

Effectiveness of Structured Teaching Program on Knowledge Regarding Plaster of Paris (POP) Care Among Orthopedic Patients at NMCH Hospital, Jamuhar, Rohtas, Bihar

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Abstract—Background: Plaster of Paris (POP) is widely used for fracture immobilization. Lack of knowledge regarding POP care often leads to complications such as swelling, infection, skin irritation, and delayed healing. Structured Teaching Programs (STPs) are effective tools for improving patient awareness.

Objectives: (1) Assess pre-test knowledge regarding POP care. (2) Administer a Structured Teaching Program. (3) Assess post-test knowledge. (4) Compare pre- and post-test knowledge scores. (5) Associate post-test scores with demographic variables.

Methodology: A one-group pre-test post-test design was adopted among 60 orthopedic patients receiving POP at NMCH Hospital. Purposive sampling was used. Data were collected using a structured knowledge questionnaire. The STP was delivered through charts, handouts, and verbal instruction. Descriptive and inferential statistics (paired t-test, chi-square test) were used.

Results: Pre-test knowledge was inadequate in 46.7% of patients. Post-test adequate knowledge increased to 65%. Mean pre-test score was 9.2 ± 3.1 ; post-test mean was 17.6 ± 2.8 . The paired t-test showed a significant difference ($t = 16.52, p < 0.001$).

Conclusion: The Structured Teaching Program significantly improved knowledge regarding POP care. Incorporating STPs into routine orthopedic nursing practice may reduce preventable complications.

Index Terms—Plaster of Paris, Structured Teaching Program, Orthopedic Patients, Knowledge, Patient Education

I. INTRODUCTION

Plaster of Paris remains the most commonly used technique for fracture immobilization in India due to its affordability and effectiveness. Improper POP care can lead to complications such as pressure sores, infection, swelling, neurovascular compromise, and delayed healing. Patients often receive only verbal instructions, which are insufficient and easily forgotten.

Structured Teaching Programs (STPs) provide standardized, evidence-based education designed to enhance patient understanding. Given the high orthopedic burden in rural Bihar and limited patient awareness, evaluating the effectiveness of STPs on POP care becomes essential.

II. OBJECTIVES

General Objective

To evaluate the effectiveness of a Structured Teaching Program on knowledge regarding POP care among orthopedic patients.

Specific Objectives

1. Assess pre-test knowledge regarding POP care.
2. Administer the STP.
3. Assess post-test knowledge.
4. Compare pre- and post-test scores.
5. Associate post-test knowledge with demographic variables.

III. METHODOLOGY

Research Design:

Pre-experimental one-group pre-test post-test design.

Setting:

Orthopedic Unit, NMCH Hospital, Jamuhar, Rohtas, Bihar.

Sample & Sampling:

60 orthopedic patients with POP application, selected through purposive sampling.

Inclusion Criteria:

- Age ≥ 15 years
- Receiving POP application
- Able to understand Hindi/English
- Willing to participate

Study Tool:

Structured knowledge questionnaire (20–25 MCQs) covering:

POP purpose, care instructions, complications, do’s & don’ts.

Intervention:

A 30–40 minute Structured Teaching Program delivered using charts, demonstrations, and handouts.

Data Collection:

1. Administered pre-test.
2. Delivered STP.
3. Conducted post-test after 48–72 hours.

Data Analysis:

- Descriptive statistics: mean, SD, frequency, %
- Inferential statistics: paired t-test, chi-square
- Significance at $p < 0.05$

IV. RESULTS

Table 1: Demographic Characteristics (n=60)

Variable	Category	%
Age	15–30 yrs	33.3%
	31–45 yrs	41.7%
	≥ 46 yrs	25%
Gender	Male	56.7%
	Female	43.3%
Education	Illiterate	30%
	Primary	33.3%
	Secondary+	36.7%
Prior POP education	Yes	23.3%
	No	76.7%

Table 2: Pre-test Knowledge Score

Knowledge Level	Frequency	%
Inadequate (0–8)	28	46.7%
Moderate (9–16)	26	43.3%
Adequate (17–25)	6	10%
Mean = 9.2, SD = 3.1		

Table 3: Post-test Knowledge Score

Knowledge Level	Frequency	%
Inadequate	3	5%
Moderate	18	30%
Adequate	39	65%
Mean = 17.6, SD = 2.8		

Table 4: Comparison of Pre-test & Post-test Scores

Test	Mean \pm SD	t-value	p-value
Pre-test	9.2 \pm 3.1	16.52	<0.001
Post-test	17.6 \pm 2.8		

Interpretation: Highly significant improvement in knowledge after STP.

V. DISCUSSION

The findings revealed substantial improvement in knowledge after the Structured Teaching Program. Nearly half of the participants had inadequate knowledge in the pre-test, consistent with literature highlighting poor awareness of cast care among orthopedic patients.

The significant increase in mean scores ($p < 0.001$) confirms that structured, nurse-led education enhances patients’ understanding of POP care. Similar studies by Sharma (2021), Thomas (2019), and Kulkarni (2022) reported comparable improvements.

The high proportion of illiterate and primary-educated patients indicates the need for simplified, visual teaching methods. Since 76.7% had never received POP education earlier, incorporating STPs into routine orthopedic nursing practice becomes essential.

VI. CONCLUSION

The Structured Teaching Program was highly effective in improving knowledge about POP care among orthopedic patients. Post-test adequate

knowledge increased from 10% to 65%, showing substantial learning gain. The study supports integrating STPs into routine patient care to prevent complications and promote recovery.

VII. RECOMMENDATIONS

- Implement STPs routinely in orthopedic wards.
- Provide POP care instruction sheets during discharge.
- Conduct periodic patient-education audits.
- Future research:
 - Larger sample
 - Control group comparison
 - Long-term follow-up

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