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A STUDY TO ASSESS THE CLINICAL VARIABLES AND EFFECTIVENESS OF A STRUCTURED TEACHING PROGRAMME ON KNOWLEDGE REGARDING PREVENTION OF PIN SITE INFECTION AND ITS MANAGEMENT AMONG PATIENTS WITH EXTERNAL SKELETAL FIXATORS

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Abstract: This study evaluated the effectiveness of a structured teaching programme (STP) on knowledge of pin-site infection prevention and its management among 30 patients with external skeletal fixators. Using a one-group pre-test–post-test design and a 21-item questionnaire, data were analysed statistically. Mean knowledge scores increased from 7.2 to 13.7, and overall knowledge improved from 34.60% to 65.23%. The findings indicate that the STP improved patients' knowledge of pin-site care.

Index Terms— External skeletal fixator, pin site infection, structured teaching programme, patient education, knowledge, orthopaedic nursing

INTRODUCTION

External skeletal fixation stabilizes fractures using pins connected to an external frame. However, pin sites are vulnerable to infection, which may cause pain, discharge, loosening and delayed recovery.

Prevention includes aseptic care, regular assessment, prescribed cleaning and dressing, and patient education. Nurses teach patients to identify early signs such as redness, swelling, warmth and discharge.

This study assessed selected clinical variables and the effect of an STP on knowledge of pin-site infection prevention and management.

OBJECTIVES

1. To assess selected clinical variables and patients' pre-test knowledge.
2. To evaluate the effectiveness of the structured teaching programme.
3. To examine the association between pre-test knowledge and selected demographic variables.
4. To examine the association between pre-test knowledge scores and selected demographic variables

RESEARCH METHODOLOGY

Research design and setting

Pre experimental, one-group pre-test–post-test study was conducted in the orthopaedic ward of Rama Medical and Research Centre, Kanpur.

Population, sample and sampling technique

Thirty eligible patients were selected by non probability purposive sampling. Critically ill patients and those with incomplete data were excluded.

Data collection tool

A Hindi-English questionnaire included participant details and 21 multiple-choice knowledge questions. Content validity was assessed by five nursing experts and reliability by test–retest.

Data collection procedure

After ethical approval and consent, participants completed a pre-test, received the STP and took a post-test after one week. Anonymity was maintained.

Statistical analysis

Data were analysed using frequency, percentage, mean, standard deviation, paired t-test and chi-square test.

RESULTS AND DISCUSSION

A. Selected demographic and clinical characteristics

DEMOGRAPHIC VARIABLES	CHARACTERISTICS	FREQUENCY	PERCENTAGE (%)
Age in years	Below 21 years	6	20%
	22-40 years	10	33.3%
	41-60 years	6	20%
	Above 60 years	8	26.66%
Gender	Male	21	70%
	Female	9	30%
Educational status	Illiterate	6	20%
	Primary	6	20%
	Secondary	8	26.66%
	HigherSecondary	8	26.66%
	Graduation and postgraduation	2	6.66%
Personal habit	Tobacco chewing	9	30%
	Cigarette smoking	4	13.33%
	Alcohol	2	6.66%
	Any other	15	50%
Occupational status	Unemployed	15	50%
	Daily wages	7	23.33%
	Government	3	10%
	Private	3	10%
	Any other	0	0%
Socioeconomic status	Nil	14	46.66%
	Below 10,000/- 10,000	8	26.66%
	-20,000/-	4	13.33%
	20,000-30,000/-	2	6.66%

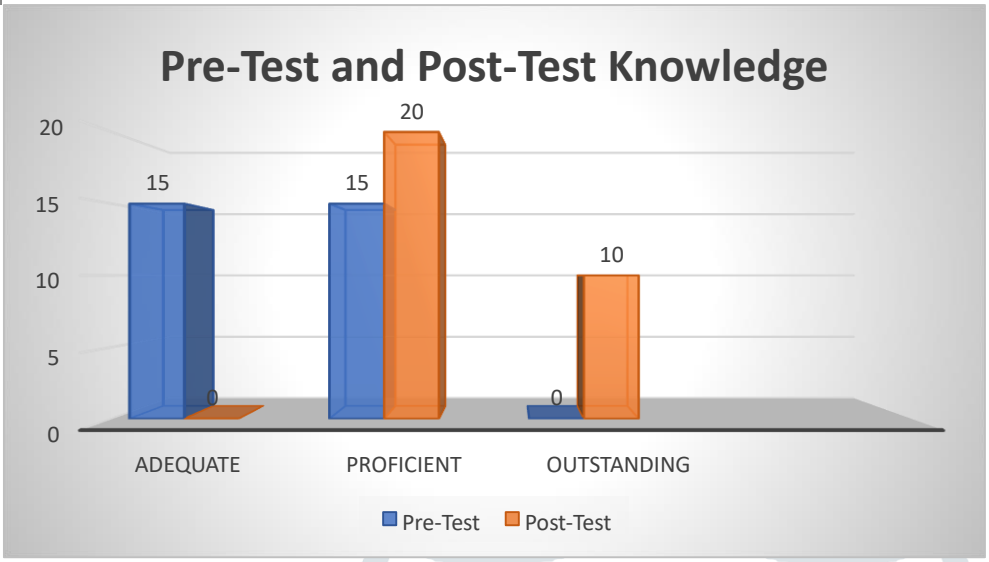
	Above 30,000/-	2	6.66%
Geographic location	Rural Urban	21 9	70% 30%
Dietary pattern	Vegetarian Non-Vegetarian Eggetarian Vegan	16 6 8 0	53.33% 20% 26.66% 0%

Most participants were male (70%) and from rural areas (70%). Lower-extremity fixators were present in 53.33%; 66.66% had fewer than five pins and 80% had used the fixator for under three months.

B. Comparison of pre-test and post-test knowledge

Knowledge measure	Pre-test	Post-test
Mean score	7.2	13.7
Standard deviation	2.72	3.19
Overall knowledge (%)	34.60%	65.23%
Knowledge improvement	—	30.63 percentage points
Knowledge category: adequate	15 (50%)	0 (0%)
Knowledge category: proficient	15 (50%)	20 (66.66%)
Knowledge category: outstanding	0 (0%)	10 (33.33%)

Mean knowledge increased from 7.2 to 13.7 after the STP. Post-test results showed 66.66% proficient and 33.33% outstanding knowledge, compared with 50% adequate and 50% proficient knowledge at pre-test.



column diagram represents knowledge enhancement

c. Association with demographic variables

No statistically significant association was reported between pre-test knowledge and the selected demographic variables ($p>0.05$).

CONCLUSION

The STP improved participants' knowledge, with mean scores rising from 7.2 to 13.7. Structured patient education can reinforce proper pin-site care and early recognition of infection.

IMPLICATIONS FOR NURSING

Nursing practice: Educate patients on pin-site care and early infection signs.

Nursing education: Include pin-site care and patient teaching in nursing curriculum.

Nursing research: Use larger samples, control groups and longer follow-up in future studies.

LIMITATIONS

Limitations: The study included only 30 patients from one hospital, had no control group and measured knowledge rather than infection rates.

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