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A STUDY TO EVALUATE THE KNOWLEDGE OF MEASLES AND ITS VACCINE AMONG UNDERGRADUATE NURSING STUDENTS AT AL-BIRUNI COLLAGE OF NURSING HYDERABAD

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ABSTRACT

Background: Measles is a serious and highly contagious viral disease that continues to affect people around the world, especially in areas with low vaccination rates. Although a safe and effective vaccine is available, outbreaks still happen, often because of poor awareness and false beliefs. Nursing students, as future health educators, need to have correct and clear knowledge about measles and how to prevent it.

Aim: This study aimed to check how much nursing students know about measles and its vaccine, and to see if a short educational session could improve their knowledge.

Methodology: A one-group pre-test and post-test design was used. The study was done at Albiruni College of Nursing, Hyderabad. A total of 66 undergraduate nursing students were selected through convenience sampling. An adapted questionnaire was used to collect data before and after the educational session. The results were analyzed using SPSS version 27, and a paired t-test was used to compare the scores.

Results: The results showed a clear improvement in knowledge after the session. The average pre-test score was 8.863 (SD =2.44034), and the average post-test score was 11.590 (SD = 1.98837). The difference in scores was 2.7, with a p-value less than 0.001, which means the improvement was statistically significant and results are reliable.

Conclusion: The study shows that short educational sessions can help improve nursing students' knowledge about measles and its vaccine. Adding such sessions to nursing training can support students in becoming better vaccine educators and public health advocates.

INTRODUCTION

Measles is a highly contagious viral disease caused by a paramyxovirus, transmitted through direct contact and respiratory droplets. It primarily affects the respiratory tract but can lead to systemic infection. Initial symptoms include high fever, cough, runny nose, red eyes, and Koplik's spots inside the mouth [1].

The virus utilizes hemagglutinin (H) and fusion (F) proteins to enter human cells, increasing susceptibility to secondary infections. Severity varies based on age, health status, and access to care. A characteristic red rash typically appears on the face and spreads to the body [2]. The measles, mumps, and rubella (MMR) vaccine, introduced in 1989, significantly reduced global measles incidence. However, a decline in vaccination coverage in 2014 led to a resurgence of cases, highlighting the importance of sustained immunization efforts [3].

Measles spreads rapidly in crowded settings such as schools, hospitals, and workplaces [4]. The World Health Organization (WHO) recommends 95% vaccination coverage to prevent outbreaks and has outlined the Immunization Agenda 2030 (IA2030) to enhance vaccine access, particularly in underserved regions [5]. Vaccinating healthcare workers (HCWs) is critical to protect both themselves and patients, as their recommendations influence public vaccine acceptance [6].

Vulnerable populations, such as migrant workers in Qatar, face higher risks due to crowded living conditions and varying vaccination policies in their home countries [7]. The current study aimed to evaluate the knowledge of measles and its vaccine among undergraduate nursing students at Al-Biruni College of Nursing, Hyderabad.

Method

Study Setting:

The study was conducted at Al-Biruni Collage Of Nursing Hyderabad.

Study Design:

A quasi-experimental one-group pre-test post-test design was used to assess the change in knowledge among undergraduate nursing students before and after an educational intervention on measles and its vaccine.

Study Population:

The target population consisted of undergraduate nursing students (both male and female) enrolled at Al-Biruni College of Nursing at the time of data collection. Total number of students in this college was 150.

Sample Size:

"A sample of 66 undergraduate nursing students was selected to participate in the study.

Total population is 150

N=Population, n=Sample size, E= Margin of error

n=N/1+ (N) (E)2

n=150/1+ (150) (0.05) 2

n=150/1+ (150) (0.0025)

n= 150/1+0.375

n=150/1.375

Sample size was 109

A sample size of approximately 66 students out of 150 for a 95% confidence level and ±5% margin of error

Sampling Technique:

Convenient non-probability sampling method was applied due to time and accessibility constraints.

Selection Criteria:

Inclusion Criteria:

- Undergraduate nursing students who were willing to participate.
- Students available during both the pre-test and post-test phases.
- Undergraduate nursing students currently enrolled at Al-Biruni College of Nursing.

Exclusion Criteria:

- Students who had previously received specialized training or workshops on measles.
- Students who were absent during any phase of the study.

Research Tool:

A questionnaire was adopted used to assess knowledge about measles and its vaccine.

An Adopted questionnaire in a True/False format was used to check the knowledge of undergraduate nursing students about measles and its vaccine. The questionnaire had 15 easy-to-understand statements about important topics such as the cause of measles, how it spreads, its symptoms, complications, and the role of vaccination in prevention.

This questionnaire was adopted from a research tool developed by Gjini et al. (2023)in a study conducted on healthcare students in Albania. Permission was granted. The tool was chosen because it was clear, accurate, and relevant to the topic. The same questionnaire was used before and after the teaching session to see how many the students' knowledge improved.

Data Collection Procedure:

Before starting the study, I got permission from the Principal and college administration of Albiruni College of Nursing, Hyderabad.

Then, I asked the nursing students if they wanted to take part in the study. I explained the purpose of the study in simple words and told them that joining was their choice.

Students who agreed gave both written and verbal consent.

After that, I gave questionnaire to 66 students. The data was collected in their classroom in a calm and quiet environment.

Data Analysis:

The data was analyzed using SPSS version 27. Basic statistics like average (mean), number of responses (frequency), and percentage were used to describe the results. To compare the students' scores before and after the teaching session, a paired t-test was used.

Ethical Considerations:

Before starting the study, permission was taken from the Principal of Albiruni College of Nursing, Hyderabad. Each student was clearly told about the purpose of the study, what would happen during it, any possible benefits, and any small risks.

The privacy and freedom of all students were fully respected. No personal details were collected, and all answers were kept private and used only for study purposes.

Students were asked to sign a consent form to show they agreed to take part. They were also told that they could leave the study at any time without giving a reason, and there would be no negative effects if they chose to leave.

RESULTS

The study participants had a mean age of 21.06 ± 1.40 years, with the majority (78.8%) falling within the 19–22 year age group. A smaller proportion (21.2%) were older than 23 years. In terms of gender distribution, males comprised most of the study population (74.4%), while females represented 25.8%. This indicates that the sample was relatively young and predominantly male *(Table 1)*.

Table 1 Demographic information of study participants

Variables	Frequency	Percentage
Age (Mean ± SD)	21.06 ±1.402	
Age group		
19 – 22 years	52	78.8
23 >	14	21.2
Gender		
Male	49	74.4%
Female	17	25.8%

The comparison of knowledge scores shows a marked improvement after the intervention. The mean pre-test score was 8.86 ± 2.44, which increased to 11.59 ± 1.99 in the post-test. The difference was statistically significant (p = 0.001), indicating that the intervention effectively enhanced participants' knowledge levels (Table 2).

Table 2 Pre-Test vs. Post-Test Knowledge Score Comparison

Test	Mean	Standard Deviation	P – Values
Pre-Test	8.863	2.440	0.001
Post Test	11.590	1.988	

Table 3 shows for the first statement, *"Measles can be caused by both viruses and bacteria,"* only half of the students (50%) answered correctly in the pre-test. This improved markedly to 93% in the post-test, showing greater understanding of the viral etiology of measles. When asked if measles can be transmitted through drinking from the same glass, 72.7% responded correctly before the intervention, which increased to 88% afterwards, reflecting better knowledge of transmission routes.

Regarding symptoms, only 10% correctly identified the typical signs of measles in both pre- and post-test, indicating persistent misconceptions about the clinical presentation. For the complication of *flaccid paralysis,* 74.2% initially responded correctly, which rose slightly to 77.3% post-intervention, showing minimal improvement.

Knowledge about pneumonia as a complication improved from 60.6% pre-test to 84.8% post-test, highlighting enhanced awareness of serious sequelae. Recognition of measles as a global disease increased from 78.7% to 90.9%, demonstrating improved understanding of its worldwide prevalence.

Table 3: Comparison of Pre-Test and Post-Test Knowledge Scores on Measles and Its Vaccine Among Undergraduate Nursing Students

Questions	Pre-test score	Post-test score
Measles can be caused by both viruses and bacteria.	Correct 33 (50%) Incorrect 33(50%)	Correct 61 (93%) Incorrect 5 (7%)
Measles can be transmitted through drinking from the same glass as someone who has the disease.	Correct 48 (72.7%) Incorrect 18 (27.27%)	Correct 58 (88%) Incorrect 8 (12%)

The typical symptoms of measles include fever, headache, neck stiffness, and a rash.	Correct 7(10%) Incorrect 59(90%)	Correct 7(10%) Incorrect 59(90%)
Measles can have serious complications like flaccid paralysis	Correct 49(74.2%) Incorrect 17(25.7%)	Correct 51(77.3%) Incorrect 15(22.7%)
Measles can have serious complications like pneumonia.	Correct 40 (60.6%) Incorrect 26(39.39%)	Correct 56 (84.8%) Incorrect 10(15.15%)
Measles is spread all over the world.	Correct 52 (78.7%) Incorrect 14(21.2%)	Correct 60 (90.9%) Incorrect 6 (9.09%)
Measles can be treated with antibiotics.	Correct 32 (48.4%) Incorrect 34 (51.5%)	Correct 46 (69.6%) Incorrect 20(30.3%)
Measles is caused by fungus.	Correct 44 (66.6%) Incorrect 22 (33.3%)	Correct 60 (90.9%) Incorrect 6(9.09%)
The incubation period for measles is 10–14 days.	Correct 49(74.2%) Incorrect 17(25.7%)	Correct 63(95.45%) Incorrect 3(4.5)
Measles is primarily transmitted through airborne droplets.	Correct 34(51.5%) Incorrect 32(48.4%)	Correct 55 (83.33%) Incorrect 11 (16.66%)
The measles vaccine is usually given at birth.	Correct 20(30%) Incorrect 46(69.6%)	Correct 29 (43.9%) Incorrect 37(56.06)
WHO recommends Vitamin A for children with measles	Correct 42 (63.6%) Incorrect 24 (36.3%)	Correct 58(87.8%) Incorrect 8 (12.12%)
Measles is treated with chemotherapy.	Correct 47 (71.2%) Incorrect 19(28.7%)	Correct 59 (89.3%) Incorrect 7(10.60%)
Isolation of measles patients is unnecessary.	Correct 36 (54.5%) Incorrect	Correct 41(62.12%) Incorrect

	30(45.45%)	15(22.7%)
The measles vaccine generally provides long-term or lifelong immunity.	Correct 43 (65%) Incorrect 23(34.8%)	Correct 58 (87.8%) Incorrect 8(12.12%)

When questioned about antibiotic use, correct responses increased from 48.4% to 69.6%, suggesting better comprehension that measles is viral and not treated with antibiotics. For the fungal etiology statement, correct answers rose from 66.6% to 90.9%, reflecting stronger grasp of the correct cause. Knowledge about the incubation period improved substantially from 74.2% to 95.5%, showing clearer understanding of disease progression (Table 3).

Awareness that measles spreads mainly through airborne droplets increased from 51.5% to 83.3%, indicating a significant gain in knowledge about transmission. For vaccine timing, only 30% initially answered correctly, and this rose modestly to 43.9%, revealing ongoing misconceptions about vaccination schedules. Awareness of WHO's recommendation of Vitamin A for measles patients improved from 63.6% to 87.8%, reflecting better understanding of supportive management (Table 3).

Responses to measles being treated with chemotherapy improved from 71.2% to 89.3%, suggesting clearer knowledge that chemotherapy is not appropriate. On isolation practices, correct responses increased only slightly from 54.5% to 62.1%, indicating limited improvement in infection control awareness. Knowledge that the measles vaccine provides long-term immunity increased from 65% to 87.8%, showing a marked improvement in understanding vaccine effectiveness (Table 3).

DISCUSSION

This study involved 66 undergraduate nursing students at Al-Biruni College of Nursing, Hyderabad, with a majority being male (74.2%) and aged 19–22 years (mean age: 21 years). All participants completed pre- and post-test questionnaires, enabling a robust comparison of knowledge before and after an educational session on measles and its vaccine. The pre-test mean knowledge score was 8.86 out of 15, indicating moderate baseline knowledge. Post-test scores increased significantly to 11.59 ($p = .001$), confirmed by a paired t-test, demonstrating the session's effectiveness. These results align with Yılmaz et al. [8], who reported a significant improvement in nursing students' knowledge (mean score from 62.6 to 69.5) after a simulation-based education program in Turkey.

Knowledge of measles' viral etiology improved from 50% to 93% post-session, while understanding of airborne transmission rose from 51.5% to 83.3%, and recognition of pneumonia as a complication increased from 60.6% to 84.8%. These findings are consistent with Pokhrel et al. [9], who noted significant knowledge gaps among 140 medical students in Kyrgyzstan before an educational intervention, with improvements post-intervention, though 41.5% still incorrectly believed antibiotics treat measles, a misconception also observed in 30% of our participants post-session. Similarly, Gjini et al. [10] found that Albanian healthcare students had poor baseline knowledge of vaccine timing and transmission, with persistent misconceptions post-intervention, mirroring our findings where symptom recognition (e.g., rash and fever) remained low at 10% pre- and post-session. This suggests that topics like symptom identification and vaccine schedules require more intensive or repeated education.

No significant differences in score improvement were observed based on gender or age, indicating the session's broad effectiveness, consistent with Devi et al. [1], who reported uniform knowledge gains among mothers in India following health education. The use of a consistent pre- and post-test tool, adapted from Gjini et al. [10], enhanced measurement reliability, and the classroom setting fostered a conducive learning environment. However, limited improvement in vaccine timing and symptom recognition highlights the need for more interactive teaching methods, as seen in other studies [8, 10].

Overall, this study corroborates international research demonstrating that short educational sessions can significantly enhance nursing students' knowledge of vaccine-preventable diseases. However, persistent misconceptions underscore the need for regular, targeted education on symptoms, vaccine schedules, and treatment myths to better equip nursing students for their future roles in public health advocacy and immunization promotion.

CONCLUSION

The study revealed that the knowledge of undergraduate nursing students regarding measles and its vaccine significantly improved after a structured educational intervention. This demonstrates the effectiveness of targeted teaching strategies in addressing vaccine-related knowledge gaps. Regular health education programs should be integrated into the nursing curriculum to reinforce key public health concepts and prepare students for their roles as advocates in immunization and disease prevention.

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