELATIONS	3.264	0.316	2.983	0.740	3241.500	0.001*
STRESS MANEGEMENT	3.4222	0.368	2.834	0.793	1878.500	0.001*
OVERALL	2.677	0.610	2.743	0.720	1928.000	0.001*
*: Statistically Significant						

Table no 16: Comparison of SLEEP QUALITY between Experimental and Control groups (Post test) N=90

SLEEP QUALITY	Experimental Group		Control Group		Mann-Whitney U Test	P Value
	Mean	SD	Mean	SD		
SLEEP QUALITY	0.64	0.605	0.88	0.832	3502.000	0.088
SLEEP LATENCY	0.67	0.750	1.22	0.700	2429.000	0.001*
SLEEP DURATION	0.67	0.835	1.23	0.835	2487.500	0.001*
SLEEP EFFICIENCY	0.53	0.722	0.50	0.691	3964.000	0.778
SLEEP DISTURBANCE	0.53	0.657	1.13	0.657	2183.000	0.001*
USE OF SLEEP MEDICATION	0.69	0.774	0.53	0.767	3543.000	0.105
DAY TIME DISFUNCTION	0.80	0.851	0.61	0.803	3524.500	0.100
*:Statistically Significant						

Table no 17: Comparison of Total SLEEP QUALITY between Experimental and Control groups (Post test)   N=90

Total SLEEP QUALITY	Experimental Group		Control Group		Mann-Whitney U Test	P Value
	Mean	Std. Deviation	Mean	Std. Deviation		
Total SLEEP QUALITY	4.53	1.609	6.11	2.377	2349.000	0.001*
Statistically Insignificant						

Table no 18: Comparison of Knowledge score between Experimental group and Control groups (Post test)   N=90

KNOWLDGE ASSESSEMENT	Experimental group		Control groups		Mann-Whitney U Test	P Value
	Mean	Std. Deviation	Mean	Std. Deviation		
KNOWLDGE	18.40	1.389	18.02	1.792	3649.000	0.238
*:Statistically Significant						

d) **To find the association between health promoting behaviours, sleep quality and knowledge level scores with selected demographic variables in experimental group and in control group.**

Table no 19: Association between health promoting life style factors with selected demographic variables of experimental group   N=90

S No	Demographic variables	Chi square	P value	Significance
1	Age	10.075	0.344	NS
2	Gender	2.036	0.565	NS
3	Education	2.220	0.898	NS
4	Years of experience	9.584	0.385	NS
5	Working area	4.600	0.970	NS
6	Monthly income	6.506	0.688	NS
7	Marital status	1.093	0.982	NS
8	Type of family	3.577	0.311	NS
NS: Not Significant				

Table no 20: Association between health promoting life style factors with selected demographic variables of control group   N=90

S No	Demographic variables	Chi square	P value	Significance
1	Age	14.400	0.109	NS
2	Gender	3.009	0.390	NS
3	Education	4.611	0.595	NS
4	Years of experience	14.426	0.108	NS
5	Working area	22.061	0.037	S
6	Monthly income	9.990	0.351	NS
7	Marital status	1.812	0.936	NS
8	Type of family	3.609	0.307	NS

Sleep quality

Table no 21: Association between sleep quality scores with selected demographic variables of nursing personal in control group   N=90

S No	Demographic variables	Chi square	P value	Significance
1	Age	6.789	0.659	NS
2	Gender	3.506	0.320	NS
3	Education	6.603	0.359	NS
4	Years of experience	26.364	0.002	S
5	Working area	8.408	0.752	NS
6	Monthly income	8.347	0.500	NS
7	Marital status	5.652	0.403	NS
8	Type of family	1.664	0.645	NS

Table no 22: Association between sleep latency scores with selected demographic variables of nursing personal in control group   **N=90**

S No	Demographic variables	Chi square	P value	Significance
1	Age	14.887	0.097	NS
2	Gender	6.698	0.082	NS
3	Education	10.574	0.102	NS
4	Years of experience	10.538	0.309	NS
5	Working area	24.180	0.019	S
6	Monthly income	11.974	0.215	NS
7	Marital status	5.910	0.423	NS
8	Type of family	1.320	0.724	NS

Table no 23: Association between sleep duration scores with selected demographic variables of nursing personal in control group   **N=90**

S No	Demographic variables	Chi square	P value	Significance
1	Age	7.903	0.544	NS
2	Gender	2.894	0.408	NS
3	Education	5.264	0.510	NS
4	Years of experience	10.538	0.210	NS
5	Working area	14.891	0.217	NS
6	Monthly income	6.446	0.695	NS
7	Marital status	5.916	0.433	NS
8	Type of family	3.230	0.357	NS

Table no 24: Association between sleep efficiency scores with selected demographic variables of nursing personal in control group   **N=90**

S No	Demographic variables	Chi square	P value	Significance
1	Age	11.593	0.237	NS
2	Gender	1.789	0.617	NS
3	Education	9.382	0.615	NS
4	Years of experience	11.117	0.268	NS
5	Working area	12.40	0.414	NS
6	Monthly income	13.340	0.148	NS
7	Marital status	7.081	0.313	NS

8	Type of family	4.202	0.240	NS

Table no 25: Association between sleep disturbance scores with selected demographic variables of nursing personal in control group   N=90

S No	Demographic variables	Chi square	P value	Significance
1	Age	16.353	0.034	S
2	Gender	6.041	0.080	NS
3	Education	11.739	0.083	NS
4	Years of experience	13.278	0.162	NS
5	Working area	17.396	0.154	NS
6	Monthly income	8.596	0.418	NS
7	Marital status	9.258	0.116	NS
8	Type of family	4.584	0.128	NS

Table no 26: Association between sleep medication scores with selected demographic variables of nursing personal in control group   N=90

S No	Demographic variables	Chi square	P value	Significance
1	Age	22.385	0.004	S
2	Gender	0.137	0.987	NS
3	Education	8.439	0.173	NS
4	Years of experience	24.503	0.002	S
5	Working area	18.834	0.05	S
6	Monthly income	13.610	0.039	S
7	Marital status	5.023	0.572	NS
8	Type of family	4.258	0.277	NS

Table no 27: Association between day time dysfunction scores with selected demographic variables of nursing personal in control group   N=90

S No	Demographic variables	Chi square	P value	Significance
1	Age	22.871	0.003	S
2	Gender	3.042	0.287	NS
3	Education	5.599	0.338	NS
4	Years of experience	15.737	0.171	NS
5	Working area	24.271	0.004	S
6	Monthly income	13.982	0.081	NS
7	Marital status	6.820	0.452	NS
8	Type of family	9.930	0.026	S

Table no 28: Association between sleep quality scores with selected demographic variables of nursing personal in experimental group   N=90

S No	Demographic variables	Chi square	P value	Significance
1	Age	5.002	0.755	NS

2	Gender	1.902	0.550	NS
3	Education	4.550	0.636	NS
4	Years of experience	10.408	0.407	NS
5	Working area	8.782	0.613	NS
6	Monthly income	14.968	0.095	NS
7	Marital status	4.993	0.533	NS
8	Type of family	6.278	0.141	NS

Table no 29: Association between sleep latency scores with selected demographic variables of nursing personal in experimental group   N=90

S No	Demographic variables	Chi square	P value	Significance
1	Age	42.606	0.001	S
2	Gender	12.454	0.002	S
3	Education	17.337	0.031	S
4	Years of experience	9.484	0.201	NS
5	Working area	19.068	0.039	S
6	Monthly income	17.442	0.024	S
7	Marital status	6.816	0.219	NS
8	Type of family	0.169	0.983	NS

Table no 30: Association between sleep duration scores with selected demographic variables of nursing personal in experimental group   N=90

S No	Demographic variables	Chi square	P value	Significance
1	Age	21.428	0.004	S
2	Gender	8.265	0.021	S
3	Education	12.366	0.021	S
4	Years of experience	13.442	0.142	NS
5	Working area	12.608	0.252	NS
6	Monthly income	11.222	0.292	NS
7	Marital status	17.126	0.021	S
8	Type of family	0.676	0.882	NS

Table no 31: Association between sleep efficiency scores with selected demographic variables of nursing personal in experimental group   N=90

S No	Demographic variables	Chi square	P value	Significance
1	Age	8.917	0.237	NS
2	Gender	5.197	0.148	NS
3	Education	16.088	0.040	S
4	Years of experience	4.471	0.736	NS
5	Working area	13.374	0.206	NS
6	Monthly income	7.331	0.449	NS
7	Marital status	3.652	0.541	NS
8	Type of family	0.116	0.989	NS

Table no 32: Association between sleep disturbance scores with selected demographic variables of nursing personal in experimental group   N=90

S No	Demographic variables	Chi square	P value	Significance
1	Age	14.860	0.032	S
2	Gender	7.721	0.004	S
3	Education	9.275	0.038	S
4	Years of experience	6.201	0.213	NS
5	Working area	17.680	0.005	S
6	Monthly income	9.938	0.054	NS
7	Marital status	2.617	0.397	NS
8	Type of family	4.069	0.129	NS

Table no 33: Association between sleep medication scores with selected demographic variables of nursing personal in experimental group   N=90

S No	Demographic variables	Chi square	P value	Significance
1	Age	16.491	0.066	NS
2	Gender	0.592	0.899	NS
3	Education	2.394	0.877	NS
4	Years of experience	13.689	0.152	NS
5	Working area	11.171	0.429	NS
6	Monthly income	8.229	0.475	NS
7	Marital status	9.743	0.262	NS
8	Type of family	7.930	0.057	NS

Table no 34: Association between day time dysfunction scores with selected demographic variables of nursing personal in experimental group   N=90

S No	Demographic variables	Chi square	P value	Significance
1	Age	18.804	0.017	S
2	Gender	3.376	0.332	NS
3	Education	9.911	0.079	NS
4	Years of experience	15.846	0.060	NS
5	Working area	13.366	0.322	NS
6	Monthly income	17.068	0.036	S
7	Marital status	10.751	0.077	NS
8	Type of family	1.404	0.726	NS

Knowledge

Table no 35: Association between Knowledge scores with selected demographic variables of nursing personal in control group   N=90

S No	Demographic variables	Chi square	P value	Significance
1	Age	14.418	0.108	NS
2	Gender	3.527	0.317	NS
3	Education	2.653	0.851	NS
4	Years of experience	26.364	0.002	S
5	Working area	12.808	0.383	NS
6	Monthly income	8.347	0.500	NS
7	Marital status	6.330	0.87	NS

| 8 | Type of family | 3.656 | 0.301 | NS |

Table no 36: Association between Knowledge scores with selected demographic variables of nursing personal in Experimental group   N=90

S No	Demographic variables	Chi square	P value	Significance
1	Age	9.705	0.375	NS
2	Gender	7.189	0.066	NS
3	Education	5.831	0.442	NS
4	Years of experience	4.457	0.879	NS
5	Working area	6.292	0.901	NS
6	Monthly income	14.872	0.095	NS
7	Marital status	3.925	0.687	NS
8	Type of family	13.021	0.005	S

Discussion:

The present study shows that In experimental group the mean score of Spiritual growth is 2.954, and SD 0.679, mean score of health responsibility is 2.804and SD is 0.666, mean score of physical activity is 2.518 and SD is 0.723, mean score of nutrition is 2.56 and SD is 0.75, mean score of interpersonal relations is 2.632 and SD is 0.808, mean score of stress management is 2.567 and SD is 0.7197, mean score of overall health promoting life style profile is 2.677 and SD is 0.6105. Where as in control group the mean score of Spiritual growth is 2.925 and SD is 0.779, mean scores of health responsibility is 2.718 and SD is 0.7575, mean score of physical activity is 2.529 and SD is 0.7521, mean score of nutrition is 2.697 and SD is 0.752, mean score of interpersonal relations is 2.887 and SD is 0.821, mean scores of stress management is 2.672 and SD is 0.781 and mean scores of overall health promoting life style profile is 2.743 and SD is 0.72. The similar study shows that The total Health-Promoting Lifestyle Profile II mean score was 137.66±19.18. The highest mean score was in spiritual growth (27.43±4.63) and lowest in physical activity (17.03±4.88). A good health-promoting lifestyle was among 60.4% of the nurses[38]. The present study shows total sleep quality score in experimental group is 7.19±3.097 where as in control group is 7.22±3.075. it shows that there is no much difference in pre test sleep quality scores both in experimental group and in control group. The similar study results shows that Among the staff nurses, 75.8% (117) had a PSQI score of ≥5 and 39.8% had an inadequate stable sleep ratio on subjective measures. Nurses with a high school or lower educational degree had a much higher risk of sleep disturbance when compared to nurses with a college or higher level degree[39]. The present study shows that comparison of overall sleep quality score before and after intervention in experimental group. The pre test total sleep quality mean score is 7.19 and Sd is 3.097. the post test mean score is 4.53 and SD is 1.609. The wilcoxon signed rank test value is 5.788 and p value is less than 0.05 level of significance. It shows that there is a significant difference between pre test and post test. It reveals that BME intervention is effective on sleep quality score. Comparison of post test total sleep quality between experimental and control group shows The mean score and SD of total sleep quality score is 4.53 and 1.609 in experimental group and in control group it is 6.11 and 2.377. Where as Mann whitney U test value score is 2349.00 where p value is less than 0.05 level of significance. So it shows that BME is effective on sleep quality among samples in experimental group. The similar study shows that Nurses in the yoga group had better sleep quality and lower work stress compared with nurses in the non-yoga group. The linear regression model indicated that nursing experience, age and yoga intervention were significantly related to sleep quality[40]. The present study shows that there is a post test significant difference between all factors of health promoting life style factors between

experimental group and control group of nursing personal. The significant difference were found by Mann whitney U test (Spiritual growth 3012.000, p<0.001, Health responsibility 2062.500, p<0.001, physical activity 1522.500, p<0.001, Nutrition 2377.500, p<0.001, Interpersonal relations 3241.500, p<0.001, stress management 1878.500, p< 0.001, overall 1928.500, p<0.001).). The significant difference P value of all factors are less than 0.05 level of significance. The results show that there is significant effect of BME (breathing, meditation and education) on health promoting life style factors among nursing personal. The similar study results shows that Before the HPI (health promoting intervention), health promoting behaviors, self-efficacy, self-esteem, and self-control had no significant difference between the two groups. After the intervention, the mean scores of health promoting behaviors (p<0.001), self-efficacy (p<0.001), and self-esteem (p<0.001) showed a significant difference between the two groups, but self-control score was not significant (p>0.05). Conclusion: HPI changed HPBs in the nurses, and changes in HPBs will lead to a change in lifestyle. Therefore, it is recommended to use HPI as a comprehensive program to improve and modify lifestyle among staff nurses[41].

Conclusion and Recommendation:

The study concludes that BME (4-7-8 Breathing, Meditation and education) intervention was effective in enhancing/ improving sleep quality and health promoting life style behaviours. among staff nurses in a short period of time. This intervention is not having much influence on health status like weight, height, BP, RBS and BMI in a short period of time. This intervention can be used effectively for enhancing sleep quality and improving health promoting behaviours among staff nurses in day to day basis.

Recommendations:
1) The study can be conducted for longer period of time
2) The study can be replicated in other settings
3) The study can be conducted with larger samples
4) The study can be conducted for other variables of staff nurses like quality of life, anxiety, depression etc
5) The similar study can be conducted among patients are really suffering with sleep problem

References:
1. Burbeck R, Coomber S, Robinson SM, Todd C. Occupational stress in consultants in accident and emergency medicine: A national survey of levels of stress at work. *Emerg Med J.* 2002;19:234–8.
2. Xianyu Y, Lambert VA. Investigation of the relationships among workplace stressors, ways of coping, and the mental health of Chinese head nurses. *Nurs Health Sci.* 2006;8:147–55.
3. Lee JK. Job stress, coping and health perceptions of Hong Kong primary care nurses. *Int J Nurs Pract.* 2003;9:86–91.
4. Farrington A. Stress and nursing. *Br J Nurs.* 1995;4:5748.
5. Price JL, Mueller CW. *Professional turnover: The case for nurses.* New York: New Medical and Scientific Books; 1981.

6. Cronin-Stubbs D, Brophy EB. Burnout: Can social support save the psychiatric nurses? *J Psychosoc Nurs Mental Health Serv.* 1985;23:8–13.

7. Lazarus RS, Folkman S. *Stress appraisal and coping.* New York: Springer; 1984.

8. Tesfaye Segon, Habtamu Kerebih, Fanuel Gashawu, Bizuneh Tesfaye, Girum Nakie, Tamrat Anbesaw. Sleep quality and associated factors among nurses working at comprehensive specialized hospitals in Northwest, Ethiopia. Front Psychiatry. 2022; 13: 931588.

9. Tang J, Liao Y, Kelly BC, Xie L, Xiang Y-T, Qi C, et al. Gender and regional differences in sleep quality and insomnia: a general population-based study in Hunan Province of China. *Sci Rep.* (2017) 7:1–9. 10.1038/srep43690 [

10. Lemola S, Räikkönen K, Scheier MF, Matthews KA, Pesonen AK, Heinonen K, et al. Sleep quantity, quality and optimism in children. *J Sleep Res.* (2011) 20(1 Pt. 1):12–20. 10.1111/j.1365-2869.2010.00856.x

11. Shi D, Zhao J, Liu X. Investigation and analysis of current stress status of nurses and countermeasures. *Chin J Pract Nurs.* (2011) 27:4–7.

12. Caruso CC. Negative impacts of shiftwork and long work hours. *Rehabil Nurs.* (2014) 39:16–25. 10.1002/rnj.107

13. Beebe D, Chang JJ, Kress K, Mattfeldt−Beman M. Diet quality and sleep quality among day and night shift nurses. *J Nurs Manag.* (2017) 25:549–57. 10.1111/jonm.12492

14. McDowall K, Murphy E, Anderson K. The impact of shift work on sleep quality among nurses. *Occup Med.* (2017) 67:621–5.

15. Di Muzio M, Diella G, Di Simone E, Novelli L, Alfonsi V, Scarpelli S, et al. Nurses and night shifts: poor sleep quality exacerbates psychomotor performance. *Front Neurosci.* (2020) 14:1050.

16. Dong H, Zhang Q, Zhu C, Lv Q. Sleep quality of nurses in the emergency department of public hospitals in China and its influencing factors: a cross-sectional study. *Health Qual Life Outcomes.* (2020) 18:1–9. 10.1186/s12955-020-01374-4

17. Park E, Lee HY, Park CSY. Association between sleep quality and nurse productivity among Korean clinical nurses. *J Nurs Manag.* (2018) 26:1051–8.

18. Kolo E, Ahmed A, Hamisu A, Ajiya A, Akhiwu B. Sleep health of healthcare workers in Kano, Nigeria. *Niger J Clin Pract.* (2017) 20:479–83.

19. Olana DD, Ayana AM, Abebe ST. Sleep quality and its associated factors among nurses in jimma zone public hospitals. Southwest Ethiopia, 2018. *Sleep Hypnosis.* (2019) 21:271–80.

20. Dong H, Zhang Q, Sun Z, Sang F, Xu Y. Sleep disturbances among Chinese clinical nurses in general hospitals and its influencing factors. *BMC Psychiatry.* (2017) 17:1–9. 10.1186/s12888-017-1402-3

21. Akbari V, Hajian A, Mirhashemi M. Evaluating of sleep quality in shift-work nurses. *Iran J Sleep Disored Ther.* (2016) 5:225. 10.4172/2167-0277.1000225

22. Korompeli A, Chara T, Chrysoula L, Sourtzi P. Sleep disturbance in nursing personnel working shifts. *Nurs Forum.* (2013) 48:45–53. 10.1111/nuf.12005

23. Tarhan M, Aydın A, Ersoy E, Dalar L. The sleep quality of nurses and its influencing factors. *Eur J Pulmonol.* (2018) 2:78–84.

24. AbuRuz ME, Hayeah HMA. Insomnia induced by night shift work is associated with anxiety, depression, and fatigue, among critical care nurses. *Adv Stud Biol.* (2017) 9:137–56. 10.12988/asb.2017.738

25. Hsieh ML, Li YM, Chang ET, Lai HL, Wang WH, Wang SC. Sleep disorder in Taiwanese nurses: a random sample survey. *Nurs Health Sci.* (2011) 13:468–74. 10.1111/j.1442-2018.2011.00641.x

26. Terada T., Mistura M., Tulloch H., Pipe A., Reed J. Dietary behaviour is associated with cardiometabolic and psychological risk indicators in female hospital nurses—A post-hoc, cross-sectional study. *Nutrients.* 2019;**11**:2054. doi: 10.3390/nu11092054.

27. Mo P., Blake H., Batt M. Getting healthcare staff more active: The mediating role of self-efficacy. *Br. J. Health Psychol.* 2011;**16**:690–706. doi: 10.1111/j.2044-8287.2010.02007.x.

28. Malik S., Blake H., Batt M. How healthy are our nurses? New and registered nurses compared. *Br. J. Nurs.* 2011;**20**:489–496. doi: 10.12968/bjon.2011.20.8.489.

29. Kyle R., Wills J., Mahoney C., Hoyle L., Kelly M., Atherton I. Obesity prevalence among healthcare professionals in England: A cross-sectional study using the Health Survey for England. *BMJ Open.* 2017;**4**:7. doi: 10.1136/bmjopen-2017-018498. [

30. Kings Fund Time to Think Differently. [(accessed on 22 November 2019)]. Available online: https://www.kingsfund.org.uk/projects/time-think-differently/trends-healthy-behaviours-obesity

31. Moberly T. Sickness absence rates across the nhs. *BMJ.* 2018;**361**:2017–2018. doi: 10.1136/bmj.k2210.

32. Soroush A., Shamsi M., Izadi N., Heydarpour B., Samadzadeh S., Shahmohammadi A. Musculoskeletal disorders as common problems among Iranian nurses: A systematic review and meta-analysis study. *Int. J. Prev. Med.* 2018;**9**:27.

33. Yao Y., Zhao S., An Z., Wang S., Li H., Lu L., Yao S. the Associations of Work Style and Physical Exercise With the Risk of Work-Related Musculoskeletal Disorders in Nurses. *Int. J. Occup. Med. Environ. Health.* 2019;**32**:15–24. doi: 10.13075/ijomeh.1896.01331.

34. Mynarski W., Niestrój-jaworska M. Physical recreational activity and musculoskeletal disorders in nurses. *Med. Pr.* 2014;**65**:181–188.

35. Schneider A., Bak M., Mahoney C., Hoyle L., Kelly M., Atherton I., Kyle R. Health-related behaviours of nurses and other healthcare professionals: A cross-sectional study using the Scottish Health Survey. *J. Adv. Nurs.* 2019;**75**:1239–1251. doi: 10.1111/jan.13926.

36. Chappel S., Verswijveren S., Aisbett B., Considine J., Ridgers N. Nurses' occupational physical activity levels: A systematic review. *Int. J. Nurs. Stud.* 2017;**73**:52–62. doi: 10.1016/j.ijnurstu.2017.05.006.

37. Fang R , Li X . A regular yoga intervention for staff nurse sleep quality and work stress: a randomised controlled trial. Journal of Clinical Nursing, 19 Oct 2015, 24(23-24):3374-3379

38. Pramila Baral, Neeta Tamrakar. Health Promoting Lifestyle among Nurses of a Tertiary Level Hospital. April 2020. Journal of Karnali Academy of Health Sciences 3(1): April 2020:3(1)

39. Pei-Li Chien [1], Hui-Fang Su, Pi-Ching Hsieh, Ruo-Yan Siao, Pei-Ying Ling, Hei-Jen Jou. Sleep Quality among Female Hospital Staff Nurses. Sleep Disord. 2013:2013:283490.

40. Ronghua Fang , Xia Li A regular yoga intervention for staff nurse sleep quality and work stress: a randomised controlled trial. J Clin Nurs. 2015 Dec;24(23-24):3374-9.

41. Shokofe Darkhor, Fatemeh Estebsari, Meimanat Hosseini, Jamshid Yazdani Charati, Parvaneh Vasli. Effect of health promotion intervention on Nurses' healthy lifestyle and health-promoting behaviors: RCT study. https://japer.in/article/effect-of-health-promotion-intervention-on-nurses-healthy-lifestyle-and-health-promoting-behaviors-rct-study