



# A STUDY TO ASSESS THE EFFICACY OF VIDEO ASSISTED TEACHING PROGRAMME REGARDING EXERCISES AND PROMOTION OF BODY MECHANISM FOR PREVENTING LOW BACK PAIN AMONG STAFF NURSES WORKING IN ICU OF BHAGYODAY TIRTH CHARITABLE HOSPITAL, SAGAR, MP, INDIA.

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## ABSTRACT

This research study was carried out “A study to assess the efficacy of video assisted teaching programme regarding exercises and promotion of body mechanism for preventing low back pain among staff nurses working in ICU of Bhagyoday Tirth charitable hospital Sagar (M.P.)”. Pre experimental one group pre-test post-test Research design was used for the study. Non-probability convenient sampling technique was used to choose 50 samples. Aberdeen low back pain scale for low back pain assessment were used to assess the level of Knowledge of use body mechanisms before and after intervention.

The data analysis was done using descriptive and inferential statistics in SPSS software. The study finding revealed that pre-test and post-test pain score's mean difference was 21.42, 4.88 and SD difference was 0.552. The paired 't' test value for pre-test and post-test pain score was obtained 8.504 with df-49 at 0.000 level of significance. The Pearson's correlation coefficient value was found 0.094. Another finding exposed that pre-test and post-test anxiety score's mean and SD differences was 2.60000 and 1.22405 respectively. The paired 't' test value for pre-test and post-test anxiety score was calculated 16.453 with df-49 at 0.001 level of significance. The Pearson's correlation coefficient was 0.814. The data infers that promotion of body

mechanisms is an effective intervention to decrease pain level of low back pain and develop the body mechanics.

Based on the findings, the recommendations for future study are as follows. As low back pain staff nurse has undergone, it is necessary the video assisted teaching programme has enhanced the knowledge of staff nurses and thereby improved their skills, which is essential for performing the activities and preventing back injuries among staff nurses. The staff nurses expressed that the teaching programme was very informative and it would help them to prevent back injuries and its complications. Hence the structured teaching programme is instructionally effective, appropriate and feasible. The structured teaching programme is effective in improving the knowledge and practice of staff nurses regarding body mechanics in selected nursing interventions.

## **INTRODUCTION**

A fundamental human right is health. Every person has the right to live a comfortable and healthful life. The World Health Organization defines health as a condition of total physical, mental, social, and spiritual well-being as opposed to only the absence of illness or disability. To a certain degree, maintaining good hygiene, eating a balanced diet, and exercising are not the only factors that contribute to health. It's also the awareness, both conscious and unconscious, of the wellbeing that results from carrying out one's responsibilities to the fullest extent possible each day. When we fail to carry out this obligation, we become vulnerable to worry and uncertainty, which weakens our bodies, minds, and spirits and invites illness and morbidity.

The nurses are the backbone of the hospital, possessing the abilities and chance to transform first-degree care delivery. Research has indicated that the provision of primary care by nurses led to enhanced results and improved health care delivery. Patient safety has always been greatly influenced by nurses. As healthcare providers who work with patients around-the-clock, nurses are in a position to stop medication mistakes, make sure patients receive the right treatment, and offer safety measures against issues like falls or skin disintegration. Occasionally, though, they deal with issues like low back pain. The most common areas of the neck, shoulder, and lower and upper back problems are those related to frequent patient handling.

## **SIGNIFICANCE AND NEED OF THE STUDY**

The effective, coordinated, and secure use of the body to move objects and perform daily tasks is referred to as body mechanics. Body mechanics' fundamental goal is to make it easier for the right muscle groups to be used safely and effectively in order to maintain balance, use less energy, feel less tired, and limit the chance of injury. For nurses, having proper body mechanics is crucial. Exertion of the muscles is required for many nursing tasks. In order to lower the possibility of harm to both the client and the nurse, the nurse needs to be aware of and use good body mechanics. An in-depth understanding of body mechanics and how to use it in practice should be had by a nurse. When muscles are unable to give the body the optimal support and strength, the bodily tissue is put under stress, strain, damage, and weariness.

Even the most seasoned employees may overlook the value of ergonomics in high-stress scenarios. Because of the cumulative consequences of performing manual patient handling tasks, nurses are more susceptible to musculoskeletal injuries related to their line of work.

## STATEMENT OF THE PROBLEM

A study to assess the efficacy of video assisted teaching programme regarding exercises and promotion of body mechanism for preventing low back pain among staff nurses working in ICU of Bhagyoday Tirth Charitable Hospital Sagar (M.P.)

## OBJECTIVES OF THE STUDY

To assess the level of low back pain among staff nurses in ICU.

2. To assess the knowledge level of staff nurse in ICU regarding exercises and promotion of body mechanisms to prevent low back pain.
3. To assess the effectiveness of video assisted teaching an exercises and promotion of body mechanism among staff nurses in ICU.
4. To compare the effectiveness of exercises and promotion of body mechanism with pre-test and post-test pain scale score among staff nurses in ICU.
5. To associate the finding of the effectiveness of exercise and promoting body mechanism on low back pain score with selected demographic variables.

## OPERATIONAL DEFINITIONS

**Assess:** Assess means evaluating or estimating the nature

**Effectiveness:** Effectiveness is the quality of being able to bring about an effect. In this study it is referred to the mean pretest and mean post-test score on the low back pain between control group and experimental group.

**Video Assisted teaching:** Refers to video assisted teaching on knowledge and practice regarding body mechanics in selected nursing intervention by using video teaching prevention of low back pain.

**Promotion:** Is the process of enabling people to increase control over and improve their health.

**Prevention:** All measures available to reduce or limit impairment and Disabilities, minimize suffering caused by existing departures from good health and promote the patient adjustment irremediable condition.

**Intensive Care Unit:** A high dependency critical care unit which caters to the intensive medical & surgical needs of adult patients.

**Nurses:** A person who has successfully completed any one of the programs such as Diploma in General Nursing and Midwifery, Bachelor of Science in Nursing, Master of Science in Nursing and working in intensive care unit.

**Body Mechanics:** In this study, body mechanics refer to the efficient, coordinated, and safe use of the body to lift, to move and to handle the patient in bed.

**Exercise:** Is physical activity that is planned, structured, and repetitive for the purpose of conditioning any part of the body. Exercise is used to improve health, maintain fitness and is important as a means of physical rehabilitation.

**Prevention:** In medicine, action taken to decrease the chance of getting a disease or condition.

**Low back pain:** Is a common musculoskeletal symptom that may be either acute or chronic. It may be caused by a variety of diseases and disorders that affect the lumbar spine. Low backpain is often accompanied by sciatica, which is pain that involves the sciatic nerve and is felt in the lower back, the buttocks, and the backs of the thighs.

## HYPOTHESIS

The hypothesis will be tested at 0.05 level of significance.

RH0- There will not be association between post-test knowledge score with selected demographic variable.

RH1- There is a significant difference between the pretest and post-test knowledge score among staff nurses with low back pain in ICU.

RH2 – There is a significant difference between the pre-test and post-test pain scale score among staff nurses with low back pain in ICU.

RH3 – There will be a significant association in the level of low back pain with their selected demographic variables.

## ASSUMPTIONS

- ❖ Long hours of standing in ICU may cause low back pain among staff nurses.
- ❖ Exercise will be effective in reducing low back pain among staff nurses working in ICU.
- ❖ Low back pain among staff nurses will be influenced by demographic and clinical variables.

## DELIMITATION OF THE STUDY

- ✓ The study will be limited to the staff nurses working in ICU of Bhagyoday Tirth charitable trust hospital.
- ✓ `Data collection period was 4 weeks.

## RESEARCH METHODOLOGY

### RESEARCH APPROACH

A quantitative research approach was used to prevention and promotion of low back pain through the uses of proper body mechanics and exercise in ICU staff nurses.

### RESEARCH DESIGN

Pre experimental one group pre-test – post-test design is used.

### SETTING OF THE STUDY

The study was conducted at Bhagyoday Tirth charitable hospital Sagar (M.P.) it is a 300 bedded hospital. The hospital 6 ICU wards such as surgical intensive care unit, medical intensive care unit, Neurological critical care unit, cardiological critical care unit neonatal intensive care unit, paediatric intensive care unit. The hospital was situated within the campus of Bhagyoday Tirth Nursing Collage at distance of 120 metres. This setting was selected because of feasibility, available of adequate staff and the familiar of the investigator with the setting.

### POPULATION

The population for the study was the Staff nurses those are working in ICU at Bhagyoday Tirth charitable hospital Sagar (M.P.)

### SAMPLE

In this study samples refers to the 50 nurses working in Bhagyoday Tirth charitable hospital Sagar (M.P.) and who full filled the inclusive criteria.

### SAMPLING CRITERIA

#### Inclusive criteria

- ❖ Nurses between the age group 21-50 years.
- ❖ Nurses working in direct patient care provided areas.
- ❖ Nurses who are available during the study.
- ❖ Samples felt the pain during work period within one year.
- ❖ Nurses who are having minimum of one-year experience.

#### Exclusive criteria

- ❖ The nurses undergoing treatment for any physical problem.
- ❖ The nurses underwent previous surgery and neurological problem.
- ❖ The samples not willing to participate in study.
- ❖ Nurses undergoing any similar research study.

## SAMPLING TECHNIQUE

In this study the researcher selected the samples by using non-probability purposive sampling technique.

## SAMPLE SIZE

Sample size was 50 subjects among which,

- 25 subjects in experimental group.
- 25 subjects in control group.

## DESCRIPTION OF VARIABLE

**(a) Dependent variable:** In this present study dependent variable was the Low Back Pain.

**(b) Independent variable:** In this study the independent variable is planned video assisted teaching programme on exercise and body mechanism to reduce the low back pain among nurses.

**(c) Extraneous variable:** The extraneous variables in this study are age, gender, body mass index, total years of experience in nursing services and present work place.

### Description of tool: -

The tool consists of four section A, B, C and section D

**Section A: Demographic proforma:** It deals with demographic variables such as age gender, education status, professional qualification, professional experience, diet body built.

**Section B: Pain Assessment Scale:** This section deals with the assessment of low back pain by Aberdeen Low Back Pain Scale. This scale was created by Rutta. D. A. and Garratt.A.M., from the University of Aberdeen and from the Aberdeen Royal Infirmary in Scotland. It is provided by the Centre based evidenced physiotherapy in Netherlands, 1994. It consists of 19 questions and the total score is 75.

**Section C: Structured Questionnaire to assess knowledge:** The total score was 30. All question were knowledge domains. Correct answer was given one mark and wrong answer zero. Thus, total of 30 marks were allotted under knowledge assessment. To interpret the level of knowledge, the score was distributed as follows: - inadequate knowledge <50%, moderately adequate knowledge 51-75% and Adequate Knowledge >75%

**Content validity:** Validity refers to the degree to which a questioner and pain scale measurement. The content validity of the tool was established on the ground of opinion of two medical experts and three nursing experts.

**Reliability of the tool:** The authors found the instruments valid and reliable. The reliability of the tool was assessed by test- retest method. This method was calculated by Spearman's rank correlation and found as  $r = 0.94$

**Pilot Study:** A pilot study was conducted from an administrative approval was obtained from the Bhagyoday Tirth Nursing collage Principal. The pilot study was conducted on 5staff nurses the pre-test included the assessment of knowledge using knowledge questioner and practiced was assessed using observational checklist. The teaching plan was administered and investigator demonstrated the body mechanics on selected nursing interventions. The mean post-test knowledge 22(73.2%) was higher than the mean pre -test 16.4(54.64) with t - value 2.81 shows significant at  $P < 0.05$  level. The mean post-test practice 33.6(69.97%) was higher than mean pre-test practice 27.4(57.04%) it shows significant at  $P < 0.001$  level the findings of the data revealed that this study feasible.

## DATA ANALYSIS AND INTERPRETATION

### SECTION- A

#### DISTRIBUTION OF SAMPLE ACCORDING TO DEMOGRAPHIC VARIABLES

38 samples, or 76% of the total, fall between the ages of 21 and 25; 2 samples, or 4% of the sample, fall between the ages of 26 and 46; 7 samples, or 14% of the sample, fall between the ages of 31 and 35; and 3 samples, or 6% of the sample, fall between the ages of 36 and above. The maximum 76% of the space is taken by the 38 female sample members, while the male sample members, numbering 12, occupy 24% of the area. to a professional level of qualification. A maximum of 58% (29) of the participants held a B.Sc. in nursing, 36% (18) were GNMs, and 6% (3) were post-B.Sc. nurses. ICU experience. Maximum 70% (35) of the participants had less than a year's experience, followed by 24% (12) with 1-3 years and 6% (3) with 4-6 years. Based on perception of one's physique, a maximum of 38% (39) of the subjects were in good health, 14% (7) were thin, and 8% (4) were fatty. A balanced diet is followed by 34% (17) participants, more meat is used by 12% (6) participants, and a maximum of 54% (27) individuals eat more vegetables. Pre-test knowledge based on proportion and frequency. A maximum of 64% (32) of the individuals have average knowledge, 30% (15) have bad knowledge, and 6% (3) have strong knowledge.

### Section: -B

#### Objective 1

**The first objective of to assess the level of low back pain among staff nurses in ICU the major findings.**

**Assessment of pre – test level of low back pain among staff nurse in ICU**

Interpretation of level of Pain	Frequency	Percent
No Pain	0	0
Mild	23	46.0
Moderate	27	54.0
Severe	0	0
Total	50	100.0

## Objective 2

**The second objective was to assess the knowledge level of staff nurse in ICU regarding exercises and promotion of body mechanisms to prevent low back pain.**

According to the staff nurses' pre-test results, out of all of them, 15 (30%) had inadequate practice, 32 (64%) had somewhat adequate practice, and none had adequate practice. Overall practice was found to have a mean percentage of 49.1% with a standard deviation of 4.259, indicating that the individuals had not practiced body mechanics in the chosen nursing interventions.

## Objective 3

**The third objective was to assess the effectiveness of video assisted teaching an exercises and promotion of body mechanism among staff nurses in ICU.**

Staff nurses' pre- and post-test knowledge and practice of body mechanics in several nursing interventions were compared, and the results show that there was an overall mean improvement in knowledge with a standard deviation of 4.259. At the  $p < 0.001$  level of significance, the paired "t" test value of 8.259 is very significant. With a standard deviation of 4.691, the mean for practice improvement overall was 4.691. At the  $p < 0.001$  level, the "t" value of 5.908 indicates high significance. As a result, the null hypothesis ( $H_0$ ) was rejected, and it was reiterated that there is a significant difference in staff nurses' pre- and post-test levels of body mechanics knowledge and practice. The fact that there was a noticeable improvement in knowledge and practice score suggests that the planned instruction program was successful.

## Objective 4

**The fourth objective was to compare the effectiveness of exercises and promotion of body mechanism with pre-test and post-test pain scale score among staff nurses in ICU.**

- ❖ The percentage and frequency of knowledge about body systems between the pre- and post-tests Pre-test knowledge: 15 participants had low knowledge, 30% had average knowledge, 32 individuals had average knowledge, and 3 participants had strong knowledge. Following the test, 15 individuals had inadequate knowledge (30%), 24 participants had average knowledge (48%), and 26 participants had strong knowledge (52%).
- ❖ The comparison the between pre-test and post-test Pain scale score percentage and Frequency Knowledge of Pre-Test, Mild pain are no one, Moderate Pain 27 participants 46%, and Severe pain no one participants. Post-Test, No Pain 45 participants 90% and Mild pain 5 participants 10%.
- ❖ The comparisons between pre-test and post-test knowledge of body mechanisms among pain score. On calculation the total pre-test knowledge score was mean score was 13.68, SD value 4.259, Post-test knowledge score mean 21.42, SD 4.691 "t" value 8.504, df value 49, P value 0.000. The comparisons values are shows knowledge of body mechanisms used is significant.
- ❖ The comparisons between pre-test and post-test pain scale score. On calculation the total pre-test pain scale score was mean score was 8.18, SD value 3.509, Post-test knowledge score mean 4.88, SD 2.135



“t” value 5.908, df value 49, P value 0.000. The comparisons values are shows pain scale score used is significant.

## Objective 5

**The fifth objective was to associate the finding of the effectiveness of exercise and promoting body mechanism on low back pain score with selected demographic variables.**

The analysis was done for association between post-test level of knowledge and practice with selected demographic variables using chi-square test. As the computed chi-square value was lesser than the table value at  $p < 0.05$ , level of significance. Hence the H0 hypothesis H3 stating that there is no association between post-test level of knowledge and practice of staff nurses regarding body mechanics in selected nursing intervention with selected demographic variables is accepted

## NURSING IMPLICATION

The implication of the present study has been discussed under the headings as nursing administration, nursing education and nursing research.

### Nursing education:

Nurses have an important role to play while performing nursing activities. Many nursing activities require muscle exertion. To reduce the risk of injury to the nurse when transferring a client, the nurse must know and practice proper body mechanics. The nurse needs to understand how coordinated body movement involves integrated functioning of the Musculo- skeletal system, and nervous system. In order to achieve this objective, educational programmes should include lecture and skilled demonstration, which will provide the nurses additional learning opportunities.

The nursing curriculum of basic nursing should include knowledge on body mechanics. Nursing students should be made aware of their role in the health promotion by proper use of lifting and transferring techniques.

Teaching a proper manual lifting technique is an attempt to modify behaviour, which can be difficult to achieve and maintain without long- term reinforcement. The nurse educators and staff development personnel continue to teach body mechanics so that the next generation of nurses would be better served if they were taught. Many students going to school today are learning practices that are not evidence based. So, the students need to be taught evidence- based practices and keep their knowledge up to date.

### Nursing practice:

Nurses have an important role to play in clinical nursing to protect the clients and themselves from back injuries. Body mechanics need to be followed during lifting, bending, moving and performing activities of daily living.

The nurses should be periodically evaluated to assess their knowledge and to plan appropriate in-service education. Alternative strategies will have to be developed for meeting educational needs of the staff

nurses. Different types of in-service education programmes and orientation courses have to be conducted for the staff nurses from time to time. Staff should have regular refresher courses in operating, manual lifting equipment. Minimal handling policies should be introduced in all the hospitals

### **Nursing Administration:**

The nurse administrator can organize and conduct In-service education and Continuing nursing education for staff nurses in order to enhance their knowledge and keep them aware of the latest advancements in technology to provide quality of care to clients.

Create an ergonomics committee. The committee should establish, implement and monitor a comprehensive ergonomics programme. Develop and adopt a safe patient handling policy. Provide comprehensive and interactive training for staff. Train staff on policies, equipment and devices before implementing them and make sure this training extends to new employees. Identify and train peers to be resource experts on ergonomics injury prevention. Encourage reporting of back injuries and other musculoskeletal injuries. Create a blame free environment for reporting work related injuries. Most importantly, hospitals should consider it important to protect the staff nurses from back injuries.

### **Nursing research:**

There is a need for urgent action as back injuries among nurses are numerous and a serious health problem affecting the quality of life both for the client and the nurses. The nurse researcher should conduct the research, which provides more scientific data and adds more scientific knowledge to nursing profession. Encourage the nurses to read, discuss and conduct research studies so as to enable the nurse to make data-based decision rather than intuitive nursing decisions. Further research is needed into the effects of the nurse's sex and physique, the patient's weight, and the health care setting before the science of body mechanics can be fully applied to nursing practice.

### **RECOMMENDATIONS**

- ❖ The study can be replicated with a large number of staff nurses for generalizations.
- ❖ The study can be conducted in a hospital organization like government, private, nursing homes, non-medical teaching hospitals etc.
- ❖ The same study can be done with an experimental research approach having a control group.
- ❖ Time series studies can be conducted to evaluate the long-term effect of the teaching programme on body mechanics to assess the skill and practice.
- ❖ Different teaching strategies can be used to educate the staff nurses regarding body mechanics.
- ❖ A comparative study can be conducted between the two hospital organizations.

## LIMITATIONS

The limitation of study was as follow-

- ❖ Study was done for a small period of time (4 Weak)
- ❖ Non probability convenient sampling technique was used. Changes of getting true representatives of target population was less.
- ❖ Non probability convenient sampling technique was used. Changes of getting true representatives of target population was less.

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