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Research Paper

Knowledge, attitude and willingness regarding HPV vaccination among nursing students of selected nursing college, Mangalore

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ABSTRACT: *Background : Human papillomavirus infection is one of the most significant factors in the development of cervical, anal, oropharyngeal, penile, and vaginal cancers. There are available vaccines to prevent high-risk HPV infections. Nursing students, as future health professionals, have a significant role in promoting HPV vaccination.*
Objectives: To assess the knowledge, attitude and willingness regarding HPV vaccination among BSc nursing students in a selected nursing college in Mangaluru, India.
Methods: A descriptive cross-sectional study involved 319 BSc nursing students, chosen through convenience sampling from a nursing college in Mangaluru. Information was gathered using a structured questionnaire assessing knowledge of HPV vaccination and an attitude scale. The data were analyzed using SPSS.
Results: Of the 319 participants, 48% reported having previous knowledge regarding HPV vaccination. Overall, 61% (n=195) had poor, 37% (n=118) had satisfactory and only 2% (n=6) had good knowledge regarding HPV vaccination. Regarding attitude, 48% (n=153) showed a favorable attitude whereas remaining 52% (n=166) showed an unfavorable attitude towards HPV vaccination. A moderate positive correlation was found between knowledge and attitude (r = 0.572), suggesting that increased knowledge scores were linked to more favorable attitudes.
Conclusion: The findings highlight the need for structured educational interventions on HPV and HPV vaccination within nursing curricula to improve knowledge, shape positive attitudes and enhance uptake of HPV vaccination.

KEYWORDS: *HPV vaccination, knowledge, attitude, willingness, nursing students*

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I. INTRODUCTION

Human papillomavirus infection is one of the most common and extensive sexually transmitted disease worldwide. In many low- and middle-income nations, it is one of the most common causes of cervical cancer, a worldwide health concern and public health burden. The World Health Organization has established a global agenda to eradicate cervical cancer through immunization of young people and has emphasized the importance of the HPV vaccine in preventing and controlling the disease [1]. The uptake of HPV vaccines remains low despite evidence of their safety and effectiveness [2].

Globally, 160 out of 194 countries have implemented HPV vaccine in their National Immunization Program. Among these countries, 90 have adopted a single-dose schedule of HPV vaccine, which includes most of the Southeast Asian nations. Similarly, 80 countries are currently using Gardasil-4 vaccine in their National Immunization Program. Among these, 61 countries are using a single-dose schedule of Gardasil-4. India is using Gardasil-4 (Quadrivalent HPV 6/11/16/18) vaccine in a single-dose schedule and is looking forward to a national campaign in 2026 with a humongous target of covering 1.2 crore girls of 14 years of age [3].

Studies across diverse populations have consistently highlighted limited awareness and misconceptions regarding HPV and its vaccine. For instance, surveys in Switzerland [4], China [2,4] and Africa [5,6]revealed that while

general knowledge of HPV was moderate, attitudes toward vaccination were influenced by perceived risks, cultural beliefs, and trust in healthcare providers. Similarly, qualitative research[7] involving adolescents, parents, and healthcare professionals underscored the role of social perceptions and institutional support in shaping vaccine acceptance. Studies conducted among medical, dental, and nursing students [9,10,11] in India, where cervical cancer accounts for a significant portion of cancer-related morbidity and mortality (22.86% of all cancer cases in women and 12% of all cancer cases in both men and women [8]), have revealed varying levels of knowledge and acceptance, with willingness to vaccinate frequently constrained by cost, safety concerns, and a lack of targeted educational interventions.

Nursing students may have an impact on vaccination attitudes in society as future health care professionals. Few studies have been conducted on the knowledge, attitudes, and willingness of nursing students in Mangalore, regarding HPV vaccination. In this regard, the study is to evaluate nursing students' knowledge, attitudes, and willingness regarding HPV vaccination in order to provide guidance for improved HPV vaccination behavior among nursing students and, consequently, society.

II. METHODS

Study Design: The study used a descriptive cross-sectional design and was conducted between April and May of 2025.

Population and Sampling method: Area of study:

The target population for this research included all the nursing students who were pursuing their Bachelor of Nursing degree in a selected college of nursing in Mangaluru, affiliated with RGUHS. The sampling method adopted for this research is purposive sampling. A total of 340 eligible nursing students were approached for this research. Considering a confidence interval of 95% and response distribution of 50% with an allowance for a non-response rate of 10%, the required sample size for this research was calculated to be 181 (with the aid of RAOSOFT7). A total of 319 nursing students participated in this research.

Tools: The tools used for the study included

Section A: baseline proforma which included age, gender, academic year, previous knowledge, source of previous knowledge, willing to get HPV vaccination.

Section B - A structured questionnaire consisting of 20 multiple choice questions. Based on the scores the students who scored less than 50% were considered to have poor, those between 50-75% as satisfactory and ≥ 75% as good knowledge.

Section C: The attitude towards HPV vaccination was assessed using 5point Likert scale, The students who had scored above average (>11.74) were considered to have favorable and less than average as non-favorable towards vaccination. The tools were validated (CVI=0.8) with 5 experts from the field and the tool was found to be reliable (Cronbachα= 0.82). Pilot study was conducted among 30 students and was found to be feasible.

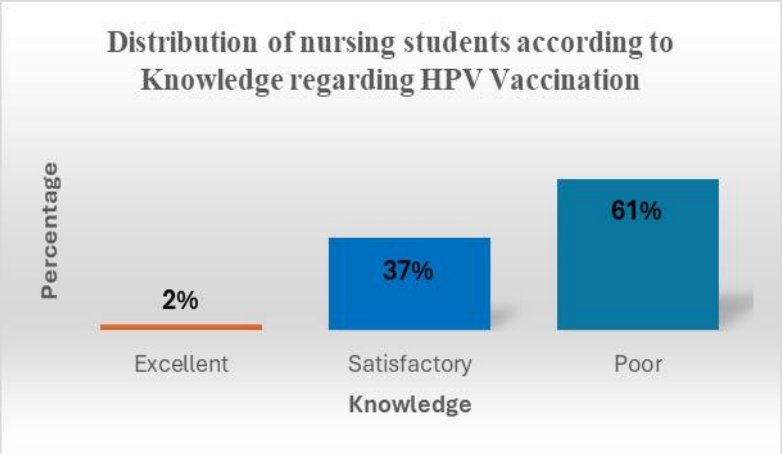
Following the IEC's ethical clearance, permission was sought from the institution's head. Class coordinators shared the Google Form link with the students after the investigators explained the purpose of the study. The survey, consent, and participant information were all included in the Google Form. After that, the data was arranged into a master sheet and analysed using SPSS.

III.RESULTS

Baseline characteristics of nursing students

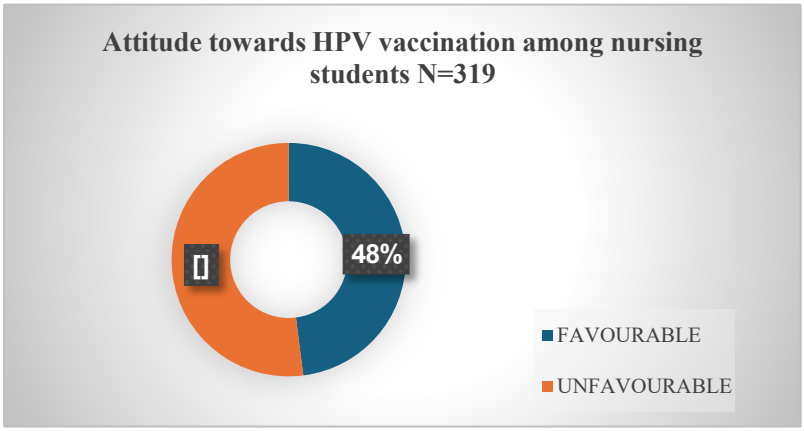
The mean age of the students was 20.38 ± 1.5 years, with 56.7% of the students being ≤20 years old. Most of the students were females (87.1%). In academic level, the students were distributed as follows: 27.6% in the first year, 24.8% in the second year, 29.2% in the third year, and 18.8% in the fourth year. Almost half of the students (48%) had prior information about HPV vaccination, mostly from health care workers (64.1%) and social media (47.7%). Only 20.7% of the participants were vaccinated against HPV. Of the non-immunized participants, 75.1% were willing to be vaccinated, whereas 16.6% were not interested in receiving the vaccine, and 8.3% were uncertain.

Knowledge regarding HPV vaccination among nursing students



Data in Fig 1 displays that Nursing students' knowledge regarding HPV vaccination was predominantly poor (61%), followed by satisfactory (37%), while only a small proportion (2%) demonstrated excellent knowledge.

Attitude towards HPV vaccination among nursing students



Data in Fig 2 shows that nursing students demonstrated divided attitudes towards HPV vaccination, with 48% exhibiting favorable attitudes and 52% unfavorable attitudes.

Correlation between knowledge and attitude of nursing students towards HPV vaccination:
Higher knowledge levels were linked to more positive attitudes regarding HPV vaccination, as the study result showed a moderately positive connection between knowledge and attitude ratings ($r = 0.572$, $p < 0.001$).

Association between knowledge and attitude and baseline variables
The results of the study revealed that there is a significant association between higher knowledge scores and the willingness of the students to receive HPV vaccination ($\chi^2 = 11.673$, $p = 0.003$), and the year level of the students had a borderline significant association ($p = 0.057$). with regards to attitude scores towards HPV vaccination had a significant association with the willingness of the students to receive the vaccine ($\chi^2 = 27.114$, $p < 0.001$), in students with higher attitude scores.

IV.DISCUSSION

The aim of the current study was to investigate the knowledge, attitude, and willingness of HPV vaccination among nursing students. The mean age of the students in the current study was 20.38 ± 1.5 years with female predominance of 87.1%, and such female predominance is common among nursing students globally. Similar results were obtained in the study. Only 20.7% of the students in the current study had been vaccinated with HPV vaccine, and such a result is in agreement with the study conducted among medical students [9] where only 13.4% of the students had been vaccinated. A contrast result of the current study where no students had been vaccinated was obtained in the study conducted among nursing students [10].

Predominance of poor knowledge (61%) in this study is consistent with several studies conducted among different populations, such as school children, young, and middle-aged groups [5, 7, 12]. However, a study conducted in Switzerland [4] and another study conducted among nursing students in India, where 51% of nursing students possessed moderate knowledge[10], were in contrast.

The almost equal distribution of favorable (48%) and unfavorable (52%) attitude was found in this present study and was in accordance with another Indian study conducted among nursing students wherein 50.1% had a negative attitude towards HPV vaccination [10]. However, studies conducted globally [4,6,7] found a more positive attitude and importance of HPV vaccination. These findings could be attributed to cultural hesitancy and lack of information and institutional promotion of HPV vaccination in these settings [4,10,12].

The moderate level of positive correlation between knowledge and attitude scores that has been established in the study ($r = 0.572$, $p < 0.001$) is similar to the results of other studies that have shown a correlation between increased knowledge and more favorable perceptions of vaccines [4,6,7]. This is particularly pertinent in terms of education aimed at changing attitudes where knowledge is directly linked with acceptance of the vaccine, as shown in the low uptake of HPV vaccine (20.7%) in this study, similar to the results of a study of Northern Indian nursing students where there was no uptake of the vaccine [10].

Higher knowledge and attitude scores strongly predicted willingness to vaccinate with $\chi^2 = 11.673$, $p = 0.003$ for knowledge and $\chi^2 = 27.114$, $p < 0.001$ for attitude. Of the students who were not vaccinated, 75.1% were interested in receiving the vaccine, which was higher than the acceptance rate in paramedical students in Karnataka study [11]8, i.e., 36-58%. This was in accordance with the trend where the population was willing to get vaccinated [4,6,7].

V.CONCLUSION

This study reveals significant discrepancies in nursing students' views and understanding about HPV vaccination, with 52% having negative attitudes and 61% having inadequate knowledge. Improved availability and awareness campaigns could greatly increase HPV vaccine adoption, despite low vaccination rates (20.7%) and high desire (75.1%) among unvaccinated students. Implementing focused vaccination campaigns and incorporating structured HPV education into curriculum are crucial steps in boosting vaccine acceptability because nursing students will be future healthcare champions. Better coverage can be achieved by strengthening policy initiatives, such as required or subsidized HPV vaccine.

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Conflicts of interest

There are no conflicts of interest.

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