

A Study To Assess The Effectiveness Of An Educational Program On Knowledge And Practice Regarding Body Mechanics Among Class Iv Workers In A Selected Hospital At Moradabad, Up''

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Abstract

Background:- The human body is a multifunctional unit, The chain of events is made from of the neurological, muscular, and skeletal systems are all part of the kinetic chain to create movement, all systems must collaborate.^[1] In hospitals, Class IV workers perform an important role as a team member. They are from a low financial background have very little education, and work irregularly.^[2] Administrative authorities across the world ignore the health concerns of this set of workers. Body mechanics is extremely important for health care workers, especially those in class.^[3,4]

They involves in Lifting, bending, and transporting items from one location to another. Right body alignment and posture are always beneficial in bringing our body parts into proper position, maintaining proper balance, and promoting body function, allowing clients to easily stand, sit, bring, or lay down. When we don't move in a safe and proper manner, abnormal pressure are exert on the back muscles of the person, which can cause deformity of spine such as discs herniation and joints sprain trauma. Therefore a person should know how to maintain correct body alignment and use his or her body as machine.^[4]

Material &Methods:-A pre-experimental evaluative study was conducted using one group pre-test-post-test research design, non-probability non probability convenience sampling technique was used to select 44 class IV Workers. Descriptive & inferential statistics has done for analyzed the data in Teerthanker Mahaveer hospital & research centre data was collected using structured questionnaire and practice checklist in January 2022

Result:-The results revealed that overall pre-test knowledge was inadequate knowledge 41(93.2%) and post-test knowledge score improved to adequate knowledge 37(84.1%) and pre-test practice score was poor practice 41(93.2%) which increased to good practice 31(70.5%). Paired 't'-test showed that there was a significant improvement between pre-test and post-test knowledge with 't' value of 36.495 significance at $p < 0.001$ and practice with 't' value of 37.613 at $p < 0.001$ table value 2.02

The correlation between improvement knowledge and practice revealed that there is a positive correlation between the knowledge and practice. The r value was 0.170 Chi-square test revealed that there was no significant association between post-test level of knowledge and practice with selected demographic variables.

Conclusion:- It concluded that the educational program will help to improve the knowledge and practice of class IV workers and thereby the risk of injury to the musculoskeletal system can be prevented.

Keywords: Knowledge, Practice, Educational Program, Body Mechanics, Class IV Workers

BACKGROUND:

Health is a basic individual right. Every individual has the right to a healthy life and the best possible health. Proper balancing of all body parts helps to conserve energy. Failure to perform such responsibilities leads to uneasiness and uncertainty, which weakens the mind, body, and soul and invites disease and morbidity.^[1]

Right body alignment and posture are always beneficial in bringing our body parts into proper position, maintaining proper balance, and promoting body function, allowing clients to easily stand, sit, bring, or lay down. When we don't move in a safe and proper manner, abnormal pressure are exert on the back muscles of the person, which can cause deformity of spine such as discs herniation and joints sprain trauma. Therefore a person should know how to maintain correct body alignment and use his or her body as machine.^[4]

According to WHO, there are millions of occupational injuries worldwide that result in 0.1 million deaths. Each year, it is estimated that 17 million nonfatal occupational injuries (17 percent of global total) and 45,000 fatal injuries (45 percent of global total deaths due to industrial injuries) occur in India accounts for 1.9 million cases (17%) of the world's occupational illnesses, and 0.12 million deaths (17%) of the world's 0.7 million deaths.^[6]

In 2019 rate total number of recordable case 2.8 instances per 100 full-time equivalent workers (TRC) in private industry. Injuries and illness 32,470 incidents of sprains, strains, and strains were reported among manufacturing employees (28.0 percent).^[7]

A correlational study conducted by (Pramila D'Souza, Reena Wilma Frank et.al, 2017) to assess the Body mechanics knowledge and application among tertiary hospital class IV employees. The result of the study (64%) of the participants had poor knowledge on body mechanics, whereas 74 percent of Class IV workers Usage of body Mechanics was found to be inadequate at work, with a slight positive relationship ($r = .091$) between knowledge and utilization among Class IV workers.^[8] In this study nursing helper, ward attendant, had the highest rate of injuries because of improper use of body mechanics.^[8]

Class IV workers are a vital component of the health care team, they are more prone to work-related musculoskeletal disorders due to awkward body positions held for extended periods, repetitive movements, lifting or transferring patients, and unsafe working conditions. The researcher planned to conduct this research to see how successful it is by delivering of an educational programme involving changes poor knowledge and poor practice on body mechanics knowledge to prevent further injuries by enhancing and spreading awareness.

Purpose of the study

To advantage familiarity or to reap new insights right into a phenomenon; this is referred to as exploratory or formulates research studies; to describe the correct traits of a specific individual, state of affairs or a group.

Objective

- To assess the level of knowledge regarding body mechanics among class IV workers.
- To assess the level of practice regarding body mechanics among class IV workers.
- To assess the effectiveness of educational programme on knowledge and practice regarding body mechanics among class IV workers.
- To assess the correlation between knowledge and practice regarding body mechanics among class IV workers.
- To assess the association of the pre-test level of knowledge and practice scores among class IV workers with their selected demographic variables.

METHODOLOGY:

Research approach: - Pre-experimental quantitative research approach was used for this study.

Research design: - one group pre-test and post-test design was used in the current study

Study Sample: - Class IV workers of Teerthanker Mahaveer Hospital and Research Centre, Moradabad

Sample size calculation

Considering the effect size 0.5 at 5% level of significance, 95% confidence interval and 80% power the minimum calculated sample size for each group is 44. Hence the total number of samples is 44

Sampling technique:-

Convenient sampling technique was used to select the Class IV workers.

Intervention:-

The educational programme was created following a thorough examination of the literature and includes information on body mechanics. The content in the educational programme on body mechanics includes introduction, definitions of body mechanics and body posture anatomy and physiology of vertebral column, functions, incidence, Risk factors of back injury, principles of body mechanics, prevention and health promotion, complications. The investigator produced a programme with an acceptable lesson plan, flashcards; the average time it took to administer an educational programme was 45 minutes. During the class, audio-visual aids such as flash cards and charts were used. The educational programme content and instructional materials were evaluated by experts.

Outcome variable

The outcome variable of the study is improvement in level of knowledge and practice.

Data collection tool

Tool consist of following section **Section - A:** Demographic variables

Section - B: Multiple choice knowledge questionnaire

Section - C: Practice Checklist

Data collection procedure

The process of obtaining data in order to solve a research topic is known as data collection. In January 2022, the data collected over the period of seven days. First, taken approval from a higher authority this research the study sample was chosen via convenience sampling; which was depending on criteria for sample selection. For this study, a total of 44 class IV workers were chosen. The study's goals were stated.

Data was gathered on among class IV workers during a two-week span. The study's purpose was explained to the medical superintendent. The investigator approached the class IV workers. With the class IV employees, an initial rapport was created. The study's details are conveyed to them. Data collection was scheduled at a convenient time and day. At Teerthanker Mahaveer hospital & research Centre in Moradabad, 44 class IV workers were given a knowledge and practice test The investigator approached the concerned authorities of medical superintendent Teerthanker Mahaveer hospital & research Centre at Moradabad. finding a suitable day and time to carry out the planned teaching programme The Class IV workers were gathered in Moradabad. After the required explanation, the consumer protection Centre and the teaching programme were implemented The post-test given to the same extent set of people; after one week, with the same structured questionnaire of the educational programme; all the class IV workers of Teerthanker Mahaveer Hospital & research Centre were quite supportive; her thanks was conveyed by the investigator, to the Teerthanker Mahaveer Hospital & research Centre, Moradabad. Teerthanker Mahaveer Hospital & research Centre, and class IV workers for their support in completion of this research study.

Data analysis

Descriptive test and inferential test were applied to pull the results. in order to meet the study's goals. The following was the data analysis strategy: Organize the data in a proper way in the master sheet. 1. The demographic Frequency was obtained by descriptive analysis; 2. The current knowledge& practice of class IV workers on body mechanics was assessed by using frequency and percentage distribution, mean and mean% standard deviation and range; 3. pre test and post test knowledge and practice of class IV workers were assessed and compared using the paired "t" test, mean, average percentage, and Standard deviation; 4. Coefficient correlation A Statistical formula was applied to find the correlation between knowledge and practice; 5. Chi-square test was used to check the Linear association between knowledge and practice of class IV workers with their selective demographic characteristics.

Ethical consideration

Ethical consideration was obtained from Institutional Ethics Committee, Teerthanker Mahaveer hospital & research centre after commencement of necessary enquiry and discussion at its board meeting. Permission obtained from selected medical superintendent for conduction of study. Informed consent was obtained written form from samples before data collection. Confidentiality was maintained regarding data storage and recording throughout the study.

RESULT:

The findings are organized as follows:

The study's findings are categorized according to the goals that were examined. The following headings are used to organize the information.

Section I: Distribution frequency and percentage of demographic variable among class IV workers

Section II: To assess the effectiveness of educational programme on knowledge and practice regarding body mechanics among class IV workers

Section III: To find out the correlation between pre-test knowledge and practice regarding body mechanics among class IV workers.

Section IV: To associate the pre-test level of knowledge and practice scores among class IV workers with their selected demographic variables.

SECTION - I: Description of frequency and percentage of the demographic variables among class IV workers.

Table1: Description of frequency and percentage distribution of demographic variables N=44

Sl.No	Variables	Categories	Frequency	Percentage
1	Age	18-24 Years	15	34.1%
		25-30 Years	15	34.1%
		31-36 Years	4	9.1%
		Above 36 Years	10	22.7%
2	Gender	Male	33	75.0%
		Female	11	25.0%
		Transgender	0	0.0%
3	Professional qualification	Illiterate	6	13.6%
		Primary	24	54.5%
		Secondary and higher secondary	11	25.0%
		graduate and above	3	6.8%
4	Area of working	Ward	26	59.1%
		Administration	0	0.0%
		ICU and OT	9	20.5%
		Other	9	20.5%
5	Total experience in Years.	less than 2 Years	19	43.2%
		3-5 Years	16	36.4%
		5-7 Years	9	20.5%
		Above 7 Years	0	0.0%
6	Source of Previous Knowledge	Mass media	0	0.0%
		Friends	26	59.1%
		Family member	1	2.3%
		Other	17	38.6%

The above table 1 shows the percentage and frequency distribution of class IV workers according to demographic variables. The study sample consist of 34.1%(15) at the age group (18-24)years, 34.1%(15) in the age group 25-30 years, 9.1%(4) between the ages of 31 and 36 years, 22.7%(10) in the age group of above 36 years; as per gender 75.0%(33) were males 25.0%(11) were females; As per the educational qualification of class IV workers illiterate 13.6%(6), Primary (54.5%)24 secondary and higher secondary (25.0%)11 secondary and higher secondary (25.0%)11 graduate and above (6.8%)3; as per the area of working ward 59.1%(26) administration 0.0%0 ICU and O.T. 20.5%(9) others 20.5%(9) less than 2 years 43.2%(19), 3-5years 36.4%(16),5-7 years 20.5%(9) above 7 years; as per the years of experience less than 2 years 43.2% (19) 3-5 years 36.4%(16) 5-7 years 20.5%(9) above 7 years 0.0%(0); as per the sources of previous knowledge of class IV workers friends 59.1%(26) family member 2.3%(1) others 38.6%(17).

SECTION II: To assess the effectiveness of the educational programme on knowledge and practice regarding body mechanics among class IV workers

Table 2: Comparison between pre test knowledge and post knowledge on body mechanics among Class IV workers N=44

SCORE LEVEL	PRETEST f (%)	POSTTEST f (%)
INADEQUATE KNOWLEDGE.(0-11)	41(93.2%)	0(0%)
MODERATE KNOWLEDGE.(12-23)	3(6.8%)	7(15.9%)
ADEQUATE KNOWLEDGE.(24-35)	0(0%)	37(84.1%)

The above table 2 reveals the Criteria wise comparison of knowledge score regarding body mechanics among class IV workers which means the post test score is higher than the pretest score hence H₁ is accepted.

Table No 3: Over all comparison between pre test knowledge and post knowledge on Body Mechanics among Class IV workers

Overall knowledge score	Mean±S.D.	Mean%	Range	Mean Diff.	Paired T Test	P value	Value at 0.05
PRETEST KNOWLEDGE	5.25±2.813	16.4	2-14	22.43	36.495 *Sig	<0.001	2.02
POSTTEST KNOWLEDGE	27.68±3.639	86.5	14-32				

Significance Level 0.05 *S=significant

The above table says that to evaluate the effectiveness of educational program paired “t” were used and the value of paired “t” test is 36.495 with table value is which is highly significant hence H₁ is accepted in terms of educational program on body mechanics among class IV workers.

Practice comparison:

Table No 4: Comparison between pre test practice and post practice on body mechanics among Class IV workers

SCORE LEVEL	PRETEST f (%)	POSTTEST f (%)
POOR PRACTICE.(0-8)	41(93.2%)	0(0%)
AVERAGE PRACTICE.(9-16)	3(6.8%)	13(29.5%)
GOOD PRACTICE.(17-20)	0(0%)	31(70.5%)

The above table reveals the criteria wise comparison of practice score regarding body mechanics among class IV workers which means the post test score is higher than the pre test score hence H₁ is accepted.

Table No 5: Over all comparison between pre test practice and post practice on body mechanics among Class IV workers.
N=44

all PracticeScore	Mean±S.D.	Mean%	Range	MeanDiff.	Paired T Test	P value	bleValueat 0.05
PRETEST PRACTICE	1.91±2.089	9.5	0-9	15.2	37.613	<0.001	2.02
POSTTEST PRACTICE	17.11±1.482	85.6	14-19		*Sig		
Significance Level 0.05 *S=significant							

Table shows 5 the data of paired “t” test and value of t test is 37.613 with table vale is 2.03 it means the test is highly significant and educational program was effective in this regard the H₁ is accepted.

Table 6: Area Wise Analysis of Pre Test and Post Test Knowledge score

PAIRED T TEST	Introduction		k factor and principles		Lifting technique, prevention and promotion of health		Complication		Overall	
	PRE	POST	PRE	POST	PRE	POST	PRE	POST	PRE	POST
Mean Score	0.93	6.07	1.25	6.82	2.52	12.39	0.55	2.41	5.25	27.68
S.D	0.79	1.319	1.08	1.299	1.98	1.845	0.59	0.757	2.81	3.639
Median Score	1	7	1	7	2	13	0.5	3	5	28.5
Mean%	13.30	86.70	15.60	85.20	18.00	88.50	18.20	80.30	16.40	86.50
Mean Difference	5.140		5.570		9.870		1.860		22.430	
Paired T Test	23.397 *Sig		21.681 *Sig		26.054 *Sig		14.073 *Sig		36.495 *Sig	
P value	<0.001		<0.001		<0.001		<0.001		<0.001	
Table Value at 0.05	2.02		2.02		2.02		2.02		2.02	
Result	Significant		Significant		Significant		Significant		Significant	

Section III: To find out the correlation between pre-test knowledge and practice regarding body mechanics among class IV workers.

Table 7: Relationship between pre test knowledge and pre test practice score

Correlation	Variables	
	Knowledge	Practice
Mean	5.25	1.91
SD	2.813	2.089
N	44	
Correlation	0.170	
Table Value	0.297	
P Value	0.269	
Result	Not Significant	

The above Table 7 shows the relationship between pre-test knowledge and practice scores which shows no correlations between knowledge and practice in this term the hypothesis H₂ got rejected

Section IV: To associate the pre-test level of knowledge and practice scores among class IV workers with their selected demographic variables.

Table 8: Association of knowledge score between pre-test score with demographic variables

Variables	Category	Adequate knowledge	moderate Knowledge	Inadequate knowledge	ChiTest	P Value	df	Table Value	Result
Age	18-24 Years	0	2	13	6.03	0.56	3	7.82	Not Significant
	25-30 Years	0	1	14					
	31-36 Years	0	0	4					
	Above 36 Years	0	0	10					
Gender	Male	0	3	30	1.07	0.30	2	3.84	Not Significant
	Female	0	0	11					
	Transgender	0	0	0					
Professional qualification	Illiterate	0	0	6	3.16	0.37	3	7.82	Not Significant
	Primary	0	1	23					
	dary and higher secondary	0	2	9					
	Graduate and above	0	0	3					
Area of working	Ward	0	2	24	0.95	0.622	3	5.99	Not Significant
	Administration	0	0	0					
	ICU and OT	0	0	9					
	Other	0	1	8					
Total experience in Years.	Less than 2 Years	0	1	18	1.54	0.462	3	5.99	Not Significant
	3-5 Years	0	2	14					
	5-7 Years	0	0	9					
	Above 7 Years	0	0	0					
Source of previous practice	Mass media	0	0	0	1.09	0.58	2	5.99	Not Significant
	Friends	0	1	25					
	Family member	0	0	1					
	Other	0	2	15					

chi square, P<0.05 = significant , NS =not significant , Df = degree of freedom

The above table 8 shows that the chi-square value is no significant association between pre test knowledge scores with their demographic variable in this regard H₃ is rejected because no association found between variables.

Table 9: Association of practice score between pre-test score with demographic variables

Variables	Category	GOOD PRACTICE	AVERAGE PRACTICE	POOR PRACTICE	Chi Test	P Value	df	Table Value	Result
Age	18-24 Years	0	3	12	6.24	0.101	3	7.82	Not Significant
	25-30 Years	0	0	15					
	31-36 Years	0	0	4					
	Above 36 Years	0	0	10					
Gender	Male	0	3	30	1.73	0.3	2	3.84	Not Significant
	Female	0	0	11					
	Transgender	0	0	0					
Professional qualification	Illiterate	0	0	6	0.84	0.841	3	7.82	Not Significant
	Primary	0	2	22					
	Secondary and higher secondary	0	1	10					
	Graduate and above	0	0	3					
Area of working	Ward	0	2	24	0.95	0.622	3	5.99	Not Significant
	Administration	0	0	0					
	ICU and OT	0	1	8					
	Other	0	0	9					
Total experience in Years.	Less than 2 Years	0	1	18	1.54	0.462	3	5.99	Not Significant
	3-5 Years	0	2	14					
	5-7 Years	0	0	9					
	Above 7 Years	0	0	0					
Source of previous practice	Mass media	0	0	0	2.23	0.328	3	5.99	Not Significant
	Friends	0	3	23					
	Family member	0	0	1					
	Other	0	0	17					

The above table 9 shows chi-square value shows there is no significant association between pre test practice scores with their demographic variable in this regard H₃ is rejected because no association found between variables

DISCUSSION

The current study shows the majority of the samples were aged between 18 to 30 15(34.1%); majority of samples were males i.e. 33(75.0%); based on professional qualification majority of them were having primary education 24(54.5%); based on area of working majority were working in wards 26(59.1%); based on total years of experience majority of samples has less than 2 years i.e. 19(43.2%); based on source of previous knowledge they got from friends 26(59.1). The present study shows pre-test knowledge score was inadequate knowledge 93.2%(41) and after post test knowledge increased to adequate knowledge 84.1%(37) and it further reveals that the average pre-test poor practice score was 41(93.2%) and after post test practice improved to good 31(70.5%)

A descriptive study was performed by (Priyanka et al in 2021) on 147 hospital attendants in PGIMER Chandigarh to assess knowledge and use of body mechanics in daily practice. knowledge questionnaire and observational checklist was employed for collection of data. convenient sampling was chosen. Hospital attendants in which 78.7% of subject have poor knowledge and only 23.0% follow good practices. Average practice is 52.9 percent, while poor practice is 24.1 percent. This research investigation found no significance. The majority of health attendants had poor knowledge and practice of body mechanics, according to the survey ^[9]

This study findings were supported by a similar study where the researcher conducted A descriptive survey was conducted by (Dewasi K.P 2022) in Jodhpur on 60% of staff with the objectives of to assess the knowledge regarding proper body mechanics. sample was extracted by random sample method to assess the knowledge-by-knowledge questionnaire was used for collect the data. descriptive and univariate statistics has done total nurses" information was not good as result of (11.02 +4.96%) and mean 36.72% the study also indicate that majority (70%) of sample had poor knowledge followed by (28%) had medium information and only few (1.7) % had good information on correct body mechanics.^[10].

CONCLUSION:

This study was conducted to find out the effective an educational programme was at improving workers' knowledge and practice of body mechanics. Prior to the execution of the educational programme, the majority of the hospital's class IV staff had insufficient understanding and practice in body mechanics. It is concluded that educational program will help to improve the knowledge and practice of class IV workers and thereby the risk of injury to the musculoskeletal system can be prevented.

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