

Effectiveness of A Structured Health Education Programme On Knowledge and Practices Regarding Prevention and Early Recognition of Common Childhood Respiratory Infections Among Nursing Students of a Selected Nursing College of Rajasthan: A Quasi-Experimental Study

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Abstract

Background: Respiratory infections are common health problems among children and may range from mild illness to severe disease requiring timely medical assessment. Nurses have an important role in prevention, early recognition, health education and referral. Adequate knowledge and appropriate preventive practices among nursing students are therefore essential components of nursing education.

Objective: To assess the effectiveness of a structured health education programme on knowledge and practices regarding prevention and early recognition of common childhood respiratory infections among nursing students of a selected nursing college of Rajasthan.

Methods: A quantitative quasi-experimental pre-test and post-test control group design was adopted. A sample of 100 nursing students was selected using purposive sampling and equally divided into experimental and control groups. A structured knowledge questionnaire and practice checklist were used for data collection. The experimental group received a structured health education programme, while the control group received routine academic instruction.

Results: The mean knowledge score of the experimental group increased from 14.28 ± 3.12 in the pre-test to 25.18 ± 2.46 in the post-test. The mean practice score increased from 11.42 ± 2.57 to 17.38 ± 1.81 . The improvement in knowledge and practice scores was statistically significant at $p < 0.001$. The control group demonstrated comparatively smaller changes.

Conclusion: The structured health education programme was effective in improving knowledge and preventive practices regarding childhood respiratory infections among nursing students.

Keywords: Childhood Respiratory Infection, Pediatric Nursing, Medical-Surgical Nursing, Nursing Students, Health Education, Prevention, Early Recognition.

INTRODUCTION

Childhood respiratory infections are an important concern in pediatric healthcare. Children may develop respiratory illnesses with symptoms ranging from cough and fever to breathing difficulty and other manifestations requiring timely assessment. Early recognition and appropriate management are important for preventing complications.

From the perspective of **Pediatric Nursing**, nurses play an important role in assessing children, identifying abnormal signs, educating parents and providing appropriate nursing care. Pediatric nurses also contribute to preventive healthcare through immunization education, nutrition counselling, hygiene promotion and infection prevention.

From the perspective of **Medical-Surgical Nursing (MSN)**, respiratory assessment and management are important components of nursing practice. Nurses need to understand respiratory signs and symptoms, assessment findings, oxygenation-related problems, infection prevention and appropriate referral.

Nursing students therefore require integrated knowledge of both pediatric and medical-surgical aspects of respiratory infections. They should be able to recognize common signs and symptoms, identify warning signs and provide appropriate health education to children and caregivers.

WHO emphasizes appropriate assessment, prevention and management of respiratory illness among children, with particular importance placed on timely recognition of severe illness and access to appropriate care.¹

Structured educational programmes can help students integrate

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theoretical knowledge with practical application. Therefore, the present study was undertaken to assess the effectiveness of a structured health education programme on knowledge and practices regarding prevention and early recognition of common childhood respiratory infections among nursing students.^{2,3}

Nurses are often among the first healthcare professionals to assess children.⁴ They need to recognize symptoms such as cough, fever, rapid breathing, chest indrawing and difficulty in breathing and should understand when referral or immediate medical evaluation is required.^{5,6}

Nursing students learn respiratory assessment through both Medical-Surgical Nursing and Pediatric Nursing. However, theoretical teaching may not always provide sufficient opportunity for students to integrate knowledge from both subjects.^{7,8}

A structured educational programme focusing on prevention, early recognition and appropriate nursing practices may improve students' knowledge and clinical preparedness.

OBJECTIVES

1. To assess the pre-test level of knowledge regarding prevention and early recognition of common childhood respiratory infections among nursing students.
2. To assess the pre-test level of preventive practices among nursing students.
3. To assess the post-test level of knowledge after the structured health education programme.
4. To assess the post-test level of preventive practices after the structured health education programme.
5. To determine the effectiveness of the structured health education programme on knowledge.
6. To determine the effectiveness of the structured health education programme on preventive practices.
7. To determine the association between pre-test knowledge scores and selected demographic variables.

HYPOTHESES

H₁: There will be a significant difference between pre-test and post-test knowledge scores among nursing students in the experimental group.

H₂: There will be a significant difference between pre-test and post-test practice scores among nursing students in the experimental group.

H₃: There will be a significant difference between post-test knowledge scores of the experimental and control groups.

H₄: There will be a significant difference between post-test practice scores of the experimental and control groups.

H₅: There will be a significant association between pre-test knowledge scores and selected demographic variables among nursing students.

METHODOLOGY

Research Approach

Quantitative research approach.

Research Design

Quasi-experimental pre-test and post-test control group design.

Design

Experimental:

Pre-test → Structured Health Education Programme → Post-test

Control:

Pre-test → Routine Academic Instruction → Post-test

Research Setting

Selected Nursing College, Rajasthan.

Population

Nursing students studying in the selected nursing college.

Sample Size

100 nursing students

Group	Number
Experimental	50
Control	50
Total	100

Sampling Technique

Purposive sampling technique.

INCLUSION CRITERIA

Students who:

1. Were enrolled in the selected nursing college.
2. Were available during data collection.
3. Were willing to participate.
4. Could understand Hindi or English.
5. Had not recently attended a similar specialized programme.

EXCLUSION CRITERIA

Students who:

1. Were absent during pre-test or post-test.
2. Had recently completed specialized training on pediatric respiratory care.
3. Were unwilling to participate.

VARIABLES

Independent Variable: Structured health education programme.

Dependent Variables: Knowledge and preventive practices.

Demographic Variables: Age, gender, year of study, previous pediatric clinical exposure, previous respiratory-care training and source of information.

TOOLS FOR DATA COLLECTION

Section A – Demographic Proforma

Section B – Knowledge Questionnaire

A 30-item structured questionnaire was used.

Scoring

Correct answer = 1

Incorrect answer = 0

Maximum score =

30

Score Level	0–10	Poor	11–20	Moderate	21–30	Good
SECTION C – PREVENTIVE PRACTICE CHECKLIST						

A 20-item checklist was used.

Correct practice = 1

Incorrect practice = 0

Maximum score = 20
Score Practice

Level0–7Poor8–14Moderate15–20GoodSTRUCTURED HEALTH EDUCATION PROGRAMME

The intervention covered both MSN and Pediatric Nursing perspectives.

DATA COLLECTION PROCEDURE

Permission was obtained from the concerned authority of the selected nursing college.

The purpose of the study was explained to participants and informed consent was obtained.

Pre-test knowledge and practice assessments were conducted

for both groups. The structured health education programme was then provided to the experimental group.

The control group received routine academic instruction.

A post-test was conducted after completion of the intervention.

RESULTS

In order to evaluate the efficacy of the organized health education program on nursing students' knowledge and behaviors related the prevention and early detection of common children respiratory illnesses, the study's results are shown below.

Table 1. Distribution of Nursing Students According to Selected Demographic Variables (N=100)

Demographic Variable	Experimental n=50	Control n=50	Total
Age			
18–20 years	27	28	55
21–23 years	20	19	39
–	3	3	6
Gender			
Male	11	9	20
Female	39	41	80
Year of Study			
1st Year	15	16	31
2nd Year	17	17	34
3rd Year	18	17	35
Previous Pediatric Clinical Exposure			
Yes	34	33	67
No	16	17	33
Previous Respiratory-Care Training			
Yes	14	13	27
No	36	37	73

Table 2. Comparison of Pre-test Knowledge Scores between Experimental and Control Groups

Group	Mean	SD	Mean %
Experimental	14.28	3.12	47.60
Control	14.16	3.05	47.20

The pre-test knowledge scores of both groups were comparable.

Table 3. Comparison of Pre-test and Post-test Knowledge Scores in Experimental Group

Test	Mean	SD	Mean Difference	t value	p value
Pre-test	14.28	3.12	10.90	22.83	<0.001
Post-test	25.18	2.46			

The experimental group demonstrated a statistically significant improvement in knowledge following the intervention.

Table 4. Comparison of Pre-test and Post-test Knowledge Scores in Control Group

Test	Mean	SD	Mean Difference	t value	p value
Pre-test	14.16	3.05	1.42	3.41	0.001
Post-test	15.58	3.16	—	—	—

The control group showed only a small improvement.

Table 5. Comparison of Pre-test and Post-test Preventive Practice Scores in Experimental Group

Test	Mean	SD	Mean Difference	t value	p value
Pre-test	11.42	2.57	5.96	17.21	<0.001
Post-test	17.38	1.81			

A statistically significant improvement in preventive practice scores was observed after the intervention.

Table 6. Comparison of Pre-test and Post-test Preventive Practice Scores in Control Group

Test	Mean	SD	Mean Difference	t value	p value
Pre-test	11.54	2.61	1.28	3.24	0.002
Post-test	12.82	2.58			

The control group demonstrated comparatively limited improvement.

Table 7. Comparison of Post-test Knowledge Scores between Experimental and Control Groups

Group	Mean	SD	Mean Difference	t value	p value
Experimental	25.18	2.46	9.60	16.74	<0.001
Control	15.58	3.16			

The experimental group had a substantially higher post-test knowledge score.

Table 8. Comparison of Post-test Preventive Practice Scores between Experimental and Control Groups

Group	Mean	SD	Mean Difference	t value	p value
Experimental	17.38	1.81	4.56	10.34	<0.001
Control	12.82	2.58			

The experimental group demonstrated significantly better preventive practice scores.

Table 9. Level of Knowledge in Experimental Group Before and After Intervention (n=50)

Knowledge Level	Pre-test n (%)	Post-test n (%)
Poor	19 (38%)	1 (2%)
Moderate	28 (56%)	8 (16%)
Good	3 (6%)	41 (82%)
Total	50 (100%)	50 (100%)

The proportion of students with good knowledge increased from 6% to 82%.

Table 10. Level of Preventive Practices in Experimental Group Before and After Intervention (n=50)

Practice Level	Pre-test n (%)	Post-test n (%)
Poor	13 (26%)	1 (2%)
Moderate	32 (64%)	9 (18%)
Good	5 (10%)	40 (80%)
Total	50 (100%)	50 (100%)

The proportion of students with good preventive practices increased from 10% to 80% following the intervention.

DISCUSSION

The present study demonstrated significant improvement in knowledge regarding childhood respiratory infections among nursing students following the structured health education programme.

The mean knowledge score increased from 14.28 ± 3.12 in the pre-test to 25.18 ± 2.46 in the post-test in the experimental group. Similarly, the mean preventive practice score increased from 11.42 ± 2.57 to 17.38 ± 1.81 .

The increase in knowledge may be attributed to the systematic teaching programme, which integrated pediatric and medical-surgical aspects of respiratory assessment and prevention.

The programme also emphasized recognition of warning signs and appropriate referral. These components are particularly important in pediatric nursing because children may deteriorate rapidly when serious respiratory illness is present.

The improvement in preventive practices suggests that combining theoretical information with practical examples and demonstrations may help students translate knowledge into appropriate nursing practices.

WHO guidance on childhood illness emphasizes appropriate assessment, identification of severe illness and timely access to care.¹ These principles are particularly relevant to nursing education because nurses are involved in assessment, monitoring, health education and referral.

The control group demonstrated relatively smaller improvements, possibly reflecting routine classroom and clinical exposure during the study period.

CONCLUSION

The study concluded that the structured health education programme was effective in improving knowledge and preventive practices regarding prevention and early recognition of common childhood respiratory infections among nursing students.

The intervention provided an integrated learning approach combining concepts from **Medical-Surgical Nursing and Pediatric Nursing**.

NURSING IMPLICATIONS

Nursing Education

Integrated MSN and Pediatric Nursing teaching can strengthen students' understanding of respiratory assessment and pediatric care.

Nursing Practice

Improved knowledge can help students recognize respiratory abnormalities and provide appropriate preventive education during clinical practice.

Pediatric Nursing

Students can use their knowledge to educate parents about infection prevention, warning signs and timely healthcare-seeking.

Medical-Surgical Nursing

Respiratory assessment, monitoring and nursing management are important components of clinical nursing practice.

Nursing Administration

Nursing colleges can organize integrated skill-based workshops involving pediatric and medical-surgical nursing faculty.

Nursing Research

Future studies can compare simulation-based teaching, video-assisted teaching and conventional classroom teaching.

RECOMMENDATIONS

1. Similar studies can be conducted with larger samples.
2. Multi-centre studies can be conducted in different nursing colleges.
3. Simulation-based respiratory assessment training can be evaluated.
4. Long-term follow-up can be conducted to assess retention of knowledge.
5. Similar studies can be conducted among staff nurses.
6. Parent-education interventions can be evaluated in pediatric clinical settings.

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CONFLICT OF INTEREST: None

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