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RESEARCH ARTICLE

EFFECTIVENESS OF COMPREHENSIVE BODY MECHANICS ON LOW BACK PAIN AMONG STAFF NURSES WORKING IN CRITICAL CARE UNIT AND OPERATION THEATER

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Comprehensive Body Mechanics, Low Back Pain, Staff Nurses Working In Critical Care Unit and Operation Theatre

Abstract

Introduction: Low Back pain can affect the people from any age and any different reasons. As people gets older, the chance of developing chromic low back pain. Low back pain occur in the area of bony lumbar spine, discs between the vertebrae, ligaments around the spine and discs, spinal cord and nerves, lower back muscles, abdominal and pelvic internal organs, and the skin around the lumbar area.

Aims: To assess the level of low back pain among staff nurses before and after comprehensive body mechanics among staff nurses. To assess the effectiveness of comprehensive body mechanics on low back pain among staff nurses. To find association between post interventional level of low back pain with the selected demographic and clinical variables among staff nurses.

Methodology: Aquasiexperimentalstudywith one group pre test andposttestdesignwasselectedtoassesstheeffectivenessofcomprehensive body mechanics on low backpainamong staff nurses working in Critical care unit and Operation Theater.Samples were selected by using non probability convient sampling technique as per theinclusioncriteriaatBharathirajaa Hospital,T Nagar,Chennaiand the sample size is 60 staff nurses, and were 30 staff nurses from critical care unit and 30 from Operation theater were selected for Pre and Post test. Assessment of low back pain was done by numerical rating pain scale and comprehensive body mechanics were educated to the staff nurses and post test of low back pain was assessed bythe investigator andanalyzedusingDescriptiveandInferentialStatistics.

Results: In one group, pre test mean score was 5.75 with S.D 2.48 and in post test mean score was 3.22 with S.D 1.44. The calculated 't' value of 9.26 shows statistical high significant difference in the low back pain at $p<0.001$ level between the one group pre test and post test. Low back pain had shown statistically significant association with the gender, BMI, working hours a day. And other demographic and clinical variables were not shown any statistically significant in one group pre test and post test.

Conclusion: Thereby the researcher had demonstrated and educated the staff nurses who were working in Critical care unit and Operation

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Theater by maintain proper comprehensive body mechanics in minimizing the level of low back pain.

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Introduction:-

Low Back pain is a common one for the absence of work and seeking medical treatment. So it can be result from injury, activity and some medical conditions. Low Back pain can affect the people from any age and any different reasons.Proper Body mechanics is a word used for the ways were move as we go for our daily lives and it includes how we hold our bodies when we sit, stand, lift, carry, bend, and sleep.

Rikupar Iawim et al., (2020) done a study entitled "Teaching program on body mechanics in nursing interventions of knowledge among staff nurses. The Pre-experimental one group pre-test post-test design was adopted for the study. In this study 30 staff nurses who were working in general ward were selected by using convenience sampling technique. The tool used for the study were observational check list on practice of body mechanics in selected nursing interventions and Structured knowledge questionnaire on body mechanics in selected nursing Interventions. The study revealed that among 30 staff nurse the pre-test and post-test knowledge score was 10.7. Computed 't' (11.8) was found statistically significant at the level of 0.05 significance ('t' (29) =2.05 $p<0.05$).

Objectives:-

1. To assess the level of low back pain among staff nurses before and after maintain the comprehensive body mechanics.
2. To assess the effectiveness of comprehensive body mechanics on low back pain among staff nurses.
3. To find out the association between post interventional level of low back pain with the selected demographic and clinical variables among staff nurses.

Methodology:-

A quantitative research approach with Quasi – Experimental one group Pre test and Post test only design was conducted in Bharathi RajaMultispecialty Hospital, Chennai. 60 samples were selected using Non probability Convenient sampling technique. The data was collected by using demographic and clinical variable and standardized MCCAFFERY 0-10 Numerical pain scale. McCaffery Numeric pain scale was is used to assess the pain after maintain proper body mechanics. It consists of 0 to 10 in which no pain is 0 ,1 – 3 mild pain ,4 – 6 moderate pain , and 7 -10 severe pain. For data collection Proper body mechanics was applied to Pre group and post test was conducted.

Results and Discussion:-

Section A:-Description of demographic variables of staff nurses with low back pain.

Demographical variables		**staff nurses**	**%**
Age in years	30-35years	21	35.00%
	36-45 years	21	35.00%
	46-55 years	18	30.00%
Gender	Male	20	33.33%
	Female	40	66.67%
Religion	Hindu	27	45.00%
	Christian	18	30.00%
	Muslim	15	25.00%
Monthly income	Rs10001-15000	12	20.00%
	Rs15001-20000	48	80.00%
	Rs20001-25000	0	0.00%
Dietary Habit	Vegetarian	35	58.33%
	Non Vegetarian	25	41.67%
Marital Status	Single	4	6.67%
	Married	40	66.67%
	Widower/ Widow	8	13.33%

	Divorced/Separated	8	13.33%
Type of family	Nuclear family	34	56.67%
	Joint family	26	43.33%
Educational qualification	Diploma in nursing	23	38.34%
	Bachelor of nursing	35	58.33%
	Master in Nursing	2	3.33%
Present Working Area	CCU	30	50.00%
	OT	30	50.00%
Total years of clinical experience in CCU/OT	<5 years	14	23.33%
	5-7 years	23	38.33%
	>7 years	23	38.33%
DESIGNATION	Junior staff nurse	0	0.00%
	Staff nurse	33	55.00%
	Shift in-charge	13	21.67%
	In-charge	11	18.33%
	Supervisor	3	5.00%
Types of cases nursed in CCU/ operation Theatre	General cases	31	51.67%
	Specialty cases	29	48.33%
No of cases cared per Day	0-1 case	15	25.00%
	1-2 cases	22	36.67%
	2-3 cases	15	25.00%
	3 and above cases	8	13.33%
Average number of hours you work in CCU or operation theatre per day	6 hours	13	21.67%
	7 hours	17	28.33%
	8 hours	16	26.67%
	More than 8 hours	14	23.33%

The above table 4.1 shows with regard to that Age in years in pre test, 21(35%) were in the age group of 30-35 years, 21(35%) were in the age group of 36-45 years, 18(30%) were in the age group of above 46-55 years.

Section B:- Description of clinical variables of staff nurses working in critical care unit and Operation Theater in pre test.

CLINICAL VARIABLES		**STAFF NURSES**	**%**
BMI	Underweight	17	28.33%
	Normal	25	41.67%
	Overweight	18	30.00%
How long do you have low back pain	Less than 6months	15	25.00%
	6months to 1year	20	33.33%
	1year to 2years	25	41.67%
How many hours feel low back pain per day	One hour	16	26.67%
	1–2 Hours	13	21.67%
	More than 2 Hours	22	36.67%
	Throughout the day	9	15.00%
How frequent you experience low back pain	Daily	17	28.33%
	Sometimes	15	25.00%
	While taking care of many patients	17	28.33%
	While extending duty time	11	18.33%
Which of the following factors often contribute to low back pain?	Lifting patient	16	26.67%
	Standing for long time	31	51.67%
	Transferring patient from bed to chair or bed to bed	13	21.67%

	Any other	0	0.00%
Low back pain makes you feel like	Restrict activity	14	23.33%
	Transfer to another area	17	28.33%
	Changing profession	17	28.33%
	Taking many days off/ leave	12	20.00%
Type of Delivery	nil	20	33.33%
	normal delivery	23	38.33%
	caesarean delivery	17	28.33%
How many hours of travel a day	half hour	30	50.00%
	more than 1 hours	24	40.00%
	more than 2 hours	6	10.00%

The above table 4.2 shows with regard to that BMI in pre test, 25(41.67%) were in the normal, 18(30%) were in the overweight, 17(28.33%) were in the underweight.

SectionC:- Assessment of level of pain among staff nurse working in critical care unit and Operation Theater.

Table 3:- Pre Test Level Of Pain Score.

Level Of score	**Pre-test level of pain score**	
	Staff nurses	**%**
No pain	0	0.00%
Mild pain	14	23.33%
Moderate pain	27	45.00%
Severe pain	19	31.67%
Total	60	100.00%

The data presented in the table -3 shows that majority 27 (45%) of staff nurses have moderate pain in pre test level of pain score and 19(31.67%) staff nurses had severe pain in pre test level of pain and 14(23.33%) staff nurses have mild pain in pre test.

SectionC:- Assessment Of Level Of Pain Among Staff Nurse Working In Critical Care Unit And Operation Theater

Table 4:- Post Test Level Of Pain Score.

Level of score	**Post-test level of pain score**	
	Staff nurses	**%**
No pain	0	0.00%
Mild pain	39	65.00%
Moderate pain	21	35.00%
Severe pain	0	0.00%
Total	60	100.00%

The data presented in the table -3 shows that majority 39 (65%) of staff nurses have mild pain in post test level of pain score and 21(35%) staff nurses had moderate pain in post test level of pain and 0(0%) staff nurses have severe pain in post test.

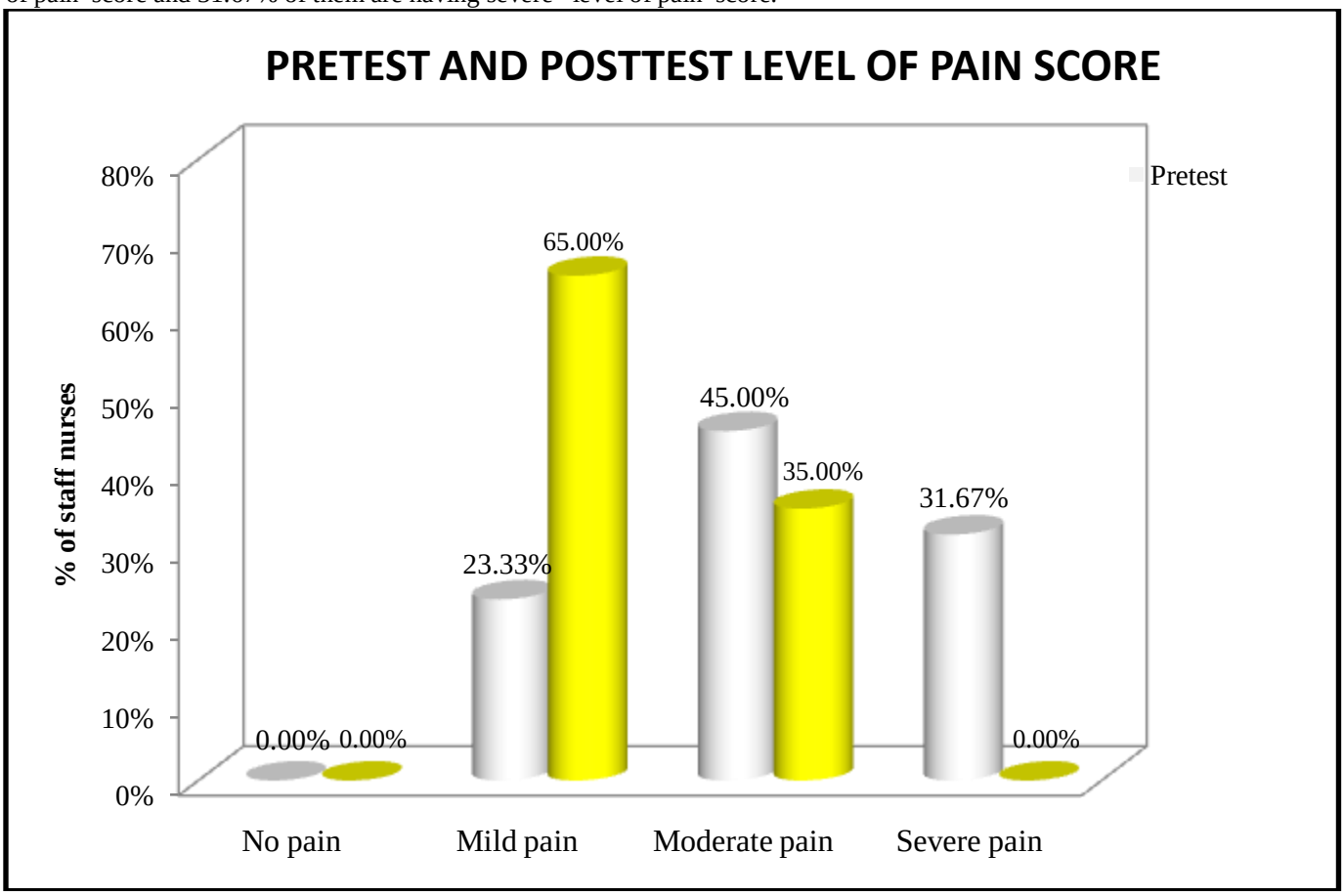
Section D:- To Assess The Effectiveness Of Comprehensive Body Mechanics On Low Back Pain Among Staff Nurse Working In Critical Care Unit And Operation Theater.

Table 5:- Comparison Of Pretest And Posttest Level Of Pain Score.

Level of score	**Pre test**		**Post test**		**Extended McNemar's test**
	n	%	n	%	
No pain	0	0.00%	0	0.00%	**□2=35.89 P=0.001*** DF=2 (S)**
Mild pain	14	23.33%	39	65.00%	
Moderate pain	27	45.00%	21	35.00%	
Severe pain	19	31.67%	0	0.00%	
Total	60	100.00%	60	100.00%	

Very high significant at p<0.001 S= significant DF=Degrees of freedom

Table no.5 shows the pre test and post-test level low back pain among staff nurses in critical care unit and Operation Theater. Before comprehensive body mechanics intervention, none of the staff nurses are having no pain level of low back pain score, 23.33% of them having mild level of pain score and 45% of them are having moderate level of pain score and 31.67% of them are having severe level of pain score.



The study shows with regard to that Age in years in pre test, 21(35%) were in the age group of 30-35 years, 21(35%) were in the age group of 36-45 years, 18(30%) were in the age group of above 46-55 years.

With regard to the Gender in the Pre Test, 40 (66.67%) were female and 20(33.33%) were male.

With the regard to the Religion in the pre test, 27 (45%) were Hindu and 18(30%) were Christian and 15(25%) were Muslim.

The study shows with regard to that BMI in Pre test, 25(41.67%) were in the normal, 18(30%) were in the overweight, 17(28.33%) were in the underweight.

With regard how long do you have low back pain in the Pre Test, 25 (41.67%) were 1 to 2 years and 20(33.33%) were 6 months to 1 year. 15(25%) were less than 6 months.

With regard how many hours feel low back pain per day in the Pre Test, 22 (36.67%) were 2 more than hours and 16(26.67%) were one hours. 13(21.67%) were throughout the day.

With regard how frequent you experience low back pain in the Pre Test, 17 (28.33%) were taking care of many patients and 17(28.33%) were daily. 11(18.33%) were extending duty time.

With regard which of the following factors often contribute to low back pain in the Pre Test, 31 (51.67%) were standing for long time and 16(26.67%) were lifting patient, 13(21.67%) were transferring patient from bed to chair or bed to bed.

With regard type of delivary in the Pre Test, 23 (38.33%) were normal delivary and 17(28.33%) were caesarean delivary, 20(33.33%) were nil.

Thefirstobjective was to assess the level of low back pain among staff nurses before and after comprehensive body mechanics among staff nurses.
The data presented in the table -3 shows that majority 39 (65%) of staff nurses have mild pain in post test level of pain score and 21(35%) staff nurses had moderate pain in post test level of pain and 0(0%) staff nurses have severe pain in post test.

Table no.4 shows the post-test level of low back pain among staff nurses in critical care unit and Operation Theater. After comprehensive body mechanics intervention, In post test, none of the staff nurses are having no pain level of low back pain score, 65.00% of them having mild level of pain score and 35% of them are having moderate level of pain score and none of them are having severe level of pain score.

The second objective to assess the effectiveness of comprehensive body mechanics on low back pain among staff nurses.
Table no.5 shows the pre test and post-test level low back pain among staff nurses in critical care unit and Operation Theater. Before comprehensive body mechanics intervention, none of the staff nurses are having no pain level of low back pain score, 23.33% of them having mild level of pain score and 45% of them are having moderate level of pain score and 31.67% of them are having severe level of pain score.

After comprehensive body mechanics intervention, In posttest, none of the staff nurses are having no pain level of low back pain score, 65.00% of them having mild level of pain score and 35% of them are having moderate level of pain score and none of them are having severe level of pain score.

Conclusion:-

Thereby the investigator concludes that the effectivenessof comprehensive body mechanics on low back pain among staff nurses working in critical care unit and Operation Theater.

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