"EFFECT OF HEALTH EDUCATION ON THE AWARENESS OF HUMAN PAPILLOMAVIRUS INFECTION AMONG UNDERGRADUATE STUDENTS OF A HEALTH SCIENCES UNIVERSITY - AN INTERVENTIONAL STUDY"

Submitted by

(REG. NO. BD0121007)

Dissertation

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BELAGAVI, KARNATAKA, INDIA - 590010.

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To,

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Sub: Institutional Ethical Clearance for the study.

With reference to the above, we wish to inform you that your proposed research project titled **"EFFECT OF HEALTH EDUCATION ON THE AWARENESS OF HUMAN PAPILLOMAVIRUS INFECTION AMONG UNDERGRADUATE STUDENTS OF A HEALTH SCIENCES UNIVERSITY- AN INTERVENTIONAL STUDY."** is ethical and justifiable. The proposed research project has been cleared by the JNMC Institutional Ethics Committee.

(Dr. Smita Sonoli)
Member Secretary
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(Dr. Harsha Hegde)
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LIST OF ABBREVIATIONS USED

S. No.	Abbreviations	Expansion of the Abbreviations
1.	HPV	Human Papillomavirus
2.	DNA	Deoxyribonucleic Acid
3.	STD	Sexually Transmitted Disease
4.	WHO	World Health Organization
5.	SII	Serum Institute of India
6.	NPCDCS	National Program for Prevention and Control of Cancer, Diabetes, Cardiovascular Diseases, and Stroke
7.	US	United States
8.	FDA	Food and Drug Administration
9.	SAGE	Strategic Advisory Group of Experts on Immunization
10.	PMP	Para Medical Professional
11.	KAP	Knowledge, Attitude and Practice
12.	EI2W	Educational Intervention for 2 Weeks
13.	ANM	Auxiliary Nurse Midwife
14.	EMR	Electronic Medical Record
15.	Cervical CAM	Cervical Cancer Awareness Measure Instrument
16.	STI	Sexually Transmitted Infection
17.	ACIP	Advisory Committee on Immunization Practices
18.	mHealth	Mobile Health
19.	PAP test	Papanicolaou test
20.	HCW	Health Care Worker
21.	OHP	Oral Health Professional

22.	Pre-Q	Pre-Lecture Questionnaire
23.	Post-Q	Post-Lecture Questionnaire
24.	Follow-Q	Follow-up Questionnaire
25.	aOR	Adjusted Odds Ratio
26.	KAHER	KLE Academy of Higher Education and Research
27.	IEC	Institutional Ethics Committee
28.	JNMC	Jawaharlal Nehru Medical College
29.	PHC	Primary Health Centre
30.	UHC	Urban Health Centre
31.	SPSS	Statistical Package for Social Sciences
32.	ANOVA	Analysis of Variance
33.	INR	Indian Rupee
34.	SES	Socio-Economic Status
35.	CPI	Consumer Price Index
36.	CPI-IW	CPI for Industrial Workers
37.	MF	Multiplication Factor
38.	%	Percentage
39.	=	Equal to
40.	>	Greater than
41.	<	Lesser than
42.	≥	Greater than or Equal to
43.	≤	Lesser than or Equal to

ABSTRACT

"EFFECT OF HEALTH EDUCATION ON THE AWARENESS OF HUMAN PAPILLOMAVIRUS INFECTION AMONG UNDERGRADUATE STUDENTS OF A HEALTH SCIENCES UNIVERSITY - AN INTERVENTIONAL STUDY"

Background:

Human papillomavirus (HPV) infection is a significant public health concern associated various cancers. Despite available vaccines, knowledge gaps persist among healthcare students, impacting vaccine uptake.

Objective:

This study aimed to measure the impact of an educational intervention on college students' knowledge, attitudes, and practices regarding HPV infection and vaccination. Also, the study aimed to assess the potential barriers to vaccination

Methods:

A pre-post interventional study was conducted among 656 undergraduate healthcare students over a period of one year to assess baseline KAP linked to HPV infection as well as vaccination using a self-structured validated questionnaire. Afterward, an educational intervention took place, utilizing an interactive PowerPoint presentation. Post-test surveys were administered one month after the intervention. Statistical analyses, including Wilcoxon signed-rank tests and correlation analyses, were performed.

Results:

The Median (IQR) age of the students in the study was 21 (5) years. Pre-test surveys revealed knowledge gaps and misconceptions among participants with a knowledge score of 10.59 ± 6.58 (Mean ± SD), attitude score of 1.31 ± 1.944 (Mean ± SD) and pre-test willingness to receive the vaccine was 6.4%. Whereas, post-intervention, significant improvements were observed in knowledge, attitudes, and practices regarding HPV infection and vaccination. Also, participants demonstrated greater awareness of vaccine benefits, recommended age groups, and availability with a mean knowledge score of 25.82 ± 8.34. Attitudes towards vaccination improved, with increased willingness to receive and recommend the vaccine with a mean attitude score of 3.84 ± 4.259. Practices also shifted, with more participants expressing readiness to receive (75.9%) and advocate for vaccination. Moreover, the study demonstrated the potential barriers to vaccination as lack of awareness, non-availability and cost of the vaccine.

Conclusion:

Targeted educational interventions effectively improved HPV vaccination awareness and acceptance among college students. These findings contribute to public health efforts in HPV prevention and control.

Keywords:

Health Education, Human Papillomavirus, Human Papillomavirus Vaccination, Healthcare Students, Knowledge, Attitude, Practice

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INTRODUCTION

Human Papillomavirus belongs to the Papillomaviridiae family and constitutes a diverse group of double-stranded DNA viruses with an affinity for epithelial tissues. The enduring presence of HPV infection stands as a significant sexually transmitted disease (STD), causing infection in both the genders. Typically, about 90% of HPV infections spontaneously clear or become dormant within 1 to 2 years of acquiring an infection, often resolved by the immune system. However, in cases where the virus persists, it can lead to lesions that elevate the risk of malignancies.[1]

The primary mode of spreading HPV is through sexual contact, with most individuals acquiring the infection shortly after initiating sexual activity.[2] HPV types transmitted through sexual contact can be categorized into two groups: low-risk and high-risk. High-risk HPV strains have the potential to lead to various type of cancers. Among the 12 identified high-risk HPV types, HPV 16 and HPV 18 are particularly implicated in the majority of HPV-related cancers. Alternatively, low-risk HPV types (HPV 6 and HPV 11), do not lead to cancer development.[3]

The main factors affecting, HPV on cancer development such as alcohol consumption, smoking cigarettes, prolonged exposure to sunlight, and other forms of radiation is extensively documented. Also, epidemiological research indicates that socioeconomic elements such as education level and income, sexual and reproductive behaviors, as well as various lifestyle choices and specific health practices, also play a significant role in the onset of HPV-related cancers.[4]

HPV infection is now widely acknowledged as a main factor leading to cervical cancer and it is the 4th most prevalent cancer among women internationally

with approximately 6,04,127 newly diagnosed 3,41,831 reported mortalities as of 2020. Whereas in India, it is positioned as the 2nd most prevalent cancer among women with an annual incidence of 1,23,907 cases.[5]

Also, there is increasing evidence linking HPV to various anogenital cancers (anus, vulva, vagina, and penis) as well as head and neck cancers. Notably, HPV strains 16 and 18 are responsible for roughly 70% of cervical cancer incidences worldwide. Also, HPV is implicated in other conditions such as recurrent juvenile respiratory papillomatosis and genital warts, primarily attributed to HPV types 6 and 11.[6]

To overcome this, World Health Organization (WHO) in 2020 introduced a global strategy aimed at eliminating cervical cancer. According to this strategy, the threshold for achieving elimination status is set at 4 cases per 100,000 women-years. The strategy outlines specific targets, known as the 90–70–90 targets, which countries are expected to achieve by 2030 to combat cervical cancer. These targets include ensuring that 90% of girls receive full HPV vaccination by the age of 15, 70% women should undergo high-performance screening tests at the age of 35 and 45 years, and 90% women diagnosed with cervical disease receive appropriate treatment. This involves treating 90% of women with precancerous conditions and managing 90% of women diagnosed with invasive cervical cancer.[7]

The availability of HPV vaccines targeting these strains (HPV 6, 11, 16, 18) presents a promising avenue to potentially reduce the occurrence of HPV-related lesions and cancers.[8,9] Hence, implementing cost-effective measures such as HPV vaccination, along with screening and treating pre-cancerous lesions, stands as an effective strategy to prevent HPV-related cancers.[10]

There are currently six licensed HPV vaccines, including bivalent, quadrivalent, and nonavalent vaccines. The initial efficacy trials focused on GARDASIL® and Cervarix®. Cervarix® focusing on HPV types 6 and 11 strains is bivalent while GARDASIL® targeting HPV types 6, 11, 16 and 18 is quadrivalent. Both vaccines demonstrated outstanding efficacy in preventing incident infections with the targeted HPV types, with favorable safety profiles. The GARDASIL® trials also revealed protection against genital warts. Additionally, GARDASIL9® is nonavalent that is approved up to 45 years for preventing anogenital lesions in both genders. Notably, the FDA recently extended its indication to include protection against malignancies of the head and neck, including oropharyngeal cancers.[11]

Recently, researchers have presented findings from a pivotal phase 2/3 trial assessing the efficacy of a quadrivalent HPV vaccine indigenously manufactured in India. The study demonstrates that, CERVAVAC® vaccine developed by SII, generated antibody responses comparable to those of the globally approved GARDASIL® vaccine for girls and boys between the ages of 9 to 14 years. The trial also reveals comparable safety profiles between the two vaccines, prompting the licensure of CERVAVAC® by the Drugs Controller General of India, the first Indian manufactured vaccine to receive such approval. This development holds significant implications for enhancing vaccine uptake and preventing HPV-associated cancers among the youth in India.[12]

As of 2022, the WHO's Strategic Advisory Group of Experts on Immunization (SAGE) has determined that, there is substantial evidence indicating that, a single-dose HPV vaccine provides protection against HPV comparable to that of two-dose schedules. For immunocompromised individuals, including those with HIV, it is

recommended that they receive three doses of the HPV vaccine if possible. If not feasible, they should receive at least two doses. Limited evidence exists regarding the efficiency of a single-dose in this population.[13]

The increasing prevalence of HPV and its associated cancers in India can be primarily ascribed to factors such as inadequate awareness about HPV, insufficient screening initiatives among susceptible populations, limited understanding of both HPV and its vaccine, societal stigma surrounding HPV vaccination, concerns related to vaccine safety, and financial barriers hindering access to vaccination.[14] Therefore, upcoming research endeavors should delve into additional factors contributing to HPV burden and obstacles hindering the implementation of HPV vaccines in diverse regions across the globe.[15]

Previous research examining awareness among healthcare students primarily focused on the connection linking cancer of the cervix and HPV, with a particular emphasis on the female population.[16] However, the recent recognition of HPV's involvement in oropharyngeal and various anogenital cancers emphasizes the urgent need to promote awareness across the entire healthcare community, irrespective of gender. As prospective healthcare professionals, it is essential for undergraduate healthcare students to be well-informed about HPV infection and vaccination. So, conducting an interventional study on HPV among healthcare students is necessary to guarantee that future healthcare providers are knowledgeable, confident, and equipped to encourage the uptake HPV vaccination and prevent HPV-related diseases in the communities they serve.

To enhance awareness regarding HPV infection and vaccination within the targeted population, numerous previously implemented interventions have

demonstrated effectiveness. These include health education initiatives specifically tailored for healthcare professionals and students, public health awareness campaigns conducted through diverse channels such as social media including mHealth based applications, community events, and public service announcements in reaching broader audiences. Also, collaborating with healthcare facilities and organizations to disseminate information and resources has also been an impactful strategy.[17-20]

However, the effectiveness of such strategies is currently lacking in our study area. For these reasons, the intended study primarily focuses on assessing the results of health education on HPV awareness and vaccination among undergraduate healthcare students, encompassing both male and female participants.

OBJECTIVES OF THE STUDY

1. To assess the effect of health education on the awareness of Human Papillomavirus infection among undergraduate healthcare students.

2. To assess the effect of health education on the awareness of Human Papillomavirus vaccination among undergraduate healthcare students.

3. To assess the potential barriers to vaccination among undergraduate healthcare students.

REVIEW OF LITERATURE

An interventional study was conducted in 2023 among 63 non-Hispanic Black mothers with children aged 9 to 17 years in the US, to examine the result of an intervention delivered through an online web-based videoconferencing platform to see the improvement in their HPV vaccination confidence and related attitudes and beliefs. The findings of the study revealed significant differences between the groups that were experimental and control. Specifically, the experimental group exhibited more positive attitudes and beliefs concerning HPV vaccination ($p = 0.002$) and demonstrated greater vaccination confidence in contrast to the control group ($p = 0.049$).[21]

An interventional study was conducted in 2020 among 449 female students of a university in China to evaluate the impact of internet-based education on enhancing information-motivation-behavior skills linked to HPV vaccination. The study revealed notable differences between the control and intervention groups. Specifically, the intervention group's students demonstrated a more comprehensive knowledge and subjective norms regarding HPV vaccination in contrast to the control cohort ($p < 0.05$). The findings concluded that health interventions utilizing internet-based education serve as a valuable supportive tool for augmenting details about HPV vaccinations among college students.[22]

A pilot cross-sectional analytical study was conducted from 2016 to 2018 at a tertiary referral cancer centre in India among 118 PMPs to assess their KAP on Screening of Cervical Cancer. The findings indicated enhancement in scores across all domains following the implementation of educational intervention. Notably,

knowledge scores post-intervention were more pronounced in ANMs compared to other participants. Furthermore, greater awareness related to cervical cancer was associated with increased years of professional experience. Also, the study concluded that the educational intervention was successful in greatly enhancing the proficiency of PMPs, addressing limitations of human resources for the prevention of cervical cancer and contributing to its elimination efforts.[23]

An interventional study was conducted from 2018 to 2019 among 434 female high school students in Trikala city, Greece to investigate the role of health education in shaping the knowledge and acceptance of HPV vaccination among young adolescents. The results indicated a significant positive shift in knowledge and attitudes among participants. Also, the percentage of participants claiming ignorance about HPV decreased from 44.4% to 8.1%. Concurrently, the willingness to accept the HPV vaccine increased from 71% to 83.5%. The study also concluded that, targeted interactive informational interventions in school environments, significantly improves both the knowledge levels and the readiness to undergo vaccination against cervical cancer.[19]

An interventional study was conducted from February till May of 2020 among 946 female freshmen from two universities in China to explore the impact of an online educational initiative on altering the readiness and acceptance of HPV vaccination. The results indicated that, following seven days of health education, with respect to the knowledge scores, the intervention group performed better (5.13 ± 1.23) than the control group (3.10 ± 1.99), $p < 0.001$. Additionally, the intervention group demonstrated a significantly higher readiness to get the vaccinate against HPV than the control group ($p < 0.001$). However, the study concluded that while web-based

health education is an accessible and effective method to enhance knowledge and acceptance of HPV vaccine, its impact on actual HPV vaccination uptake remains limited.[24]

A multilevel education-based intervention was conducted in a rural South Dakota clinic, USA in 2015 to evaluate its impact on HPV vaccination rates. The investigation revealed that opt-out communication strategies were utilized by 72.7% of nurses and providers during vaccination discussions at the clinic level. Also, there existed a rise in both self-reported and objectively measured knowledge levels among participants following the intervention. Concurrently, the EMR review revealed a significant post-intervention rise in the percentage of adolescents obtaining the vaccine against HPV. The study concluded that, a link exists between the implementation of multiple community-focused interventions and heightened community knowledge, alongside increased HPV immunization rates among adolescents in the service area.[25]

A cross-sectional pilot study was conducted from March to May 2020 in Puducherry, India involving 45 parents of adolescents in classes 7 to 9, to examine the result of online educational interventions on KAP about the HPV vaccine. The findings indicated a notable enhancement in knowledge across all three groups, although no significant differences in attitude were observed. Notably, parents educated through short films demonstrated significantly higher post-test knowledge scores compared to other interventions. Also, the study concluded that online educational programs are efficacious in enhancing parental knowledge of HPV vaccination, with the short film method proving to be the most effective among the three.[26]

A pre-post interventional study was conducted from January 2018 to June 2020 in Mysuru, India involving 102 women from social support groups with lower socio-economic status to assess the effectiveness of an mHealth-based intervention on cervical cancer preparedness was assessed using the Cervical CAM instrument. The study revealed that, prior to the intervention, only 12.7% participants were familiar with cervical cancer. Following the intervention, a substantial increase in knowledge regarding warning signs and symptoms, risk factors, and HPV vaccination was observed. Furthermore, there was a 5% increase in the uptake of Pap smear test among the targeted population. However, the study recommended a follow-up to verify whether participants completed their Pap tests after receiving reminders via the mHealth program and to assess the broader dissemination of cervical cancer information in the general population.[27]

A multi-centre, questionnaire-based interventional study was conducted across 12 cities spanning seven provinces in Western China from November 2018 to July 2019 to examine the result of an educational intervention on HPV knowledge and attitudes toward HPV vaccines among 1448 HCWs. The study found that HCWs generally possessed satisfactory baseline knowledge about HPV infection and vaccination, though certain gaps persisted, particularly in vaccination procedures and other HPV-related diseases. However, following the intervention, there was a notable enhancement in correct responses to these areas. Moreover, HCWs' attitudes, including their willingness to recommend the vaccine, also notably improved post-intervention. Overall, the study concluded that educational interventions effectively enhance HCWs' knowledge levels and promote a more positive attitude towards recommending HPV vaccines.[28]

An interventional study was conducted in 2021 among 266 adults to compare the effectiveness of an educational intervention aimed at reducing stigma and improving knowledge of HPV and cancer of the cervix in Nigerian men and women, by means of a pretest and posttest design. The study revealed low knowledge levels at baseline, which significantly improved post-intervention with no discernible difference between groups. Notably, there were no significant changes between groups in five out of the six stigma domains assessed. Also, the study concluded that health education intervention was effective in enhancing knowledge, while highlighting the urgent need for interventions specifically targeting the reduction of burden and stigma associated with HPV.[29]

An interventional study was conducted in September 2019 among 122 OHPs to evaluate the efficacy of an educational intervention in enhancing knowledge of HPV and comfortability discussing vaccination with American Indian and Alaskan Native patients in USA. The study revealed that, initially only 6.8% of OHPs discussed the link between HPV and oropharyngeal carcinoma to their patients, which increased to 86.5% following the educational intervention. Also, the study concluded that, educational intervention significantly improved OHPs' knowledge in addition to their comfort and preparedness to discuss about vaccination with their patients.[30]

A school-based interventional follow-up study was conducted from November 2015 to December 2017 among 1675 school students in China to examine the result of an educational intervention on the KAP towards HPV infection and vaccination. The study unveiled that only 34.3% of students heard about cervical cancer/genital warts, with a mere 15.1% familiar with HPV. Surprisingly, 55.2% expressed willingness to vaccinate even before any intervention, and immediately post-intervention, this figure

surged to 88.4%. Even though the intervention's efficacy persisted after one year, it significantly decreased compared to immediately post-intervention ($p < 0.001$). Also, the study concluded that school-based health education is effective in enhancing HPV awareness and willingness toward vaccination.[31]

An interventional study was conducted in Medellin among 100 Colombian women to evaluate the efficacy of Entertainment Education Strategies in promoting cervical cancer screening. The study unveiled that women initially exhibited a high Stage of Change according to the Transtheoretical Model, coupled with a good baseline understanding of HPV and its role on cervical cancer, although with specific knowledge gaps, especially regarding HPV. Even though not statistically significant, post-intervention Transtheoretical Model status demonstrated a shift towards higher stages, particularly from Precontemplation to Contemplation and Preparation. The study also showed that women participating in the study expressed positive sentiments toward the educational materials, experiencing an increase in knowledge, particularly concerning HPV.[32]

A targeted interventional follow-up study was conducted in 2018 among Canadian university students to assess the understanding about cervical cancer and HPV following a campaign, and analyse vaccination uptake. The study showed that, among the 56 participants surveyed in Phase I, 63% felt that, they were not at risk of cervical cancer. Also, Barriers to vaccination as reported by them included limited access, financial reasons, and low self-perceived risk. Whereas, in phase II, an awareness campaign was expanded based on phase I findings. Subsequently, 502 students and 455 students were vaccinated at the McGill student health clinic and at Concordia University respectively. The study concluded that targeted educational

campaigns, especially person-to-person solicitation, effectively increased the rate of HPV vaccination in the students.[33]

A cluster-randomized clinical trial was conducted from February 2015 to January 2016 within the Denver, Colorado metropolitan area, involving 16 primary care practices, to assess the efficiency of a 5-component health care professional intervention related to HPV to enhance vaccination among adolescents. The investigation revealed that, there was a significantly higher odds of the HPV vaccination start and completion in the intervention group than the control group. Also, the study concluded that the health care professional communication intervention significantly improved HPV vaccine initiation and completion among the participants.[34]

A clinic-based intervention study was conducted from April 2006 to May 2008 among 373 high-risk human papillomavirus (HPV)-infected Latinas aged 18–64 on the Texas-Mexico border to examine the efficiency of a Health Education Message Intervention for Knowledge on HPV and Receipt of Follow-up Care. The study revealed a substantial increase in HPV knowledge among participants, with the number of patients classified as inadequately informed dropping from 49.6% at baseline to 4.3% at follow-up. However, only two-thirds of women received follow-up care within a year of diagnosis. Also, surveys completion positively correlated with correct responses to HPV knowledge questions, suggesting a potential educational impact. And the study concluded that barriers in healthcare could have contributed to inadequate follow-up thereby resulted in higher cervical cancer mortality in this region.[35]

A pilot interventional study was conducted in 2013 among 37 staff members of a community health and social service agency in Montreal, Canada to examine the educational effectiveness on HPV vaccine among community-based health educators and counselors. The study showed that, HPV education intervention resulted in improved knowledge accuracy, increased confidence in discussing HPV vaccine issues, and greater willingness to recommend the vaccine. Also, the study concluded that HPV education equips counselors and educators in health to encourage making educated choices about HPV vaccination among their clients.[36]

An interventional study was conducted in Guilford County, North Carolina from 2008 to 2009 involving 950 key participants, including parents (376), healthcare staff (118), and school staff (456) to examine the results of a HPV vaccine education intervention. The research revealed that, participants exhibited relatively low levels of HPV vaccine knowledge before the intervention. Following the intervention, the self-rated HPV knowledge significantly increased across all the groups ($p < 0.001$). Also, a high percentage of school staff members believed in the value of HPV education for school students following the intervention, with most expressing support for school-based vaccination clinics.[37]

A prospective, randomized experimental study was conducted in 2010 among 626 students from West Virginia high schools to assess the baseline knowledge of HPV, as well as to evaluate the effectiveness of an intervention in the form of an HPV educational DVD as a supplement to increase student knowledge. The findings showed that the overall post-test scores for students in the DVD plus health class group improved significantly than those in the health class-only group ($p < 0.0001$).

Also, the study concluded educational HPV DVD intervention to be a potential learning tool among the school students.[38]

MATERIALS AND METHODS

A) Source of Data:

Undergraduate students of Medical, Dental, Ayurveda, Homeopathy, Physiotherapy, Pharmacy and Nursing Colleges of KLE Academy of Higher Education and Research (KAHER), Belagavi will be enrolled in this study.

B) Study Design:

An Interventional Study [Before-After (pre-post) study]

C) Study Period:

1st October 2022 to 30th September 2023

D) Sample Size and Sampling Technique:

Universal sampling method was adopted and all the 3rd year students from the respective constituent colleges of KAHER who provided consent were incorporated into the research. The distribution of students across all the seven healthcare institutes are as follows:

Name of the Institute	No. of Students Enrolled
Jawaharlal Nehru Medical College, Belagavi	178
KLE V. K. Institute of Dental Sciences, Belagavi	57
KLE Shri. B. M. K Ayurveda Mahavidyalaya, Belagavi	98
KLE Homeopathic Medical College, Belagavi	63
KLE Institute of Physiotherapy, Belagavi	79
KLE College of Pharmacy, Belagavi	90
KLE Institute of Nursing Sciences, Belagavi	91
Total	**656**

E) Inclusion criteria:

All the consented 3rd year undergraduate healthcare students of KAHER, Belagavi.

F) Exclusion criteria:

All the students who had participated earlier in HPV related interventional studies (self-reported).

G) Ethical clearance:

Ethical clearance was obtained from the IEC of JNMC, Belagavi for research involving human subjects vide reference number MDC/JNMCIEC/80 dated 27.09.2022.

Written informed consent was acquired from all the study participants before the data collection. They were informed in detail about the study's objective and their rights, possible benefits and risks involved. Privacy and confidentiality among the individuals involved were maintained throughout the conduction of the study.

H) Questionnaire Validation:

For the overall reliability, the pretest questionnaire was internally validated using Cronbach's alpha. And the cumulative value obtained was 0.881, while 0.9 and 0.78 were the alpha values for the knowledge and attitude respectively. Thus, the questionnaire was feasible to conduct the study among the target population.

I) Data collection procedure:

The necessary permissions were initially taken from the principals of the respective constituent colleges of KAHER. Following which, the pre-test data was collected using the self-structured validated questionnaire before the

intervention to assess their existing awareness on HPV infection and vaccination upon obtaining informed consent.

The survey questionnaire was composed of 4 sections consisting of Demographic and Personal Data, Knowledge on HPV and its vaccine, Attitude surrounding HPV vaccination as well as the Vaccination and Sexual Practices. Knowledge and Practices were assessed using multiple choice questions whereas Attitude was evaluated with a Likert scale of 5 points.

Pre-test was followed by a health education intervention. Health Education was given for about 30 minutes using a PowerPoint presentation followed by an interactive session where the students' doubts were clarified. After one month following the intervention, the efficiency of health education on raising awareness of HPV infection and vaccination was assessed using the post-test questionnaire.

J) Data Processing and Statistical Analysis:

The information collected was entered in Microsoft Excel and a Master Chart was prepared. Coding was done to encrypt the data for each option in the questionnaire. Data was analyzed using SPSS software (Trial Version 23). Categorical Variables were represented using percentage and frequencies. Wilcoxon signed-rank test and McNemar's test was used to find the difference between pre-test and post-test results and p value of < 0.05 was considered statistically significant.

K) Definition of Study Variables:

The study employed standardized definitions whenever feasible, to establish the meanings of the terms under investigation.

Proforma Variables:

Age: It is the participant's age in completed years as of his/her last birthday.

Gender: Gender was grouped into 3 categories such as Male, Female and Others which includes Transgender.

Degree Course: Degree Course was grouped into 7 categories depending upon their enrolled course of study such as Medical (for MBBS), Dental (for BDS), Nursing (for BSc. Nursing), Pharmacy (for B. Pharm), Physiotherapy (for BPT), Homeopathy (for BHMS) and Ayurveda (for BAMS).

Religion: Religion was grouped into 7 categories which is most prevalent in the Region as Hindu, Christian, Muslim, Jain, Sikh, Parsi and Buddhism.

Part of India: It refers to the participants geographical origin which was grouped into 4 categories such as East, West, South and North.

Residential Area: It refers to whether the family is residing in Rural or Urban area.

Type of Family: It was grouped into 3 categories as it follows.

Nuclear: It consists of a married couple along with their dependent children.

Joint family: It consists of a number of married couples and their children who live in the same household.

Three generation family: It refers to the household where the representatives from three different generations live together in the same house.

Net Family Income: It is the combined income of all earning members of the family.

Family size: It refers to the total members in the family.

Per Capita Income: It is the average income earned per person in a given family.

Socio Economic Status:

Information regarding per capita income (INR/month) was collected and the SES was classified using Modified B.G. Prasad's classification for the year 2022.[39]

The B.G. Prasad's scale was first introduced in the year 1961. It was calculated by considering the base Consumer Price Index (CPI) as 100 for the year 1960. It was later modified by introducing the Linking Factors 4.63, 4.93, 2.88 for the year 1982, 2001 and 2016 respectively as provided by the Labor Bureau.

Consumer Price Index (IW) for January 2022 was 125.1

Multiplication factor = Current CPI (125.1)/Base index value in 2016 (100)

= 1.251

The following formula is used to get the new income value:

New income value = Multiplication factor (MF) × Old income value × 4.63 × 4.93 x 2.88.

Upon substituting the values in the equation, the updated ranges for January 2022 were calculated as shown below.

Revised BG Prasad Socio-economic Status Classification, January 2022

Socio-Economic classes	Original B. G. Prasad's classification (1961)	Revised B. G. Prasad's classification for January 2022
I	100 and above	8220 and above

II	50-99	4110-8219
III	30-49	2465-4109
IV	15-29	1230-2464
V	Below 15	Below 1230

***Values mentioned as per capita income/month in INR, rounded off to nearest ₹10/-**

Smoking Habit: It was grouped into 3 categories.

Past Smoker: It refers those who had smoked tobacco in the past.

Current Smoker: It refers to those who are smoking tobacco at present.

Non-Smokers: It refers to those who had never smoked any form of tobacco.

Alcohol Use: It was grouped into 3 categories.

Past Alcohol Use: It refers those who had consumed alcohol of at least 30 ml per day for six months, anytime in the past.

Currently Alcoholic: It refers to those who are currently taking alcohol at least 30 ml per day.

Non-Alcoholic: It refers to those who had never consumed alcohol.

Recreational Drug Use: It was grouped into 3 categories.

Past Drug Use: It refers those who had used illicit drugs of any form in the past.

Current Drug User: It refers to those who are taking illicit drugs of any form at present.

Non-Drug User: It refers to those who had never used any illicit drugs.

Maximum Educational Qualification of parents: It refers to the highest educational qualification of either of the participants parents. It was further grouped into 8 categories.

No Formal Education: It is those who cannot read or write with understanding in any language

Primary: Participant who had attended schooling between first and fifth standard

Secondary: Participant who had attended schooling between sixth and tenth standard.

Higher Secondary: Participant had studied up to PUC (between 11th and 12th)

Diploma: Participant who had studied diploma in any technical subjects

Bachelor's: A person who had completed graduation in any bachelor's degree course

Master's: A person who had completed graduation in any master's degree course

Doctorate: A person who had obtained doctorate in any field.

RESULTS

Table 1. Distribution of participants according to age (n=656)		
Age (in years)	**Frequency**	**Percentage**
19-20	238	36.3
21-22	402	61.3
23-24	16	2.4
Total	**656**	**100.0**

Out of the total 656 study participants, 36.3% (238 individuals) belonged to the age group of 19-20 years. The age spectrum of 21-22 years constituted the majority, comprising 61.3% (402 individuals) of the participants. Only a small fraction, 2.4% (16 individuals), was within the age range of 23-24 years.

Figure 1. Distribution of participants according to age (n=656)

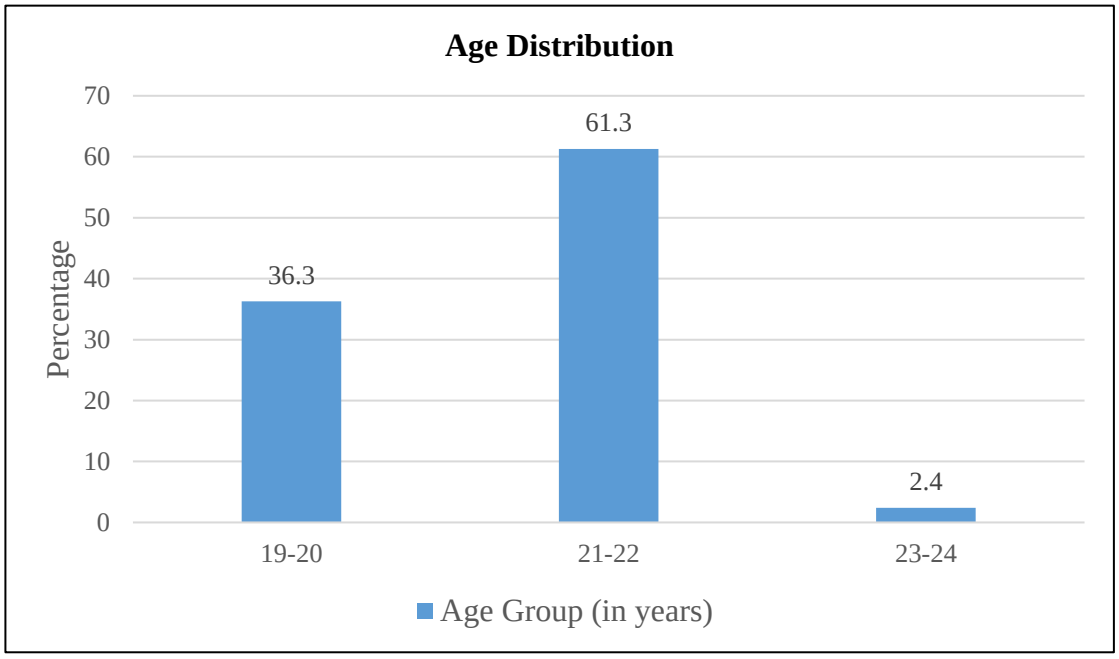


Table 2. Distribution of participants according to gender (n=656)		
Gender	**Frequency**	**Percentage**
Male	238	36.3
Female	418	63.7
Total	**656**	**100.0**

Among the 656 individuals participated in the study, the majority, were females, accounting for 63.7% (418 participants), while 36.3% (238 participants) were males.

Figure 2. Distribution of participants according to gender (n=656)

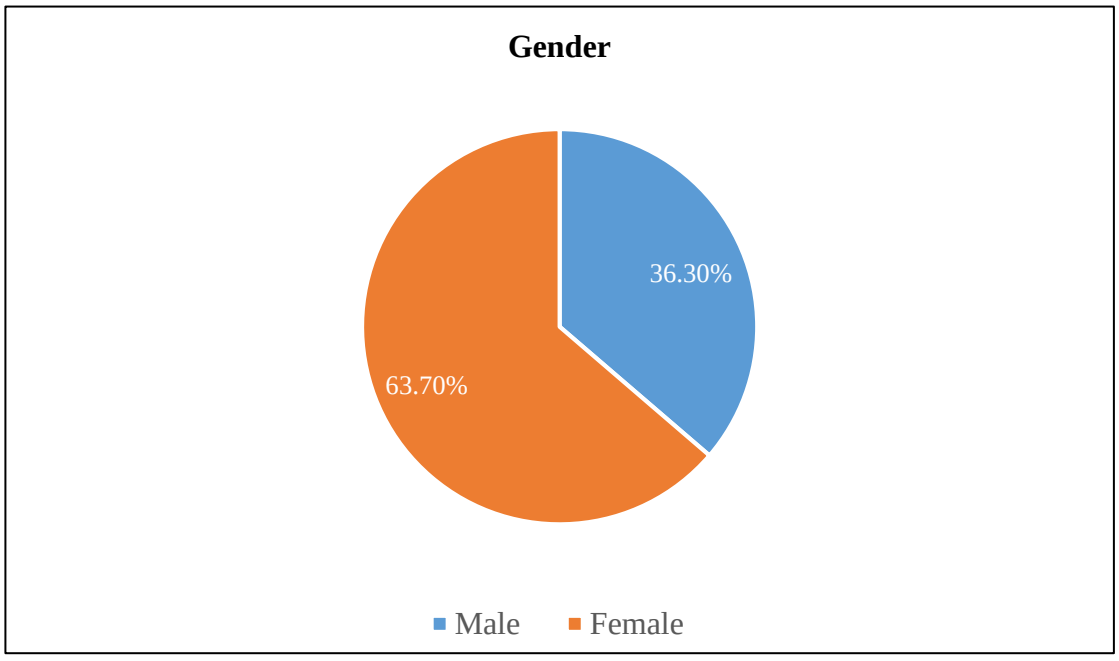


Table 3. Distribution of participants according to degree course (n=656)		
Degree Course	**Frequency**	**Percentage**
Medical	178	27.1
Dental	57	8.7
Nursing	91	13.9
Pharmacy	90	13.7
Physiotherapy	79	12
Homeopathy	63	9.6
Ayurveda	98	14.9
Total	**656**	**100.0**

Out of the total 656 individuals took part in the research, 27.1% (178 individuals) were affiliated with Medical college, making it the largest group. Following that, 8.7% (57 individuals) were associated with Dental college, 13.9% (91 individuals) were from Nursing college, 13.7% (90 individuals) were from Pharmacy college, 12.0% (79 individuals) were from Physiotherapy college, 9.6% (63 individuals) were from Homeopathy college, and 14.9% (98 individuals) were from Ayurveda college.

Figure 3. Distribution of participants according to degree course (n=656)

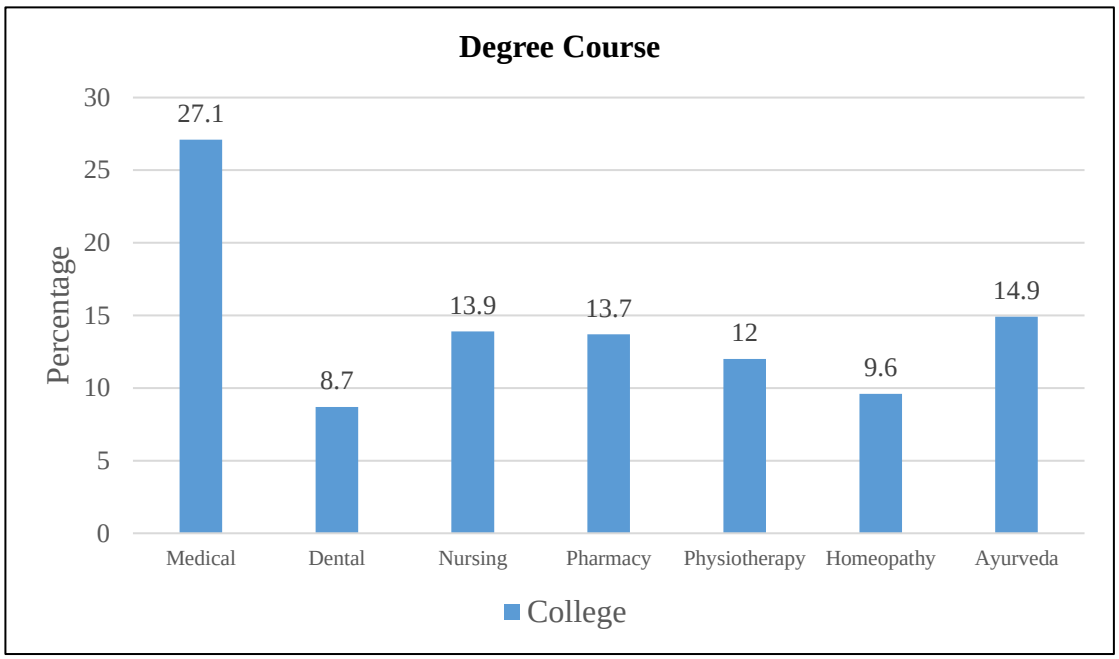


Table 4. Distribution of participants according to religion (n=656)		
Religion	**Frequency**	**Percentage**
Hindu	534	81.4
Christian	43	6.6
Muslim	44	6.7
Jain	34	5.2
Sikh	1	0.2
Total	**656**	**100.0**

Among the 656 study participants, majority of them were Hindus, comprising 81.4% (534 individuals). Following that, Muslims accounted for 6.7% (44 individuals), Christians for 6.6% (43 individuals), Jains for 5.2% (34 individuals), and Sikhs for a minimal 0.2% (1 individual) of the total participants.

Figure 4. Distribution of participants according to religion (n=656)

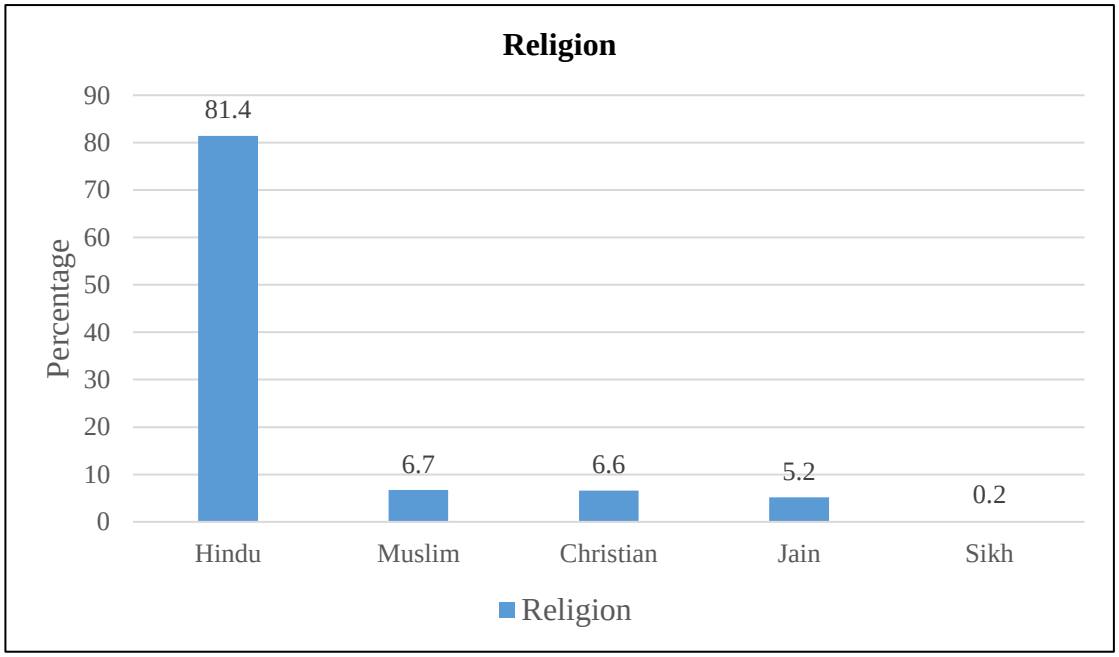


Table 5. Distribution of participants according to geographical origin (n=656)		
Part of India	**Frequency**	**Percentage**
East	38	5.8
West	133	20.3
South	358	54.6
North	127	19.4
Total	**656**	**100.0**

Among the 656 study participants, majority of individuals hailed from the Southern region of India, comprising 54.6% (358 individuals). Following the Southern region, the West accounted for 20.3% (133 individuals), while the North constituted 19.4% (127 individuals) and the smallest representation was from the Eastern region, with only 5.8% (38 individuals) of the participants.

Figure 5. Distribution of participants according to geographical origin (n=656)

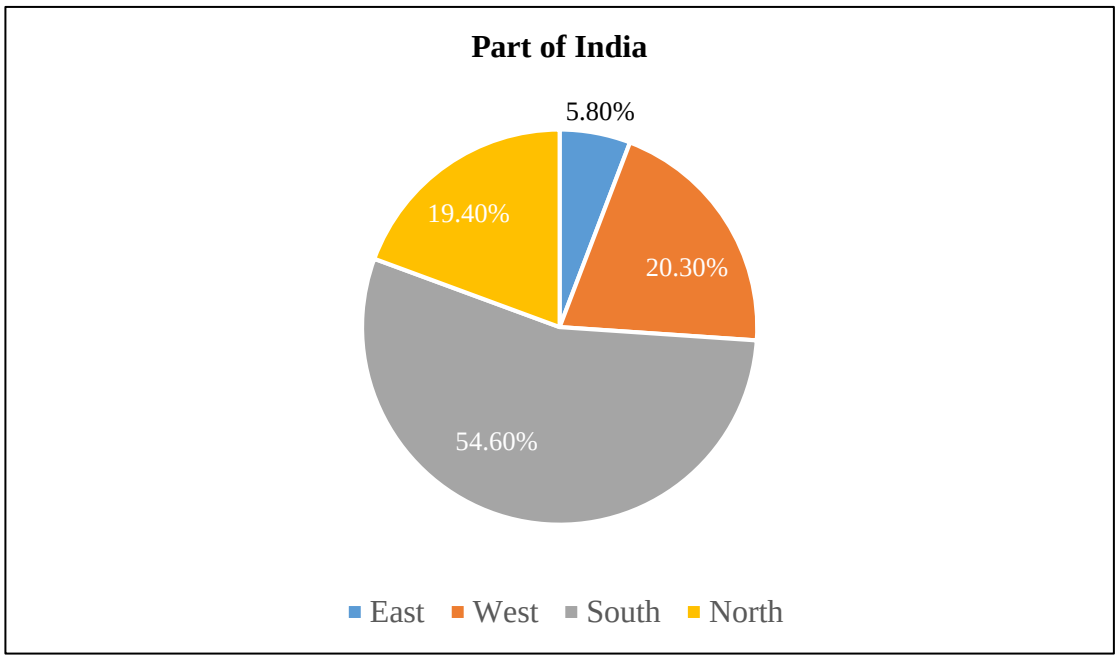


Table 6. Distribution of participants according to residential area (n=656)		
Residential Area	**Frequency**	**Percentage**
Rural	169	25.8
Urban	487	74.2
Total	**385**	**100.0**

Of the total 656 study participants, the majority, were residents of urban areas, comprising 74.2% (487 individuals). Conversely, 25.8% (169 individuals) hailed from rural areas.

Figure 6. Distribution of participants according to residential area (n=656)

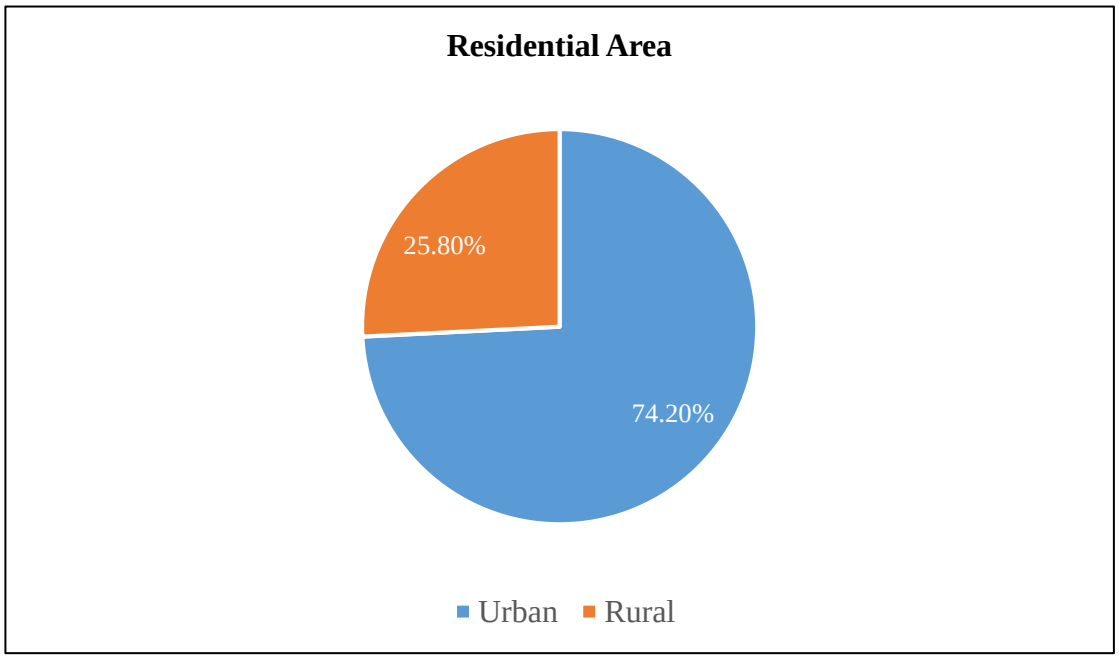


Table 7. Distribution of participants according to type of family (n=656)		
Type of Family	**Frequency**	**Percentage**
Nuclear	493	75.2
Joint	150	22.9
Three generation	13	2
Total	**656**	**100.0**

Among the 656 study participants, the largest proportion, belonged to nuclear families, accounting for 75.2% (493 individuals). Joint families constituted the next most common category, with 22.9% (150 individuals), while three-generation families represented a smaller subset, making up 2.0% (13 individuals) of the total participants.

Figure 7. Distribution of participants according to type of family (n=656)

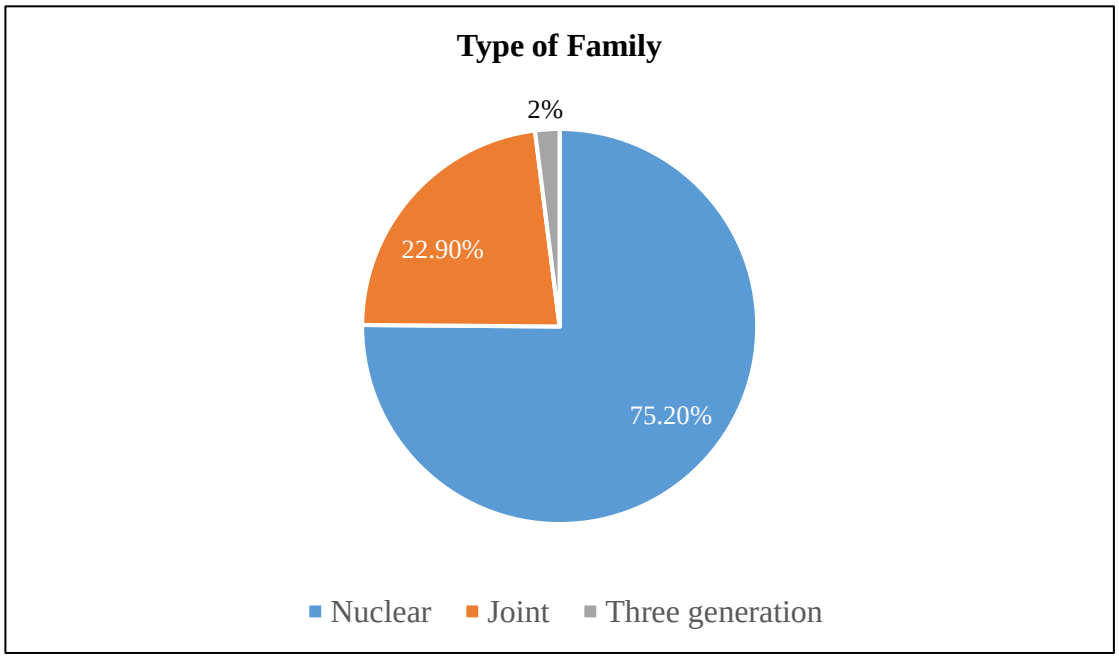


Table 8. Distribution of participants according to socio-economic status (n=656) (as per Modified B.G Prasad Classification)

Socio Economic Status	Frequency	Percentage
Class I	400	61.0
Class II	115	17.5
Class III	79	12.0
Class IV	47	7.2
Class V	15	2.3
Total	**656**	**100.0**

Out of the 656 study participants, majority belonged to Class I, constituting 61.0% (400 individuals) depending on the Modified B.G. Prasad's Classification for socioeconomic status. Class II accounted for 17.5% (115 individuals), Class III comprised 12.0% (79 individuals), Class IV consisted of 7.2% (47 individuals), and a smaller proportion, 2.3% (15 individuals), belonged to Class V.

Figure 8. Distribution of participants according to socio-economic status (n=656)

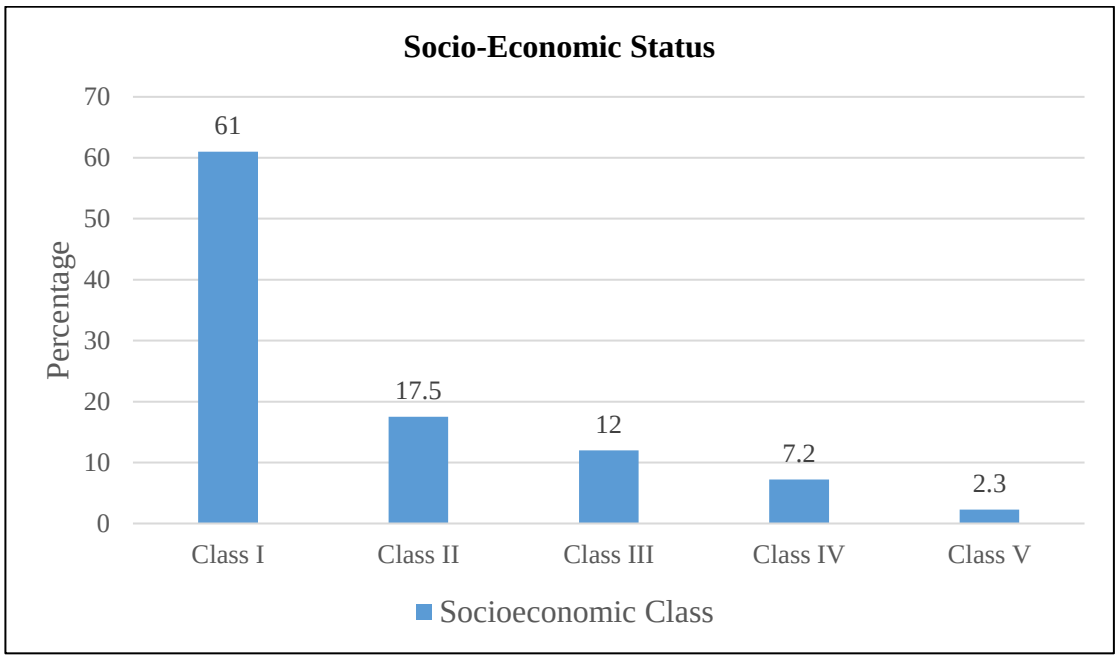


Table 9. Distribution of participants according to smoking habit (n=656)		
Smoking Habit	**Frequency**	**Percentage**
Past Smoker	13	2.0
Current Smoker	15	2.3
Non-smoker	628	95.7
Total	**656**	**100.0**

Among the 656 participants, the vast majority were identified as non-smokers, constituting 95.7% (628 individuals). Current smokers comprised a small portion, accounting for 2.3% (15 individuals), while past smokers made up 2.0% (13 individuals) of the total participants.

Figure 9. Distribution of participants according to smoking habit (n=656)

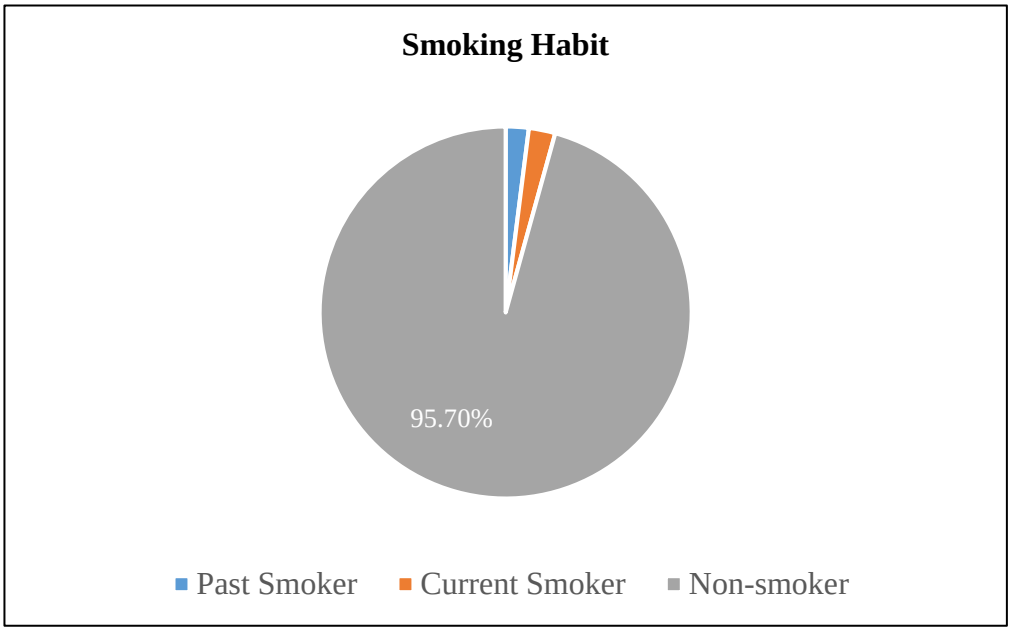


Table 10. Distribution of participants according to alcohol use (n=656)		
Alcohol Use	**Frequency**	**Percentage**
Past Alcohol Use	22	3.3
Currently Alcoholic	24	3.7
Non-Alcoholic	610	93.0
Total	**656**	**100.0**

Of the total 656 participants, the majority were non-alcoholic amounting to 93.0% (610 individuals). Currently alcoholic individuals represented a smaller subset, comprising 3.7% (24 individuals), while those with past alcohol use made up 3.3% (22 individuals) of the participant pool.

Figure 10. Distribution of participants according to alcohol use (n=656)

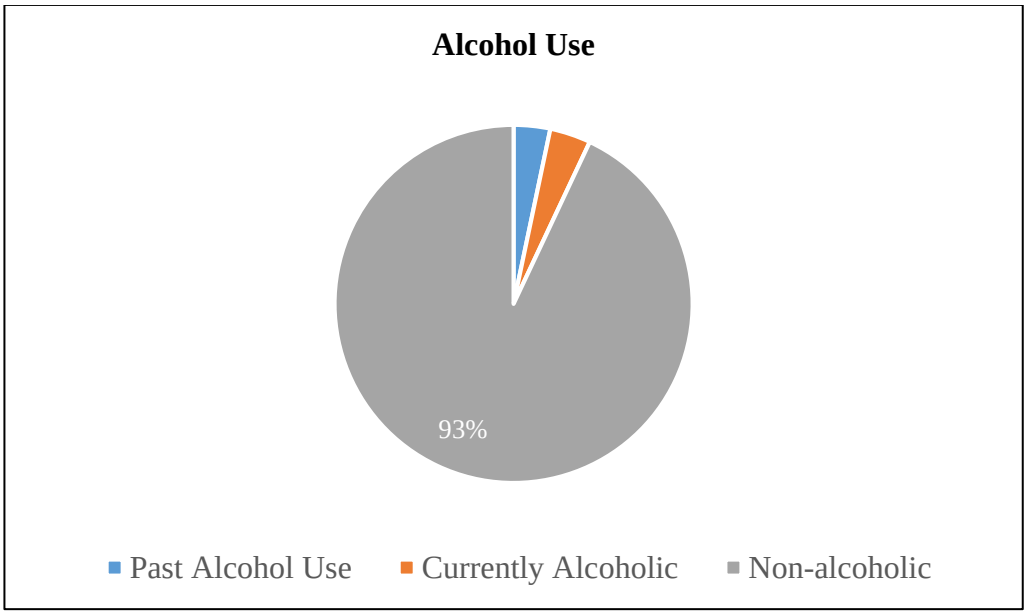


Table 11. Distribution of participants according to recreational drug use (n=656)

Recreational Drug Use	Frequency	Percentage
Past Drug User	13	2.0
Current Drug User	3	0.5
Non-Drug User	640	97.6
Total	**656**	**100.0**

Among the 656 participants, an overwhelming majority, accounting for 97.6% (640 individuals), reported being non-drug users. Only a minor proportion, constituting 2.0% (13 individuals), indicated past drug use, while current drug users represented a minimal subset, making up 0.5% (3 individuals) of the total participants.

Figure 11. Distribution of participants according to recreational drug use (n=656)

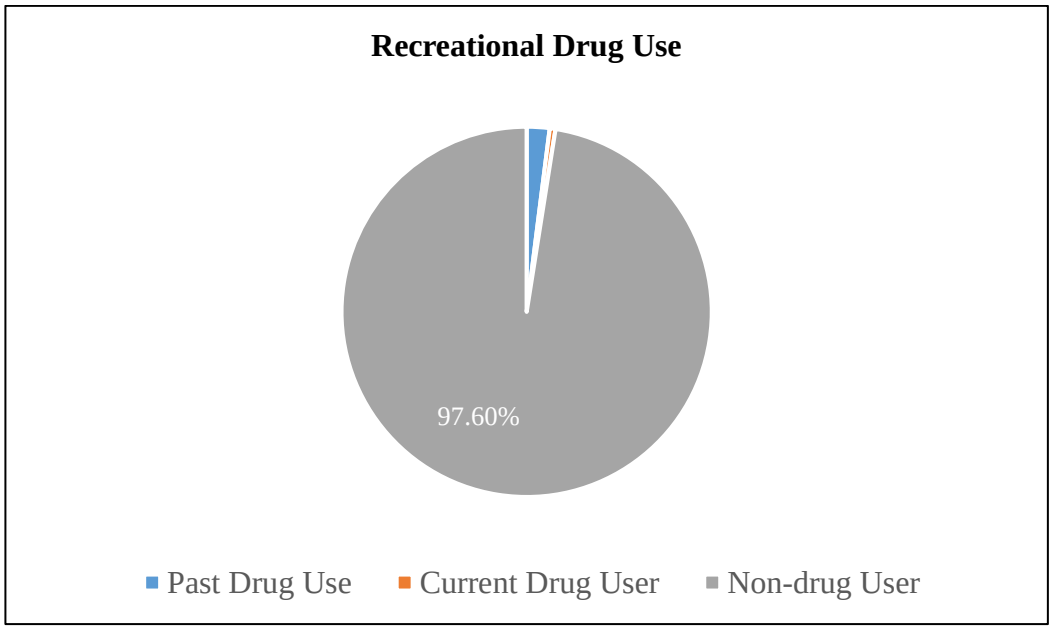


Table 12. Distribution of participants according to educational qualification of their parents (n=656)

Educational Qualification	Frequency	Percentage
Non-Formal Education	11	1.7
Primary	8	1.2
Secondary	39	5.9
Higher Secondary	116	17.7
Diploma	52	7.9
Bachelor's	184	28
Master's	185	28.2
Doctorate	61	9.3
Total	**656**	**100.0**

Among the 656 parents, the highest proportion, comprising 28.2% (185 individuals), possessed a Master's degree as their highest education qualification. This was closely followed by individuals with a Bachelor degree, accounting for 28.0% (184 individuals). Additionally, 17.7% (116 individuals) had attained a Higher Secondary qualification, while 9.3% (61 individuals) held a Doctorate degree. Furthermore, 7.9% (52 individuals) had completed a Diploma program, and 5.9% (39 individuals) had a Secondary education background. Only a small percentage had no formal education, with 1.7% (11 individuals), and even fewer, 1.2% (8 individuals), had completed only primary education.

Figure 12. Distribution of participants according to educational qualification of their parents (n=656)

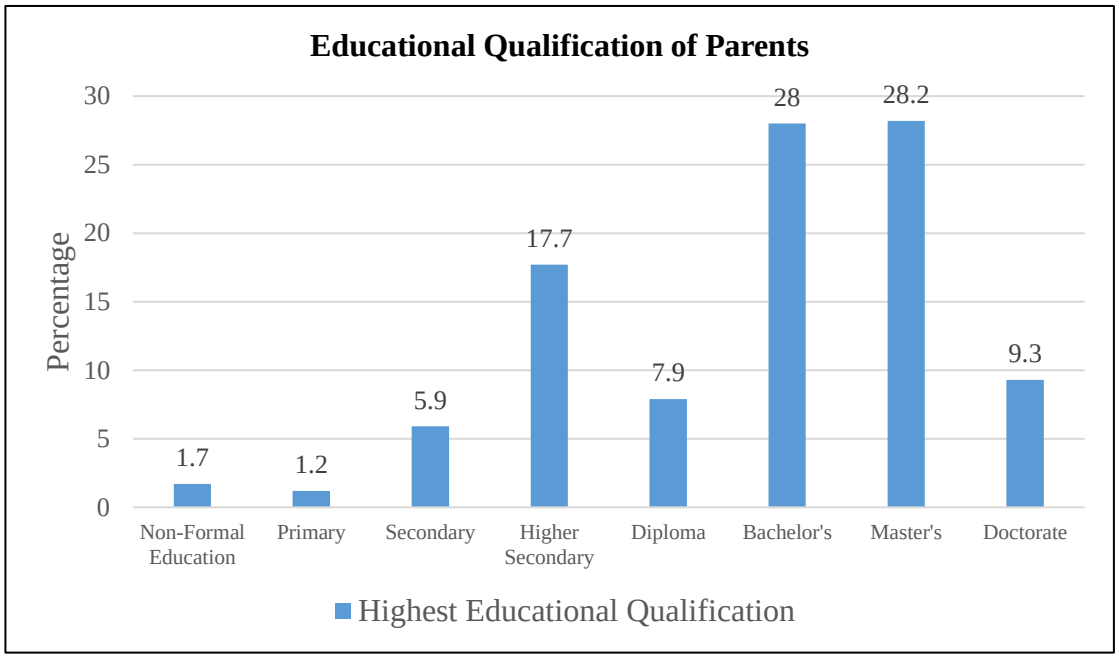


Table 13. Distribution of participants according to whether they have heard about human papillomavirus (n=656)		
Heard of HPV	**Frequency**	**Percentage**
Yes	570	86.9
No	86	13.1
Total	**656**	**100.0**

Among the 656 study participants, the vast majority, comprising 86.9% (570 individuals), were already familiar with HPV. Conversely, 13.1% (86 individuals) had never encountered information about HPV before participating in the study.

Figure 13. Distribution of participants according to whether they have heard about human papillomavirus (n=656)

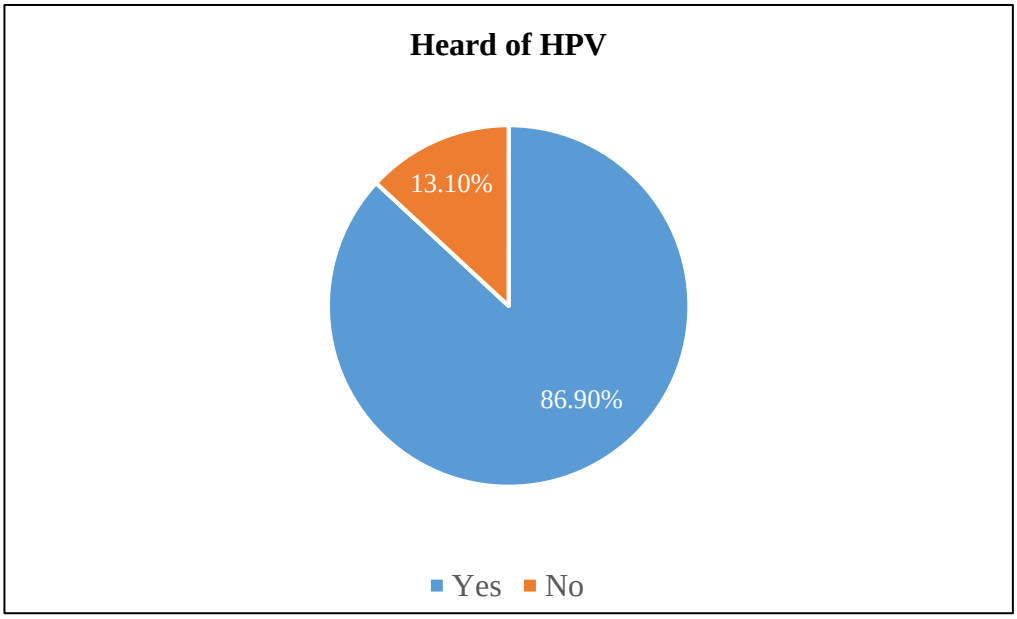


Table 14. Distribution of participants according to whether they have heard about HPV vaccine (n=656)		
Heard of HPV	**Frequency**	**Percentage**
Yes	388	59.2
No	268	40.8
Total	**656**	**100.0**

Among the 656 study participants, approximately 59.2% (388 individuals) were already aware of the existence of HPV vaccine. In contrast, 40.8% (268 individuals) had not previously encountered information regarding the HPV vaccine.

Figure 14. Distribution of participants according to whether they have heard about HPV vaccine (n=656)

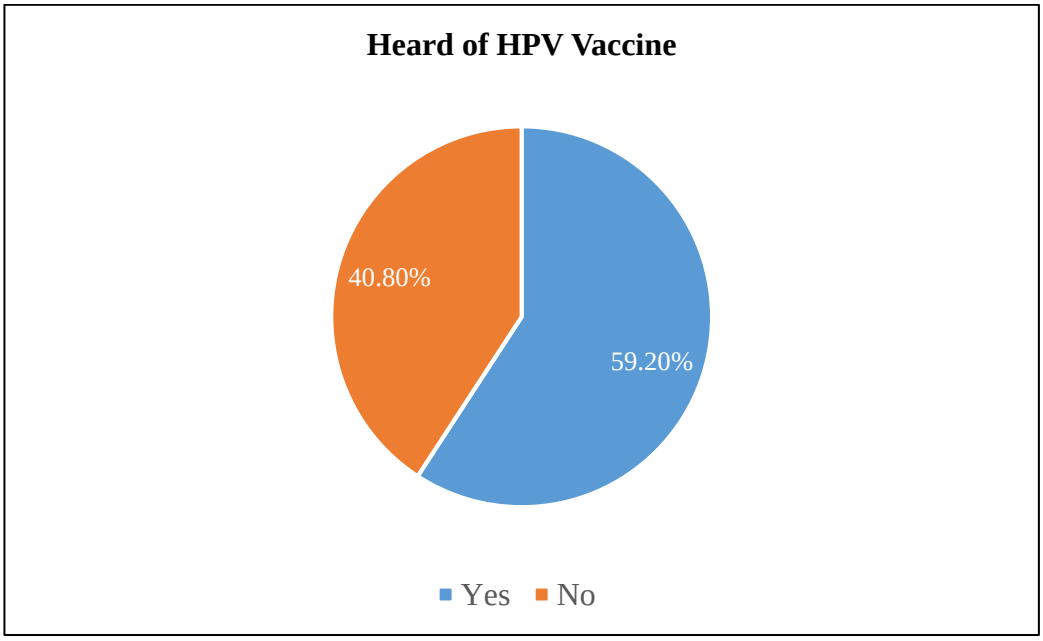


Table 15. Distribution of participants according to source of information about HPV (n=570)		
Source of information	**Frequency**	**Percentage**
Healthcare Workers	312	47.6
Mass Media/Internet	141	21.5
Parents/Relatives	27	4.1
Textbooks	90	13.7
Total	**570**	**100.0**

Among the 656 study participants, the main source of information about HPV for 47.6% (312 individuals) was healthcare workers. Following this, 21.5% (141 individuals) learned about HPV through mass media or the internet. A smaller percentage, 4.1% (27 individuals), received information from their parents or relatives, while 13.7% (90 individuals) obtained knowledge about HPV from textbooks.

Figure 15. Distribution of participants according to source of information about HPV (n=656)

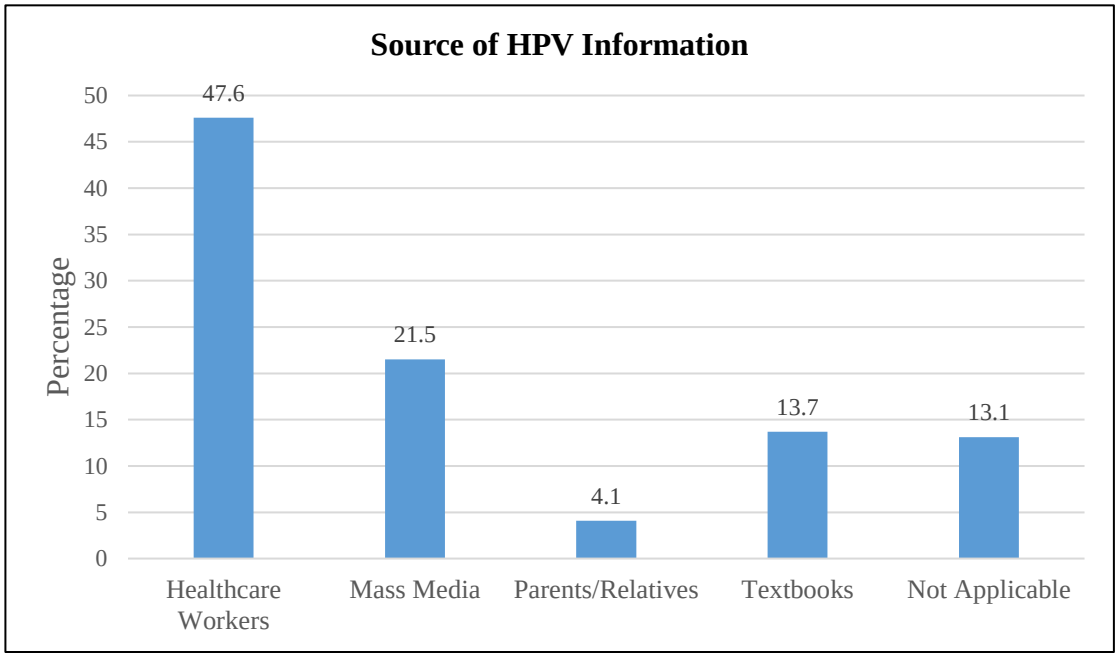


Table 16. Distribution of participants according to sexual activeness (n=656)		
Sexually Active	**Frequency**	**Percentage**
Yes	86	13.1
No	570	86.9
Total	**656**	**100.0**

Among the 656 study participants, a significant majority, constituting 86.9% (570 individuals), self-reported as not being sexually active. Conversely, 13.1% (86 individuals) of the participants reported themselves as sexually active.

Figure 16. Distribution of participants according to sexual activeness (n=656)

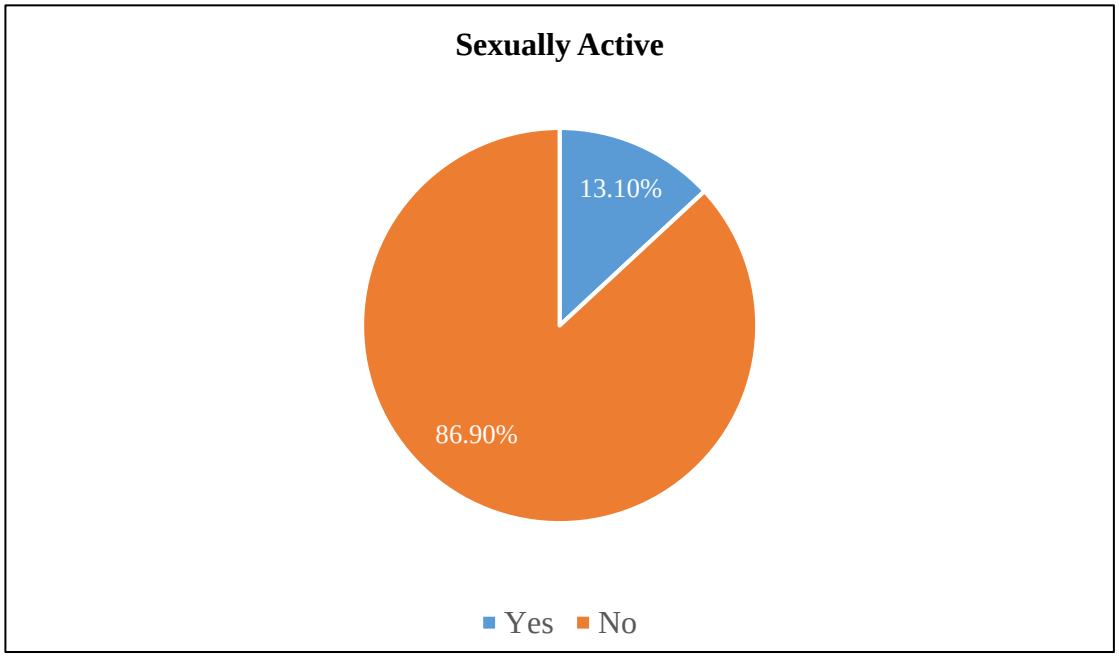


Table 17. Distribution of participants according to barrier contraceptive usage among sexually active individuals (n=86)		
Barrier Contraceptive Usage	**Frequency**	**Percentage**
Yes	44	51.2
No	42	48.8
Total	**86**	**100.0**

Among the 86 participants who reported being sexually active, a majority, comprising 51.2% (44 individuals), were utilizing some form of barrier contraceptive method. Conversely, the remaining 48.8% (42 individuals) were not employing any form of contraceptive.

Figure 17. Distribution of participants according to barrier contraceptive usage among sexually active individuals (n=86)

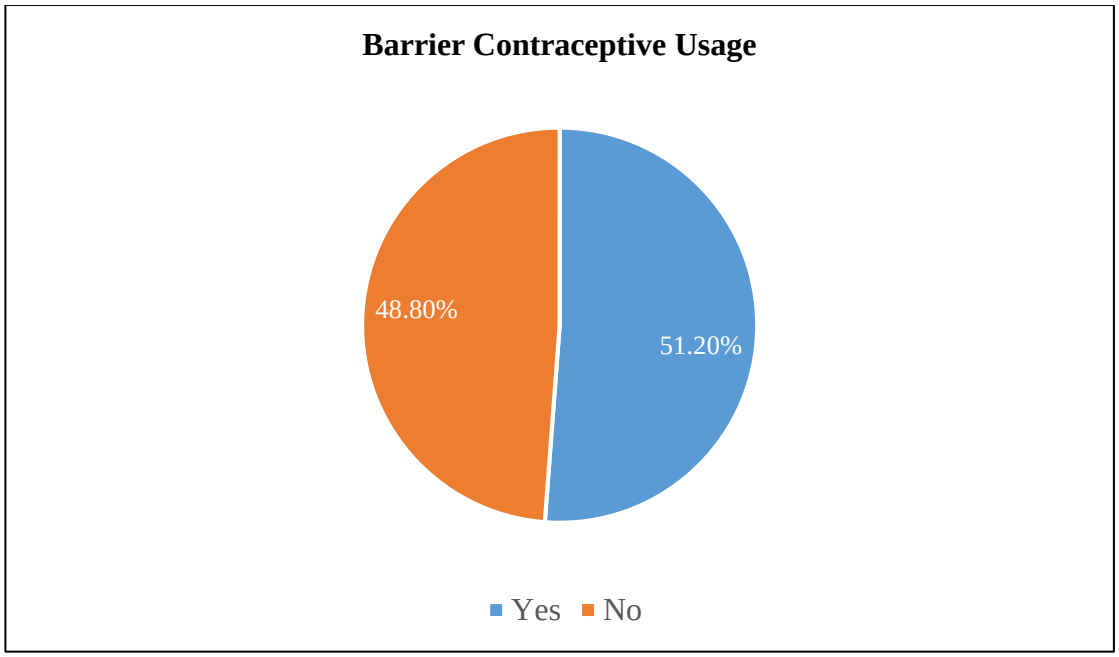


Table 18. Distribution of participants according to HPV vaccination status (n=656)		
Vaccinated against HPV	**Frequency**	**Percentage**
Yes	42	6.4
No	614	93.6
Total	**656**	**100.0**

Out of the 656 study participants, approximately 6.4% (42 individuals) had received the HPV vaccination, while the vast majority, comprising 93.6% (614 individuals), had not received the vaccine against HPV.

Figure 18. Distribution of participants according to HPV vaccination status (n=656)

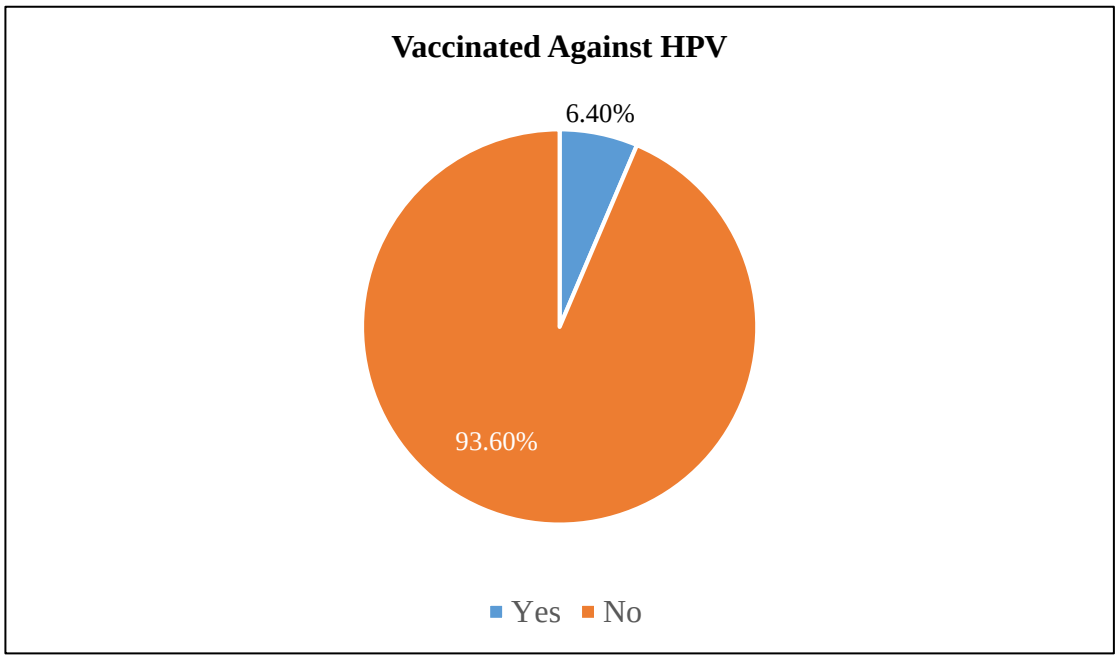


Table 19. Distribution of participants according to felt barriers to vaccination (n=656)

Barriers to Vaccination	Frequency	Percentage
Lack of Awareness	409	62.3
Non-availability of vaccine	92	14.0
Cost	13	2.0
All of the above	142	21.6
Total	**656**	**100.0**

Among the 656 study participants, the largest proportion, representing 62.3% (409 individuals), identified lack of awareness as a perceived barrier to vaccination. Additionally, 14.0% (92 individuals) attributed the barrier to the non-availability of the vaccine, while 2.0% (13 individuals) cited the higher cost as a factor. Furthermore, 21.6% (142 individuals) believed that all of these factors contributed to the barrier.

Figure 19. Distribution of participants according to felt barriers to vaccination (n=656)

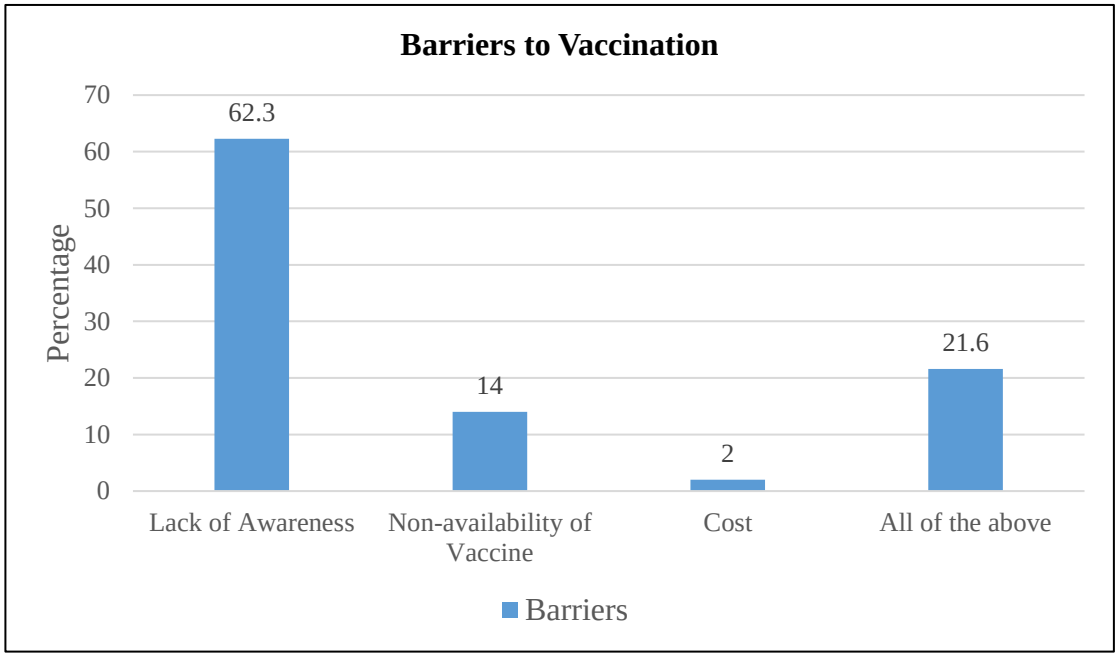


Table 20. Distribution of participants according to knowledge regarding HPV infection in pre-test and post-test (n=656)

S. No	Knowledge regarding HPV Infection		Pre-test		Post-test	
			Frequency	Percentage	Frequency	Percentage
a.	Both genders can contract HPV infection	Yes	458	69.8	589	89.8
		No	35	5.3	14	2.1
		Don't Know	163	24.9	53	8.1
b.	HPV infection incidence higher in 20-30 age group	Yes	371	56.5	568	86.6
		No	29	4.4	17	2.6
		Don't Know	256	39	71	10.8
c.	Infected with HPV but not know it	Yes	395	60.2	568	86.6
		No	24	3.7	19	2.9
		Don't Know	237	36.1	69	10.5
d.	HPV infection cured with antibiotics	True	91	13.9	48	7.3
		False	263	40.1	551	84.0
		Don't Know	302	46.0	57	8.7

a. Before the health education intervention, 69.8% (458 participants) believed that both genders could contract HPV infection. Following the intervention, this understanding increased to 89.8% (589 participants) in the post-test.

b. In the pre-test, 56.5% (371 participants) believed that HPV incidence was higher in the age group of 20-30. After the intervention, this perception rose to 86.6% (568 participants) in the post-test.

c. Prior to the intervention, 60.2% (395 participants) acknowledged that, it is feasible to get infected with HPV without knowing it. Following the intervention, this awareness increased to 86.6% (568 participants) in the post-test.

d. In the pre-test, most of the participants, comprising 46.0% (302 individuals), admitted uncertainty regarding whether HPV could be cured with antibiotics. However, in the post-test, a significant majority of 84.0% (551 individuals) correctly answered that HPV cannot be cured with antibiotics.

Figure 20. Distribution of participants according to improvement in knowledge regarding HPV infection from pre-test to post-test (n=656)

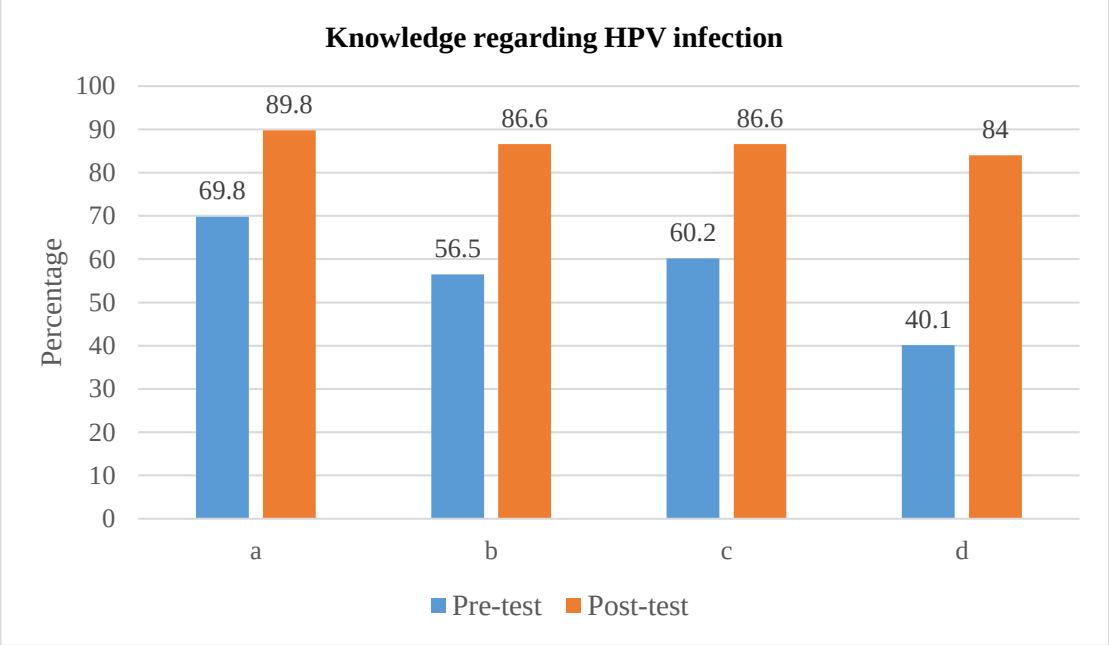


Table 21. Distribution of participants according to knowledge regarding HPV transmission in pre-test and post-test (n=656)

S. No	Knowledge regarding HPV Transmission		Pre-test		Post-test	
			Frequency	**Percentage**	**Frequency**	**Percentage**
a.	Mode of transmission of HPV	Sexually	320	48.8	102	15.5
		Close Contact	9	1.4	13	2.0
		Vertically	4	0.6	1	0.2
		All of the Above	187	28.5	503	76.7
		Don't Know	136	20.7	37	5.6
b.	HPV won't cause any problems acutely and go away	True	77	11.7	396	60.4
		False	318	48.5	208	31.7
		Don't Know	261	39.8	52	7.9
c.	Barrier contraceptives fully protects against HPV	True	239	36.4	78	11.9
		False	184	28.0	521	79.4
		Don't Know	233	35.5	57	8.7
d.	HPV causes problems in pregnancy	True	418	63.7	178	27.1
		False	20	3.0	397	60.5
		Don't Know	218	33.2	81	12.3

a. Before the education intervention, 48.8% (320 participants) held the opinion that, HPV is solely transmitted sexually. However, following the intervention, the majority, comprising 76.7% (503 participants), recognized that HPV can be spread through close contact, as well as by vertical transmission.
b. In the pre-test, 48.5% (318 participants) thought that, HPV would cause persistent acute problems. Following the intervention, the majority, accounting for 60.4% (396 participants), understood that HPV typically resolves independently without causing acute issues.
c. Before the intervention, 36.4% (239 participants) believed that barrier contraceptives offered complete protection against HPV. However, in the post-test, the majority, encompassing 79.4% (521 participants), recognized that barrier contraceptives do not provide full protection against HPV.
d. Initially, 63.7% (418 participants) thought that, HPV could lead to complications during pregnancy. After the intervention, this belief decreased significantly, with only 27.1% (178 participants) indicating that HPV does not pose problems during pregnancy.

Figure 21. Distribution of participants according to improvement in knowledge regarding HPV transmission from pre-test to post-test (n=656)

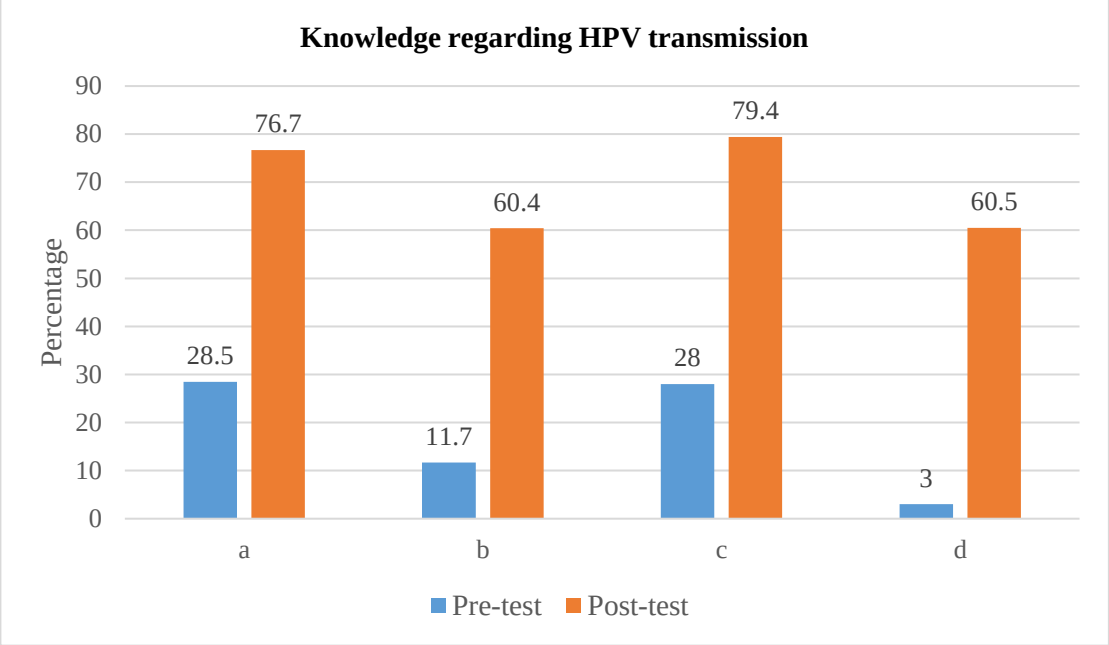


Table 22. Distribution of participants according to knowledge regarding HPV strains in pre-test and post-test (n=656)

S. No	Knowledge regarding HPV Strains		Pre-test		Post-test	
			Frequency	Percentage	Frequency	Percentage
a.	Number of High-risk HPV strains	10	57	8.7	23	3.5
		12	76	11.6	37	5.6
		14	50	7.6	425	64.8
		Don't Know	473	72.1	171	26.1
b.	HPV strains implicated in cancer	HPV 6 and 11	56	8.5	38	5.8
		HPV 16 and 18	163	24.8	501	76.4
		HPV 31 and 33	23	3.5	2	0.3
		Don't Know	414	63.1	115	17.5
c.	HPV accounting for > 90% genital warts	HPV 6 and 11	125	19.1	510	77.7
		HPV 16 and 18	90	13.7	25	3.8
		HPV 31 and 33	30	4.6	7	1.1
		Don't Know	411	62.7	114	17.4

a. Before the intervention, 72.1% (473 participants) were unaware of the total number of high-risk HPV strains. However, following the intervention, the

majority, consisting of 64.8% (425 participants), correctly identified the number as 14 high-risk strains.

b. In the pre-test, 63.1% (414 participants) lacked knowledge regarding the specific HPV strains associated with cancer. Following the intervention, in the post-test, most participants, accounting for 76.4% (501 participants), correctly identified HPV 16 and 18 as the implicated strains.

c. Initially, 62.7% (411 participants) of the participants were unaware of the HPV strains responsible for causing 90% of genital warts. Subsequently, in the post-test, the majority, comprising 77.7% (510 participants), correctly identified HPV 6 and 11 as the implicated strains.

Figure 22. Distribution of participants according to improvement in knowledge regarding HPV strains from pre-test to post-test (n=656)

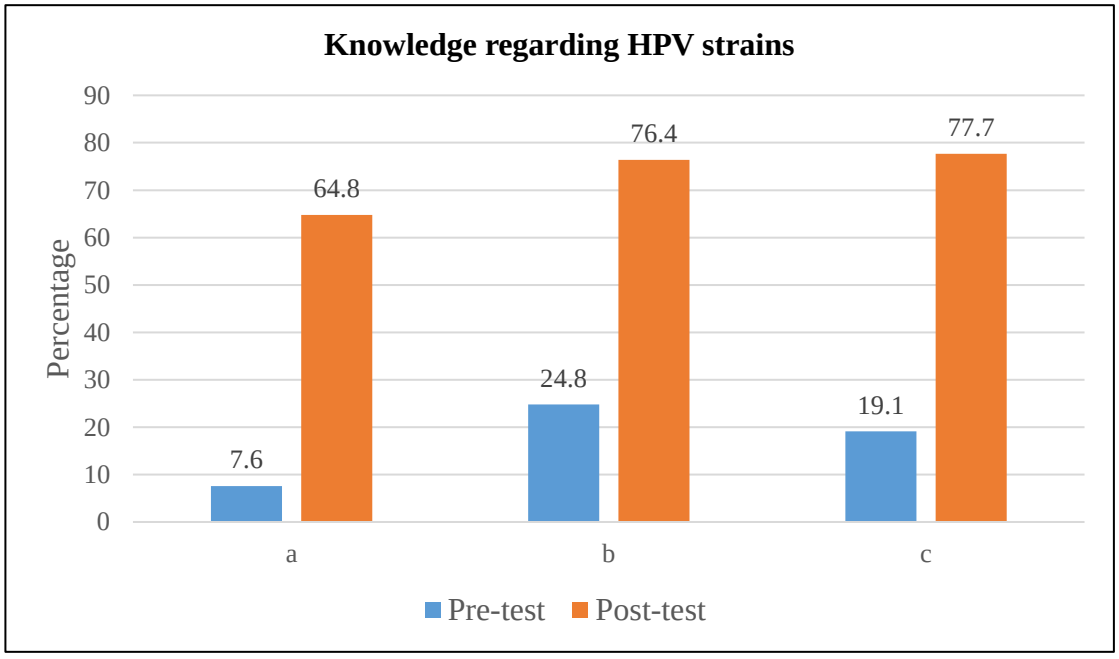


Table 23. Distribution of participants according to knowledge related to HPV and Cancer in pre-test and post-test (n=656)

S. No	Knowledge related to HPV and Cancer		Pre-test		Post-test	
			Frequency	Percentage	Frequency	Percentage
a.	HPV-related cancers	Cervical	151	23	39	5.9
		Penile	6	0.9	9	1.4
		Anal	7	1.1	0	0.0
		Vaginal	16	2.4	2	0.3
		Vulval	0	0.0	2	0.3
		Oropharyngeal	8	1.2	2	0.3
		All of the above	222	33.8	551	84.0
		Don’t Know	246	37.5	51	7.8
b.	Smoking increases cancer risk in HPV infected	True	389	59.3	582	88.8
		False	22	3.4	24	3.7
		Don’t Know	245	37.3	50	7.6

a. Before the intervention, the vast majority of participants were uncertain about the various cancers caused by HPV. However, following the intervention, 84.0% (551 participants) correctly identified that all the mentioned cancers are indeed caused by HPV.

b. Knowledge regarding the increase in the risk of cancer in HPV-infected individuals who smoke saw a notable rise from 59.3% (389 participants) in the pre-test to 88.8% (582 participants) in the post-test.

Figure 23. Distribution of participants according to improvement in knowledge related to HPV and Cancer from pre-test to post-test (n=656)

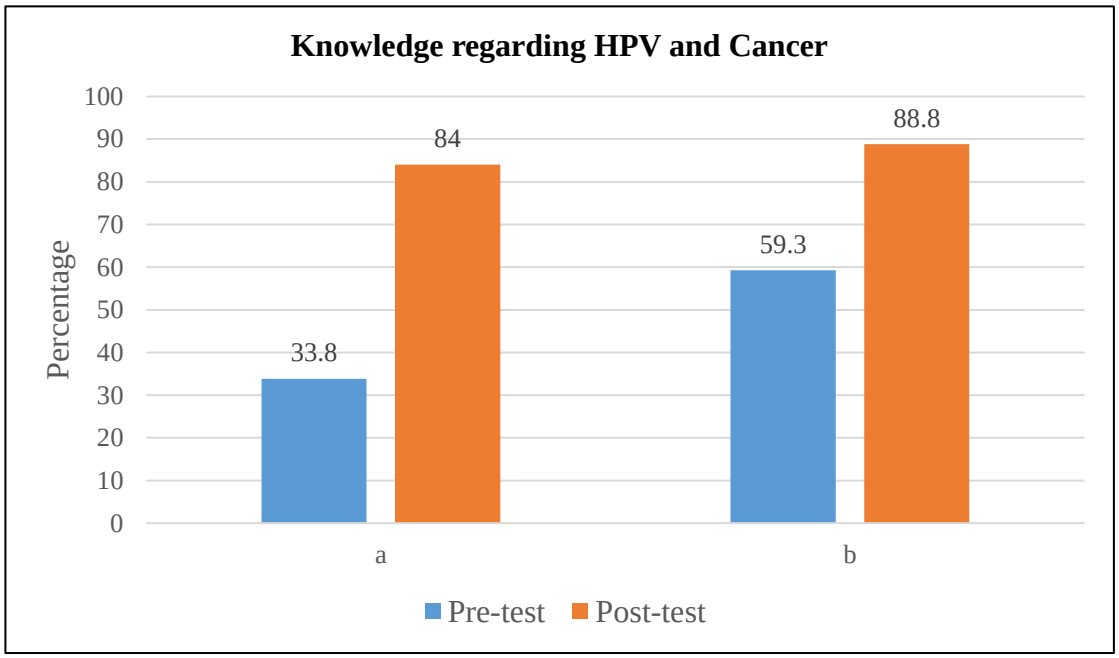


Table 24. Distribution of participants according to knowledge related to HPV vaccine in India in pre-test and post-test (n=656)

S. No	Knowledge related to HPV Vaccine in India		Pre-test		Post-test	
			Frequency	Percentage	Frequency	Percentage
a.	HPV vaccine available in India	Yes	407	62.0	591	90.1
		No	9	1.4	8	1.2
		Don't Know	240	36.6	57	8.7
b.	Types of HPV vaccine available in India	1 type	24	3.7	14	2.1
		2 types	121	18.4	24	3.7
		3 types	69	10.5	533	81.3
		Don't Know	442	67.4	85	13.0
c.	HPV vaccines in India	Cervarix	62	9.4	12	1.9
		Gardasil	24	3.7	7	1.1
		Gardasil 9	9	1.4	8	1.2
		All of the above	127	19.4	547	83.4
		Don't Know	434	66.2	82	12.5
d.	HPV vaccine in India protects against all HPV strains	Yes	149	22.7	363	55.4
		No	89	13.6	227	34.6
		Don't Know	418	63.7	66	10.1
e.	Many people in India take vaccine against HPV	Yes	112	17.1	53	8.1
		No	209	31.9	483	73.6
		Don't Know	335	51.1	120	18.3

a. In the pre-test, 62% (407 participants) correctly knew that, HPV vaccine is available in India. Following the intervention, this understanding significantly increased to 90.1% (591 participants) in the post-test.
b. Before the intervention, 67.4% (442 participants) were unaware of the total HPV vaccine types available in India. However, following the intervention, the majority, 81.3% (533 participants) correctly identified that there are three types of vaccines available.
c. Preceding the intervention, a significant portion, 66.2% (434 participants) did not know about the different HPV vaccines available in India. However, post-intervention, the majority, 83.4% (547 participants) correctly identified these vaccines.
d. Initially, the majority, 63.7% (418 participants) were uncertain about whether the vaccine in India protects against all HPV strains. After the intervention, this improved, with about one-third, 34.6% (227 participants) correctly recognizing that it does not provide protection against all strains.
e. At the beginning, a majority, 51.1% (335 participants) of participants were uncertain about whether many people in India take vaccine against HPV. However, after the intervention, 73.6% (483 participants) correctly acknowledged that many people in India are getting the HPV vaccine.

Figure 24. Distribution of participants according to improvement in knowledge related to HPV vaccine in India from pre-test to post-test (n=656)

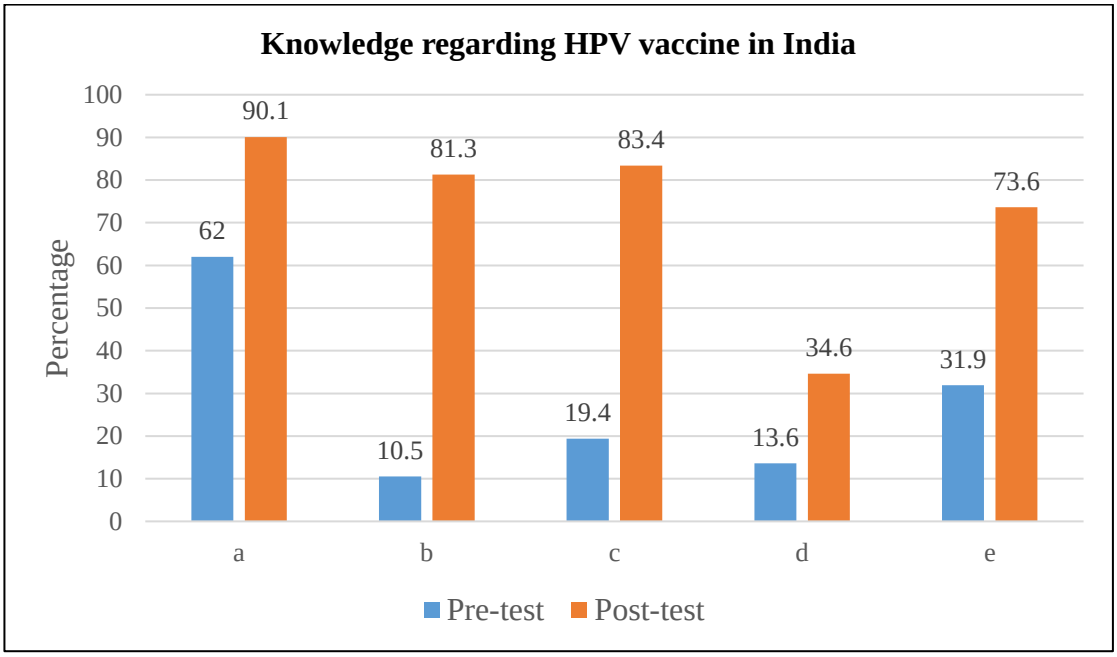


Table 25. Distribution of participants according to knowledge regarding general facts about HPV vaccine in pre-test and post-test (n=656)

S. No	Knowledge regarding facts about HPV Vaccine		Pre-test		Post-test	
			Frequency	Percentage	Frequency	Percentage
a.	Vaccine given against HPV for	Boys	10	1.5	1	0.2
		Girls	84	12.8	9	1.4
		Both	401	61.1	615	93.8
		Don't Know	161	24.5	31	4.7
b.	Vaccine given to sexually active person	Yes	351	53.5	595	90.7
		No	33	5.0	21	3.2
		Don't Know	272	41.5	40	6.1
c.	Screening required before vaccination	Yes	300	45.7	132	20.1
		No	89	13.6	478	72.9
		Don't Know	267	40.7	46	7.0

a. Before the educational intervention, the majority, 61.1% (401 participants) believed that vaccine against HPV is administered to both boys and girls. However, following the intervention, this understanding significantly improved to 93.8% (615 participants) in the post-test.

b. In the pre-test, the majority, 53.5% (351 participants) was correctly aware that the HPV shot can be administered to individuals who are already sexually active. After the intervention, this knowledge increased to 90.7% (595 participants) in the post-test.

c. Initially, a majority, 45.7% (300 participants) incorrectly believed that screening is necessary before getting the HPV vaccine. However, after the intervention, most participants, 72.9% (478 participants) correctly understood that screening is not required before vaccination.

Figure 25. Distribution of participants according to improvement in knowledge regarding facts about HPV vaccine from pre-test to post-test (n=656)

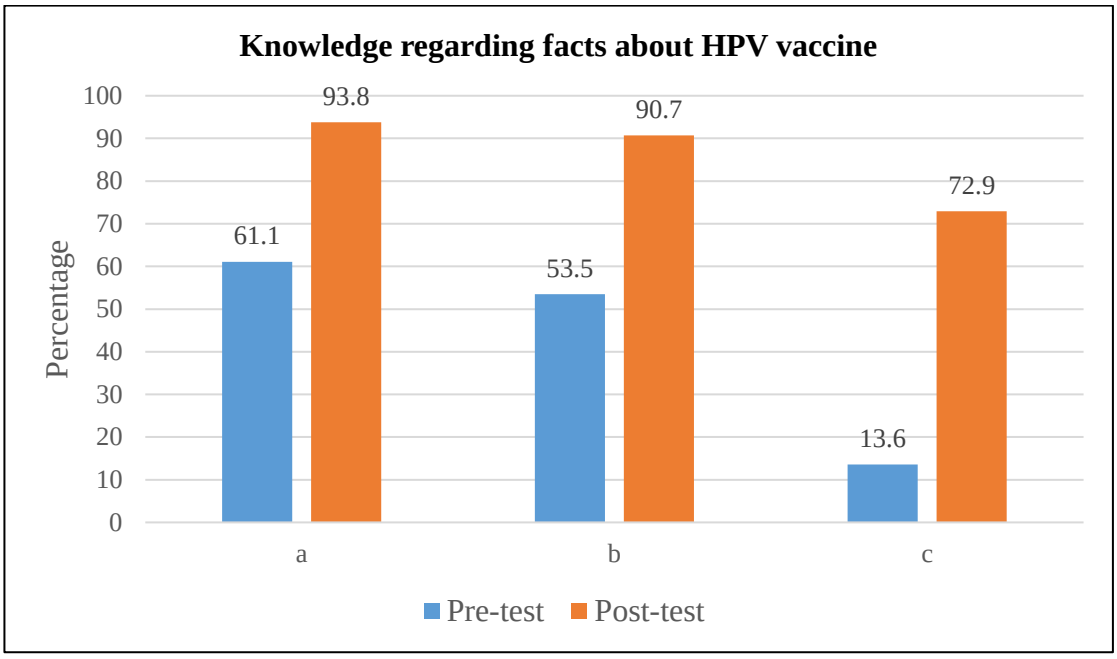


Table 26. Distribution of participants according to knowledge regarding HPV vaccine recommendations in pre-test and post-test (n=656)

S. No	Knowledge regarding HPV Vaccine Recommendations		Pre-test		Post-test	
			Frequency	Percentage	Frequency	Percentage
a.	Ideal age for HPV vaccination	9 years	43	6.6	10	1.5
		10 years	28	4.3	11	1.7
		11 years	53	8.1	530	80.8
		12 years	134	20.4	16	2.4
		Don't Know	398	60.7	89	13.6
b.	Number of doses for <16 years	1 dose	44	6.7	17	2.6
		2 doses	171	26.1	543	82.8
		3 doses	44	6.7	29	4.4
		Don't Know	397	60.5	67	10.2
c.	Number of doses for >16 years	1 dose	56	8.5	16	2.4
		2 doses	103	15.7	34	5.2
		3 doses	79	12.0	524	79.9
		Don't Know	418	63.7	82	12.5
d.	Age group in which HPV vaccine recommended	0-9 years	81	12.4	69	10.6
		10-30 years	207	31.6	508	77.4
		31-50 years	26	4.0	0	0.0
		>51 years	3	0.5	9	1.4
		Don't Know	339	51.7	70	10.7

a. Before the intervention, the majority, 60.7% (398 participants) were not conscious of the ideal age for HPV vaccination. However, following the intervention, a significant majority, 80.8% (530 participants) correctly identified the recommended age as 11 years.
b. Prior to the intervention, a majority, 60.5% (397 participants) did not know the total doses of HPV vaccine recommended for individuals under 16 years old. After the intervention, most participants, 82.8% (543 participants) correctly identified the requirement as 2 doses.
c. Similarly, before the intervention, a majority, 63.7% (418 participants) were unsure of the total doses recommended for individuals over 16 years old. After the intervention, most participants, 79.9% (524 participants) correctly identified the requirement as 3 doses.
d. In the pre-test, most of the participants, 51.7% (339 participants) were unaware of the recommended age group for HPV vaccination. However, in the post-test, a substantial majority, 77.4% (508 participants) correctly identified the recommended age group as 10-30 years old.

Figure 26. Distribution of participants according to improvement in knowledge regarding HPV vaccine recommendations from pre-test to post-test (n=656)

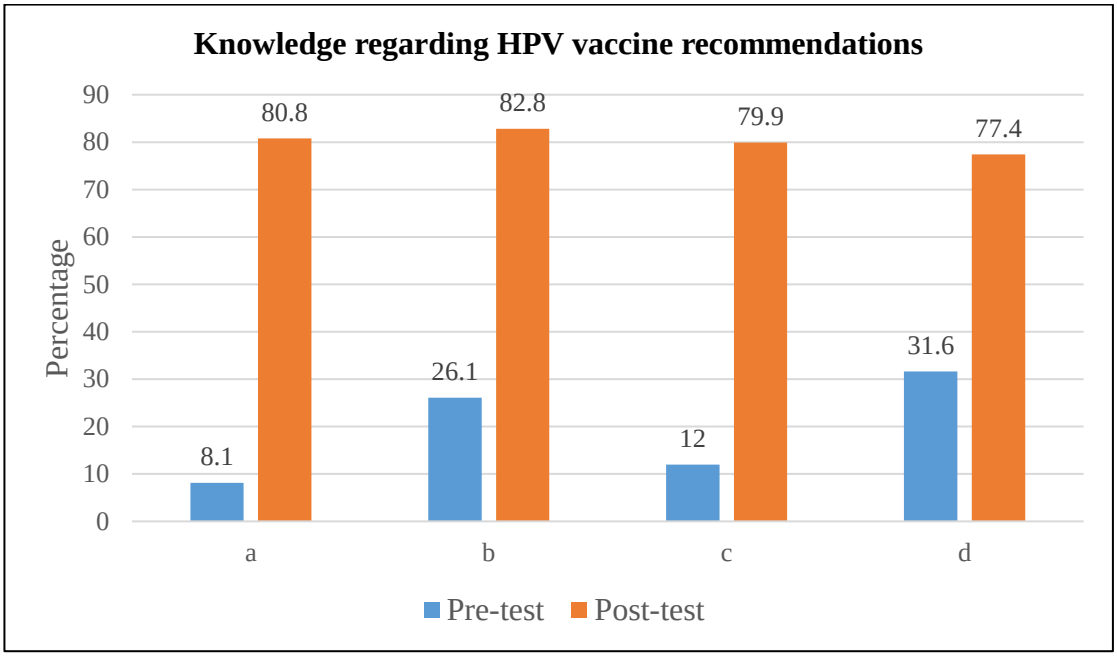


Table 27. Distribution of participants according to knowledge regarding protection by HPV vaccine in pre-test and post-test (n=656)

S. No	Knowledge regarding protection by HPV Vaccine		Pre-test		Post-test	
			Frequency	Percentage	Frequency	Percentage
1.	Vaccine given to HPV infected	Yes	215	32.8	555	84.6
		No	109	16.6	52	7.9
		Don't Know	332	50.6	49	7.5
2.	Multiple sexual partners following HPV vaccination	Yes	127	19.4	108	16.5
		No	196	29.9	479	73.0
		Don't Know	333	50.8	69	10.5
3.	HPV vaccine guards against genital warts	True	279	42.6	561	85.5
		False	53	8.1	36	5.5
		Don't Know	324	49.4	59	9.0
4.	HPV vaccine effective against Cervical Cancer	True	321	49.0	567	86.4
		False	36	5.5	20	3.0
		Don't Know	299	45.6	69	10.5

a. In the pre-test, most of the participants, 50.6% (332 participants) were uncertain whether HPV vaccine is administered to those already infected with HPV. However, following the education intervention, most participants, 84.6% (555 participants) correctly recognized that it could be given.

b. Similarly, in the pre-test, a majority of participants, 50.8% (333 participants) were unsure whether individuals vaccinated against HPV could have multiple sexual partners. After the intervention, most participants, 73.0% (479 participants) correctly understood that having multiple sexual partners is not permitted after HPV vaccination.

c. Initially, the majority of participants, 49.4% (324 participants) were uncertain whether the HPV vaccine guards against genital warts. Post-intervention, the majority, 85.5% (561 participants) correctly identified that it does provide protection.

d. Likewise, in the pre-test, the majority of participants, 49.0% (321 participants) correctly knew that vaccination against HPV guards against cervical cancer. After the intervention, this understanding improved, with 86.4% (567 participants) correctly identifying its protective effect in the post-test.

Figure 27. Distribution of participants according to improvement in knowledge regarding protection by HPV vaccine from pre-test to post-test (n=656)

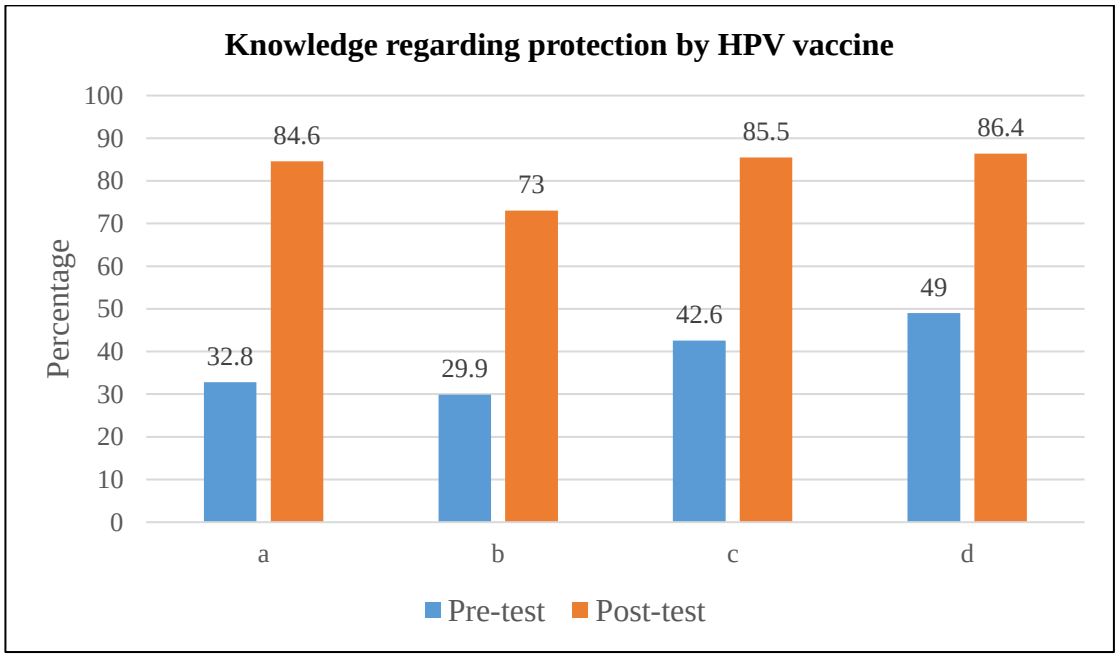


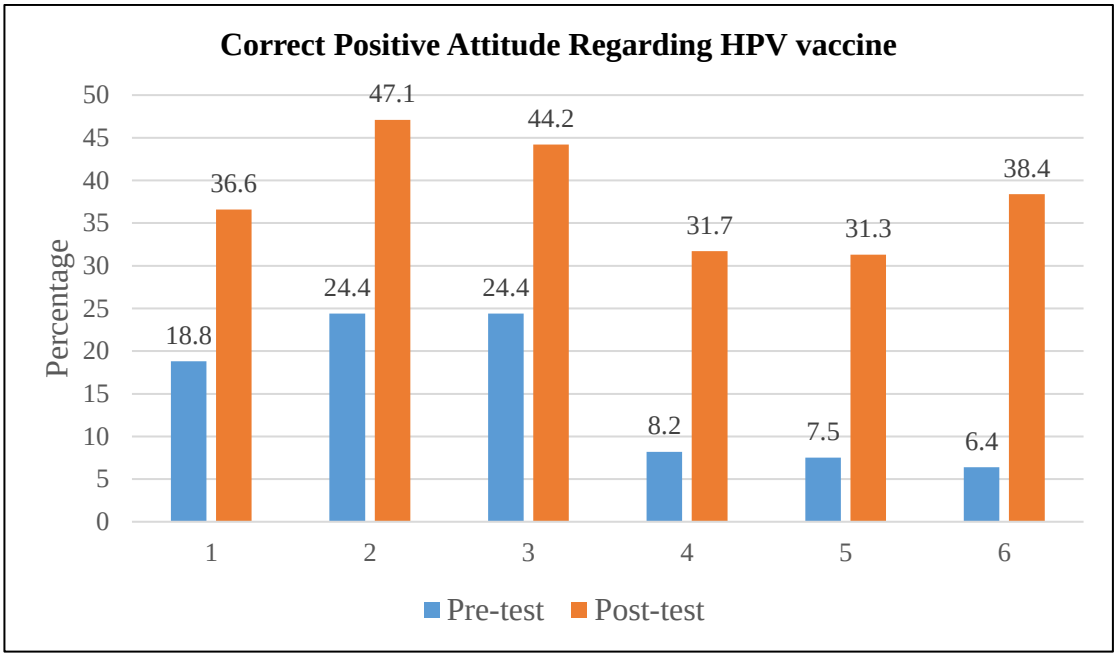
Table 28. Distribution of participants according to their attitude regarding HPV vaccine in the pre-test (n=656)

S. No	Attitude Questions	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Didn't answer
1.	Intending to get the HPV vaccination	29 (4.4%)	29 (4.4%)	252 (38.4%)	201 (30.6%)	123 (18.8%)	22 (3.4%)
2.	Will get the HPV vaccine if it's available free of cost in India	31 (4.7%)	27 (4.1%)	180 (27.4%)	238 (36.3%)	160 (24.4%)	20 (3.0%)
3.	Recommend friends and family to vaccinate against HPV	25 (3.8%)	13 (2.0%)	151 (23.0%)	285 (43.4%)	160 (24.4%)	22 (3.4%)
4.	HPV vaccine might cause short term problems like fever or discomfort	19 (2.9%)	29 (4.4%)	258 (39.3%)	271 (41.3%)	54 (8.2%)	25 (3.8%)
5.	It is challenging to find a provider or clinic where vaccine is available	31 (4.7%)	119 (18.1%)	263 (40.1%)	168 (25.6%)	49 (7.5%)	26 (4.0%)
6.	HPV vaccine is very expensive	21 (3.2%)	81 (12.3%)	362 (55.2%)	125 (19.1%)	42 (6.4%)	25 (3.8%)
7.	HPV vaccine is being pushed to make money for drug companies	53 (8.1%)	160 (24.4%)	298 (45.4%)	78 (11.9%)	43 (6.6%)	24 (3.7%)
8.	HPV vaccine might cause lasting health problems	53 (8.1%)	166 (25.3%)	348 (53.0%)	45 (6.9%)	14 (2.1%)	30 (4.6%)
9.	If a teenager gets the HPV vaccine, he/she may be more prone to having sex	54 (8.2%)	173 (26.4%)	319 (48.6%)	59 (9.0%)	23 (3.5%)	28 (4.3%)
10.	HPV vaccine is unsafe	70 (10.7%)	225 (34.3%)	293 (44.7%)	24 (3.7%)	14 (2.1%)	30 (4.6%)
11.	9-year-old children are not old enough to receive vaccine for a STD like HPV	44 (6.7%)	126 (19.2%)	354 (54.0%)	80 (12.2%)	22 (3.4%)	30 (4.6%)

Table 29. Distribution of participants according to their attitude regarding HPV vaccine in the post-test (n=656)

S. No	Attitude Questions	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Didn't answer
1.	Intending to get the HPV vaccination	41 (6.3%)	23 (3.5%)	98 (14.9%)	252 (38.4%)	240 (36.6%)	2 (0.3%)
2.	Will get the HPV vaccine if it's available free of cost in India	29 (4.4%)	24 (3.7%)	80 (12.2%)	212 (32.3%)	309 (47.1%)	2 (0.3%)
3.	Recommend friends and family to vaccinate against HPV	16 (2.4%)	24 (3.7%)	81 (12.3%)	245 (37.3%)	290 (44.2%)	0 (0.0%)
4.	HPV vaccine might cause short term problems like fever or discomfort	14 (2.1%)	35 (5.3%)	125 (19.1%)	274 (41.8%)	208 (31.7%)	0 (0.0%)
5.	It is challenging to find a provider or clinic where vaccine is available	10 (1.5%)	46 (7.0%)	135 (20.6%)	259 (39.5%)	205 (31.3%)	1 (0.2%)
6.	HPV vaccine is very expensive	9 (1.4%)	43 (6.6%)	173 (26.4%)	178 (27.1%)	252 (38.4%)	1 (0.2%)
7.	HPV vaccine is being pushed to make money for drug companies	198 (30.2%)	111 (16.9%)	228 (34.8%)	88 (13.4%)	31 (4.7%)	0 (0.0%)
8.	HPV vaccine might cause lasting health problems	201 (30.6%)	231 (35.2%)	182 (27.7%)	27 (4.1%)	12 (1.8%)	3 (0.5%)
9.	If a teenager gets the HPV vaccine, he/she may be more prone to having sex	200 (30.5%)	146 (22.3%)	206 (31.4%)	80 (12.2%)	23 (3.5%)	1 (0.2%)
10.	HPV vaccine is unsafe	211 (32.2%)	229 (34.9%)	178 (27.1%)	32 (4.9%)	3 (0.5%)	3 (0.5%)
11.	9-year-old children are not old enough to receive a vaccine for a STD like HPV	192 (29.3%)	111 (16.9%)	207 (31.6%)	128 (19.5%)	18 (2.7%)	0 (0.0%)

Figure 28. Distribution of participants according to improvement in correct positive attitude regarding HPV vaccine from pre-test to post-test (n=656)

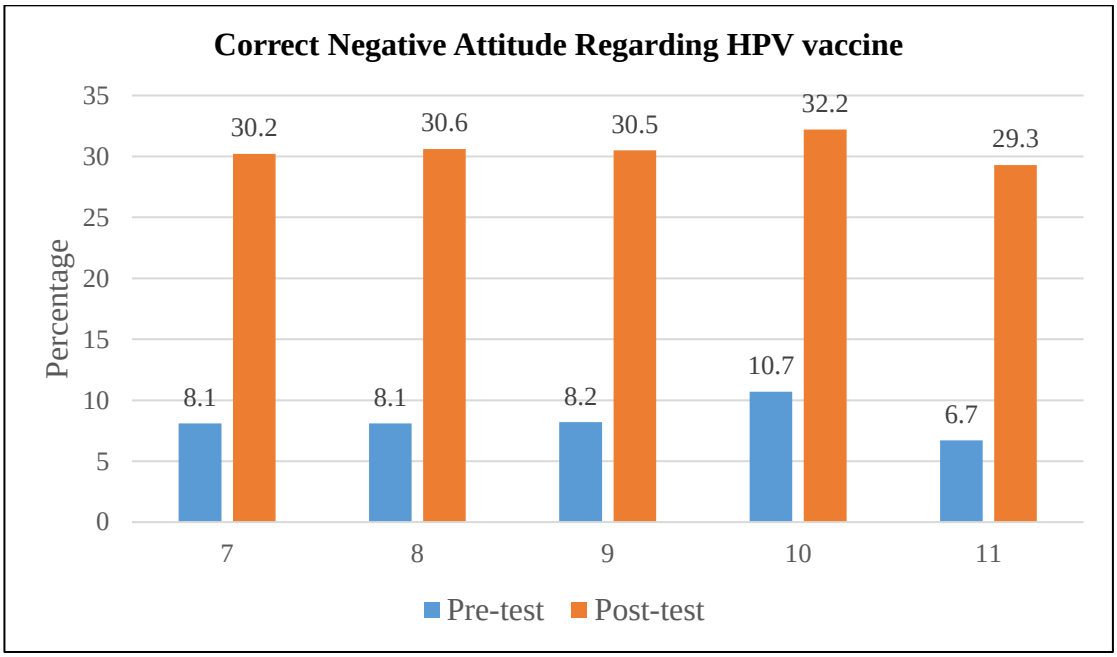


1. In the pre-test, a mere 18.8% (123 individuals) expressed strong agreement regarding their readiness to obtain the vaccine. However, in the post-test, this figure notably increased, with approximately 36.6% (240 individuals) strongly affirming their readiness to obtain the vaccine.
2. In the pre-test, only 24.4% (160 individuals) strongly agreed getting the HPV vaccine if it were available free of cost in India. However, in the post-test, this percentage significantly increased, with approximately 47.1% (309 individuals) strongly affirming their willingness under the same condition.
3. In the pre-test, merely 24.4% (160 individuals) strongly agreed to advise HPV vaccination to their family and friends. However, in the post-test, this

proportion notably increased, with approximately 44.2% (290 individuals) strongly affirming their willingness to prescribe to their loved ones.

4. In the pre-test, a mere 8.2% (54 individuals) strongly agreed vaccination against HPV might cause short-term problems like fever or discomfort. However, in the post-test, this percentage notably increased, with approximately 31.7% (208 individuals) strongly affirming their belief in the possibility of such short-term effects from the vaccine.
5. In the pre-test, only 7.5% (49 individuals) strongly agreed that it is challenging to find a provider or clinic where the HPV vaccine is available. However, in the post-test, this proportion significantly increased, with approximately 31.3% (205 individuals) strongly affirming their belief in the difficulty of finding a provider or clinic offering the vaccine.
6. In the pre-test, merely 6.4% (42 individuals) strongly agreed that the HPV shot is very expensive. However, in the post-test, this proportion significantly increased, with approximately 38.4% (252 individuals) strongly affirming their belief in the exorbitant price of the vaccine.

Figure 29. Distribution of participants according to improvement in correct negative attitude regarding HPV vaccine from pre-test to post-test (n=656)



7. In the pre-test, merely 8.1% (53 individuals) strongly disagreed with the idea that, HPV vaccine is being promoted solely to generate profits for drug companies. However, in the post-test, this proportion significantly increased, with approximately 30.2% (198 individuals) strongly refuting the idea.
8. In the pre-test, merely 8.1% (53 individuals) strongly disagreed with the idea that the vaccination against HPV might lead to lasting health problems. However, in the post-test, this proportion significantly increased, with approximately 30.6% (201 individuals) strongly refuting the idea that the vaccine could cause long-term health issues.
9. In the pre-test, merely 8.2% (54 individuals) strongly disagreed with the notion that getting the HPV vaccine might increase the likelihood of teenagers engaging in sexual activity. However, in the post-test, this proportion significantly increased, with approximately 30.5% (200

individuals) strongly refuting the idea that the vaccine could influence teenage sexual behavior.

10. In the pre-test, only 10.7% (70 individuals) strongly disagreed with the assertion that, HPV vaccine is unsafe. However, in the post-test, this proportion notably increased, with approximately 32.2% (211 individuals) strongly refuting the notion of the vaccine's unsafety.
11. In the pre-test, merely 6.7% (44 individuals) strongly disagreed with the idea that 9-year-old children are too young to receive a vaccine for a sexually transmitted disease (STD) like HPV. However, in the post-test, this percentage significantly increased, with approximately 29.3% (192 individuals) strongly refuting the notion of inappropriateness.

Table 30. Test of Normality of the variables using Shapiro-Wilk Test (n=656)

Variables	Pre-test		Post-test	
	Statistics	**p-value**	**Statistics**	**p-value**
Total Knowledge Score	0.960	< 0.001	0.774	< 0.001
Total Attitude Score	0.721	< 0.001	0.778	< 0.001
Total Practice Score	0.512	< 0.001	0.624	< 0.001

After conducting tests of normality, it was determined that none of the variables, including Pre-test and Post-test Knowledge Scores, Attitude Scores, and Practice Scores, followed a normal distribution. Notably, the Shapiro-Wilk test indicated a very significant violation of normality with p-values less than 0.01 for all the data sets. Therefore, instead of using the Paired t-test, the nonparametric Wilcoxon signed-rank test was employed to compare the Pre-test and Post-test scores.

The overall reliability of the questionnaire was assessed using Cronbach's alpha, yielding a total value of 0.881. Specifically, the Cronbach's alpha values for the knowledge and the attitude sections were 0.9 and 0.777, respectively. Given that both values exceeded 0.7, it indicates a satisfactory level of internal consistency within the questionnaire for both knowledge and attitude domains. Consequently, this validated the questionnaire's suitability in conducting the research.

The survey questionnaire consisted of 44 questions, with 32 questions focusing on assessing knowledge. Each question provided multiple-choice options, with one correct answer and several incorrect ones. Each correct response was awarded one mark, while incorrect answers received zero marks.

Table 31. Comparison of pre-test and post-test knowledge scores (n=656)

Knowledge Scores	Mean ± SD	Median (Q1, Q3)	Minimum	Maximum
Pre-test	10.59 ± 6.58	11 (6, 11)	0	26
Post-test	25.82 ± 8.34	29 (24, 32)	24	32

The results indicate a significant between pre and post-test knowledge scores, with post-test exhibiting a higher mean score compared to the pre-test. This indicates an overall improvement in knowledge levels following the intervention, as students tended to perform better in the post-test (with a median of 29) compared to pre-test (with a median of 11).

Table 32. Comparison of pre-test and post-test knowledge scores using Wilcoxon signed-rank test (n=656)

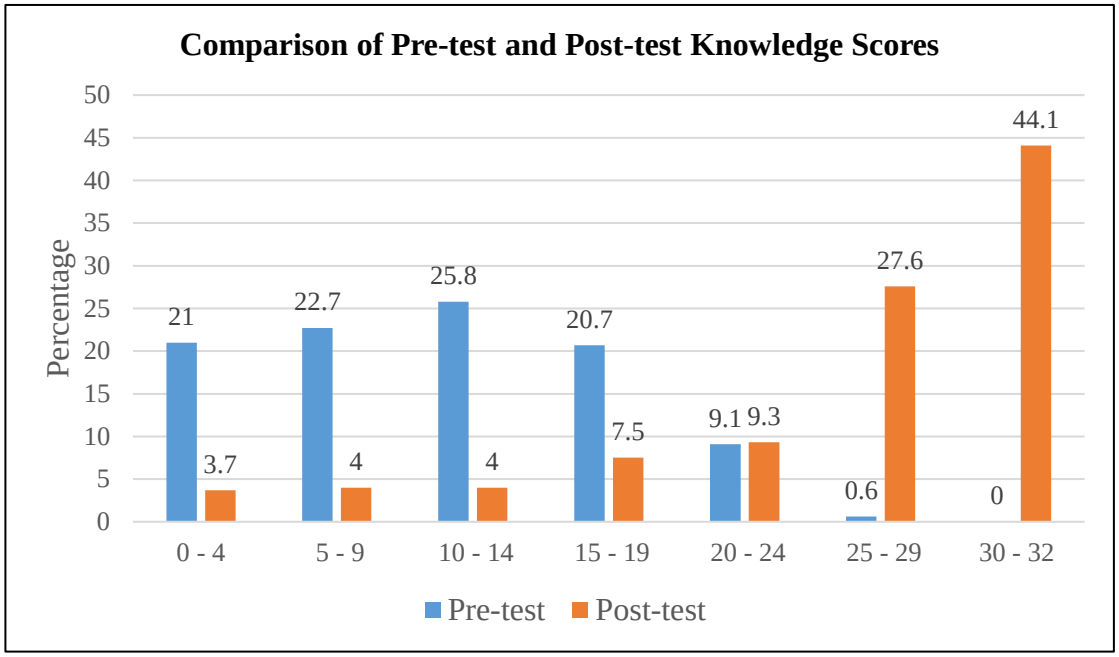
Knowledge Scores	n	Mean Rank	Z	p-value
Positive Ranks	591	344.71	20.951	< 0.001*
Negative Ranks	55	95.61		
Ties	10			
Total	656			

Statistical analysis using the Wilcoxon Test confirmed this improvement in knowledge to be significant statistically, with a p-value of less than 0.001. Additionally, the positive mean difference of 15.23 suggests that, post-test scores increased after the intervention is attributed to the efficiency of the health education intervention.

Table 33. Comparison of pre-test and post-test knowledge according to the distribution of scores (n=656)

Knowledge Scores	Frequency (n)		Percentage (%)		Cumulative Percentage	
	Pre-test	**Post-test**	**Pre-test**	**Post-test**	**Pre-test**	**Post-test**
0 - 4	138	24	21	3.7	21	3.7
5 - 9	149	26	22.7	4	43.8	7.6
10 - 14	169	26	25.8	4	69.5	11.6
15 - 19	136	49	20.7	7.5	90.2	19.1
20 - 24	60	61	9.1	9.3	99.4	28.4
25 - 30	4	181	0.6	27.6	100	55.9
30 - 32	0	289	0.0	44.1	-	100

Figure 30. Distribution of participants according to improvement in knowledge scores from pre-test to post-test (n=656)

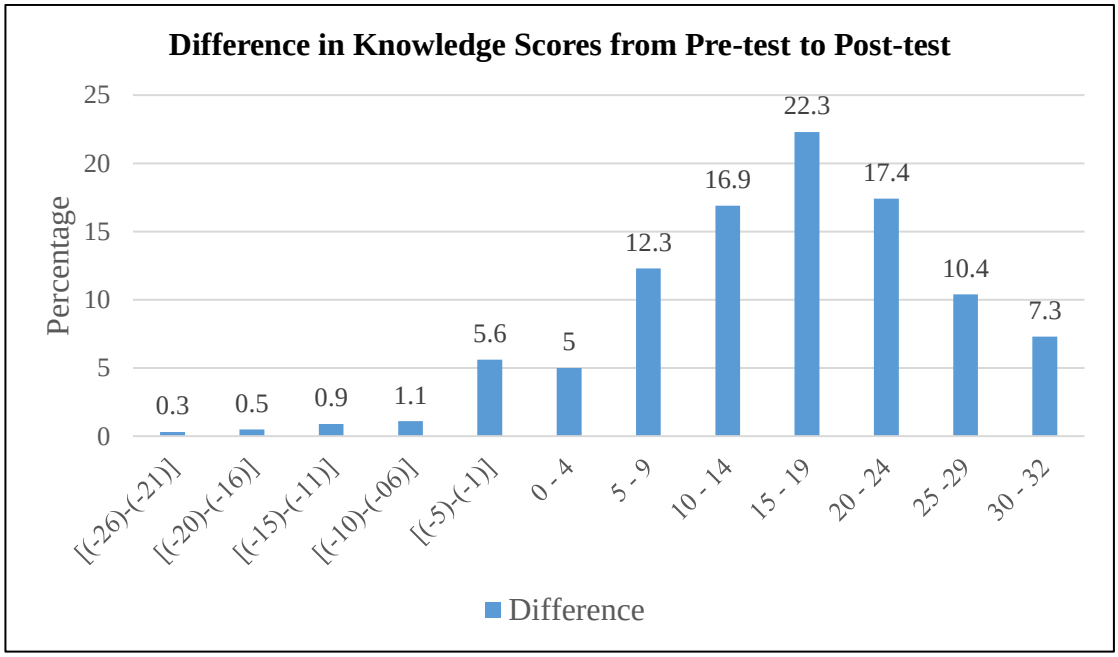


The evaluation of pre- and post-test scores revealed distinct patterns in score distribution. In the pre-test, a large percentage of participants scored within the lower range, with approximately 21% scoring between 0-4, 22.7% between 5-9, 25.8% between 10-14, and 20.7% between 15-19. However, following the intervention, there was a notable shift towards higher scores, with approximately 27.6% of participants scoring between 25-29 and a remarkable 44.1% scoring between 30-32. This suggests a marked improvement in knowledge levels among participants after the intervention.

Table 34. Comparison of pre-test and post-test according to their difference in knowledge scores (n=656)

Difference in knowledge scores	Frequency (n)	Percentage (%)	Cumulative Percentage
(-26) - (-21)	2	0.3	0.3
(-20) - (-16)	3	0.5	0.8
(-15) - (-11)	6	0.9	1.7
(-10) - (-06)	7	1.1	2.7
(-5) - (-1)	37	5.6	8.4
0 - 4	33	5	13.4
5 - 9	81	12.3	25.8
10 - 14	111	16.9	42.7
15 - 19	146	22.3	64.9
20 - 24	114	17.4	82.3
25 - 29	68	10.4	92.7
30 - 32	48	7.3	100

Figure 31. Distribution of participants according to their difference in knowledge scores from pre-test to post-test (n=656)



The analysis of the difference between post-test and pre-test knowledge scores reveals a consistent upward trend, indicating an improvement in scores across various ranges. There was a notable increase in scores from the lower range in the pre-test to the higher range in the post-test. Specifically, there was a 16.9% improvement in scores ranging from 10-14, a 22.3% improvement in scores ranging from 15-19, a 17.4% improvement in scores ranging from 20-24, a 10.4% improvement in scores ranging from 25-29, and a 7.3% improvement in scores ranging from 30-32. These findings strongly suggest that the observed differences are not merely due to chance but are attributable to the efficiency of the health education intervention.

Table 35. Comparison of pre-test and post-test Attitude scores (n=656)				
Attitude Scores	**Mean ± SD**	**Median (Q1, Q3)**	**Minimum**	**Maximum**
Pre-test	1.31 ± 1.944	0 (0, 2)	0	10
Post-test	3.84 ± 4.259	2 (0, 6)	0	6

The results indicate a significant between pre-test and post-test scores, with post-test exhibiting a higher mean score compared to the pre-test. This indicates an overall improvement in attitude levels following the intervention, as students tended to perform better in post-test (with a median of 2) compared to pre-test (with a median of 0).

Table 36. Comparison of pre-test and post-test attitude scores using Wilcoxon signed-rank test (n=656)

Attitude Scores	n	Mean Rank	Z	p-value
Positive Ranks	357	275.18	12.18	< 0.001*
Negative Ranks	133	165.82		
Ties	166			
Total	656			

Statistical analysis using the Wilcoxon Test confirmed this improvement in attitude to be significant statistically, with a p-value of less than 0.001. Additionally, the positive mean difference of 2.53 suggests that, post-test scores increased after the intervention is attributed to the influence of health education.

Table 37. Comparison of pre-test and post-test attitude according to the distribution of scores (n=656)

Attitude Scores	Frequency (n)		Percentage (%)		Cumulative Percentage	
	Pre-test	**Post-test**	**Pre-test**	**Post-test**	**Pre-test**	**Post-test**
0 - 3	570	406	86.9	61.9	86.9	61.9
4 - 7	79	94	12	14.3	98.9	76.2
8 - 11	7	156	1.1	23.8	100	100

The analysis of pre-test and post-test attitude scores revealed distinct patterns in score distribution. In the pre-test, a large percentage of participants scored within the lower range, with approximately 86.9% scoring between 0-3, 12.0% between 4-7, 1.1% between 8-11. However, following the intervention, there was a notable shift towards higher scores, with approximately 23.8% of participants scoring between 8-11, 14.3% scoring between 4-7 and only 61.9% scoring between 0-3. This suggests a marked improvement in knowledge levels among participants after the intervention.

Figure 32. Distribution of participants according to improvement in attitude scores from pre-test to post-test (n=656)

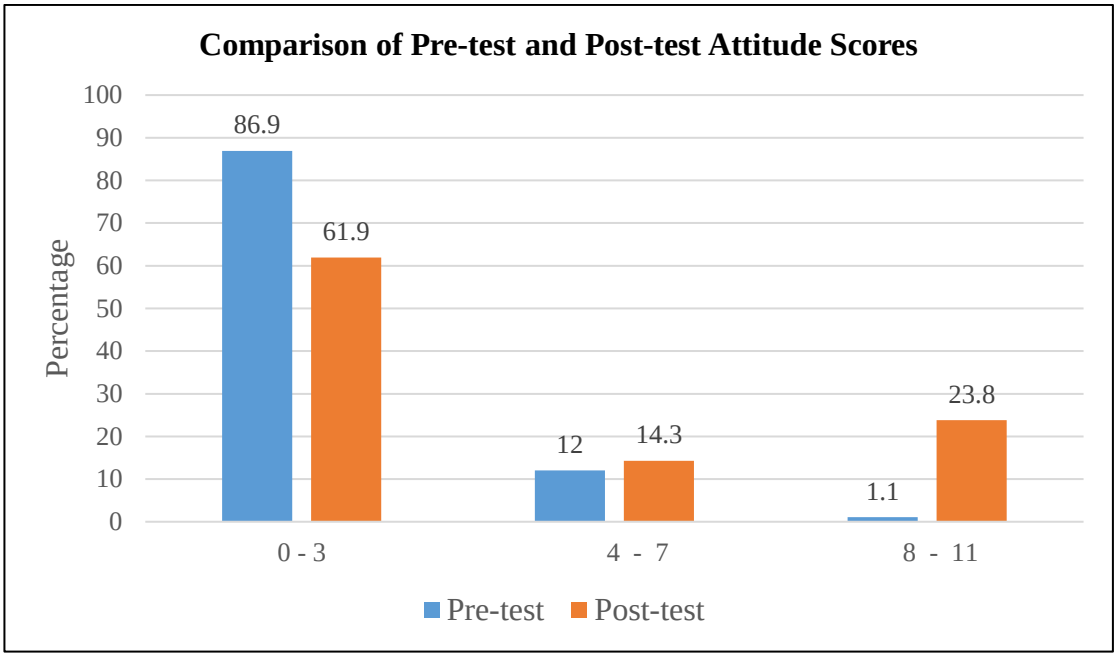


Table 38. Comparison of pre-test and post-test according to their difference in attitude scores (n=656)

Difference in attitude scores	Frequency (n)	Percentage (%)	Cumulative Percentage
(-7) - (-4)	38	5.8	5.8
(-3) - (-1)	95	14.5	20.3
0 - 3	315	48	68.3
4 - 7	76	11.6	79.9
8 - 11	132	20.1	100

The evaluation of the difference between post-test and pre-test attitude scores reveals a consistent upward trend, indicating an improvement in scores across various ranges. There was a notable increase in scores from the lower range in the pre-test to the higher range in the post-test. Specifically, there was a 48.0% improvement in scores ranging from 0-3, a 11.6% improvement in scores ranging from 4-7, and a 20.1% improvement in scores ranging from 8-11. These findings strongly suggest that the observed differences are not merely due to chance but are attributable to the influence of health education intervention.

Figure 33. Distribution of participants according to their difference in attitude scores from pre-test to post-test (n=656)

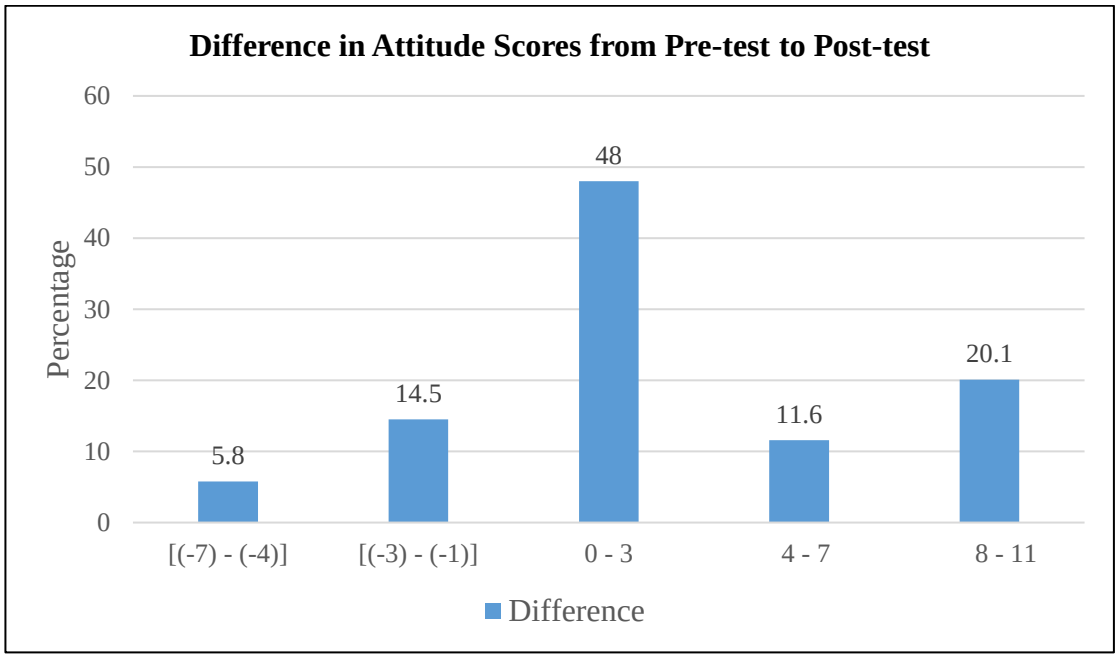


Table 39. Comparison of pre-test and post-test practices on willingness to receive the vaccine (n=656)							
Pre-test	**Post-test**						**p-value**
	No	**%**	**Yes**	**%**	**Total**	**%**	
No	149	24.3	465	75.7	614	93.6	< 0.001*
Yes	9	21.4	33	78.6	42	6.4	
Total	158	24.1	498	75.9	656	100	

The comparison between pre-test and post-test practices regarding readiness to get the vaccine using McNemar's test reveals a significant difference statistically with p-value less than 0.001. In the pre-test, a mere 6.4% of participants expressed agreement to get the vaccine, whereas in the post-test, a significant 75.9% of participants indicated willingness to receive it. Conversely, during the pre-test, approximately 93.6% of participants declined to get the vaccine, whereas after the health education intervention, this figure significantly decreased to about 24.1%. These findings underscore a marked increase in acceptance of receiving the vaccine following the intervention.

Figure 34. Distribution of participants according to improvement in practice scores from pre-test to post-test (n=656)

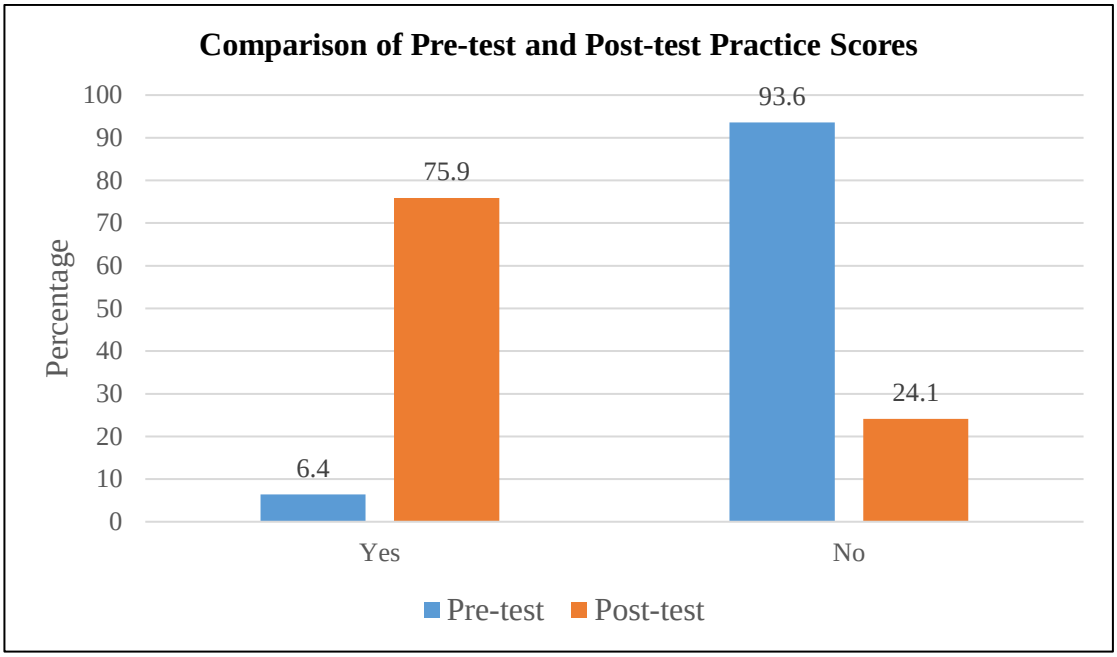


Table 40. Pre-test Correlation of Knowledge, Attitude and Practice Scores (n=656)

Variables	Attitude Score		Practice Score	
	r	p-value	r	p-value
Knowledge Score	0.312	< 0.001*	0.141	< 0.001*
Attitude Score	1		0.231	< 0.001*

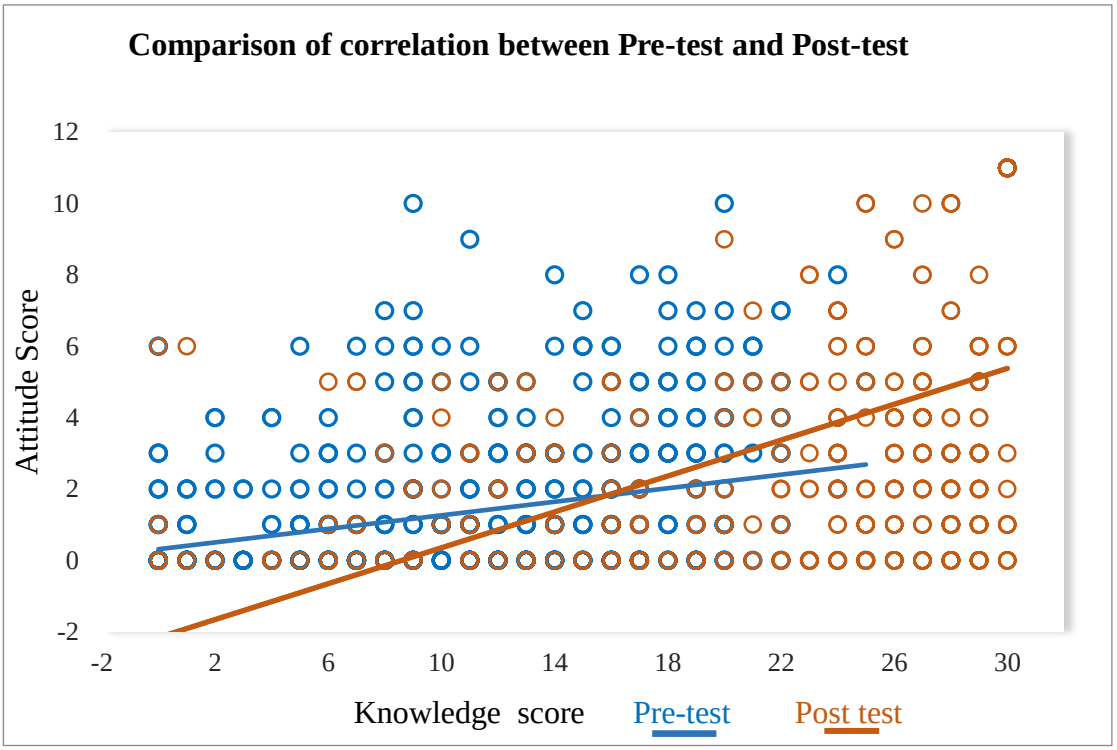
The analysis of the scores of the pre-test data revealed significant linear correlations between knowledge and attitude, attitude and practice, as well as knowledge and practice, all with p-values less than 0.001. Despite the statistical significance, the correlations between these variables were weak, with the maximum correlation coefficient (r) value reaching 0.312.

Table 41. Post-test Correlation of Knowledge, Attitude and Practice Scores (n=656)

Variables	Attitude Score		Practice Score	
	r	**p-value**	**r**	**p-value**
Knowledge Score	0.586	< 0.001*	0.388	< 0.001*
Attitude Score	-		0.373	< 0.001*

In the post-test analysis also, notable linear correlations were observed between knowledge and attitude, attitude and practice, and knowledge and practice, all found to be significant statistically with p-values less than 0.001. However, unlike the pre-test, the strength of these correlations notably improved in post-test, with the correlation coefficient (r) value reaching 0.586. This suggests a medium strength correlation, highlighting the impact of the health education intervention in enhancing the relationships between KAP scores.

Figure 35. Comparison of correlation between pre-test and post-test according to Knowledge and Attitude Scores (n=656)



DISCUSSION

Table 1: Distribution of participants according to age

Our study revealed that, a significant proportion (61.3%) of the participants belonged to the age spectrum of 21-22 years. This aligns with findings from previous research conducted among medical students within our university, where the mean age group of 20.45 ± 1.23 years.[16]

Additionally, similar age distributions were also observed in studies conducted among medical students of a different university in India, with the majority falling within the 20-21-years.[40]

Interestingly, this age distribution pattern is not unique to our setting but appears consistent across different cultural and geographical contexts. For instance, a study among Lebanese female university students showed a similar age profile, with a mean age group of 22.7 ± 3.33 years among the participants.[41]

Understanding the typical age range of students can help tailor interventions to meet their specific needs, which enhances the relevance and effectiveness of educational initiatives.

Table 2: Distribution of participants according to gender

Our study showed that, a sizable percentage, about 63.7%, of the participants were females. This observation was consistent with findings from similar study conducted among medical students of a different university in India having about 53.3% female participants.[40] Likewise, a study carried out among students in Algeria found a higher female participant proportion at 75.8%.[42]

While our study included both males and females, many studies related to HPV have predominantly focused on females which often concentrate on assessing the awareness about cervical cancer and HPV vaccination.[16,41]

Understanding the gender dynamics within the perspective of knowledge of infection and vaccination related to HPV can inform more targeted and effective educational strategies, ensuring that both male and female populations receive appropriate attention and support in disease control efforts.

Table 3: Distribution of participants according to degree course

Our study included participants from diverse healthcare institutions, including Medical, Dental, Nursing, Pharmacy, Physiotherapy, Homeopathy, and Ayurveda colleges. Notably, the largest representation among participants came from medical colleges, comprising 27.1%. This distribution was consistent with the study conducted in South India, which also found that, most of the individuals were from medical college, accounting for 43.5%.[43] However, on the contrary, another study done in South India reported having most of the individuals from Dental college constituting 52.68%.[44]

Typically, research in this field has predominantly centered on students from medical, dental, physiotherapy or nursing colleges.[45,46] But the diverse representation of healthcare institutions in our study allows for a increased depth of understanding of the topic, considering the varied perspectives and experiences across different disciplines within the healthcare field.

Table 4: Distribution of study participants based on religion

Our study revealed that, most of the individuals were Hindus accounting for 81.4%, followed by Muslims 6.7%, Christians 6.6%, Jains 5.2%, and Sikhs 0.2%. This aligns with the study conducted in Nepal, where Hindus constituted the majority with 74.0%.[47]

Moreover, a broader study across multiple Asian countries highlighted similar trends, with Hindus representing the majority in India and Nepal, comprising 61.4% and 89.6% respectively. Interestingly, in Sri Lanka, Buddhism emerged as the dominant religion among participants, with 53.8%.[48]

Understanding the religious composition of the study participants can provide valuable insights into cultural influences and societal contexts that may impact research outcomes and interpretations.

Table 5: Distribution of participants according to geographical origin

Our study revealed that, most of the individuals originated from the southern region of India, comprising approximately 54.6%, followed by the west (20.3%), north (19.4%), and east (5.8%). Similarly, a study conducted in the US revealed a comparable regional distribution, with majority of participants hailing from the Southern region (38.5%), followed by the west (25.83%), Midwest (19.66%), and Northeast (15.99%).[49]

It's noteworthy that while studies conducted in India have explored various aspects of KAP related to HPV, none have specifically addressed regional disparities. This highlights a gap in the literature regarding the geographical variations within the country and their potential influence on HPV-related factors.

Understanding regional discrepancy in HPV-related KAP is essential for developing targeted interventions and policies that address specific needs and challenges across different regions.

Table 6: Distribution of participants according to residential area

Our study revealed that, a significant majority belonged to urban areas, comprising 74.2%, whereas rural representation was notably lower at 25.8%. This observation aligns with a study carried out among Greek adolescents, where the majority hailed from urban areas, accounting for 79.1% of participants, while only 20.9% originated from rural areas.[50] Conversely, a study done in Mysore revealed that, majority of participants originated from rural areas, constituting 51.64%, while urban participants accounted for 48.36%.[51]

Notably, a recent research study conducted in Haryana revealed differences in cervical cancer awareness among females living in urban and rural areas, highlighting existing urban-rural disparities in knowledge levels.[52] By recognizing and addressing these disparities, equitable access to healthcare services can be promoted across both rural and urban areas.

Table 7: Distribution of participants according to type of family

Our study revealed that, most of the individuals hailed from nuclear families, comprising 75.2%, followed by joint families at 22.9%, and three-generation families at 2%. Surprisingly, previous studies have not explored the potential link between family dynamics and HPV knowledge. This aligns with the study conducted among parents of adolescent girls in Mysuru, Karnataka, which revealed that, most

individuals belonged to Nuclear families (70.71%), followed by Joint family (29.28%).[53]

This underscores an unexplored area within the research landscape, indicating a gap in understanding the influence of family dynamics on HPV-related knowledge. Further exploration of this relationship could provide valuable insights for tailoring educational interventions and public health initiatives to better address the diverse needs of individuals from different family structures.

Table 8: Distribution of participants according to socio-economic status

Our study revealed that, majority of participants belonged to Class I according to the Modified B.G. Prasad's Classification for socioeconomic status, representing 61.0%. Following this, Class II accounted for 17.5%, Class III for 12.0%, Class IV for 7.2%, and a smaller proportion, 2.3%, belonged to Class V. While previous studies didn't utilize a similar classification system, they did examine participants' monthly income.

For example, a research conducted in Chandigarh found that 56% of participants had a monthly income between INR 5000 - 20000, with 35.5% earning more than INR 20000, and 8.5% earning less than INR 5000.[54] Similarly, a study in Kolkata reported that 59% of participants had a household income of less than Rs. 1,20,000, while 41% had incomes exceeding INR 1,20,000.[55]

While our study and previous research employed different classification methods, they all considered socioeconomic factors, particularly income, which significantly impacts access to resources and healthcare utilization, especially with respect to HPV vaccination.

Table 9: Distribution of participants according to smoking habit

Our study revealed that, most of the individuals were non-smokers, comprising 95.7%. Among the remaining participants, 2.3% were current smokers, and 2.0% were past smokers. Similarly, in a study among students in South Korea, the majority had never smoked (43.41%), followed by those who had ever smoked (31.72%), current smokers (22.24%), and former smokers (7.11%).[56]

In contrast, a study investigating the relationship between smoking and HPV infection in HIV infected and uninfected women found a different distribution, with 54.06% consistent smokers, 33.82% who had never smoked, and 12.11% occasional smokers.[57]

These findings highlight the variability in smoking behaviours across different populations and contexts. Understanding smoking patterns among specific groups, such as students is essential for developing targeted interventions to address smoking cessation and reduce associated health risks, including HPV infection.

Table 10: Distribution of participants according to alcohol use

Our study revealed that, most individuals abstained from alcohol consumption, accounting for 93.0%. Among the remaining participants, 3.7% were currently consuming alcohol, while 3.3% reported past alcohol use. This pattern is consistent with a research conducted in North East India, where the majority of participants were non-alcoholics (73.58%), followed by alcoholics (26.42%).[58] Similarly, a study among Oakland University students in the USA found that the majority were non-alcoholics (54.2%), with alcoholics comprising 43.2%.[59]

These consistent findings across different populations suggest variations in alcohol consumption patterns but highlight a major proportion being non-alcoholics. Understanding these patterns is crucial for informing public health interventions aimed at promoting responsible alcohol use and addressing health risks associated with HPV.

Table 11: Distribution of participants according to recreational drug use

Our study revealed that, majority of the participants, totalling 97.6%, reported abstaining from drug use. Among the remaining participants, 2.0% indicated past drug use, while current drug users represented only 0.5%. Similarly, a study among Australian students found that 71.3% had never used any drugs previously, with 21.2% reporting sporadic use less than monthly, and 7.5% reporting more frequent usage, exceeding monthly intervals.[60]

These findings underscore a prevalent trend of non-drug use among the studied populations. Understanding patterns of drug usage and its prevalence is vital for promoting healthy behaviours and preventing substance abuse-related harm.

Table 12: Distribution of participants according to educational qualification of their parents

Our study revealed that, parents of most individuals held a Master's degree (28.2%), followed closely by Bachelor's degrees (28.0%), Higher secondary education (17.7%), Doctorate degree (9.3%), Diploma (7.9%), secondary education (5.9%), no formal education (1.7%), and only primary education (1.2%).

In contrast, a study among medical and paramedical students in Gujarat found that parents of most individuals had completed higher secondary/graduate and above, constituting 80.15%, while smaller percentages were seen in lower education categories.[46]

Similarly, a study done among the Chinese college students reported varying levels of parental education, with 18.7% having primary schooling or less, 44.2% having education till junior high school, 21.6% having high school or technical secondary school education, and 15.5% having college education or above.[61]

These findings illustrate the diverse educational backgrounds of participants' parents across different regions and populations. Understanding parental education levels is important for assessing the socio-economic context and potential influences on participants' own educational attainment and health-related behaviours. Additionally, literacy status of the parents could positively influence their children in completing the HPV vaccination.

Table 13: Distribution of participants according to whether they have heard about human papillomavirus

Our study revealed that, majority of participants (86.9%) were already aware of HPV, while 13.1% had never heard about HPV before participating. Similarly, a study among undergraduate medical students in Rajasthan found that 80% had heard about HPV, while 20% had not.[62] In contrast, a study among school students in Germany revealed poor awareness, with only 38.65% being aware about HPV before, while 61.35% had not.[63]

These findings underscore the variability in HPV awareness levels across different populations and settings. Understanding the extent of HPV knowledge among various groups is crucial for developing specific actions meant to raise consciousness and promoting preventive behaviours.

Table 14: Distribution of participants according to whether they have heard about HPV vaccine

Our study revealed that, approximately 59.2% of participants were already familiar with HPV vaccine, while 40.8% had not heard about it. This corresponds with a study done in Brazil, where 75.81% of participants were already acquainted of the HPV vaccine.[64] Similarly, among school students in Germany, a high percentage, 87.65%, had prior knowledge of the HPV vaccine.[63]

These results indicate varying levels of HPV awareness vaccine across different populations. Understanding these disparities is crucial for designing targeted educational campaigns to increase vaccine uptake and promote preventive health behaviours.

Table 15: Distribution of participants according to source of information about HPV

Our study revealed that, the main source of information for 47.6% of participants was healthcare workers, followed by 21.5% from the mass media or the internet. A smaller proportion, 4.1%, received information from their parents or relatives, while 13.7% obtained knowledge about HPV from textbooks.

Contrastingly, in a study among the medical students in Mangalore, the majority, comprising 78%, heard about HPV from family or friends, with the

remaining 22% learning about it through theory classes, clinical postings, or textbooks.[65] While, a multicentric study done among the female college students in India demonstrated that, about 18.37% heard about HPV from social media, 7.14% from college staff and, 5.10% from awareness programs.[66]

These findings illustrate the diverse sources of information about HPV across different populations and settings. Understanding the most influential sources of information is crucial for developing effective educational strategies and disseminating accurate information about HPV and its prevention. Ultimately, these sources of information should pave the way for creating awareness in the community.

Table 16: Distribution of participants according to sexual activeness

Our study revealed that, a substantial majority, comprising 86.9% of participants, self-reported as not being sexually active, while 13.1% reported themselves as sexually active. This finding aligns with a study among female Chinese and Korean students, where the majority reported being not sexually active, accounting for 92.5% of participants, while only 7.5% indicated being sexually active.[67]

These results highlight the prevalence of non-sexually active individuals within the studied populations. Understanding sexual activity trends is essential for informing public health initiatives aimed at promoting safe sexual practices and preventing STIs, including HPV.

Table 17: Distribution of participants according to barrier contraceptive usage among sexually active individuals

Our study revealed that, majority of participants, representing 51.2%, were utilizing some form of barrier contraceptive method before intercourse, while the remaining 48.8% participants, were not employing any form of contraceptive.

Similarly, in a study among college students in Guam, the majority, comprising 62.0% of participants, reported using condoms before sexual intercourse, while the remaining 38.0% did not.[68] In contrast, a study among women in Western China revealed that the majority, approximately 54.4%, were not using any condoms before intercourse.[69]

These findings underscore variations in contraceptive practices among different populations. Understanding contraceptive utilization patterns is crucial for informing sexual health education and promoting safe sexual practices to prevent sexually transmitted infections such as HPV.

Table 18: Distribution of participants according to HPV vaccination status

Our study revealed that, only a small percentage, 6.4%, of participants had gotten the HPV vaccination, while the vast majority, 93.6%, had not obtained the vaccine against HPV. This aligns with the study done among college students in Uttar Pradesh, India, where the majority, comprising 92.71% of students, were not vaccinated against HPV, with merely a tiny percentage, 7.29%, having received the vaccination.[70]

Conversely, a study among healthcare professionals in Chennai, India, showed a slightly higher vaccination rate, with about 19.8% of participants reporting that they had gotten the vaccine against HPV. However, the majority, 70.4%, were not

vaccinated, and a small proportion, 9.8%, were uncertain about their vaccination status.[71]

These findings highlight discrepancy in HPV vaccination rates across different populations and settings. Understanding factors influencing vaccination uptake is crucial for developing targeted interventions to improve vaccine coverage and lessen the prevalence of illnesses linked to HPV.

Table 19: Distribution of participants according to felt barriers to vaccination

Our study revealed that, the most commonly cited barrier for HPV vaccination as, lack of awareness (62.3%), followed by 14.0% attributed the barrier to the vaccine's unavailability, while 2.0% cited the higher cost as a factor. Interestingly, 21.6% believed that each of these elements played a part in impeding immunization.

Conversely, in a study conducted among Karnataka medical students, inadequate information was identified as the major obstacle to vaccination (56.8%), followed by high cost (21.2%), potential complications due to the vaccine (17.6%) and, vaccine efficacy (17.6%).[72]

Furthermore, a study done among medical professionals in Delhi, India, revealed fear of side effects (51.41%) as the most frequent reason for vaccine refusal, followed by, lack of awareness about vaccines (49.46%), and absence of official national guidelines (32.97%).[73]

These findings underscore the complex array of factors influencing uptake of HPV vaccination and hesitancy among different populations and groups.

Understanding these barriers is crucial for developing targeted interventions to improve vaccine acceptance and coverage rates.

Table 20: Distribution of participants according to knowledge regarding HPV infection in pre-test and post-test

1. Our study revealed that, before the health education intervention, 69.8% of participants believed both genders could contract HPV infection. Following the intervention, this percentage increased to 89.8%.

   This aligns with a study done amongst Chinese college students, where the control group exhibited a lower belief, with only 65.3% of participants acknowledging that HPV infects both genders. However, within the group that received intervention, this awareness increased to 85.7%.[22]

   Similarly, in a study done among community counsellors and educators in Canada, 78.4% of participants believed that HPV affects both men and women before the intervention. This perception significantly rose to 94.6% post-intervention.[36]

2. Our study revealed that, before the intervention, 56.5% of participants believed that HPV incidence was higher among the age spectrum of 20-30. Following the intervention, this perception significantly increased to 86.6% in the post-test.

   This aligns with the study done amongst Chinese college students, where the pre-test revealed that approximately 30.3% believed HPV infection is

widespread among the age group of 20-30, which significantly rose to 78.8% in the post-test.[24]

Likewise, in another study amongst Chinese college students, about 41.9% initially believed HPV infection is widespread among the age group of 20-30, which increased to 59.2% post-test.[22]

3. Our study revealed that, before the intervention, 60.2% of participants acknowledged that, it is feasible to get infected with HPV without knowing it. Following the intervention, this awareness significantly increased to 86.6% in the post-test.

   This aligns with the study done among Colombian women, where the pre-test showed that, 72.0% of the participants agreed that, HPV is not always visible, which increased to 90.0% in the post-test after the intervention.[32]

   Similarly, the study among community counsellors and educators in Canada showed that, 89.2% initially agreed that HPV is not always visible, and this percentage increased slightly to 91.9% in the post-test after the intervention.[36]

4. Our study revealed that, during the pre-test, 46.0% of participants were uncertain about whether HPV could be cured with antibiotics. However, in the post-test, a significant majority of 84.0% agreed that HPV cannot be cured with antibiotics.

This aligns with a research study conducted among high school students in West Virginia, where the pre-test revealed that, 62.2% disagreed with the notion that HPV can be cured with antibiotics. After the intervention, this percentage increased to 70.47% in the post-test.[38]

Table 21: Distribution of participants according to knowledge regarding HPV transmission in pre-test and post-test

1. Our study revealed that, prior to the educational intervention, 48.8% of participants presumed that HPV transmission occurs solely through sexual means. However, post-intervention, the majority, constituting 76.7%, recognized that HPV can be spread through close contact as well by vertical transmission.

   This finding aligns with a study among Chinese junior middle school students, where only 46.5% of the participants in control group agreed that, majority of HPV transmission is through sexual routes, compared to 63.8% in the intervention group.[31]

   Similarly, in the study done amongst Chinese college students, the control group initially had only 52.4% agreeing that HPV is mainly spread through sexual intercourse, while this percentage increased to 80.2% in the intervention group.[24]

2. Our study revealed that, about 48.5%, initially believed that HPV may bring about persistent acute problems. However, following the intervention, the majority, comprising 60.4%, came to understand that HPV typically resolves by itself without causing acute issues.

   These findings are consistent with research conducted among parents of adolescent girls in Mysuru, Karnataka, which revealed that only about 15.38% of participants agreed with the notion that HPV is a self-limiting condition during the pre-test. After the intervention, this understanding increased to 39.37% in the post-test.[53]

   Similarly, among OHP's in the US, the pre-test showed that only 12.5% of participants believed that, HPV infection would fade away on its own without treatment. However, following the intervention, this understanding increased significantly to 62.0%.[30]

3. Our study revealed that, before the intervention, 36.4% of participants believed that barrier contraceptives offered complete protection against HPV. However, in the post-test, the majority, comprising 79.4%, recognized that barrier contraceptives do not offer complete HPV protection.

   These findings are consistent with research conducted among school students in West Virginia, where about 97.31% of participants during the pre-test believed that condoms offer complete protection against HPV. However, this understanding decreased to 93.55% during the post-test,

indicating a recognition that condoms do not offer complete protection against HPV.[38]

Similarly, a study amongst Chinese college students showed that, only about 31.1% of the control group participants initially agreed that using condoms helps lower HPV infection, which increased to 48.4% in the intervention group.[24]

4. Our study revealed that, about 63.7% of participants deemed that HPV could lead to complications during pregnancy initially. However, following the intervention, this belief decreased significantly, with only 27.1% indicating that HPV poses problems during pregnancy.

   This finding aligns with the research conducted among community counsellors and educators in Canada, where 54.1% of participants initially believed that HPV infection doesn't cause problems during pregnancy. However, this perception increased to 86.5% following the intervention.[36]

   Similarly, in a study among student in West Virginia, the pre-test revealed that about 20.70% disagreed with the idea that HPV can cause problems with getting pregnant. After the intervention, this percentage increased to 44.35% in the post-test.[38]

Table 22: Distribution of participants according to knowledge regarding HPV strains in pre-test and post-test

1. Our study revealed that, before the intervention, approximately 72.1% of participants lacked awareness regarding the total number of high-risk HPV

strains. However, following the intervention, this percentage decreased, with about 64.8% of participants correctly identifying the number as 14 high-risk strains.

2. Our study revealed that, initially approximately 63.1% of participants lacked knowledge about the specific HPV strains associated with cancer. However, following the intervention, most of the participants, comprising 76.4%, correctly identified HPV 16 and 18 as the strains implicated in cancer.

   This aligns with the research conducted among women groups with lower socio-economic status in Mysuru, India, where none of the individuals knew the strains involved in cervical cancer during the pre-test. However, after the mHealth intervention, this knowledge improved with 34.3% participants correctly identifying the strains as HPV 16 and 18 during the post-test.[27]

   Similarly, in a study done among students in West Virginia, during the pre-test, about 77.17% of participants disagreed with the notion that women with HPV 16 and 18 always develop cancer. This percentage decreased to 70.08% during the post-test indicating that only long-term infections with HPV 16 and 18 will result in cancer.[38]

3. Our study revealed that, initially 62.7% of participants lacked knowledge of the HPV strains responsible for majority of genital warts. However, in the post-test, the majority, comprising 77.7% of participants, correctly identified HPV 6 and 11 as the implicated strains.

These results are in line with the research conducted among OHP's in the US, where during the pre-test, only 65.3% of participants believed that an HPV infection causes genital warts. However, after the intervention, this understanding increased significantly to 96.5% in the post-test.[30]

Similarly, in a study among community counsellors and educators in Canada, only 62.2% of participants felt that HPV causes genital warts before the intervention. However, following the intervention, this perception significantly rose to 97.3% in the post-test.[36]

Table 23: Distribution of participants according to knowledge related to HPV and Cancer in pre-test and post-test

1. Our study revealed that, prior to the intervention, most of the individuals exhibited uncertainty regarding the various cancers caused by HPV. However, following the intervention, a significant proportion, accounting for 84.0% of participants, correctly identified that, HPV causes all the malignancies listed.

   These findings are consistent with the research conducted among Chinese college students, where initially, only 69.5% of participants agreed that HPV infection results in multiple malignant conditions. However, after the intervention, this understanding increased to 86.8% in the post-test.[22]

   Similarly, among OHP's in the US, the pre-test revealed varying levels of awareness regarding HPV-associated cancers. However, after the intervention, a notable improvement was seen in knowledge, with

increased percentages of participants correctly identifying the cancers induced by HPV during the post-test.[30]

2. Our study revealed that, awareness of the cancer risk in HPV-infected individuals who smoke experienced a significant rise, from 59.3% of participants in the pre-test to 88.8% in the post-test.

   This finding aligns with the research conducted among community counsellors and educators in Canada, where initially, 56.8% of participants believed that smoking raises the possibility of getting cancer. However, after the intervention, this understanding increased to 91.9% in the post-test.[36]

   Similarly, in a study among women groups with lower socio-economic status in Mysuru, India, during the pre-test, only 7.8% of participants agreed that smoking cigarettes is a causative factor for cervical cancer. However, following the mHealth intervention, knowledge improved, with 46.1% of participants correctly identifying smoking as a causative factor cancer of the cervix in the post-test.[27]

Table 24: Distribution of participants according to knowledge related to HPV vaccine in India in pre-test and post-test

1. Our study revealed that, before the educational intervention, 62% of participants were conscious of the vaccine's availability in India. Following the intervention, this awareness significantly increased to 90.1% in the post-test.

These results align with the conclusions drawn from a study done among Colombian women, where initially only 50.0% of participants knew about the existence of an HPV vaccine. After the intervention, this knowledge increased to 70.0% in the post-test.[32]

Similarly, a study done amongst Canadian University Students demonstrated improvement in knowledge regarding the HPV vaccine, with awareness reaching 82% after an educational campaign on HPV and vaccination.[33]

2. Our study revealed that, before the intervention, approximately 67.4% of participants lacked awareness regarding the number of HPV vaccine types available in India. However, following the intervention, a significant majority, accounting for 81.3% of participants correctly identified that there are three types of vaccines available.

3. Our study revealed that, before the intervention, a notable proportion, comprising 66.2% of participants lacked awareness regarding the various HPV vaccines available in India. However, following the intervention, the majority, encompassing 83.4% of participants accurately identified these vaccines.
4. Our study revealed that, most of the participants, constituting 63.7% were uncertain about whether vaccine against HPV in India provides protection against all HPV strains initially. However, after the intervention, this understanding improved, with 34.6% participants correctly recognizing that it does not offer protection against all strains.

These findings are in line with a study conducted among healthcare staff at Ohio State University in the US, where initially, about 77.0% of participants agreed that, the immunization is effective only in virus-naive females but does not protect against or treat existing infections. Following the intervention, this percentage increased significantly to 97.0% in the post-test.[37]

Similarly, amongst Chinese college students, during the pre-test, about 71.5% of participants disagreed with the statement that the HPV vaccine guards against all types of cancer. This percentage increased slightly to 73.2% in the intervention group.[22]

5. Our study revealed that, about 51.1% of the individuals involved in the study were unsure about whether many people in India take vaccine against HPV. However, following the intervention, this uncertainty decreased, with 73.6% of participants correctly acknowledging that many people in India do not obtain the HPV vaccination.

Table 25: Distribution of participants according to knowledge regarding general facts about HPV vaccine in pre-test and post-test

1. Our study revealed that, about 61.1% participants initially believed that the vaccine against HPV is administered to both boys and girls. However, following the intervention, this understanding saw a significant improvement, with 93.8% of participants in the post-test correctly recognizing this fact.

This aligns with the study conducted among OHP's in the US, where participants' understanding of HPV vaccine recommendations by the ACIP increased significantly after the intervention. Specifically, before the intervention, roughly 92.3% of participants were able to identify that it is advised for girls (9-12 years) and 80.3% for boys (9-12 years). Following the intervention, these percentages increased substantially to 98.3% for girls and 95.6% for boys during the post-test.[30]

2. Our study revealed that, about 53.5% participants, correctly understood that the vaccine against HPV can be administered to individuals who are already sexually active initially. However, Following the intervention, this knowledge saw a significant increase, with 90.7% of participants in the post-test correctly acknowledging this fact.

   This finding is consistent with a research done among community counsellors and educators in Canada, where, before the intervention, about 94.6% of participants believed that, individuals who obtained the HPV vaccine still need to be screened for cervical cancer. However, following the intervention, this understanding improved to 100.0% post-intervention. This indicates that while the vaccine can be given to sexually active individuals, it's crucial to understand that it protects against most but not all HPV types that cause cervical cancer.[36]

3. Our study revealed that, about 45.7% of participants initially held the misconception that screening is necessary before taking the vaccine against HPV. However, following the intervention, the majority,

comprising 72.9% of participants, correctly understood that screening is not required before vaccination.

This finding aligns with a study conducted amongst Chinese college students, where during the pre-test, 80.8% of participants disagreed with routine screening for cancer cervix is no longer necessary after HPV vaccination, which increased to 88.9% during the post-test, indicating an improvement in understanding after the intervention.[22]

Table 26: Distribution of participants according to knowledge regarding HPV vaccine recommendations in pre-test and post-test

1. Our study revealed that, approximately 60.7% of participants were not conscious of the recommended age for HPV vaccination. However, following the intervention, a significant majority, comprising 80.8% of participants, correctly identified the ideal age as 11 years.

   This finding is consistent with the research conducted among Chinese college students, where approximately 55.6% of participants of the control group believed that the ideal time to get the vaccine against HPV is before sexual debut. This percentage significantly increased to 96.1% in the intervention group.[24]

   Similarly, in a study among Chinese college students, approximately 64.7% of participants of the control group believed that HPV vaccination is best done prior to having any sexual experience. This percentage increased to 87.8% in intervention group, indicating a notable

improvement in understanding regarding the optimal timing for vaccination.[22]

2. Our study revealed that, before the intervention, about 60.5% participants, lacked knowledge regarding the total doses of HPV vaccine recommended for individuals under 16 years old. However, following the intervention, a significant increase was observed, with approximately 82.8% participants correctly identifying the requirement as 2 doses.

3. Our study revealed that, before the intervention, about 63.7% of participants, lacked clarity regarding the total doses recommended for individuals over 16 years old. However, after the intervention, a notable improvement, with approximately 79.9% of participants correctly identifying the requirement as 3 doses was observed.

   This aligns with the study done among community counsellors and educators in Canada, which initially showed that, about 48.6% of participants understood that HPV vaccine involves the administration of three separate doses. However, following the intervention, this understanding was universally achieved, with 100.0% of participants correctly recognizing the dosing regimen.[36]

4. Our study revealed that, before the intervention, a majority of participants, constituting 51.7%, lacked knowledge regarding the recommended age group for HPV vaccination. However, following the intervention, a significant increase was observed, with 77.4% of participants correctly identifying the recommended age group as 10-30 years in the post-test.

Table 27: Distribution of participants according to knowledge regarding protection by HPV vaccine in pre-test and post-test

1. Our study revealed that, prior to the educational intervention, about 50.6% participants, expressed uncertainty regarding, whether HPV vaccine is administered to individuals already infected with HPV. However, post-intervention, a substantial increase was observed, with 84.6% of participants correctly recognizing that the vaccine can be given in such cases.

2. Our study revealed that, before the intervention, a sizable percentage of participants, constituting 50.8%, expressed uncertainty regarding whether individuals vaccinated against HPV could have multiple sexual partners during the pre-test. However, following the intervention, a notable improvement was observed, with 73.0% of participants correctly understanding that having multiple sexual partners is not permitted after HPV vaccination.

   This finding resonates with research conducted among community counsellors and educators in Canada, where post-intervention results showed that approximately 97.3% of participants agreed that females who got the HPV vaccine still need to use condoms to be protected against STIs, which indicates that multiple sexual partners is not allowed after HPV vaccination.[36]

3. Our study revealed that, about 49.4%, expressed uncertainty regarding, whether HPV vaccine guards against genital warts initially. However,

following the intervention, a notable improvement was observed, with 85.5% of participants correctly identifying that it does offer protection.

These findings echo the results of research conducted among OHP's in the US, where pre-intervention data indicated that only 48.7% of participants believed that the vaccine against HPV would reduce or prevent genital warts. Post-intervention, this understanding significantly increased to 85.2%.[30]

Similarly, in a study among community counsellors and educators in Canada, pre-test results showed that approximately 37.8% of participants agreed that the vaccine against HPV helps prevent the contraction of genital warts. Following the intervention, this percentage rose substantially to 94.6%.[36]

4. Our study revealed that, before the intervention, about 49.0%, accurately recognized that the HPV vaccine offers protection against cervical cancer during the pre-test. However, following the intervention, there was a notable enhancement in understanding, with 86.4% of participants correctly identifying the vaccine's protective effect.

   These findings echo the results of research conducted among OHP's in the US, where pre-intervention data indicated that only 93.2% of participants believed that the vaccine against HPV would reduce or prevent cervical cancer. Post-intervention, this understanding significantly increased to 97.4%.[30]

Similarly, in a study among community counsellors and educators in Canada, pre-test results showed that approximately 83.8% of participants agreed that the vaccine against HPV helps prevent against cervical cancer. Following the intervention, this percentage rose substantially to 94.6%.[36]

Table 28, 29: Distribution of participants according to their attitude regarding HPV vaccine in the pre-test and post-test

1. Our study revealed that, preceding the intervention, only about 18.8% of participants were strongly inclined to get the HPV vaccine, but following intervention, this figure increased to approximately 36.6%, indicating a notable rise in vaccine acceptance among the participants.

2. Our study revealed that, only 24.4% of participants strongly agreed to get the HPV vaccine if it were free in India initially. However, after the intervention, this percentage significantly rose to around 47.1%, highlighting a substantial increase in readiness to obtain the vaccine under such circumstances.

3. Our study revealed that, during the pre-test, just 24.4% of participants were strongly committed to suggesting HPV vaccination to their family and friends. Post-intervention, this proportion increased notably to about 44.2%, that indicates a notable enhancement in the participants' advocacy for the vaccine.

4. Our study revealed that, preceding the intervention, only 8.2% of participants strongly believed that the HPV vaccine might cause short-term problems. After the intervention, this percentage notably increased to approximately 31.7%, reflecting an enhanced awareness of potential short-term effects following vaccination.

5. Our study revealed that, only 7.5% of participants strongly believed that finding a provider or clinic offering the vaccine against HPV was difficult initially. However, after the intervention, this perception significantly increased to around 31.3%, indicating a heightened awareness of accessibility challenges.

6. Our study revealed that, before the intervention, merely 6.4% of participants strongly agreed that the HPV vaccine was highly pricey. Post-intervention, this proportion significantly increased to approximately 38.4%, suggesting a heightened perception of the vaccine's costliness.

7. Our study revealed that, only 8.1% of participants strongly disagreed with the idea that the vaccine against HPV vaccine was promoted solely for pharmaceutical profits initially. However, after the intervention, this proportion notably increased to approximately 30.2%, indicating a stronger skepticism towards profit motives.

8. Our study revealed that, preceding the intervention, only 8.1% of participants strongly disagreed with the notion that the HPV vaccine might

cause lasting health problems. Post-intervention, this proportion notably increased to approximately 30.6%, suggesting a greater confidence in the vaccine's safety.

9. Our study revealed that, only 8.2% of participants strongly disagreed that the vaccine against HPV would influence teenage sexual behavior initially. However, after the intervention, this percentage significantly increased to approximately 30.5%, indicating a stronger rejection of the idea that the vaccine might impact sexual activity.

10. Our study revealed that, before the intervention, only 10.7% of participants strongly disagreed with the assertion that the vaccine against HPV was unsafe. However, after the intervention, this proportion notably increased to approximately 32.2%, suggesting a greater confidence in the vaccine's safety.

11. Our study revealed that, just 6.7% of participants strongly disagreed that 9-year-old children were too young for HPV vaccination initially. However, after the intervention, this percentage significantly increased to approximately 29.3%, indicating a stronger endorsement of the appropriateness of vaccination at age 9.

Table 30: Test of Normality of the variables using Shapiro-Wilk Test

1. Our study revealed that none of the variables, including Pre-test and Post-test KAP Scores, exhibited a normal distribution upon conducting tests of normality.

Notably, the Shapiro-Wilk test revealed a significant deviation from normality, with p-values less than 0.01 for all datasets. Consequently, we opted to utilize the nonparametric Wilcoxon signed-rank test instead of the Paired t-test to compare the Pre-test and the Post-test scores.

This finding aligns with a research done with parents of teenagers in Puducherry, India, to evaluate the feasibility of an Online Educational Program on Human Papillomavirus Vaccination, where the knowledge and attitude scores displayed a lack of normal distribution, leading the researchers to employ non-parametric tests such as the Wilcoxon test and Kruskal-Wallis test for comparing pre- and post-test knowledge, attitude scores.[26]

2. Our study revealed that, the internal consistency within the questionnaire was demonstrated by a Cronbach's alpha value of 0.881 for overall reliability. Specifically, the knowledge and the attitude sections exhibited Cronbach's alpha values of 0.9 and 0.777, respectively, both surpassing the acceptable threshold of 0.7. This suggests that the questionnaire reliably measured knowledge and attitude domains, affirming its suitability for assessing KAP in the study.

   This finding resonates with a study titled "An Education Intervention to Increase Human Papillomavirus Vaccination Confidence and Acceptability: A Randomized Controlled Trial." In that study, the reliability values of the Carolina Human Papillomavirus Immunization Attitudes and Beliefs Scale (0.86) and the Vaccination Confidence Scale

(0.87) also indicated a satisfactory level of internal consistency, reinforcing the credibility of the questionnaire used.[21]

Similarly, in a study done among parents of adolescent girls in Mysuru, Karnataka, the internal consistency of the questionnaire measured using Cronbach's alpha was found to be 0.84.[53]

Table 31, 32, 33 34: Comparison of pre-test and post-test knowledge scores

Our study revealed a substantial increase in knowledge levels between the pre-test and the post-test assessments, with the post-test displaying a notably higher mean score than the pre-test. This indicates an evident enhancement in knowledge following the intervention with the Wilcoxon Test confirming the enhancement in understanding to be highly statistically significant, with a p-value of less than 0.001. Furthermore, the positive mean difference of 15.23 underscores the efficiency of health education intervention in enhancing participants' knowledge.

These results align with the study conducted among parents of adolescent girls in Mysuru, Karnataka, where a similar significant difference in pre-test and the post-test knowledge scores was identified. The statistical analysis employed, including paired sample t-test and ANOVA, further supported the substantial improvement in knowledge following the intervention, with a p-value of less than 0.001. Moreover, the positive mean difference observed across various components underscores the efficiency of health education intervention in facilitating knowledge enhancement among participants.[53]

Similarly, a study conducted among para-medical professionals in Mumbai sought to assess the influence of a novel educational training on cervical cancer revealed a notable enhancement in the post-test scores in comparison to pre-test scores. This improvement was deemed statistically significant, with a p-value below 0.001, indicating a substantial impact of the educational intervention.[23]

Table 35, 36, 37 38: Comparison of pre-test and post-test attitude scores

Our study reveals a substantial improvement in attitude levels between the pre and post-tests, with the post-test demonstrating a significantly higher mean score compared to the pre-test. This enhancement indicates a positive shift in attitudes following the intervention, with students exhibiting better attitudes in the post-test. Statistical analysis using the Wilcoxon Test validated this improvement as statistically significant, with a p-value below 0.001. The observed positive mean difference of 2.53 further supports the notion that the intervention effectively influenced attitudes.

This aligns with a research done with parents of teenagers in Puducherry, India, which also reported a similar trend of higher post-test attitude scores compared to pre-test scores, signifying an overall improvement in attitudes post-intervention.[26]

Similarly, in a study among parents of adolescent girls in Mysuru, Karnataka, there was a noticeable enhancement in post-test attitude scores, albeit not statistically significant. Despite this, the study still indicated an

improvement in total knowledge and perception scores post-intervention, highlighting the effectiveness of educational program in influencing attitudes positively.[53]

Table 39: Comparison of pre-test and post-test practices on willingness to get the vaccine

Our study revealed a significant difference in pre-test and post-test practices regarding the readiness to obtain the vaccine against HPV, as determined by McNemar's test, which yielded a highly significant p-value of less than 0.001. Initially, only a negligible 6.4% of participants expressed their agreement to get the vaccine. However, post-intervention, a substantial shift was observed, with a significant 75.9% of participants indicating their willingness.

This observation is consistent with a study conducted among females aged 18-65 years in North-Central Florida, aimed at assessing the efficacy of educational seminars on HPV vaccination willingness. Before the seminar, 49.5% of participants expressed their readiness to obtain the vaccination, which increased to 66.2% post-seminar. This increase was statistically significant, as evidenced by Fisher's exact test with a p-value of less than 0.05, underscoring the impact of intervention on vaccination behavior.[74]

Table 40, 41: Comparison of pre-test and post-test correlation of Knowledge, Attitude and Practice Scores

Our study revealed a statistically significant linear correlations between KAP scores, with p-values less than 0.001 upon analysis of both pre-test and post-test data. However, in the post-test analysis, the correlations strengthened notably, improving from a weak to medium strength correlation. This improvement suggests that the health education intervention had a positive impact on enhancing the relationships between KAP scores.

CONCLUSION

The comprehensive analysis of the study's findings reveals the significant impact of the health education intervention on enhancing participants' KAP regarding HPV and its vaccination. Through meticulous pre- and post-test evaluations, it becomes evident that the action has effectively bridged the gap in understanding and has positively influenced participants' perceptions and behaviours.

Initially, the study observed a substantial lack of knowledge and misconceptions among participants, particularly concerning HPV transmission, vaccine efficacy, and associated risks. However, following the intervention, a remarkable improvement in knowledge levels, with a better understanding of HPV-related concepts was observed. This enhancement in knowledge was not only statistically significant but also translated into practical improvements, as evidenced by participants' commitment to receiving the vaccine.

Moreover, the intervention had a profound impact on participants' perspectives on HPV vaccination. Pre-test data revealed prevalent misconceptions and hesitancy surrounding the vaccine, including concerns about safety, efficacy, and affordability. However, post-intervention analyses demonstrated a notable shift in attitudes, with participants exhibiting greater confidence and acceptance towards HPV vaccination. This positive change in attitude was further supported by the observed correlations between KAP scores, indicating a holistic improvement in participants' perceptions and behaviours.

The findings underscore the critical role of targeted educational interventions in addressing misinformation and promoting informed decision-making regarding vaccination. By dispelling myths, clarifying misconceptions, and fostering positive attitudes towards vaccination, such interventions play a vital part in advancing public health initiatives aimed at preventing HPV-related diseases.

In conclusion, the research offers compelling evidence of the efficacy of educational interventions in enhancing knowledge, attitudes, and practices in connection with HPV vaccination. The significant improvements observed post-intervention underscore the importance of ongoing education and awareness campaigns in mitigating HPV-related risks and promoting vaccine uptake. These findings emphasize the need for continued efforts to educate and empower individuals, ultimately contributing to the reduction of HPV-related morbidity and mortality on a global scale.

RECOMMENDATIONS

Based on the conclusions drawn from the research, several recommendations can be made to further improve KAP regarding HPV vaccination.

1. **Educational Interventions:** Continued educational interventions are essential to address persistent knowledge gaps and misconceptions regarding HPV infection and the vaccination against HPV. These interventions should utilize interactive methods, multimedia presentations, and culturally appropriate materials to effectively engage target populations.

2. **Targeted Messaging:** Tailored messaging campaigns aimed at specific demographic groups can help increase understanding and accepting vaccination. Messaging should emphasize the advantages of immunization, including its role in preventing HPV-related diseases such as cervical cancer, while addressing concerns and misconceptions.

3. **Provider Training:** Healthcare providers play an indispensable part in promoting HPV vaccination and addressing patient concerns. Therefore, training programs should be conducted routinely to equip providers with the knowledge and communication skills necessary to effectively discuss HPV vaccination with patients and their families.

4. **Access to Vaccination:** Efforts should be made to improve access to HPV vaccination, particularly among underserved populations. This may include increasing vaccine availability, reducing financial barriers, and expanding vaccination programs in schools and community settings.

5. **Peer Education:** Peer education programs can be effective in promoting immunization against HPV in college students and other young adults. Empowering peers to share accurate information and personal experiences can help reduce vaccine hesitancy and increase vaccine acceptance within peer networks.

6. **Continued Research:** Further investigation is required to better understand the factors influencing the uptake of the vaccine against HPV and hesitancy among college students and other target populations. Longitudinal studies can give information about the long-term impact of interventions on vaccination behavior and public health outcomes.

By implementing these recommendations, policymakers, healthcare providers, and public health professionals can work together to enhance HPV vaccination and ultimately decrease the prevalence of HPV-related diseases in communities.

STRENGTHS

The study demonstrates several strengths that bolster the validity and significance of its findings.

Firstly, the comprehensive nature of the intervention, which targeted multiple aspects of KAP regarding the HPV infection and vaccination against HPV, allowed for a thorough assessment of participants' understanding and behaviours. By employing a multifaceted approach, the study was able to capture nuanced changes in participants' perceptions, providing a holistic view of the intervention's impact.

Secondly, the use of robust statistical analyses, including McNemar’s test, Wilcoxon signed-rank test, and correlation analysis, adds rigor to the study's methodology. These statistical tests enabled the researchers to gauge the changes observed between pre-test and post-test measures, providing objective evidence of the intervention's effectiveness.

Moreover, the sample size and diversity enhance the generalizability of its findings. By including a diverse range of students from various healthcare backgrounds, the study reflects the broader population's perspectives and experiences regarding HPV and vaccination. This diversity strengthens the external validity and increases confidence in the reliability of its results.

Additionally, the use of validated instruments, such as Cronbach's alpha for assessing questionnaire reliability, ensures the accuracy and consistency of data collection. By employing established measures, the study maintains methodological rigor and enhances the credibility of its findings.

Furthermore, the experimental design, which assessed participants' knowledge, attitudes, and practices both prior to and following the intervention, allows for a robust evaluation of the intervention's impact over time. This approach provides valuable insights regarding the sustainability of behavior change and the durability and efficacy of educational interventions.

Overall, the strengths lie in its comprehensive approach, robust methodology, diverse sample, use of validated measures, and experimental design. These strengths collectively contribute to the credibility, reliability, and significance of the findings, making it a valuable contribution to the field of HPV education and vaccination.

LIMITATIONS

While the study offers valuable insights into HPV infection and vaccination against HPV, several limitations must be acknowledged.

Firstly, the reliance on self-reported measures may introduce response bias and social desirability bias, leading participants to provide answers they perceive as socially acceptable rather than reflecting their true KAP's. This limitation could impact the accuracy of the information collected and may skew the study's findings.

Secondly, the generalizability may be limited due to its sample composition, as it comprised of students from a single university. Consequently, the results might not be representative of broader populations, limiting the study's external validity. Future research could benefit from including more diverse and representative samples to enhance the generalizability of findings.

Moreover, the reliance on a pre-test/post-test design without a control cohort limits its ability to establish causality definitively. While the intervention's impact on participants' KAP was observed, other factors outside the intervention could have influenced these changes. Without a control cohort, it is challenging to isolate the intervention's specific effects and determine its true efficacy.

Finally, the follow-up period may be insufficient to assess the long-term sustainability of behavior change. While the post-test measured changes after one month following the intervention, it remains unclear whether these changes endure over time. Longitudinal studies with extended follow-up periods could provide

valuable insights regarding the persistence of behavior change and the intervention's lasting effects.

In conclusion, while the study contributes valuable insights into HPV infection and vaccination against HPV, its limitations, including reliance on self-reported measures, sample composition, study design, and follow-up period, must be considered when interpreting the findings. Addressing these limitations in future research could further advance our understanding of effective strategies for HPV prevention and vaccination.

SUMMARY

Globally, HPV infection is serious health hazard, particularly due to its relation with various cancers. Despite vaccinations being readily available, there are persistent knowledge gaps among healthcare students, which can hinder vaccine uptake and ultimately impact public health outcomes.

The research sought to evaluate the impact of educational intervention on healthcare students' KAP regarding HPV infection and vaccination against HPV. Additionally, the study also aimed to explore the potential barriers to vaccination.

The study employed a pre-post intervention design to assess changes in participants' KAP regarding HPV infection and vaccination against HPV. Preceding the intervention, participants completed pre-test surveys to establish baseline levels of KAP related to HPV infection and vaccination against HPV. The educational intervention consisted of interactive PowerPoint presentation aimed at improving participants' understanding of HPV infection, vaccination benefits, recommended age groups, and vaccine availability.

Following the intervention, post-test surveys were administered after one month, to assess changes in participants' KAP. Statistical analyses, including Wilcoxon signed-rank tests and correlation analyses, were conducted to examine the efficiency of the intervention.

The findings from pre-test surveys revealed knowledge gaps and misconceptions among participants regarding HPV infection and vaccination against HPV. Many participants weren’t unconscious of the benefits of vaccination, the

recommended age groups for vaccination, and the vaccine's availability. Attitudes towards vaccination were mixed, with some participants expressing hesitancy or skepticism.

However, following the intervention, significant improvements were observed in participants' KAP regarding HPV vaccination. Participants demonstrated increased awareness of vaccine benefits, including its role in preventing HPV-related diseases. Attitudes towards vaccination also improved, with more participants expressing readiness to get the vaccine themselves and recommend it to others. Additionally, there was a notable shift in participants' practices, with more expressing readiness to get the vaccine and advocate for vaccination within their communities.

Overall, the study highlights the effectiveness of targeted educational interventions in enhancing the awareness and acceptance of vaccination among healthcare students. By addressing knowledge gaps and misconceptions, such interventions possess the capacity to enhance vaccine uptake and contribute to public health efforts in HPV prevention and control.

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ANNEXURE – I

INFORMED CONSENT FORM

"EFFECT OF HEALTH EDUCATION ON THE AWARENESS OF HUMAN PAPILLOMAVIRUS INFECTION AMONG UNDERGRADUATE STUDENTS OF A HEALTH SCIENCES UNIVERSITY - AN INTERVENTIONAL STUDY"

Introduction:

You are being invited to participate in this study to find out the **"Effect of Health Education on the Awareness of Human Papillomavirus Infection Among Undergraduate Students of a Health Sciences University - An Interventional Study"**.

HPV infection has become widely recognized as a leading cause of cervical cancer, with mounting evidence indicating its involvement in other types of anogenital cancers (such as anus, vulva, vagina, and penis) as well as head and neck cancers. Notably, HPV types 16 and 18 account for approximately 70% of all cervical cancer cases globally. Additionally, HPV is implicated in various other diseases, including recurrent juvenile respiratory papillomatosis and genital warts, primarily caused by HPV types 6 and 11.

HPV vaccines that prevent these strains (HPV 6, 11, 16, 18) are now available and have the potential to reduce the incidence of HPV associated lesions and cancer. Hence it is important that the susceptible population be educated about the impact of HPV and the benefits of HPV vaccine ultimately decreasing the burden of HPV. These are the reasons for the present study to be undertaken. Participation in this study is completely voluntary.

Explanation of procedures:

In this study, you will have to answer a few prepared questions about Socio-demographic details, Basic HPV Knowledge, HPV Vaccine Knowledge, Attitude towards HPV Vaccination and the Acceptance and Potential Barriers to Vaccination. If you agree to participate, then only questions will be asked to you. At any moment, you can withdraw from the study.

Possible Benefits:

HPV infection is a preventable illness and with effective vaccination, incidence of HPV burden and its related cancers can be greatly reduced. As a future medical fraternity, you will be able to educate the general public and the susceptible population regarding the modes of transmission of HPV, its impact and prevention.

Incentives:

You will not be eligible for any kind of monetary benefits or free services by virtue of your participation in the study.

Possible Risks:

There are no risks involved in this study.

Privacy and Confidentiality:

The results of the study may be published for scientific purposes. However, your identity will not be revealed and all information collected will be coded so that no one other than the investigator will know your identity.

Withdrawal:

You can withdraw from the study at any point of time if you wish to do so.

Costs of Participation:

The cost of the study will be borne by the researcher. There will be no additional cost to you for participating in this study.

Payment of Participation:

There will be no incentives to you for participating in this study.

Authorization to publish the results:

The researcher may use the information gathered from this study for presentation or publication in scientific journals. However, your personal identity will not be revealed.

Legal Rights:

By signing this consent form, you are not waiving off any of your legal rights.

CONSENT STATEMENT

I am making a voluntary decision to participate in the study **"Effect of Health Education on the Awareness of Human Papillomavirus Infection Among Undergraduate students of a Health Sciences University – An Interventional Study"**. My signature below indicates that I have decided to participate and I have read the information provided above or the information provided above has been read to me in the language that I understand best. I was given the opportunity to ask questions and that they have been answered to my satisfaction.

Name of the Participant:

Signature or Left Thumb Impression of the Participant:

Name of the Witness:

Signature or Left Thumb Impression of the Witness:

Name of the Investigator:

Signature of the Investigator:

Date:

Place:

ANNEXURE – II

QUESTIONNAIRE

"EFFECT OF HEALTH EDUCATION ON THE AWARENESS OF HUMAN PAPILLOMAVIRUS INFECTION AMONG UNDERGRADUATE STUDENTS OF A HEALTH SCIENCES UNIVERSITY - AN INTERVENTIONAL STUDY"

Part I: Demographic and Personal Data

1. Age (in years) * _____

2. Gender

   1. Male 2. Female 3. Others

3. Degree Course

   1. Medical 2. Dental 3. Nursing
   4. Pharmacy 5. Physiotherapy 6. Homeopathy
   7. Ayurveda

4. Religion

   1. Hindu 2. Christian 3. Muslim
   4. Jain 5. Sikh 6. Parsi
   7. Buddhism 8. Others, specify* _____

5. Which part of India are you from?

   1. East 2. West 3. South 4. North

6. Residential area

   1. Rural 2. Urban

7. Type of Family

   1. Nuclear 2. Joint 3. Three generation family

8. Net Family Income per month (in Rs.)*_____

9. No. of family members at home*_____

10. Per capita income per person (in Rs.)*_____

11. Socioeconomic status (as per modified BG Prasad's classification)

1. □ Class I 2. □ Class II 3. □ Class III
4. □ Class IV 5. □ Class V

12. Smoking Habit

1. □ Past Smoker 2. □ Current Smoker 3. □ Non-smoker

13. Alcohol Use

1. □ Past Alcohol Use 2. □ Currently Alcoholic 3. □ Non-Alcoholic

14. Other Recreational Drug Use

1. □ Past Drug User 2. □ Current Drug User 3. □ Non-Drug User

15. What is the maximum educational qualification of your parents?

1. □ No Formal Education 2. □ Primary (1-5) 3. □ Secondary (6-10)
4. □ Higher Secondary (11-12) 5. □ Diploma 6. □ Bachelor's
7. □ Master's 8. □ Doctorate

Part II: Knowledge of HPV and its Vaccine

16. Have you ever heard about the HPV (Human Papilloma Virus)?

1. □ Yes 2. □ No

17. **If yes,** where have you heard of HPV before?

1. □ Healthcare workers 2. □ Mass Media (TV, Radio, Newspaper)
3. □ Internet 4. □ Advertisement
5. □ Parents/Family/Relatives 6. □ Others, specify* _____

18. How many high-risk HPV strains are available?

1. □ 10 2. □ 12 3. □ 14 4. □ Don't Know

19. Can both men & women be infected with HPV?

1. □ Yes 2. □ No 3. □ Don't Know

20. Is the incidence of HPV infection highest in the age group of 20s and 30s?

1. □ Yes 2. □ No 3. □ Don't Know

21. Can a patient be infected with HPV but not know it?

1. □ Yes 2. □ No 3. □ Don't Know

22. Which of the following strains of HPV is implicated in the causation of Cancer?
    1. □ HPV 6 and 11
    2. □ HPV 16 and 18
    3. □ HPV 31 and 33
    4. □ Don't Know

23. Which of the following types of HPV account for >90% of genital warts?
    1. □ HPV 6 and 11
    2. □ HPV 16 and 18
    3. □ HPV 31 and 33
    4. □ Don't Know

24. How is HPV transmitted?
    1. □ Sexually
    2. □ Close contact
    3. □ Vertically
    4. □ All of the Above
    5. □ Don't Know

25. Which of the following types of cancer is caused by HPV?
    1. □ Cervical Cancer
    2. □ Penile Cancer
    3. □ Anal Cancer
    4. □ Vaginal Cancer
    5. □ Vulval Cancer
    6. □ Oropharyngeal Cancer
    7. □ All of the Above
    8. □ Don't Know

26. HPV will not necessarily cause any health problems and might in fact go away
    1. □ True
    2. □ False
    3. □ Don't Know

27. Barrier contraceptives offer full protection against HPV infection
    1. □ True
    2. □ False
    3. □ Don't Know

28. HPV causes problems in pregnancy
    1. □ True
    2. □ False
    3. □ Don't Know

29. HPV infection can be cured with Antibiotics
    1. □ True
    2. □ False
    3. □ Don't Know

30. Smoking increases the risk of developing cancer if a person is HPV infected
    1. □ True
    2. □ False
    3. □ Don't Know

31. Have you ever heard about the HPV Vaccine?
    1. □ Yes
    2. □ No
    3. □ Don't Know

32. What is the ideal age for HPV vaccination?
    1. □ 9 years
    2. □ 10 years
    3. □ 11 years
    4. □ 12 years
    5. □ Don't Know

33. Is the HPV vaccine available in India?
    1. □ Yes
    2. □ No
    3. □ Don't Know

34. How many types of vaccine against HPV are available in India?
    1. 1 type 2. 2 types 3. 3 types 4. Don't Know

35. Which of the following HPV vaccines are available in India?
    1. Cervarix – Bivalent 2. Gardasil – Quadrivalent
    3. Gardasil – Nonavalent 4. All of the Above
    5. Don't Know

36. What is the required number of doses of HPV vaccine for age <16 years?
    1. 1 dose 2. 2 doses 3. 3 doses 4. Don't Know

37. What is the required number of doses of HPV vaccine for age >16 years?
    1. 1 dose 2. 2 doses 3. 3 doses 4. Don't Know

38. At what age can the HPV vaccine be given?
    1. 0-9 years 2. 10-30 years 3. 31-50 years
    4. >51 years 5. Don't Know

39. Who can be vaccinated against HPV?
    1. Boys 2. Girls 3. Both 4. Don't Know

40. Can the vaccine be given to a sexually active person?
    1. Yes 2. No 3. Don't Know

41. Is screening required before vaccination?
    1. Yes 2. No 3. Don't Know

42. Can HPV vaccine be administered to those infected with HPV?
    1. Yes 2. No 3. Don't Know

43. Can one have multiple sexual partners after HPV vaccination?
    1. Yes 2. No 3. Don't Know

44. HPV vaccine available in India offers protection against all types of HPV
    1. Yes 2. No 3. Don't Know

45. HPV vaccine is effective in preventing Genital warts
    1. True 2. False 3. Don't Know

46. HPV vaccine is effective in preventing Cervical Cancer
    1. True 2. False 3. Don't Know

47. Do many people in India are taking the vaccine against HPV?
    1. □ Yes 2. □ No 3. □ Don't Know

48. **If no,** which of the following is a potential barrier to HPV Vaccination in India?
    1. □ Lack of Awareness 2. □ Non-availability of vaccine
    3. □ Cost 4. □ All of the above 5. □ Don't Know

Part III: Attitude towards HPV Vaccination

Q. No	Question	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
49.	Are you willing to receive the vaccine?					
50.	Will you receive the HPV vaccine if it's available free of cost in India?					
51.	Will you recommend your family and friends to get vaccinated against HPV?					
52.	Do you think the HPV vaccine might cause short term problems like fever or discomfort?					
53.	Do you think it is difficult to find a provider or clinic where the vaccine is available?					
54.	Do you think the HPV vaccine is very expensive?					
55.	Do you think the HPV vaccine is being pushed to make money for drug companies?					
56.	Do you think the HPV vaccine might cause lasting health problems?					

57.	Do you think, if a teenager gets the HPV vaccine, he/she may be more likely to have sex?					
58.	Do you think the HPV vaccine is unsafe?					
59.	Do you think 9-year-old children are too young to get a vaccine for a STD like HPV?					

Part IV: Vaccination & Sexual Practices

60. Are you sexually active?

1. □ Yes 2. □ No

61. Age of initiation of sexual activity **(if applicable) ***_____

62. **If sexually active,** do you use barrier contraceptive?

1. □ Yes 2. □ No

63. Have you been vaccinated against HPV?

1. □ Yes 2. □ No

64. **If not vaccinated earlier**, do you wish to receive the vaccine now?

1. □ Yes 2. □ No

ANNEXURE – III

KEY TO MASTER CHART

Part I: Demographic and Personal Data

1. Age (in years)

    1. 19-20 2. 21-22 3. 23-24

2. Gender

    1. Male 2. Female 3. Others

3. Degree Course

    1. Medical 2. Dental 3. Nursing
    4. Pharmacy 5. Physiotherapy 6. Homeopathy
    8. Ayurveda

4. Religion

    1. Hindu 2. Christian 3. Muslim
    4. Jain 5. Sikh 6. Parsi
    7. Buddhism

5. Which part of India are you from?

    1. East 2. West 3. South 4. North

6. Residential area

    1. Rural 2. Urban

7. Type of Family

    1. Nuclear 2. Joint 3. Three generation family

8. Socioeconomic status (as per modified BG Prasad's classification)

    1. Class I 2. Class II 3. Class III
    4. Class IV 5. Class V

9. Smoking Habit

    1. Past Smoker 2. Current Smoker 3. Non-smoker

10. Alcohol Use

    1. Past Alcohol Use 2. Currently Alcoholic 3. Non-Alcoholic

11. Any Other Recreational Drug Use

    1. Past Drug User 2. Current Drug User 3. Non-Drug User

12. What is the maximum educational qualification of your parents?
    1. No Formal Education 2. Primary (1-5) 3. Secondary (6-10)
    5. Higher Secondary (11-12) 5. Diploma 6. Bachelor's
    7. Master's 8. Doctorate

Part II: Knowledge of HPV and its Vaccine

13. Have you ever heard about the HPV (Human Papilloma Virus)?
    1. Yes 2. No

14. **If yes,** where have you heard of HPV before?
    1. Healthcare workers 2. Mass Media (TV, Radio, Newspaper)
    3. Internet 4. Advertisement
    5. Parents/Family/Relatives 6. Textbooks

15. How many high-risk HPV strains are available?
    1. 10 2. 12 3. 14 4. Don't Know

16. Can both men & women be infected with HPV?
    1. Yes 2. No 3. Don't Know

17. Is the incidence of HPV infection highest in the age group of 20s and 30s?
    1. Yes 2. No 3. Don't Know

18. Can a patient be infected with HPV but not know it?
    1. Yes 2. No 3. Don't Know

19. Which of the following strains of HPV is implicated in the causation of Cancer?
    1. HPV 6 and 11 2. HPV 16 and 18
    3. HPV 31 and 33 4. Don't Know

20. Which of the following types of HPV account for >90% of genital warts?
    1. HPV 6 and 11 2. HPV 16 and 18
    3. HPV 31 and 33 4. Don't Know

21. How is HPV transmitted?
    1. Sexually 2. Close contact 3. Vertically
    4. All of the Above 5. Don't Know

22. Which of the following types of cancer is caused by HPV?
    1. Cervical Cancer 2. Penile Cancer 3. Anal Cancer
    4. Vaginal Cancer 5. Vulval Cancer 6. Oropharyngeal Cancer
    7. All of the Above 8. Don't Know

23. HPV will not necessarily cause any health problems and might in fact go away
    1. True 2. False 3. Don't Know

24. Barrier contraceptives offer full protection against HPV infection
    1. True 2. False 3. Don't Know

25. HPV causes problems in pregnancy
    1. True 2. False 3. Don't Know

26. HPV infection can be cured with Antibiotics
    1. True 2. False 3. Don't Know

27. Smoking increases the risk of developing cancer if a person is HPV infected
    1. True 2. False 3. Don't Know

28. Have you ever heard about the HPV Vaccine?
    1. Yes 2. No 3. Don't Know

29. What is the ideal age for HPV vaccination?
    1. 9 years 2. 10 years 3. 11 years
    4. 12 years 5. Don't Know

30. Is the HPV vaccine available in India?
    1. Yes 2. No 3. Don't Know

31. How many types of vaccine against HPV are available in India?
    1. 1 type 2. 2 types 3. 3 types 4. Don't Know

32. Which of the following HPV vaccines are available in India?
    1. Cervarix – Bivalent 2. Gardasil – Quadrivalent
    3. Gardasil – Nonavalent 4. All of the Above
    5. Don't Know

33. What is the required number of doses of HPV vaccine for age <16 years?
    1. 1 dose 2. 2 doses 3. 3 doses 4. Don't Know

34. What is the required number of doses of HPV vaccine for age >16 years?
    1. 1 dose 2. 2 doses 3. 3 doses 4. Don't Know

35. At what age can the HPV vaccine be given?
    1. 0-9 years 2. 10-30 years 3. 31-50 years
    4. >51 years 5. Don't Know

36. Who can be vaccinated against HPV?
    1. Boys 2. Girls 3. Both 4. Don't Know

37. Can the vaccine be given to a sexually active person?
    1. Yes 2. No 3. Don't Know

38. Is screening required before vaccination?
    1. Yes 2. No 3. Don't Know

39. Can HPV vaccine be administered to those infected with HPV?
    1. Yes 2. No 3. Don't Know

40. Can one have multiple sexual partners after HPV vaccination?
    1. Yes 2. No 3. Don't Know

41. HPV vaccine available in India offers protection against all types of HPV
    1. Yes 2. No 3. Don't Know

42. HPV vaccine is effective in preventing Genital warts
    1. True 2. False 3. Don't Know

43. HPV vaccine is effective in preventing Cervical Cancer
    1. True 2. False 3. Don't Know

44. Do many people in India are taking the vaccine against HPV?
    1. Yes 2. No 3. Don't Know

45. **If no,** which of the following is a potential barrier to HPV Vaccination in India?
    1. Lack of Awareness 2. Non-availability of vaccine
    3. Cost 4. All of the above 5. Don't Know

Part III: Attitude towards HPV Vaccination

Q. No.	Question	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
46.	Are you willing to receive the vaccine?	1	2	3	4	5

47.	Will you receive the HPV vaccine if it's available free of cost in India?	1	2	3	4	5
48.	Will you recommend your family and friends to get vaccinated against HPV?	1	2	3	4	5
49.	Do you think the HPV vaccine might cause short term problems like fever or discomfort?	1	2	3	4	5
50.	Do you think it is difficult to find a provider or clinic where the vaccine is available?	1	2	3	4	5
51.	Do you think the HPV vaccine is very expensive?	1	2	3	4	5
52.	Do you think the HPV vaccine is being pushed to make money for drug companies?	5	4	3	2	1
53.	Do you think the HPV vaccine might cause lasting health problems?	5	4	3	2	1
54.	Do you think, if a teenager gets the HPV vaccine, he/she may be more likely to have sex?	5	4	3	2	1
55.	Do you think the HPV vaccine is unsafe?	5	4	3	2	1
56.	Do you think 9-year-old children are too young to get a vaccine for a STD like HPV?	5	4	3	2	1

Part IV: Vaccination & Sexual Practices

57. Are you sexually active?

1. Yes 2. No

58. **If sexually active,** do you use barrier contraceptive?

1. Yes 2. No

59. Have you been vaccinated against HPV?

1. Yes 2. No

60. **If not vaccinated earlier**, do you wish to receive the vaccine now?

1. Yes 2. No

ANNEXURE - IV

MASTER CHART

PRE-TEST

Serial. No	1. Age	2. Gender	3. Degree Course	4. Religion	5. Part of India	6. Residential Area	7. Type of Family	8. Net Family Income	9. No. of Family members at home	10. Per Capita	11. SES	12. Smoking Habit	13. Alcohol Use	14. Other Recreational Drug Use	15. Educational Qualification of Parents	16. Have you heard of the HPV	17. If yes, where have you heard of HPV	Are you sexually active	Age of Initiation of Sexual Activity	If yes, do you use barrier contraceptive	18. How many types of High Risk HPV strains available	19. Can both men & women be infected with HPV	20. Is the incidence of HPV infection highest in the age group of 20s and 30s	21. Can a patient be infected with HPV but not know it	22. Which of following strains of HPV is implicated of cancer	23. Which of following types of HPV account for >90% of genital warts	24. How is HPV transmitted	25. Types of Cancer by HPV	26. HPV not cause any problems and go away	27. Barrier Contraceptive protects against HPV
1	21	2	6	3	3	1	2	38000	14	2714	3	3	1	3	5	1	1	2	0	2	4	1	1	1	4	4	1	4	2	3
2	20	2	6	3	4	2	1	25000	5	5000	2	3	3	3	8	1	3	0	0	0	4	1	1	1	4	4	1	8	2	3
3	20	2	6	1	3	1	1	8000	5	1600	4	3	3	3	5	1	4	2	0	0	4	1	1	1	4	2	4	7	2	1
4	20	2	6	1	3	1	2	8000	8	1000	5	3	3	3	8	2	0	2	0	0	4	3	3	3	4	4	5	8	3	3
5	21	2	6	1	3	2	2	100000	30	3333	3	3	3	3	7	1	1	2	0	0	4	1	1	1	4	1	1	7	2	2
6	21	2	6	1	3	2	1	100000	4	25000	1	3	3	3	5	1	1	0	0	0	3	1	1	1	1	1	4	8	2	2
7	21	1	6	1	3	1	1	100000	4	25000	1	3	3	3	6	1	6	1	21	1	4	1	2	3	4	4	1	8	3	1
8	21	1	6	4	3	2	1	80000	5	16000	1	3	3	3	7	1	2	1	0	1	4	1	1	2	4	4	1	8	2	1
9	21	1	6	1	3	2	2	600000	40	15000	1	3	3	3	7	1	6	1	0	1	4	1	3	3	3	4	1	8	1	3
10	23	2	6	2	4	0	1	25000	4	6250	2	3	3	3	5	1	1	2	0	0	4	1	1	1	4	4	4	6	2	1
11	20	2	6	1	3	2	1	100000	5	20000	1	3	3	3	5	1	3	2	0	0	3	1	1	1	1	1	4	7	3	3
12	20	2	6	1	3	2	1	60000	4	15000	1	3	3	3	6	1	3	2	0	0	4	1	1	3	4	4	4	7	3	1
13	21	1	6	1	3	1	1	20000	5	4000	3	3	3	3	4	1	1	2	0	0	3	2	1	1	2	1	4	6	3	1
14	21	1	6	1	3	1	2	4000	3	1333	4	3	3	0	5	1	1	2	0	0	3	1	2	3	2	1	4	6	3	1
15	19	2	6	1	3	1	1	10000	5	2000	4	3	3	3	6	1	3	2	0	0	4	3	3	3	4	4	5	8	3	3
16	21	2	6	1	3	2	1	40000	7	5714	2	3	3	3	7	1	5	2	0	0	0	1	1	1	2	1	4	1	2	2
17	20	1	6	1	3	1	2	50000	5	10000	1	3	3	3	7	1	3	1	0	2	4	3	1	3	4	4	4	1	2	2
18	20	2	6	1	3	1	1	10000	5	2000	4	3	3	3	7	1	3	2	0	0	4	3	3	3	4	4	5	8	3	3
19	20	1	6	1	3	2	2	25000	7	3571	3	3	3	3	4	1	6	1	0	2	4	3	3	3	4	1	4	1	2	2
20	21	2	6	1	3	1	1	25000	3	8333	1	3	3	3	7	1	1	2	0	0	4	1	1	1	4	4	1	7	3	1
21	20	2	6	1	3	2	1	80000	5	16000	1	3	3	3	6	1	3	2	0	0	3	1	1	1	4	4	4	8	2	1
22	21	2	6	1	3	2	1	40000	4	10000	1	3	3	3	7	1	6	2	0	0	4	3	1	1	2	2	1	1	2	2
23	21	2	6	1	3	2	1	50000	4	12500	1	3	3	3	6	1	6	2	0	0	4	1	1	1	2	2	1	1	2	2
24	21	2	6	1	3	1	1	100000	4	25000	1	3	3	3	6	1	3	2	0	0	3	1	1	1	2	4	4	7	1	1
25	19	2	6	1	3	2	1	50000	4	12500	1	3	3	3	7	1	0	2	0	0	4	2	1	1	4	4	4	7	2	3
26	20	1	6	3	3	1	1	50000	4	12500	1	3	0	3	7	1	0	2	0	0	4	1	1	1	4	4	4	7	2	3
27	20	2	6	1	3	2	1	50000	4	12500	1	3	3	3	7	1	0	2	0	0	4	2	1	1	4	0	4	7	0	3
28	20	1	6	3	3	1	2	60000	10	6000	2	3	3	3	6	1	0	2	0	0	4	2	1	1	4	4	4	7	2	3
29	21	2	6	1	3	2	1	55000	5	11000	1	3	3	3	6	1	5	2	0	0	0	1	1	1	2	1	4	1	2	2
30	21	2	6	1	3	2	2	50000	30	1666	4	3	3	3	6	1	3	2	0	0	3	1	3	1	4	0	4	7	2	2
31	21	2	6	1	3	2	1	96000	6	16000	1	3	3	3	6	1	6	2	0	0	4	3	1	3	4	4	1	7	3	1
32	20	2	6	3	3	2	1	40000	5	8000	2	3	3	3	5	1	3	2	0	0	4	1	1	3	4	4	4	7	3	3
33	20	2	6	3	3	2	2	40000	8	5000	2	3	3	3	3	1	3	2	0	0	4	1	1	3	4	4	4	7	3	3
34	22	2	6	3	3	1	1	100000	5	20000	1	3	3	3	6	1	1	1	22	1	2	1	3	1	1	2	4	7	1	2
35	21	2	6	3	3	1	1	20000	7	2857	3	3	3	3	4	1	2	2	0	0	3	1	1	1	4	0	1	7	2	2
36	21	2	6	1	3	2	1	20000	4	5000	2	3	3	3	6	1	2	2	0	0	3	1	1	1	4	4	1	8	2	3
37	20	2	6	1	3	2	1	50000	4	12500	1	3	3	3	6	1	2	2	0	0	2	1	3	1	1	4	4	1	2	2
38	20	2	6	1	3	1	1	50000	4	12500	1	3	3	3	8	1	3	2	0	0	2	1	1	2	4	4	4	7	2	2
39	20	2	6	1	3	2	1	30000	4	7500	2	3	3	3	5	1	1	2	0	0	4	2	1	1	4	4	4	1	2	2
40	21	2	6	1	3	2	1	25000	4	6250	2	3	3	3	4	1	6	2	0	0	4	1	1	1	4	4	4	7	2	2
41	20	2	6	1	3	2	1	30000	5	6000	2	3	3	3	6	1	6	2	0	0	4	1	1	1	4	4	4	7	2	2
42	20	2	6	1	3	2	1	6000	3	2000	4	3	3	3	3	1	6	2	0	0	4	1	1	1	4	4	1	7	3	2
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50	21	1	6	1	3	2	1	25000	4	6250	2	3	3	3	6	1	1	2	0	0	3	2	1	1	1	1	4	7	3	1
51	22	1	6	1	3	1	2	25000	5	5000	2	3	3	3	4	1	3	0	0	0	4	3	3	3	4	4	5	8	3	3
52	21	2	6	1	3	2	1	20000	5	4000	3	3	3	3	7	1	2	2	0	0	3	1	1	1	4	4	1	7	2	3
53	21	2	6	3	3	1	2	38000	14	2714	3	3	1	3	8	1	1	2	0	2	4	1	1	1	4	4	1	4	2	3
54	20	2	6	3	3	2	1	25000	5	5000	2	3	3	3	6	1	3	0	0	0	4	1	1	1	4	4	1	8	2	3
55	20	2	6	1	3	1	1	8000	5	1600	4	3	3	3	6	1	4	2	0	0	4	1	1	1	4	2	4	7	2	1
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57	21	2	6	1	3	2	2	100000	30	3333	3	3	3	3	6	1	1	2	0	0	4	1	1	1	4	1	1	7	2	2
58	21	1	6	1	3	2	1	100000	4	25000	1	3	3	3	6	1	1	0	0	0	3	1	1	1	1	1	4	8	2	2
59	21	1	6	1	3	1	1	100000	4	25000	1	3	3	3	6	1	6	1	21	1	4	1	2	3	4	4	1	8	3	1
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61	21	2	6	1	3	2	2	600000	40	15000	1	3	3	3	6	1	6	1	0	1	4	1	3	3	3	4	1	8	1	3
62	23	2	6	3	3	0	1	25000	4	6250	2	3	3	3	6	1	1	2	0	0	4	1	1	1	4	4	4	6	2	1
63	20	2	6	1	3	2	1	100000	5	20000	1	3	3	3	8	1	3	2	0	0	3	1	1	1	1	1	4	7	3	3
64	24	1	3	1	3	1	3	200000	22	9090	1	1	2	1	5	1	2	2	0	0	4	3	3	3	4	4	5	8	3	3
65	20	1	3	3	3	1	2	40000	12	3333	3	3	3	3	2	1	1	1	0	1	4	1	3	1	4	4	1	8	3	1
66	21	1	3	2	3	2	1	15000	4	3750	3	3	3	3	7	2	0	2	0	0	4	3	3	3	4	4	5	8	3	3
67	21	1	3	1	3	1	1	30000	4	7500	2	3	3	3	4	1	1	1	25	1	4	3	3	3	3	3	5	1	0	0
68	20	1	3	3	1	1	1	20000	2	10000	1	3	3	3	7	0	0	2	0	0	4	1	3	2	4	4	5	8	2	1
69	21	1	3	1	4	2	2	40000	10	4000	3	3	3	3	3	1	1	0	0	0	4	1	3	1	4	4	4	7	2	1
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71	20	2	3	1	3	2	2	10000	5	2000	4	3	3	3	3	1	3	2	0	0	4	3	3	3	4	4	4	7	1	1
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73	21	1	3	1	4	1	2	5000	6	833	5	3	3	3	4	1	1	1	0	2	4	1	3	3	4	4	4	7	2	3
74	20	1	3	3	1	1	1	20000	4	5000	2	3	3	3	7	1	3	2	0	0	4	1	3	1	4	4	5	4	0	0
75	20	2	3	1	3	1	1	8000	4	2000	4	3	3	3	4	1	6	2	0	0	3	1	1	1	3	2	1	7	1	2
76	19	2	3	1	3	1	1	7000	3	2333	4	3	3	3	4	1	6	2	0	0	3	1	1	1	3	2	1	7	1	1
77	20	1	3	1	3	1	1	10000	5	2000	4	3	3	3	1	2	0	2	0	0	4	3	3	3	4	0	4	7	1	1
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82	20	1	3	1	3	1	1	300000	4	75000	1	3	3	3	4	1	2	2	0	0	2	1	2	1	4	4	4	8	1	2
83	21	1	3	1	3	2	2	35000	7	5000	2	3	3	3	6	1	1	2	0	0	4	3	1	3	3	3	4	7	2	1
84	20	2	3	1	3	2	1	10000	5	2000	4	3	3	3	2	1	1	2	0	0	4	1	1	1	4	4	5	8	2	3
85	21	1	3	1	3	1	2	50000	5	10000	1	3	3	3	4	1	1	2	0	0	4	1	3	1	2	3	4	8	2	1
86	20	1	3	1	3	1	1	20000	3	6667	2	3	3	3	5	1	1	2	0	0	2	1	1	1	4	4	1	7	0	1
87	19	1	3	1	2	1	1	10000	6	1667	4	3	3	3	1	1	6	2	0	0	1	1	2	1	4	1	1	7	2	1
88	20	1	3	1	3	1	2	20000	6	3333	3	3	3	3	4	1	1	2	0	0	4	1	1	3	4	2	4	1	2	1
89	20	2	3	1	3	1	1	20000	5	4000	3	3	3	3	4	1	1	2	0	0	1	2	3	1	2	4	4	1	3	2
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91	20	2	3	1	4	1	1	15000	4	3750	3	3	3	3	6	1	1	2	0	0	4	2	1	1	4	4	1	1	2	1
92	21	2	3	1	4	1	1	30000	4	7500	2	3	3	3	4	1	1	2	0	0	4	2	1	1	4	4	1	1	2	2
93	20	2	3	1	2	2	1	20000	4	5000	2	3	3	3	5	1	1	2	0	0	4	1	1	3	4	2	5	8	1	2
94	20	2	3	1	3	2	1	10000	5	2000	4	3	3	3	3	1	1	2	0	0	4	1	1	1	4	4	4	8	2	1
95	20	2	3	3	3	2	1	6000	3	2000	4	3	3	3	4	1	1	2	0	0	4	1	3	1	4	4	1	7	2	1
96	20	2	3	1	3	2	2	10000	7	1429	4	3	3	3	4	1	3	2	0	0	4	1	1	1	4	2	1	7	2	3
97	22	2	3	1	1	2	1	40000	6	6667	2	3	3	3	5	1	1	2	0	0	4	1	1	1	4	4	1	4	2	3
98	22	2	3	1	3	2	1	20000	5	4000	3	3	3	3	1	1	3	2	0	0	4	1	1	1	4	2	1	7	2	2
99	21	2	3	1	4	1	1	10000	5	2000	4	3	3	3	5	1	1	2	0	0	4	1	3	3	2	4	1	7	2	1
100	20	2	3	1	4	2	1	10000	5	2000	4	3	3	3	5	1	1	2	0	0	4	1	3	3	2	4	1	7	2	1
101	20	2	3	2	3	1	1	10000	5	2000	4	3	3	3	4	1	1	2	0	0	4	1	2	3	4	4	1	8	2	2
102	20	2	3	2	3	1	1	10000	5	2000	4	3	3	3	4	1	1	2	0	0	4	1	2	3	4	4	1	8	3	2
103	20	2	3	3	2	2	2	20000	5	4000	3	3	3	3	2	1	1	2	0	0	4	1	1	3	0	2	1	1	3	3
104	22	2	3	1	3	1	1	10000	4	2500	3	3	3	3	3	1	1	2	0	0	4	1	1	1	4	3	4	1	3	3
105	20	2	3	3	3	0	2	40000	9	4444	2	3	3	3	7	2	0	2	0	0	4	3	3	3	4	4	1	7	3	3
106	22	2	3	1	2	2	1	5000	3	1667	4	3	3	3	3	2	0	2	0	0	4	3	3	3	4	4	1	8	3	3
107	20	2	3	1	2	2	1	80000	4	20000	1	3	3	3	7	1	2	2	0	0	4	1	1	1	4	4	1	1	3	1
108	21	2	3	1	3	2	2	37000	3	12333	1	3	3	3	3	2	0	2	0	0	4	3	1	1	4	4	1	8	3	1
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114	20	2	3	2	3	1	1	30000	4	7500	2	3	3	3	3	1	3	2	0	0	4	1	1	3	4	4	1	7	2	1
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Serial. No	28. HPV causes problems in pregnancy	29. HPV cured with Antibiotics	30. Smoking increases cancer risk in HPV infected	31. Heard of HPV Vaccine	32. Ideal age for HPV vaccination	33. HPV vaccine available in India	34. Types of vaccine against HPV	35. Name of HPV vaccine types	36. Required no. of doses for <16 years	37. No. of doses for >16 years	38. Age at which HPV vaccination given	39. Who can be vaccinated	40. Vaccine given to sexually active	41. Screening required before vaccination	42. Vavvine to those infected with HPV	43. Multiple sexual partners after HPV vaccination	44. Vaccine in India offers protection against al types	45. HPV vaccine effective against Genital warts	46. HPV vaccine effective against Cervical Cancer	47. Many people in India are taking the vaccine	48. If no, potential barriers to vaccination	49. Are you willing to receive vaccine	50. Will you receive HPV if available free of cost	51. Will you recommend your Family and Friends	52. Do you think the HPV vaccine might cause short term problem like fever or discomfort	53. Is it difficult to find a provider	54. Do you think HPV vaccine is expensive	55. Do you think the HPV vaccine is being pushed to make money for drug companies	56. Do you think the HPV vaccine might cause lasting health problems	57. Do you think , if a teenager gets the HPV vaccine , he/she may be more likely to have sex	58. Do you think the HPV vaccine is unsafe	59. Do you think 9 year old children are too young to get the vaccine	60. Have you been vaccinated against HPV?
1	3	1	2	2	3	1	4	5	1	2	2	3	2	3	2	2	2	1	1	3	0	3	3	3	4	2	2	4	3	4	4	3	2
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126	1	3	1	2	5	3	4	5	2	4	5	3	3	2	2	2	3	3	2	3	0	3	3	4	4	2	3	3	3	4	3	3	2
127	2	3	1	2	5	1	2	5	4	1	5	3	3	2	3	2	3	3	1	0	0	2	1	4	2	0	1	4	1	2	5	5	2
128	1	2	3	2	5	3	4	5	4	4	5	3	3	3	3	2	2	1	1	3	0	4	4	4	3	3	3	4	3	2	3	3	2
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131	1	1	1	1	1	1	2	5	2	4	1	3	2	2	1	2	1	3	1	1	0	2	1	1	1	1	1	4	5	4	3	5	2
132	3	3	3	1	5	1	4	5	4	4	5	3	3	2	1	3	3	3	3	3	5	3	3	3	3	4	4	3	3	4	3	2	2
133	2	1	1	2	5	1	3	4	3	2	5	3	1	2	2	1	2	1	2	2	2	3	2	4	3	3	2	2	3	3	4	3	2
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141	1	1	1	1	4	1	4	5	3	3	2	3	1	1	1	1	1	1	1	1	0	5	5	5	4	4	3	3	3	2	3	2	0
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151	1	3	1	1	3	3	4	5	4	4	5	3	1	3	1	1	3	3	1	3	0	5	2	4	4	3	3	3	3	4	4	4	2

ANNEXURE - IV

MASTER CHART

PRE-TEST

ANNEXURE - IV

MASTER CHART

PRE-TEST

ANNEXURE - IV

MASTER CHART

PRE-TEST

ANNEXURE - IV

MASTER CHART

PRE-TEST

653	21	2	1	1	4	2	1	40000	4	10000	1	3	3	3	7	1	1	2	0	0	2	1	1	1	2	2	4	1	3	0	0	0	0	0	0	1	3	4	3	3	2	3	1	2	1	3	3	1	1	2	4	4	4	4	4	4	4	4	4	4	4	4	0
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ANNEXURE - IV

MASTER CHART

POST-TEST

Serial. No	18. How many types of High Risk HPV strains available	19. Can both men & women be infected with HPV	20. Is the incidence of HPV infection highest in the age group of 20s and 30s	21. Can a patient be infected with HPV but not know it	22. Which of following strains of HPV is implicated of cancer	23. Which of following types of HPV account for >90% of genital warts	24 .How is HPV transmitted	25. Types of Cancer by HPV	26. HPV not cause any problems and go away	27. Barrier Contraceptive protects against HPV	28. HPV causes problems in pregnancy	29. HPV cured with Antibiotics	30. Smoking increases cancer risk in HPV infected	31. Heard of HPV Vaccine	32. Ideal age for HPV vaccination	33. HPV vaccine available in India	34. Types of vaccine against HPV	35. Name of HPV vaccine types	36. Required no. of doses for <16 years	37. No. of doses for >16 years	38. Age at which HPV vaccination given	39. Who can be vaccinated	40. Vaccine given to sexually active	41. Screening required before vaccination	42. Vavvine to those infected with HPV	43. Multiple sexual partners after HPV vaccination	44. Vaccine in India offers protection against al types	45. HPV vaccine effective against Genital warts	46. HPV vaccine effective against Cervical Cancer	47. Many people in India are taking the vaccine	48. If no, potential barriers to vaccination	49. Are you willing to receive vaccine	50. Will you receive HPV if available free of cost	51. Will you recommend your Family and Friends	52. Do you think the HPV vaccine might cause short term problem like fever or discomfort	53. Is it difficult to find a provider	54. Do you think HPV vaccine is expensive	55. Do you think the HPV vaccine is being pushed to make money for drug companies	56. Do you think the HPV vaccine might cause lasting health problems	57. Do you think , if a teenager gets the HPV vaccine , he/she may be more likely to have sex	58. Do you think the HPV vaccine is unsafe	59. Do you think 9 year old children are too young to get the vaccine	60. If not vaccinated earlier, do you wish to receive the vaccine now?
1	3	1	1	1	2	1	4	7	1	2	3	2	1	1	1	1	3	4	2	3	2	3	1	2	1	1	1	1	1	3	0	4	4	5	5	5	5	3	4	3	4	3	1
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16	3	1	1	1	2	1	4	7	2	2	1	2	1	1	1	1	3	4	2	3	2	3	1	2	1	2	1	1	1	2	1	4	4	4	4	4	4	2	4	2	4	3	1
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18	3	1	1	1	2	1	4	7	1	2	3	2	1	1	1	1	3	4	2	3	2	3	1	2	1	2	1	1	1	2	4	4	4	4	4	4	4	4	4	2	4	2	1
19	3	1	1	1	2	1	4	7	1	2	3	2	1	1	1	1	3	4	2	3	2	3	1	2	1	2	1	1	1	3	0	4	4	4	4	4	5	3	4	3	4	3	1
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21	3	1	1	1	2	1	4	7	1	2	2	2	1	1	1	1	3	4	2	3	2	3	1	2	1	2	1	1	1	2	4	4	4	4	4	4	5	2	4	4	3	3	1
22	3	1	1	1	2	1	4	7	1	2	1	2	1	1	1	1	3	4	2	3	2	3	1	2	1	2	1	1	1	3	4	4	4	4	4	4	4	2	4	4	4	2	1
23	3	1	1	1	2	1	4	7	1	2	1	2	1	1	1	1	3	4	2	3	2	3	1	2	1	2	1	1	1	2	4	4	4	4	5	5	5	2	4	2	3	2	1
24	3	1	1	1	2	1	4	7	1	2	1	2	1	1	1	1	3	4	2	3	2	3	1	2	1	2	1	1	1	2	1	4	4	4	4	4	3	3	4	4	4	3	1
25	3	1	1	1	2	1	4	7	1	2	3	2	1	1	1	1	3	4	2	3	2	3	1	2	1	2	1	1	1	3	0	4	5	5	5	4	4	3	4	3	4	3	1
26	3	1	1	1	2	1	4	7	2	1	2	2	1	1	1	1	3	4	2	3	2	3	1	2	1	1	1	1	1	3	0	4	3	3	4	4	3	3	4	3	3	3	0
27	3	1	1	2	1	2	4	7	2	2	3	2	1	1	1	1	3	4	2	3	2	3	1	2	1	2	1	1	1	3	0	5	5	5	4	4	4	3	4	4	4	3	1
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29	3	1	1	1	2	1	4	7	1	2	3	2	1	1	1	1	3	4	2	3	2	3	1	2	1	2	1	1	1	2	1	4	4	4	4	4	4	3	4	2	4	3	1
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31	3	1	1	1	2	1	4	7	1	2	3	2	1	2	1	1	3	4	2	3	2	3	1	2	1	2	1	1	1	2	1	5	5	5	4	4	4	3	4	2	3	3	1
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37	3	1	1	1	2	1	4	7	1	2	2	2	1	1	1	1	3	4	2	3	2	3	1	2	1	2	1	1	1	2	4	4	4	4	4	4	4	3	4	4	4	2	1
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45	3	1	1	1	2	1	4	7	1	2	2	2	1	1	1	1	3	4	2	3	2	3	1	2	1	2	1	1	1	2	4	4	5	5	4	3	4	3	5	5	5	5	1
46	3	1	1	1	2	1	4	7	1	2	1	2	1	1	1	1	3	4	2	3	2	3	1	2	1	1	1	1	1	2	4	4	5	5	4	4	4	3	3	3	4	2	1
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49	3	1	1	1	2	1	4	7	2	2	1	2	1	1	1	1	3	4	2	2	2	3	1	2	1	2	1	1	1	3	0	3	3	3	4	3	3	3	3	3	3	3	0
50	3	1	1	1	2	1	4	7	2	2	3	2	1	1	1	1	3	4	2	3	2	3	1	2	1	1	1	1	1	3	0	4	3	3	4	4	3	3	4	3	3	3	1
51	3	1	1	1	2	1	4	7	1	2	2	2	1	1	1	1	3	4	2	3	2	3	1	2	1	2	1	1	1	3	0	4	4	5	4	4	3	2	4	3	2	3	1
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54	3	1	1	1	2	1	4	7	1	2	1	2	1	1	1	1	3	4	2	3	2	3	1	2	1	1	1	1	1	2	4	4	5	5	4	4	4	3	3	3	4	2	1
55	3	1	1	1	2	1	4	7	1	2	3	2	1	1	1	1	3	4	2	3	2	3	1	2	1	2	1	1	1	3	4	3	4	4	4	4	4	3	3	3	4	2	1
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60	3	1	1	1	1	1	4	7	1	2	2	2	1	1	1	1	3	4	2	3	2	3	1	2	1	0	2	1	1	2	4	5	5	5	5	5	5	1	3	3	4	1	2
61	3	1	1	1	2	1	4	7	1	2	2	2	1	1	1	1	3	4	2	3	2	3	1	2	1	3	1	1	1	2	4	5	5	5	5	5	5	4	3	3	4	3	1
62	3	1	1	1	2	1	4	7	1	2	2	2	1	1	1	1	3	4	2	3	2	3	1	2	1	2	1	1	1	2	4	4	5	5	4	4	4	3	4	3	3	4	1
63	3	1	1	1	2	1	4	7	2	2	2	2	1	1	1	1	3	4	2	3	2	3	1	2	1	2	1	1	1	3	0	4	5	5	4	4	5	3	4	4	3	4	1
64	4	3	2	1	4	4	2	7	1	1	1	2	1	2	5	3	4	5	4	4	5	3	1	2	1	2	2	2	1	2	3	4	5	5	4	3	4	3	3	2	2	2	2
65	3	1	1	1	2	1	4	7	1	2	2	2	1	1	1	1	3	4	2	3	2	3	1	2	1	2	1	1	1	2	4	5	5	5	5	5	5	5	5	5	5	5	1
66	2	2	1	1	2	1	4	7	1	2	1	2	1	1	1	1	2	2	2	3	2	2	1	1	2	1	1	1	1	2	3	1	5	5	3	5	5	1	4	5	5	5	2
67	3	1	1	1	2	1	4	7	1	2	2	2	1	1	1	1	3	4	2	3	2	3	1	2	1	2	1	1	1	2	4	5	5	5	5	5	5	5	5	5	5	5	1
68	3	1	1	1	2	1	4	7	1	2	2	2	1	1	1	1	3	4	2	3	2	3	1	2	1	2	1	1	1	2	4	5	5	5	5	5	5	5	5	5	5	5	1
69	3	1	1	1	2	1	4	7	1	2	1	2	1	1	1	1	3	4	1	3	2	3	1	2	2	2	1	1	1	2	1	4	4	4	4	3	4	2	3	3	3	3	2
70	4	2	1	1	2	3	1	1	2	2	1	2	3	1	1	1	3	4	2	3	2	3	1	2	1	1	2	1	1	2	1	4	5	5	4	4	4	4	4	2	4	2	1
71	3	1	1	1	2	1	4	7	1	2	2	2	1	1	1	1	3	4	2	3	2	3	1	2	1	2	1	1	1	2	4	5	5	5	5	5	5	5	5	5	5	5	1
72	3	1	1	1	2	2	4	7	2	1	2	2	1	1	1	1	3	4	2	2	2	3	1	2	1	2	2	1	1	2	1	2	1	2	2	3	3	2	2	1	2	3	1
73	4	1	3	1	2	2	4	7	2	2	2	2	1	1	1	1	3	4	2	2	2	3	2	2	2	1	2	1	1	3	0	2	4	4	5	1	2	3	5	2	4	3	1
74	3	1	1	1	2	1	4	7	1	2	2	2	1	1	1	1	3	4	1	3	1	3	1	2	2	2	2	1	1	2	4	4	4	4	4	4	5	2	4	2	4	2	3
75	3	1	1	1	2	1	4	7	1	2	2	2	1	1	1	1	3	4	2	3	2	3	1	2	1	2	2	1	1	2	4	4	3	3	3	4	3	3	4	3	4	3	1
76	3	1	1	1	2	1	4	7	1	2	2	2	1	1	1	1	3	4	2	3	1	3	1	2	1	2	2	1	1	1	0	4	4	4	3	2	4	3	3	4	4	3	1
77	2	1	1	1	1	1	4	7	1	1	1	2	1	1	1	1	3	4	2	3	2	3	1	2	1	1	2	1	1	2	4	5	5	4	3	3	5	5	3	5	4	2	1
78	3	1	1	1	2	1	4	1	2	2	2	2	1	1	1	1	3	4	2	3	2	3	1	2	2	1	2	1	1	1	0	4	4	4	4	3	3	2	3	2	3	3	1
79	3	1	1	1	2	1	4	7	1	2	2	2	1	1	1	1	3	4	2	3	2	3	1	2	1	2	1	1	1	2	4	5	5	5	5	5	5	5	5	5	5	5	1
80	3	1	1	1	2	1	4	7	1	2	2	2	1	1	1	1	3	4	2	3	2	3	1	2	1	2	1	1	1	2	4	5	5	5	5	5	5	5	5	5	5	5	1
81	3	1	1	1	2	1	4	7	1	2	2	2	1	1	1	1	3	4	2	3	2	3	1	2	1	2	1	1	1	2	4	5	5	5	5	5	5	5	5	5	5	5	1
82	3	1	1	1	2	1	4	7	2	2	2	2	1	1	1	1	3	4	2	3	2	3	1	2	2	2	2	1	1	2	4	5	5	4	4	3	4	4	4	1	5	2	1
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84	1	1	1	1	2	1	4	7	2	2	2	2	1	1	1	1	3	4	2	3	2	3	1	2	1	1	1	1	1	2	4	4	4	5	4	4	4	4	4	2	4	3	1
85	3	1	1	1	2	1	1	7	1	2	2	2	1	1	1	1	3	4	2	3	1	3	1	2	1	2	2	1	1	2	4	5	5	5	5	3	4	2	3	3	4	5	1
86	0	1	1	1	2	1	4	7	2	2	1	2	1	1	1	1	3	4	2	3	2	3	1	2	2	2	2	1	1	1	0	5	5	5	3	4	3	5	5	5	5	3	3
87	3	1	1	1	2	1	4	7	2	2	1	2	1	1	2	1	3	4	2	3	1	3	1	2	1	2	2	1	1	1	0	4	5	5	4	4	5	2	3	3	5	3	1
88	4	1	1	0	2	1	5	1	2	1	1	2	2	1	1	1	3	4	2	4	1	3	2	2	3	3	1	1	1	3	0	1	1	1	2	3	5	2	1	3	2	1	1
89	3	1	1	1	2	1	4	1	1	2	2	2	1	1	1	1	3	4	2	3	2	3	1	2	2	1	2	1	1	2	4	4	5	4	5	4	5	3	4	4	4	2	2
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91	3	1	1	1	2	1	4	7	1	2	2	2	1	1	1	1	3	4	2	3	2	3	1	2	1	2	1	1	1	2	4	5	5	5	5	5	5	5	5	5	5	5	1
92	4	1	1	1	2	1	4	7	2	2	1	2	1	1	1	1	3	4	2	3	2	3	1	2	1	2	2	1	1	2	4	5	5	5	4	3	3	3	4	2	4	4	1
93	4	1	1	1	2	1	4	7	1	2	2	2	1	1	1	1	2	4	2	3	1	3	1	2	1	2	2	1	1	2	4	5	5	5	3	3	3	4	3	4	3	5	1
94	3	1	1	1	2	1	4	7	3	1	2	2	1	1	1	1	3	4	2	2	2	3	1	2	1	1	2	1	1	1	0	1	5	4	4	4	5	4	3	4	3	4	3

ANNEXURE - IV

MASTER CHART

POST-TEST

95	3	1	1	1	2	1	4	7	3	2	2	2	1	1	1	1	3	4	2	3	2	3	1	2	1	2	2	1	1	2	4	4	5	5	4	4	3	3	2	2	3	4	1
96	3	1	1	1	2	1	4	7	2	1	2	2	2	1	1	1	3	4	3	3	2	3	1	2	2	1	2	2	2	1	4	1	0	4	2	4	5	4	3	4	4	2	2
97	3	1	1	1	2	1	4	7	2	2	2	2	3	1	1	1	3	4	2	3	2	3	1	2	1	3	2	1	1	2	4	4	4	4	5	3	5	3	4	3	4	4	0
98	3	1	1	1	2	1	4	1	2	2	1	2	1	1	1	1	2	4	2	3	2	3	1	1	1	2	2	1	1	2	1	5	5	4	4	2	4	3	4	4	5	3	1
99	3	1	1	1	2	1	4	7	2	2	2	2	1	1	1	1	3	4	2	3	2	3	1	2	1	2	2	1	1	1	0	5	5	4	3	3	3	2	4	2	3	3	0
100	4	1	1	1	2	1	4	7	2	2	1	2	1	1	1	1	3	4	2	3	2	3	1	2	1	2	2	1	1	1	0	5	4	4	3	3	3	2	4	2	3	3	0
101	4	1	1	1	2	1	4	7	2	1	1	2	1	1	1	1	3	4	2	3	2	3	1	2	1	2	2	1	1	2	4	5	5	5	3	4	5	5	5	1	2	4	1
102	3	1	1	1	2	1	4	7	1	2	2	2	1	1	1	1	3	4	2	3	2	3	1	2	1	2	2	1	1	2	1	4	5	5	4	3	3	3	3	3	4	4	1
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195	4	1	3	1	1	1	1	7	2	1	1	2	1	1	4	1	4	5	2	4	1	2	1	1	3	2	1	1	1	1	0	4	3	3	3	3	4	5	5	4	5	4	1
196	1	1	1	1	1	1	4	7	1	2	2	2	1	1	1	1	3	4	2	3	2	3	1	2	1	2	1	1	1	2	1	4	4	4	3	3	4	3	4	2	4	2	1
197	3	1	1	1	2	1	4	1	1	2	1	2	1	1	1	1	3	4	2	3	1	3	1	2	1	1	2	1	1	2	1	5	5	5	5	5	5	5	5	5	5	3	1
198	3	1	1	1	2	1	4	7	1	2	2	2	1	1	1	1	3	4	2	3	2	3	1	2	1	2	1	1	1	2	4	5	5	5	5	5	5	5	5	5	5	5	1
199	3	1	1	1	2	1	4	7	1	2	2	2	1	1	1	1	3	4	2	3	2	3	1	2	1	2	1	1	1	2	4	5	5	5	5	5	5	5	5	5	5	5	1
200	3	1	1	1	2	1	4	7	1	2	2	2	1	1	1	1	3	4	2	3	2	3	1	2	1	2	1	1	1	2	4	5	5	5	5	5	5	5	5	5	5	5	1
201	2	1	1	2	2	1	4	7	1	2	2	2	1	1	1	1	3	4	2	3	2	3	1	2	1	2	1	1	1	2	4	4	5	4	4	4	4	3	3	2	4	2	1
202	3	1	1	1	2	1	4	7	1	2	2	2	1	1	1	1	3	4	2	3	2	3	1	2	1	2	1	1	1	2	1	5	5	5	4	4	3	4	4	2	4	4	1
203	3	1	1	1	2	2	4	7	1	2	2	2	1	1	1	1	3	4	2	3	2	3	1	2	1	2	1	1	1	3	0	5	5	5	5	4	4	3	4	2	4	2	1
204	3	1	1	1	2	1	4	7	1	2	2	2	1	1	1	1	2	4	2	3	2	3	1	2	1	2	2	1	1	2	4	4	4	4	2	3	3	4	4	4	4	5	1

ANNEXURE - IV

MASTER CHART

POST-TEST

205	2	1	1	2	1	1	4	7	2	1	1	1	1	1	4	1	1	5	4	4	5	4	2	1	1	2	2	1	1	1	0	1	1	1	1	1	1	5	5	5	5	5	2
206	2	2	2	2	2	4	5	2	3	2	2	2	2	2	4	0	2	5	2	1	2	1	2	1	1	2	2	1	2	2	4	2	1	2	3	4	5	2	3	4	5	2	3
207	3	1	1	3	2	4	1	8	3	3	3	3	3	3	5	3	4	5	4	4	5	4	3	3	3	3	3	3	3	3	0	3	3	3	3	3	3	3	3	3	3	3	3
208	3	1	1	3	2	4	1	8	3	3	3	3	3	3	5	3	4	5	4	4	5	4	3	3	3	3	3	3	3	3	0	3	3	3	3	3	3	3	3	3	3	3	3
209	4	1	3	1	4	4	1	8	2	3	1	2	1	2	5	1	4	5	4	4	5	3	1	3	3	2	3	3	3	3	0	4	5	5	5	1	2	2	3	1	4	1	1
210	3	2	1	1	2	1	4	7	2	2	2	2	2	1	1	2	2	5	2	3	1	3	2	2	1	1	1	2	1	2	2	5	5	5	5	5	5	1	5	5	5	3	1
211	3	1	1	1	2	1	5	7	1	2	2	2	1	1	1	1	3	4	3	3	1	3	1	2	1	1	1	1	1	1	0	5	5	5	5	5	5	5	5	5	5	3	1
212	4	3	3	3	4	4	5	8	3	3	3	3	3	3	5	3	4	5	4	4	5	4	3	3	3	3	3	3	3	3	0	1	2	2	2	2	2	4	4	4	4	4	2
213	2	1	1	1	2	4	4	7	2	2	2	1	1	2	1	1	3	4	2	3	1	3	1	1	1	3	2	1	1	2	4	2	4	4	4	4	3	2	3	2	4	1	2
214	2	1	1	1	2	1	1	7	2	3	2	2	2	1	1	1	3	0	4	4	2	3	1	2	1	3	2	1	1	2	4	5	5	5	4	4	4	3	5	4	5	4	1
215	3	1	1	1	3	1	1	7	1	2	2	2	1	1	1	1	3	4	2	3	2	3	1	2	0	1	2	1	1	2	4	4	4	4	4	4	4	3	4	3	4	3	2
216	3	1	1	1	4	4	1	7	2	1	1	1	1	1	4	1	3	4	2	3	1	3	1	2	1	1	2	1	1	2	4	3	5	3	4	2	3	3	3	3	4	3	1
217	4	3	3	1	4	4	1	8	3	3	3	3	3	3	5	3	4	5	4	4	5	4	3	3	3	3	3	3	3	3	0	1	1	4	3	3	3	3	3	3	3	3	2
218	3	1	1	1	2	1	4	7	1	2	2	2	2	1	1	1	3	4	2	3	2	3	1	2	1	2	2	1	1	2	4	4	4	4	4	4	4	2	3	3	3	1	1
219	3	1	1	1	2	1	1	7	1	2	2	2	1	1	1	1	3	4	2	3	2	3	1	2	1	2	2	1	1	2	4	4	5	5	4	5	5	2	3	2	4	2	1
220	4	1	3	1	4	4	1	8	1	2	2	2	1	1	1	1	3	4	2	3	2	3	1	2	1	2	2	1	1	2	4	4	2	4	4	3	2	2	3	3	4	1	2
221	3	1	1	1	2	1	4	7	1	2	2	2	1	1	1	1	3	4	2	3	2	3	1	2	1	2	2	1	1	2	4	4	4	4	4	4	4	3	4	3	4	2	0
222	4	1	3	3	4	4	4	8	2	3	1	2	3	2	1	1	3	4	2	3	1	3	1	1	1	2	2	1	1	2	4	2	4	4	4	4	4	2	3	2	4	2	2
223	4	1	1	1	2	1	4	6	1	2	2	2	1	1	1	1	3	4	2	3	2	3	1	2	1	2	2	1	1	2	4	1	4	4	4	4	4	4	2	4	4	2	1
224	4	1	1	1	2	1	4	6	1	2	2	2	1	1	1	1	3	4	2	3	2	3	1	2	1	2	2	1	1	2	2	2	4	3	4	4	3	4	3	3	4	2	2
225	4	1	1	1	2	1	4	7	1	2	2	2	1	1	1	1	3	4	2	3	2	3	1	2	1	2	2	1	1	1	0	4	4	4	4	4	4	4	4	4	4	4	1
226	3	1	1	1	2	1	4	7	1	2	2	2	1	1	1	1	3	4	2	3	2	3	1	2	1	2	2	1	1	2	4	4	4	4	4	4	4	3	4	3	4	2	2
227	4	1	1	1	4	4	1	7	1	2	2	2	1	1	1	1	3	4	2	3	2	3	1	2	1	2	2	1	1	2	4	4	4	4	4	4	4	4	4	4	4	2	2
228	4	1	1	1	4	4	1	7	1	2	2	2	1	1	1	1	3	4	2	3	2	3	1	2	1	2	2	1	1	2	0	1	4	4	3	5	4	3	2	3	3	2	2
229	4	1	1	1	4	4	1	7	1	2	2	2	1	1	1	1	3	4	2	3	2	3	1	2	1	2	2	1	1	2	4	4	4	4	4	4	4	4	4	4	4	2	2
230	4	3	1	1	2	4	4	7	1	1	2	2	1	1	1	1	3	4	2	3	2	3	1	2	1	2	2	1	1	2	4	4	4	4	4	4	4	3	4	4	4	2	2
231	4	1	1	1	2	1	4	7	1	2	2	2	1	1	1	1	3	4	2	3	2	3	1	2	1	2	2	1	1	1	0	4	4	4	4	4	4	4	4	3	4	2	1
232	4	1	1	3	2	1	4	7	1	2	2	2	1	1	1	1	3	4	2	3	2	3	1	1	1	1	3	1	1	3	0	4	4	3	4	4	1	5	3	3	3	2	1
233	4	1	1	1	2	1	4	7	1	2	2	2	1	1	1	1	3	4	2	3	2	3	1	1	1	3	2	1	1	2	4	2	2	3	4	4	4	4	3	3	4	2	1
234	4	1	1	3	2	1	4	7	1	2	2	2	1	1	1	1	3	4	2	3	2	3	1	1	1	3	2	1	1	2	1	4	1	4	4	4	4	2	1	2	4	2	1
235	1	1	3	3	4	1	4	7	2	2	2	2	1	2	1	1	3	4	2	3	2	3	1	1	1	2	2	1	1	2	4	1	3	4	4	4	2	2	5	5	5	5	2
236	1	1	3	3	4	1	4	7	2	2	1	2	1	1	1	1	3	4	2	3	2	3	1	1	1	2	2	1	1	1	0	1	1	4	4	2	3	3	4	3	4	4	2
237	2	1	1	1	2	3	5	8	3	2	1	3	1	3	5	3	4	4	4	4	2	3	3	3	2	3	3	2	3	3	0	3	4	4	3	3	2	4	3	4	4	3	3
238	2	1	2	0	1	2	5	1	2	1	2	1	1	1	1	2	1	2	1	2	5	4	3	2	3	3	1	2	3	1	0	3	4	4	3	3	2	4	3	4	4	3	3
239	4	1	3	1	4	4	4	7	1	2	2	2	1	1	1	1	3	4	2	3	2	3	1	2	1	2	2	1	1	2	4	4	5	4	3	4	4	1	4	2	4	2	1
240	1	1	3	1	4	4	4	7	1	2	2	2	1	1	1	1	3	4	2	3	2	3	2	2	1	2	2	1	1	2	4	4	5	4	3	4	4	2	4	2	3	2	1
241	3	1	1	1	2	1	4	7	1	2	2	2	1	1	1	1	3	4	2	3	2	3	1	2	1	2	2	1	1	2	4	1	4	4	4	4	4	3	4	1	3	1	1
242	4	3	1	1	2	1	4	7	1	2	2	2	1	1	1	1	3	4	2	3	2	3	1	2	1	2	2	1	1	2	4	4	5	5	5	5	4	1	4	4	4	3	1
243	4	1	1	1	2	4	4	7	2	1	2	2	1	1	1	1	3	4	2	4	1	3	1	1	2	3	2	1	1	3	0	4	4	4	3	3	4	2	3	3	3	4	1
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245	3	1	1	1	2	1	4	7	1	2	1	2	1	2	1	1	3	4	2	3	2	3	1	2	1	2	2	1	1	2	4	5	5	5	5	5	5	3	5	5	5	5	1
246	4	3	3	3	4	4	1	8	3	3	3	3	3	3	5	3	4	5	2	3	2	3	1	2	1	2	2	1	1	2	1	4	4	4	4	4	4	3	4	3	4	2	1
247	4	1	3	3	2	1	4	7	1	2	2	2	1	1	1	1	3	4	2	3	2	3	1	1	1	2	2	1	3	2	4	4	3	5	5	4	5	1	4	3	4	2	3
248	2	3	2	3	2	1	4	7	1	2	0	2	1	1	1	1	3	4	2	3	2	3	1	2	1	2	2	1	1	2	1	4	4	4	4	4	4	3	4	3	4	2	1
249	4	1	1	1	4	4	4	7	1	2	2	2	3	1	5	1	4	4	2	3	2	3	1	2	1	2	2	1	1	2	4	4	4	4	4	4	4	2	4	2	4	4	1
250	3	1	1	1	2	1	4	7	1	2	2	2	1	2	1	1	3	4	2	3	2	3	1	2	1	2	2	1	1	2	4	4	3	4	4	4	4	2	3	3	4	3	1
251	4	3	3	3	4	4	5	8	3	3	3	3	3	3	5	3	4	5	4	4	5	4	3	3	3	3	3	3	3	3	0	2	2	2	2	2	2	4	4	4	4	4	2
252	2	3	2	3	2	1	4	7	1	2	2	2	1	1	1	1	3	4	2	3	2	3	1	2	1	2	2	1	1	2	4	4	4	4	4	4	4	3	4	3	4	3	1
253	4	1	3	1	4	4	1	8	3	2	1	2	2	2	5	3	4	4	2	4	1	3	1	1	2	2	1	1	1	2	4	2	1	2	3	3	2	3	3	3	3	4	3
254	4	3	3	3	2	3	4	7	1	3	3	1	1	0	0	1	3	4	2	2	5	3	0	0	1	0	2	3	3	3	0	4	4	3	4	4	5	2	4	5	4	5	2
255	3	1	3	0	2	1	4	7	1	2	1	2	1	1	1	1	3	4	2	3	2	3	1	2	1	2	2	1	1	2	4	3	3	3	3	3	3	3	3	3	3	3	1
256	2	3	2	3	2	1	4	7	1	2	2	2	1	1	1	1	3	4	2	3	2	3	1	2	1	2	2	1	1	2	4	4	4	4	4	4	4	3	4	3	4	3	1
257	4	1	1	1	4	4	4	7	2	1	2	2	1	1	1	1	3	4	2	4	1	3	1	1	1	2	1	1	1	2	4	3	1	2	3	3	2	3	3	3	3	4	3
258	3	1	1	1	2	1	4	7	1	2	2	2	1	1	1	1	3	4	2	3	2	3	1	2	1	2	1	1	1	2	4	5	5	5	5	5	5	5	5	5	5	5	1
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265	4	1	3	1	4	4	2	7	3	1	1	1	1	1	5	1	2	5	2	3	5	3	1	1	1	2	1	3	3	3	0	3	3	3	3	3	3	3	3	3	3	3	3
266	1	1	1	1	1	1	1	7	1	2	2	2	1	1	1	1	3	4	2	3	2	3	1	2	1	2	2	1	1	2	4	4	4	4	4	4	5	2	3	4	5	4	2
267	4	3	3	3	4	4	5	8	3	3	3	3	3	3	5	3	4	5	4	4	5	4	3	3	3	3	3	3	3	3	0	1	1	1	1	1	1	5	3	3	1	1	3
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272	4	3	3	3	4	4	5	8	3	3	3	3	3	3	5	3	4	5	4	4	5	4	3	3	3	3	3	3	3	3	0	1	5	3	5	5	5	1	1	1	5	5	2
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277	3	2	2	3	4	2	2	7	1	2	2	2	1	1	1	1	3	4	2	3	2	3	1	2	1	2	1	1	1	2	4	4	4	4	4	4	3	4	4	4	3	3	1
278	4	1	3	1	4	4	1	7	2	1	1	2	3	1	5	1	4	4	4	4	5	3	1	2	3	3	1	1	1	2	5	4	5	5	4	3	4	3	4	3	5	2	1
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283	2	1	1	3	4	4	4	7	2	1	1	1	1	2	1	1	3	4	2	3	1	3	1	1	1	3	2	1	1	2	4	2	4	4	4	4	3	2	3	2	4	1	2
284	3	1	1	1	2	1	4	7	1	2	2	2	1	1	1	1	3	4	2	3	2	3	1	2	1	2	1	1	1	2	4	5	5	5	5	5	5	5	5	5	5	5	1
285	4	1	1	1	2	1	4	7	1	2	2	2	1	1	1	1	3	4	2	3	2	3	1	2	1	2	2	1	1	1	0	4	4	4	4	4	4	4	4	4	4	4	1
286	3	1	1	1	2	1	4	7	1	2	2	2	1	1	1	1	3	4	2	3	2	3	1	2	1	2	1	1	1	2	4	5	5	5	5	5	5	5	5	5	5	5	1
287	4	1	1	1	2	1	1	7	2	3	2	2	2	1	5	1	3	4	2	3	2	3	1	1	2	2	2	1	1	2	4	5	5	5	4	4	3	3	5	4	5	4	1
288	3	1	1	1	1	1	1	7	1	1	1	1	1	1	1	1	1	1	1	1	1	3	1	1	1	1	1	1	1	1	0	3	3	3	3	3	3	3	3	3	3	3	1
289	4	1	1	3	4	4	1	8	3	3	3	2	3	1	5	1	4	5	4	4	5	3	3	3	3	3	3	3	3	3	0	4	4	4	4	2	2	5	4	3	3	2	1
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292	4	1	3	3	4	4	4	7	3	3	1	1	1	3	5	3	4	5	4	4	5	4	3	3	3	3	3	3	3	3	0	1	3	3	4	4	3	2	3	3	3	3	3
293	4	1	1	1	2	4	1	7	1	1	1	2	1	3	4	1	3	5	4	4	2	3	1	1	1	1	1	1	1	3	0	1	1	4	4	3	3	3	3	3	3	3	3
294	1	2	1	2	1	1	1	8	2	1	2	1	3	3	5	1	3	4	1	3	2	3	2	2	2	2	2	2	1	2	4	4	1	3	5	5	5	1	1	1	2	4	1
295	4	3	3	1	2	1	4	7	1	2	2	2	1	1	1	1	3	4	2	3	2	3	1	2	1	2	2	1	1	2	4	4	5	5	5	5	4	1	4	4	4	3	1
296	2	3	3	3	2	1	2	8	1	2	2	2	1	1	1	1	3	4	2	3	2	3	1	2	2	2	2	1	1	2	4	4	4	4	4	4	4	2	3	3	3	2	1
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300	3	1	1	1	2	3	4	7	2	2	1	3	1	1	1	1	4	5	4	4	2	3	1	2	1	3	3	1	1	2	2	4	4	4	4	4	3	3	3	3	3	3	1
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308	4	1	3	3	4	4	1	8	3	1	3	3	3	3	3	3	4	4	4	4	5	3	1	1	3	3	3	1	1	2	1	1	1	1	1	3	2	3	3	3	3	3	1
309	4	1	1	1	4	4	4	7	2	1	2	1	1	2	5	3	4	5	2	2	2	3	1	1	1	1	1	1	1	2	1	5	5	4	2	4	2	2	4	2	4	1	1
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314	3	1	1	1	2	1	4	7	1	2	2	2	1	1	1	1	3	4	2	3	2	3	1	2	1	2	1	1	1	2	4	5	5	5	5	5	5	5	5	5	5	5	1

ANNEXURE - IV

MASTER CHART

POST-TEST

ANNEXURE - IV

MASTER CHART

POST-TEST

425	3	1	1	1	2	1	4	7	1	2	2	2	1	1	1	1	4	4	2	3	2	3	1	1	1	2	2	1	1	2	4	4	5	4	5	4	4	1	4	4	4	3	1
426	3	1	1	1	2	1	4	7	2	2	2	2	1	1	1	1	3	4	2	3	2	3	1	2	1	2	2	1	1	2	4	4	4	4	4	3	5	1	3	4	5	4	1
427	3	1	1	1	2	1	4	7	2	2	2	3	1	1	1	1	3	4	3	2	1	3	1	1	1	1	1	1	1	2	4	4	4	4	4	4	4	4	4	4	4	2	1
428	3	1	1	1	2	1	4	7	1	2	2	2	1	1	1	1	3	4	2	3	2	3	1	2	1	2	1	1	1	2	4	5	5	5	5	5	5	5	5	5	5	5	1
429	3	1	1	1	2	1	4	7	1	2	2	2	1	1	1	1	3	4	2	3	2	3	1	2	1	2	1	1	1	2	4	5	5	5	5	5	5	5	5	5	5	5	1
430	3	1	1	1	2	1	4	7	1	2	2	2	1	1	1	1	3	4	2	3	2	3	1	2	1	2	2	1	1	2	4	5	5	5	5	5	5	3	3	3	2	3	1
431	1	1	1	1	2	1	1	1	2	2	2	2	1	1	1	1	3	4	2	3	2	3	1	2	1	2	1	1	1	2	1	3	3	3	2	2	3	4	4	4	4	3	1
432	4	1	1	1	4	1	4	7	2	2	1	2	1	1	1	1	3	4	2	4	2	3	1	1	1	1	1	1	1	2	1	4	4	4	3	3	3	4	3	4	3	2	1
433	3	1	1	1	2	1	4	7	1	1	1	2	1	1	1	1	4	4	2	3	2	3	1	1	1	0	2	1	1	2	4	5	5	5	4	4	4	3	4	4	4	4	1
434	4	1	1	1	4	4	1	8	1	1	1	2	1	1	1	1	3	4	2	3	2	3	1	1	2	2	1	1	1	2	4	5	5	5	5	4	4	4	4	4	4	4	1
435	4	1	1	1	2	1	4	7	2	2	1	1	1	1	1	1	3	4	2	3	1	3	1	1	1	2	2	1	1	2	4	5	5	5	4	4	3	3	3	5	2	5	1
436	3	1	1	1	2	1	4	7	1	2	2	2	1	1	1	1	3	4	2	3	2	3	1	2	1	2	1	1	1	2	4	5	5	5	5	5	5	5	5	5	5	5	1
437	4	1	1	1	2	1	5	7	1	1	1	1	1	2	1	1	3	4	3	3	2	3	1	1	1	2	1	1	1	2	1	3	5	5	5	5	5	4	4	4	2	2	1
438	4	3	3	3	4	1	4	7	1	2	3	2	1	1	1	1	3	4	2	3	2	3	1	2	1	3	1	1	1	2	4	4	4	3	3	3	3	4	3	4	3	2	1
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440	4	3	3	1	4	4	5	8	3	3	3	3	3	3	5	3	4	5	4	4	5	4	3	3	3	3	3	3	3	3	0	3	3	1	4	3	3	3	0	3	0	3	1
441	3	1	1	1	2	1	4	7	1	2	1	2	1	1	1	1	3	2	2	1	2	3	1	2	1	2	1	1	1	2	4	4	5	4	4	4	4	3	4	2	4	4	1
442	3	1	1	1	4	1	4	7	2	2	2	2	1	1	1	1	3	4	2	3	2	3	1	2	1	2	2	1	1	2	4	4	2	3	3	4	3	3	2	2	3	4	3
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444	4	3	1	1	2	1	4	7	1	2	2	2	1	1	1	1	3	4	2	2	2	3	1	1	1	2	2	1	1	2	4	4	5	5	4	4	5	2	3	5	4	4	1
445	3	1	1	1	2	1	4	7	2	2	1	2	1	1	1	1	3	4	2	3	2	3	1	1	1	2	2	1	1	2	4	4	4	5	4	5	5	2	1	3	3	2	2
446	3	1	1	3	4	4	5	7	2	2	1	2	1	1	5	1	1	5	2	4	5	3	1	1	1	2	1	1	3	3	0	1	5	5	3	4	5	3	2	2	3	2	1
447	3	1	1	1	2	1	4	7	1	2	2	2	1	1	1	1	3	4	3	2	1	3	1	1	1	1	1	1	1	2	4	4	4	4	4	4	4	4	4	4	4	2	1
448	3	1	1	1	2	1	4	7	2	2	2	2	1	1	1	1	3	4	2	4	2	3	1	2	1	2	1	1	1	2	4	4	4	4	4	4	3	3	4	4	4	4	1
449	1	1	1	1	2	1	4	7	1	2	2	2	1	1	1	1	3	4	2	3	2	3	1	2	1	2	2	1	1	2	4	4	4	4	4	4	5	4	3	4	3	4	1
450	4	2	1	3	1	4	1	1	2	2	2	2	1	1	1	1	3	4	2	3	1	3	1	2	1	2	3	1	1	2	4	5	5	5	5	5	4	3	2	3	4	4	1
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453	4	1	1	1	2	1	4	7	1	2	2	2	1	1	1	1	3	4	2	3	2	3	1	1	2	2	1	1	1	2	4	0	4	4	3	3	3	3	3	3	3	3	3
454	3	1	1	1	2	1	4	7	2	2	1	2	1	1	1	1	3	4	2	3	2	3	1	2	1	3	1	1	1	2	1	2	4	4	3	3	3	3	3	3	3	3	2
455	3	1	1	1	2	1	1	7	1	2	1	2	1	1	1	1	3	4	2	3	2	3	1	2	1	2	1	1	1	1	0	2	4	4	4	4	2	2	4	4	2	4	2
456	3	1	1	1	2	1	4	7	2	2	2	2	1	1	1	1	3	4	2	3	2	3	1	2	0	1	1	1	1	1	0	1	2	2	2	2	2	4	4	4	4	4	3
457	3	1	1	1	2	1	4	7	2	2	1	2	1	1	1	1	3	4	2	2	2	3	1	1	1	1	1	1	1	2	4	3	4	4	3	3	3	4	3	3	4	4	1
458	4	1	1	1	2	1	4	7	2	2	1	2	1	1	1	1	3	4	2	3	2	3	1	1	1	1	1	1	1	2	4	1	4	4	4	4	4	1	4	1	3	2	3
459	3	1	1	1	2	1	4	7	2	2	1	2	1	1	1	1	3	4	2	3	2	3	1	2	1	2	1	1	1	2	1	1	1	1	5	3	3	3	2	3	2	3	2
460	3	1	1	1	2	1	4	7	2	2	2	2	1	2	1	1	3	4	2	3	2	3	1	2	1	2	1	1	1	2	4	4	4	4	4	4	5	2	1	2	3	3	3
461	3	1	1	1	2	1	4	7	1	2	2	2	1	1	1	1	3	4	2	3	2	3	1	1	1	2	1	1	1	2	4	4	4	4	4	4	4	3	4	4	4	3	1
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471	3	1	1	1	2	4	4	7	2	2	2	2	1	1	1	1	3	4	2	1	5	3	1	1	1	2	2	1	2	3	0	4	4	4	3	3	4	2	3	3	3	2	1
472	3	1	1	1	1	1	4	7	2	2	2	2	1	1	1	1	3	4	2	3	2	3	1	2	1	2	2	1	1	2	4	5	5	5	4	4	3	4	3	4	3	3	1
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474	3	1	1	1	2	1	4	7	2	3	2	2	1	2	1	1	3	4	2	3	2	3	1	1	1	2	1	3	1	3	0	5	5	5	3	3	5	1	3	5	5	5	1
475	3	1	1	1	2	2	4	7	2	3	2	3	1	2	4	1	3	4	3	3	2	4	2	2	2	1	2	1	2	1	0	3	5	5	3	3	3	1	1	5	5	5	1
476	3	1	1	1	1	1	4	7	2	2	2	2	1	1	1	1	3	4	2	3	2	3	1	2	1	2	2	1	1	2	4	5	5	5	4	4	3	4	4	3	4	3	1
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482	3	1	1	1	2	1	4	7	1	2	2	2	1	1	1	1	3	4	2	3	2	3	1	2	1	2	1	1	1	2	4	5	5	5	5	5	5	5	5	5	5	5	1
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485	3	1	1	1	2	1	4	7	1	2	2	2	1	1	1	1	3	4	2	3	2	3	1	2	1	2	1	1	1	2	4	5	5	5	5	5	5	5	5	5	5	5	1
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488	4	1	3	1	4	4	1	1	2	2	1	3	1	1	5	1	3	5	2	3	2	3	1	1	1	2	1	2	1	2	5	3	3	3	3	3	3	3	3	3	3	3	1
489	3	1	1	1	2	1	4	7	1	2	2	2	1	1	1	1	3	4	2	3	2	3	1	2	1	2	1	1	1	2	4	5	5	5	5	5	5	5	5	5	5	5	1
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495	3	1	1	1	2	1	4	7	1	2	2	2	1	1	1	1	3	4	2	3	2	3	1	2	1	2	1	1	1	2	4	5	5	5	5	5	5	5	5	5	5	5	1
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501	2	3	2	3	2	1	4	7	1	2	0	2	1	1	1	1	3	4	2	3	2	3	1	2	1	2	2	1	1	2	1	4	4	4	4	4	4	3	4	3	4	2	1
502	4	1	1	1	4	4	4	7	1	2	2	2	3	1	5	1	4	4	2	3	2	3	1	2	1	2	2	1	1	2	4	4	4	4	4	4	4	2	4	2	4	4	1
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504	4	3	3	3	4	4	5	8	3	3	3	3	3	3	5	3	4	5	4	4	5	4	3	3	3	3	3	3	3	3	0	2	2	2	2	2	2	4	4	4	4	4	2
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507	4	3	3	3	2	3	4	7	1	3	3	1	1	0	0	1	3	4	2	2	5	3	0	0	1	0	2	3	3	3	0	4	4	3	4	4	5	2	4	5	4	5	2
508	3	1	3	0	2	1	4	7	1	2	1	2	1	1	1	1	3	4	2	3	2	3	1	2	1	2	2	1	1	2	4	3	3	3	3	3	3	3	3	3	3	3	1
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531	3	1	1	1	2	1	4	7	2	2	2	2	3	1	1	1	3	4	2	3	2	3	1	2	1	3	2	1	1	2	4	4	4	4	5	3	5	3	4	3	4	4	0
532	3	1	1	1	2	1	4	1	2	2	1	2	1	1	1	1	2	4	2	3	2	3	1	1	1	2	2	1	1	2	1	5	5	4	4	2	4	3	4	4	5	3	1
533	3	1	1	1	2	1	4	7	2	2	2	2	1	1	1	1	3	4	2	3	2	3	1	2	1	2	2	1	1	1	0	5	5	4	3	3	3	2	4	2	3	3	0
534	4	1	1	1	2	1	4	7	2	2	1	2	1	1	1	1	3	4	2	3	2	3	1	2	1	2	2	1	1	1	0	5	4	4	3	3	3	2	4	2	3	3	0

ANNEXURE - IV

MASTER CHART

POST-TEST

535	4	1	1	1	2	1	4	7	2	1	1	2	1	1	1	1	3	4	2	3	2	3	1	2	1	2	2	1	1	2	4	5	5	5	3	4	5	5	5	1	2	4	1
536	3	1	1	1	2	1	4	7	1	2	2	2	1	1	1	1	3	4	2	3	2	3	1	2	1	2	2	1	1	2	1	4	5	5	4	3	3	3	3	3	4	4	1
537	2	1	1	1	2	1	4	1	2	1	2	2	1	0	1	1	3	4	2	3	1	3	1	2	1	2	1	1	1	1	0	4	4	4	4	4	2	4	4	4	5	5	3
538	2	1	1	1	2	1	1	1	1	2	1	2	1	1	1	1	3	4	3	3	4	3	1	2	1	2	2	1	1	2	4	5	5	5	5	5	4	5	3	5	5	4	1
539	3	1	1	1	2	1	4	7	1	2	2	2	1	1	1	1	3	4	2	3	2	3	1	2	1	2	1	1	1	2	4	5	5	5	5	5	5	5	5	5	5	5	1
540	3	1	1	1	2	1	4	7	1	2	2	2	1	1	1	1	3	4	2	3	2	3	1	2	1	2	2	1	1	2	4	3	5	5	5	5	5	2	3	3	5	3	1
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542	3	1	1	1	2	1	4	7	1	2	2	2	1	1	1	1	3	4	2	3	2	3	1	2	1	2	2	1	1	2	4	5	5	5	5	4	3	5	4	3	4	3	1
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546	3	1	1	1	2	1	4	7	2	2	2	2	1	1	1	1	3	4	2	2	2	3	1	2	1	2	2	1	1	2	4	5	5	5	3	3	5	3	4	3	3	3	1
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550	3	1	1	1	2	1	4	7	1	2	3	2	1	1	1	1	3	4	2	3	2	3	1	2	1	2	1	1	1	3	0	4	4	4	4	4	5	3	4	3	4	3	1
551	4	1	1	1	2	1	4	7	1	2	1	2	1	1	1	1	3	4	2	3	2	3	1	2	1	2	1	1	1	3	0	5	5	5	5	5	5	3	4	4	4	3	1
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567	3	1	1	1	2	1	4	7	1	2	2	2	1	1	1	1	4	4	2	3	2	3	1	1	1	2	2	1	1	2	4	4	5	4	5	4	4	1	4	4	4	3	1
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569	3	1	1	1	2	1	4	7	2	2	2	3	1	1	1	1	3	4	3	2	1	3	1	1	1	1	1	1	1	2	4	4	4	4	4	4	4	4	4	4	4	2	1
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ANNEXURE - IV

MASTER CHART

POST-TEST

645	3	1	1	1	1	1	4	7	2	2	2	2	1	1	1	1	3	4	2	3	2	3	1	2	1	2	2	1	1	2	4	5	5	5	4	4	3	4	3	4	3	3	1
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