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AN EXPERIMENTAL STUDY TO ASSESS THE EFFECTIVENESS OF KNOWLEDGE ENHANCEMENT PROGRAMME ON HPV AND HPV VACCINE IN TERMS OF KNOWLEDGE AMONG NURSING STUDENTS OF COLLEGE OF NURSING, NEW DELHI

Nursing

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ABSTRACT

Introduction: Cervical cancer, stemming from persistent Human Papillomavirus (HPV) infection, stands as the third most prevalent cancer affecting women globally, with age-standardized incidence and mortality rates of 22 and 12.4 per 100,000 women annually, making it the second most fatal cancer among Indian, these tragic losses underscore the urgent need for intervention. Within country, where cervical cancer screening remains insufficient, the HPV vaccine presents a promising avenue for preempting HPV infections and, consequently, curtailing cervical cancer incidence. **Methodology:** An experimental research was carried out at CON, AIIMS New Delhi, using one group pre-test post-test design to assess B.Sc nursing student's knowledge regarding HPV and HPV vaccine before and after administration of Knowledge enhancement programme. Non-probability Convenient sampling was used to select 90 samples from B.Sc nursing 1st year students. Structured knowledge questionnaire was used to collect the data. The questionnaire was meticulously crafted into a self-administered, anonymous online survey format, comprising a comprehensive set of 30 items in total. Spss version 26 was used for analysis. **Result:** The mean pre-test knowledge is 11.41 and median is 12% with a SD of 3.82. The study found that majority of students had poor knowledge regarding HPV and HPV vaccine before administration of Knowledge enhancement programme (95.56%). The mean post-test knowledge is 24.58 and median is 25% with a SD of 3.03. There is significant gain in knowledge (67.78%) after administration of Knowledge enhancement programme. There was significant difference between pre-test and post-test knowledge scores with a calculated t value 25.62. **Conclusion:** The findings of the study concluded that there was increase in the knowledge of the Study subjects after administration of the knowledge enhancement programme. Hence the knowledge enhancement programme is found to be effective in improving the knowledge of students.

KEYWORDS

Knowledge, Knowledge enhancement programme, HPV and HPV vaccine, Nursing students

INTRODUCTION

Human papillomavirus (HPV) stands out as one of the most prevalent sexually transmitted infections on a global scale. Its impact spans a spectrum of health complications, encompassing genital warts, abnormal bleeding, discharge, and pain. However, the advent of HPV vaccines heralds a significant stride forward in mitigating HPV-associated diseases.

The widespread adoption of vaccination holds the potential to curtail cervical cancer mortality rates worldwide by as much as two-thirds, provided universal uptake among women. Moreover, vaccination efforts can alleviate the burden on healthcare systems by diminishing the necessity for medical interventions such as biopsies and invasive procedures. Optimal efficacy of the vaccine is attained among women aged 9 to 26 years who have not been previously exposed to the HPV virus and who adhere to the prescribed three-dose regimen within the recommended timeframe.

Vaccination initiatives offer a proactive approach in mitigating HPV-induced cancers, a threat that transcends gender lines but disproportionately affects females. Globally, three vaccines are available for deployment: Gardasil 4v (quadrivalent), Gardasil 9v (nonavalent), and Cervarix 2v (bivalent).

Cancer remains a formidable global health challenge despite notable strides in medical technology for its diagnosis and treatment. Among the myriad forms of cancer, cervical cancer stands out as one of the most prevalent among women worldwide, with India bearing the highest mortality burden. Screening for precancerous lesions and the administration of the human papillomavirus (HPV) vaccine to adolescent girls represent pivotal strategies for reducing the incidence and mortality of cervical cancer. Crucially, women's awareness and knowledge about cervical cancer and its prevention play a paramount role in determining their uptake of screening services.

In India, cervical cancer ranks as one of the leading causes of mortality, with age-standardized incidence and mortality rates of 22 and 12.4 per 100,000 women annually, respectively, making it the second most fatal cancer among Indian women. The World Health Organization (WHO) underscores the importance of bolstering public awareness and enhancing access to information and services to effectively combat HPV infection, cervical cancer, and related malignancies.

Initiating HPV vaccination between the ages of 9 and 14 emerges as a highly efficacious preventive measure against these infections and associated cancers. Ideally, vaccination should precede sexual debut, thereby minimizing HPV exposure.

Problem Statement

"A study to assess the effectiveness of knowledge enhancement programme on HPV and HPV vaccine in terms of knowledge among B.Sc (Hons) 1st year nursing students of CON, AIIMS, New Delhi"

Objectives

- To assess the knowledge of nursing students regarding HPV and HPV vaccine before and after administration of Knowledge enhancement programme.
- To find the mean difference between pre-test and post-test knowledge scores regarding HPV and HPV vaccine among nursing students.

MATERIAL AND METHODS

An experimental research was carried out at CON, AIIMS New Delhi, using one group pre-test post-test design to assess B.Sc nursing student's knowledge regarding HPV and HPV vaccine before and after administration of Knowledge enhancement programme. Non-probability Convenient sampling was used to select 90 samples from B.Sc nursing 1st year students. Experimental research carried out to assess knowledge regarding HPV and HPV vaccine Nursing students, of AIIMS College of Nursing, New Delhi. The study population comprised of Bsc (hons) nursing 1st yr nursing students of AIIMS College of nursing, New Delhi. Non probability Purposive Convenient sampling technique was used to collect data from 90 study subjects who fulfilled the inclusion criteria. Independent Variables were Age, education qualification, previous knowledge etc whereas Dependent variable was knowledge related to HPV and HPV vaccine. Data was collected using self-structured Questionnaire for collecting demographic data, and for the assessment of knowledge. The tool and the intervention were validated by a panel of experts. Tool try out was carried out on 20 study subjects to check it for the clarity, relevance and to determine the time taken for collecting the data. Reliability coefficient of tool was found to be 0.74 revealing the tool is consistent, precise and accurate for administration in the main study. Pilot study was conducted on 10 study subjects to assess the feasibility and practicability of the main study.

Tools of the Study

Structured knowledge questionnaire was used to collect the data. The questionnaire was meticulously crafted into a self-administered, anonymous online survey format, comprising a comprehensive set of 30 items in total. Spss version 26 was used for analysis.

The study tool comprised of two sections.

Section 1: - Structured Demographic Questionnaire.

It consisted of 7 items related to age, religion, monthly income, educational qualification, Awareness of HPV vaccine, Vaccination

status, Reason for not being vaccinated Awareness of HPV and HPV vaccine, Source of information

Section 2: Structured Knowledge Questionnaire.

It consisted of 30 MCQs to assess knowledge related to HPV and HPV vaccine. Each item was carrying one mark for right answer whereas 0f zero for the wrong one; maximum score was 30 and minimum was 0. The score was divided into three categories: poor knowledge (1-15), average (16-23), good knowledge (24-30).

Procedure for Data Collection:

After obtaining formal permission from the institutional ethical committee, data was collected during 8-15 oct 2023. The subjects were contacted individually. The purpose of the study was explained and informed consent was obtained. They were assured about confidentiality of the data collected. The data were collected by administering the tool.

Data Analysis

The data obtained were entered in master data sheet and analyzed by using IBM SPSS version 26 software. Data were presented in the tables and figures with frequency, percentage, range, mean and standard deviation. Paired t- test was applied to find out the mean difference.

RESULTS

Table 1. Frequency Distribution of Demographic Variables N=90

S.No	Demographic Variables	Frequency	Percentage (%)
1	AGE IN YEARS		
	18 years	7	7.8
	19 years	22	24.4
	20 years	26	28.9
	21 years	19	21.1
	22 years	9	10
	23 years	6	6.7
	25 years	1	1.1
2	RELIGION		
	Hindu	83	92.2
	Muslim	3	3.3
	Christian	2	2.2
	Buddhist	1	1.1
	Others	1	1.1
3	MONTHLY INCOME (IN INR)		
	<20,000	38	42.2
	21,000-30,000	20	22.2
	31,000-50,000	13	14.4
	>50,000	19	21.1
4	ARE YOU AWARE OF HPV VACCINE		
	Yes	14	15.6
	No	76	84.4
5	IF YES FROM WHERE YOU GOT THE INFORMATION		
	Books/ newspaper/	19	21.1
	Family members	2	2.2
	Friends/classmates	44	48.9
	Multimedia (such as Instagram/ Facebook etc.)	25	27.8
6	ARE YOU VACCINATED AGAINST HPV		
	Yes	1	1.1
	No	89	98.9
7	IF "NO" THEN, WHAT COULD BE THE REASON FOR NOT VACCINATING AGAINST HPV		
	Costly	1	1.1
	Not effective	12	13.3
	Possible side effect	5	5.6
	Not aware	72	80

Data Depicted in Table 1 Shows That:

- According to the age distribution, 28.9% who participated in the study were in the age group of 20 years and 24.4% of them were 19 years old, 21.1% were 21 years old. 10% were 22 years old, 7.8% were 18 years old, 6.7% were 23 years old and 1.1% were 25 years old.
- With regard to religion, majority i.e., 92.2% of students were

Hindu, 3.3% of students are Muslims, 2.2% students belong to Christian and 1.1% of students belong to Buddhism and 1.1% of students are from other religions.

- According to data collected with regard to family monthly income, 42% has monthly income <20,000, 22% has monthly income in between 21,000-30,000 Rs, and 21% has their monthly income >50,000 Rs. and 15% of them have their monthly income in between 31,000-50,000.
- With regard to data collected about awareness of HPV and HPV vaccine, all students (100%) gained the knowledge about HPV and HPV vaccine after completion of awareness program about HPV vaccine.
- According to data collected with regard to source of information about HPV and HPV vaccine 48.9% of students got the information about the HPV and HPV vaccine from friends and classmates, 27.8% of students got the information from multimedia, 21.1% of students got the information from books and newspaper, and only 2.2% of students got the information about HPV and HPV vaccine from their family members.
- With regard to data collected about no. of students vaccinated against HPV, around 98.9% students are not vaccinated and only 1.1% students were vaccinated against HPV.
- According to data collected with regard to reason for not taking vaccine, about 80% of students were not aware about HPV vaccine, 13.3% of students believe that HPV vaccine is not effective, 5.6% of students are unwilling to take vaccine because of possible side effects, 1.1% of students didn't take vaccine because of unaffordable cost of vaccine.

Table 2: The Mean, Median, Standard Deviation of Pre-Test and Post Test Score of Nursing Students Related to HPV and HPV Vaccine. N = 90

Descriptive Statistics					
	Minimum	Maximum	Mean	Median	Std. Deviation
Pre-Test Score	2	20	11.4111	12	3.8451
Post test score	18	30	24.5889	25	3.02757

Table 2 shows post test score (24.58) of students' knowledge about HPV and HPV vaccine is higher as compared to pre-test score of students (11.41) with mean difference of 13.178. Thus, it was established that the difference obtained in pre-test and Post-test knowledge scores in nursing students is a true difference and not by chance.

The mean pre- test (11.4111) and post test (24.5889) shows the mean knowledge score of post -test is higher as compared to pre-test. This indicates that there was gain of knowledge regarding HPV and HPV vaccine.

This finding reveals that the knowledge enhancement programme was effective in increasing the knowledge of HPV and HPV vaccine among nursing students.

The standard deviation of pre-test score of students is (3.82451) which is higher than the SD post-test knowledge score (3.02757) indicating that the knowledge becomes more homogenous after administration of knowledge enhancement programme.

Table 5: Paired Difference Between Pre-Test and Post-Test N = 90

Paired Samples Test								
		Mean difference	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference		t value	DF
					Lower	Upper		
Pair 1	Score	13.178	4.87962	0.51436	-14.1998	-12.1558	25.62	89

Table 5: This table shows significance difference between the mean pre-test and post-test knowledge scores of nursing students.

DISCUSSION

Knowledge of nursing students regarding HPV and HPV vaccine

- The finding of the study are also in conformity with the finding of Mehta et al, who conducted study on female dental students, only 18% of the study population have high level of total correct knowledge but majority of them (63%) had average level of correct total knowledge. Mehta et al had similar observation

among Indian medical students wherein they reported that the level of awareness about HPV and HPV vaccine was low (14). In our study around 32.22% had average knowledge regarding HPV and 67.78% had good knowledge.

- The finding of study may be due to the fact that nursing students have no experience regarding the HPV as they didn't study it in the academic curricula, there was a lack of educational interventions as awareness campaigns to augment the HPV immunization programme, the family was not aware of the importance of vaccination against the HPV that are supported by the result of white et al (2016) and Gang Chen et al (2022) who revealed that college students had low knowledge of HPV and HPV vaccine.(14)
- In spite of the proven efficacy of HPV vaccine, the uptake of HPV vaccination is very low in many developing countries, including India. Lower perceived risk of cervical cancer, non-availability of vaccine, high cost are the common reason but lack of complete knowledge about causative role of HPV in carcinoma cervix is one of the most important determining factor for poor uptake of vaccination.
- The educational program led to an increase in knowledge of HPV and its vaccination among the students, suggesting the effectiveness of structured educational interventions in public health.

Implications

The findings of the study have several implications in nursing practice, nursing education, nursing administration and nursing research.

Nursing Practice

The implications of the HPV and the HPV vaccine in nursing service are significant and encompass various areas:-

- Vaccination programme - To encourage general public to take vaccine to promote health.
- Patient education and counseling- To educate and counsel the public about benefits and risk of HPV vaccine.
- Screening and follow up- To educate public about appropriate age for screening and maintain follow up.
- Adverse events monitoring- To monitor adverse events of vaccination
- Policy advocacy- nursing students should be encouraged to advocate for policies and programmes that promote HPV vaccination and cervical cancer prevention at both the individual and community level

Nursing Education

The implications of the HPV and the HPV vaccine in nursing education are significant and encompass various areas:-

- Counseling and education - nursing education should include Training and counseling techniques to address vaccine hesitancy and provide accurate information about the HPV vaccine safety and efficacy.
- Cervical cancer screening - nurses should understand the connection between HPV infection and cervical cancer.
- Comprehensive understanding - nursing students must grasp the virology, epidemiology and clinical manifestations of HPV, as well as the importance of vaccination.
- Cultural competence - nursing education should also address cultural beliefs and practices that may influence attitude towards HPV vaccination and screening.

Nursing Research

The implications of the HPV and the HPV vaccine in nursing research are significant and encompass various areas:-

- Health outcomes and surveillance - nursing research examines the impact of HPV vaccination on population health outcomes, such as reduction in HPV related infection, genital warts, cervical cancer incidence.
- Vaccine efficacy and safety - nursing researchers investigate the effectiveness and safety of HPV vaccine through clinical trial and longitudinal studies.
- Vaccine adherence and uptake - understanding factors influencing HPV vaccines adherence and uptake is crucial. Nursing research explores barrier and facilitators to vaccination, including patient's beliefs, health care provider's recommendation and health care system factors.
- Cost-effectiveness analysis - nursing researchers conduct cost-effectiveness analysis of HPV vaccination programme to assess the economic impact and return on investment.

Limitations

The key limitations identified within this analysis are:-

- Sample Size and Generalizability: The study was conducted with a relatively small sample size of 90 participants. A larger sample size would provide more robust data and allow for better generalization.
- Demographic Limitations: The demographic profile of the participants is limited to a specific group of nursing students from AIIMS, New Delhi, predominantly hindu religion.
- Pre and Post-Test Design: While the study effectively uses a pre and post-test design to measure the impact of an educational intervention on HPV vaccine knowledge, it lacks a control group for comparison.
- Lack of Longitudinal Follow-Up: The study does not mention any follow-up with participants to assess the long-term retention of knowledge or any changes in vaccination behavior following the educational program.
- Barriers to Vaccination not fully explored: While the study notes the primary reasons for not being vaccinated as cost, perceived ineffectiveness, potential side effects, and lack of awareness.
- Impact on actual vaccination rates: The study focuses on knowledge and awareness but does not report any direct impact on vaccination rates among the participants. Assessing changes in vaccination behavior would provide a more comprehensive evaluation of the intervention's effectiveness.
- Focus on Nursing Students Only: By focusing exclusively on nursing students, the study may overlook the perspectives and needs of other student populations or healthcare professionals who could also benefit from HPV awareness and education.

Recommendations

On the basis of findings the following recommendations are offered for future research:

- Information on HPV and HPV vaccine should be made available to increase the knowledge and uptake among the students.
- Similar study can be conducted to assess the effectiveness of other educational strategies to improve the knowledge of the students regarding cervical cancer and its prevention.
- There is a need to impact health education regarding cervical and HPV vaccine amongst the adolescents' girl to enhance and for the better acceptance of HPV vaccine.
- This study can be replicated on large groups.

CONCLUSION

Nursing students form an integral and important component of maternal health care delivery system and their contribution in the event of complication as a part of team can be of paramount significance. The education and skill of a student nurse is designed to enable her fulfill their wide and varied role. The aim of assessing knowledge of student nurses is to prepare them for occupying the first-level position in nursing in all kinds of health care setting for better maternal outcome.

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