

Effectiveness of a Structured Teaching Programme on Knowledge Regarding the Adverse Effects of Active and Passive Smoking among Nursing Students

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Abstract:

Background: Tobacco use remains a massive global public health threat, acting as a leading preventable cause of premature mortality. Healthcare professionals, particularly nurses, serve as critical societal role models and frontline vectors for smoking cessation interventions.

Materials & Methods: A quasi-experimental, single-group pre-test/post-test research design was conducted with 60 nursing students chosen via convenient non-probability sampling. Data were collected utilizing a systematic 30-item structured knowledge questionnaire covering general tobacco facts and health hazards.

Results: The baseline pre-test findings indicated that a majority (70%) of the cohort possessed inadequate knowledge regarding tobacco risks. Following the STP, 66.66% achieved an adequate knowledge tier. The overall mean knowledge score advanced remarkably from 14.75 (49.16%) to 23.96 (79.86%), with a paired t-test value of 18.68 ($p < 0.05$).

Conclusion: The educational curriculum yielded an immediate, statistically significant enrichment in the students' intellectual mastery of smoking pathologies.

Keywords: Active Smoking, Passive Smoking, Structured Teaching Programme (STP), Knowledge Questionnaire, Paired t-test, Nursing Students, Kota.

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INTRODUCTION

Tobacco use remains a massive global public health threat, acting as a leading preventable cause of premature mortality. The initiation of smoking behavior typically peaks during adolescence and young adulthood, where individuals are highly vulnerable to social conditioning and peer group standards. Healthcare professionals, particularly nurses, serve as critical societal role models and frontline vectors for clinical smoking cessation interventions. However, their efficacy depends heavily on their own baseline knowledge regarding the toxicological and epidemiological impacts of tobacco smoke.

Habit is an accustomed way of doing things, characterized by repetition, automatic performance, and execution under similar environmental circumstances. Once formed, habits persist and structurally influence human behavior. Tobacco usage has evolved into one of the most prominent public health crises of modern times. Tobacco contributes to roughly 6% of all deaths worldwide, a figure followed by alcohol abuse at 1.5%. Smoking is systematically associated with severe healthcare complications, including lung cancer, ischemic heart disease, and chronic obstructive pulmonary disease (COPD). Beedi and hookah variants further amplify risks for occlusive small artery diseases and oral malignancies.

The Global Youth Tobacco Survey (GYTS) indicates that the prevalence of adolescent tobacco use remains highly alarming. Globally, between 80,000 and 100,000 children start smoking every day, and an overwhelming proportion will

face severe health consequences later in life. It is common knowledge that cigarette smoking is the single major cause of premature cancer and cardiovascular mortalities, contributing to hundreds of thousands of deaths each year. Crucially, the non-smoker is also placed at a distinct healthcare disadvantage due to passive exposure. Student nurses occupy a crucial junction in healthcare delivery; establishing a robust repository of knowledge in these cohorts ensures they can function effectively as community health counselors and intervention leaders.

MATERIALS & METHODS

The operational blueprints of this research are structurally organized around evaluating a localized curriculum intervention targeting a specific healthcare student population. The methodology layout defines the execution strategy designed to produce statistically valid metrics.

Research Framework

A pre-experimental, single-group pre-test/post-test research design was deployed to capture clear performance thresholds. The study was carried out at the Government College of Nursing, MBS Hospital premises in Kota, Rajasthan, India. A total sample scale of 60 third-year B.Sc. Nursing students participated. Sampling was executed via convenient non-probability techniques, filtering for regular course enrollment, physical availability during the data collection calendar windows, and signed informed consent documentation.

Intervention and Evaluation Nodes

The baseline evaluation utilized a 30-item closed-ended multiple-choice questionnaire structured across two specific domains: general information regarding tobacco toxicology and specific analytical knowledge on systemic pathologies. Following the pre-test baseline evaluation, a customized 45-minute Structured Teaching Programme (STP) utilizing structured audiovisual aids was delivered. A post-intervention evaluation was conducted on the seventh day post-intervention using the identical tool infrastructure.

RESULTS AND DATA ANALYSIS

The statistical matrix compiled from the 60 participants was analyzed via descriptive and inferential frameworks. Demographic parameters showed that 63.33% of the sample fell within the 22–24 age bracket, while the gender composition comprised 70% male and 30% female subjects.

1 Evaluation of Knowledge Progress

The comparative evaluation highlights a dramatic shift in knowledge tiers, proving the educational intervention significantly modified the cohort's intellectual mastery of tobacco pathologies.

Knowledge Tier (Score Range)	Pre-Test Frequency	Pre-Test %	Post-Test Frequency	Post-Test %
Inadequate (< 50% / Score 0-15)	42	70.00%	0	0.00%
Moderate (50-75% / Score 16-22)	14	23.33%	20	33.33%
Adequate (> 75% / Score 23-30)	04	6.66%	40	66.66%
Total Cohort	60	100.00%	60	100.00%

2 Inferential Performance Metrics

A paired t-test was conducted to verify whether the difference between pre-test and post-test values was caused by the structured teaching programme rather than statistical anomalies.

Evaluation Stage	Mean Score	Mean Percentage	Standard Deviation (SD)	df	Calculated t-Value	Statistical Significance
Pre-Test Stage	14.75	49.16%	3.50	59	18.68	Significant (p < 0.05)
Post-Test Stage	23.96	79.86%	1.78			

The calculated t-value of 18.68 is significantly higher than the tabulated critical threshold of 2.0010 at 59 degrees of freedom. This mathematically confirms that the teaching program is highly effective in improving knowledge regarding active and passive smoking risks.

3 Association with Demographic Variables

Chi-square analysis was conducted to uncover relationships between baseline information levels and participant background criteria. Parametric cross-tabulation established that area of residence ($\chi^2 = 7.95$), family structure ($\chi^2 = 15.76$), religion ($\chi^2 = 20.82$), and previous literature exposure ($\chi^2 = 13.83$) had highly significant statistical links with baseline knowledge parameters ($p < 0.05$). Conversely, age, gender, and household monthly financial baselines showed non-significant statistical links.

DISCUSSION AND IMPLICATIONS

The initial data clearly points to a structural lack of complete baseline information among undergraduate medical students regarding modern tobacco pathologies, especially passive exposure mechanisms. This finding directly matches observations across regional public health literature, where generalized statements about health risks rarely align with technical insight into chemical carcinogens or vascular changes.

4.1 Structural Implications

For Nursing Education, this study highlights the distinct advantages of integrating targeted STPs directly into core university blocks. Standard text reading routines should be combined with interactive, focused curriculum protocols. For Health Administrators, the tested question matrices provide an objective tool to evaluate personnel competencies before placing them into critical cardiac, respiratory, or oncology wards.

CONCLUSION AND RECOMMENDATIONS

This quasi-experimental project successfully established the adaptability and baseline knowledge of nursing students regarding active and passive smoking consequences. The implemented educational curriculum yielded an immediate, verifiably robust improvement across all testing parameters. To extend the value of these findings, future multi-centric trials utilizing massive randomized cohorts should be launched. Longitudinal research designs tracking long-term clinical practice transformations would further enrich the scope of preventive medicine tracking.

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