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# Awareness of Human Paipiloma Virus and Cervical Cancer Amongst the Females of Entitled Workers

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## ABSTRACT

**Objectives:** *According to the Human Papillomavirus and Related Cancers, Fact Sheet 2024[1,2], current estimates show that 5,008 women in Pakistan receive a cervical cancer diagnosis each year, and 3,197 of them pass away from the illness. In Pakistan, cervical cancer is the second most common cancer among women aged 15 to 44 and the third most common cancer overall. Cervical HPV-16/18 infection is thought to affect 0.5% of women in the general population at any given time, and HPVs 16 or 18 are responsible for 88.1% of invasive cervical malignancies.*

**Materials and methods:** *This study was conducted in Social Security hospital, I-12 Islamabad. The data was gathered by using a questionnaire adapted from one of the similar studies[3] and piloted at one of the referral units of this hospital. The population selected was families of the industrial workers that are entitled at this hospital. The data collection through questionnaire was performed by Women Medical Officers working in the health care facility and the data was entered in the SPSS version 28 for analysis and results. Sample size calculated by using open epi was 73 against the population of 61294 patients registered with the health care facility. Interviews were conducted between July to November 2025 at Social Security Hospital, I-12 Islamabad.*

**Results:** *The findings reveal a significant gap in fundamental knowledge, with very low reported awareness of the HPV virus (5.5%) and cervical cancer (9.6%) among the respondents who answered these questions (N=73). Knowledge of the direct link between HPV and cancer is also low (12.3%).*

*However, the survey participants demonstrated a relatively high perceived awareness of potential cervical cancer symptoms, particularly "vaginal bleeding after menopause" (89.0% of respondents believed it was a sign). This suggests that while specific etiological knowledge (HPV) is lacking, general symptom recognition is stronger. The data strongly indicates an urgent need for targeted public health campaigns to improve basic awareness of HPV, its link to cervical cancer, and its mode of transmission.*

**Keywords:** *Human Papillomavirus (HPV), Cervical Cancer, Awareness, Knowledge Gap, HPV 16/18, Public Health, Questionnaire Survey, Pakistan*

## INTRODUCTION

Persistent infection with high-risk HPV strains is the main cause of cervical cancer[4], a serious public health issue. Promoting preventative behaviours like immunisation and screening requires awareness and information. Based on the survey results supplied, this study aims to measure the degree of awareness and knowledge about HPV and cervical cancer and to identify locations with the greatest knowledge gaps.

## MATERIALS AND METHODS

The study was conducted between July and November 2025 at Social Security Hospital, I-12 Islamabad. This health care facility serves industrial workers and their families who are entitled as per the provincial social security law which encompass the provision of medical facilities to employees and their dependents.

The patients were interviewed using self-administered questionnaire which was piloted at one of the referral units of the health care facility including the questions regarding awareness about the prevalence of disease and its signs and symptoms along with information boxes followed by the level of willingness of participant.

The data was registered in and the statistical results were analysed on SPSS version 28.

## RESULTS

### Participants of the study

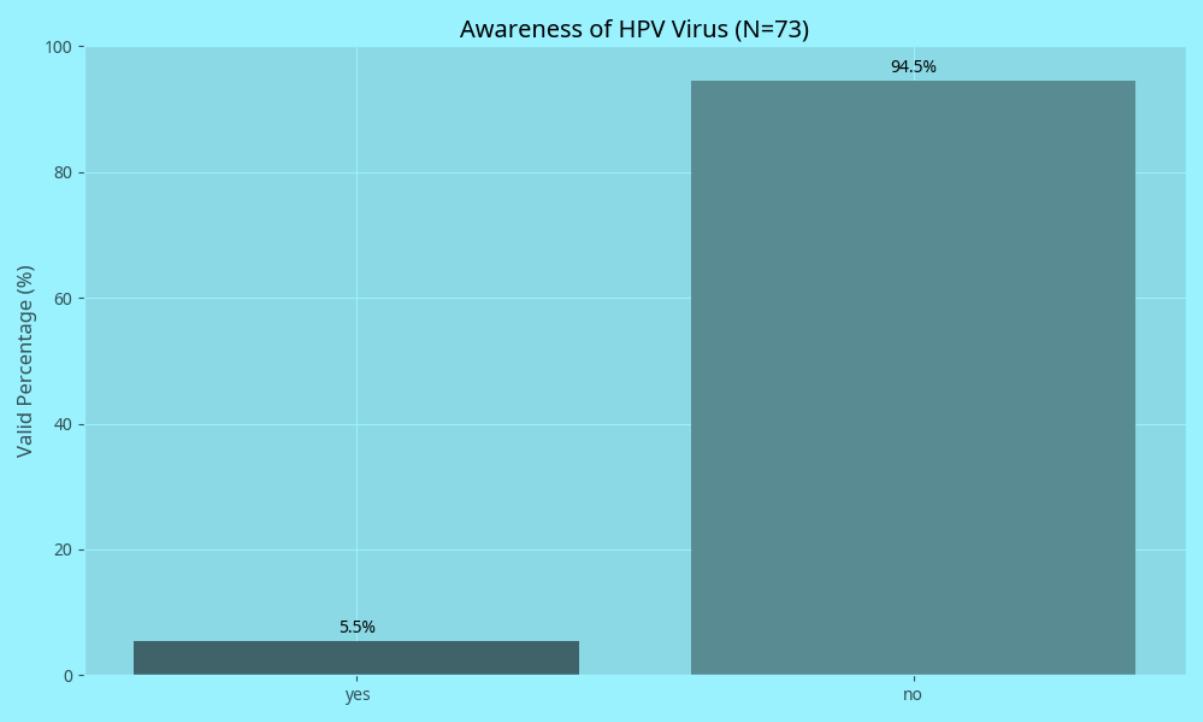
| Age in years | | | | | |
|---|---|---|---|---|---|
| | | **Frequency** | **Percent** | **Valid Percent** | **Cumulative Percent** |
| Valid | 15-25 | 16 | 12.6 | 21.9 | 21.9 |
| | 26-35 | 30 | 23.6 | 41.1 | 63.0 |
| | 36-45 | 23 | 18.1 | 31.5 | 94.5 |
| | 46-55 | 2 | 1.6 | 2.7 | 97.3 |
| | 56-60 | 2 | 1.6 | 2.7 | 100.0 |
| | Total | 73 | 57.5 | 100.0 | |
| Missing | System | 54 | 42.5 | | |
| Total | | 127 | 100.0 | | |

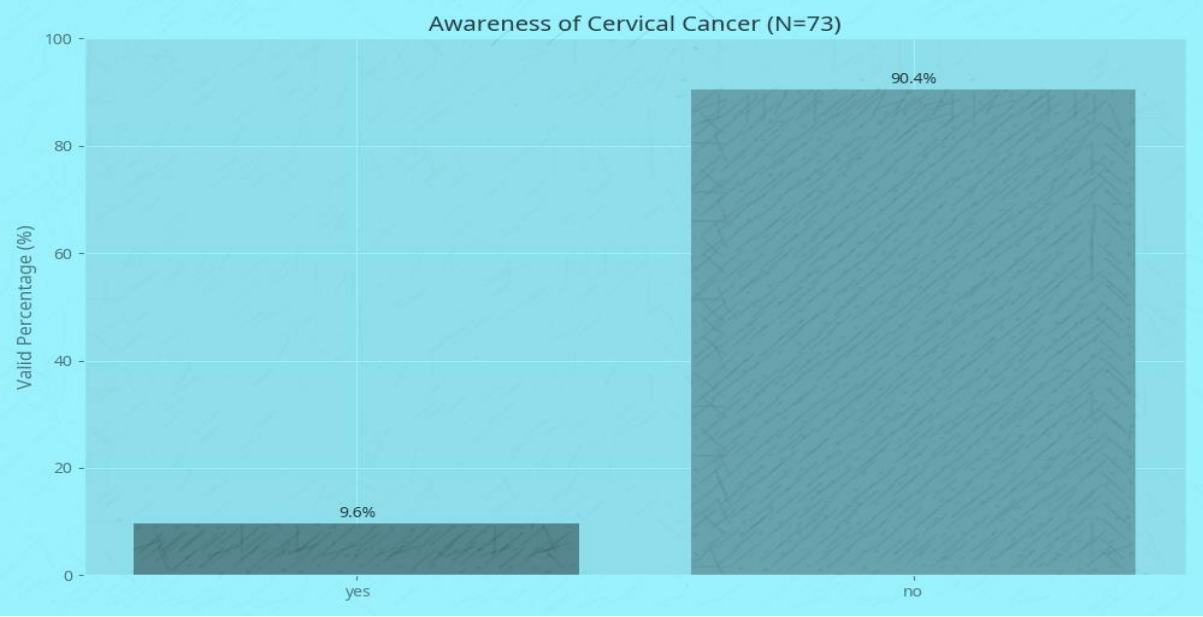
| Married single divorced or widow | | | | | |
|---|---|---|---|---|---|
| | | **Frequency** | **Percent** | **Valid Percent** | **Cumulative Percent** |
| Valid | married | 67 | 52.8 | 91.8 | 91.8 |
| | single | 5 | 3.9 | 6.8 | 98.6 |
| | widow | 1 | .8 | 1.4 | 100.0 |
| | Total | 73 | 57.5 | 100.0 | |
| Missing | System | 54 | 42.5 | | |
| Total | | 127 | 100.0 | | |

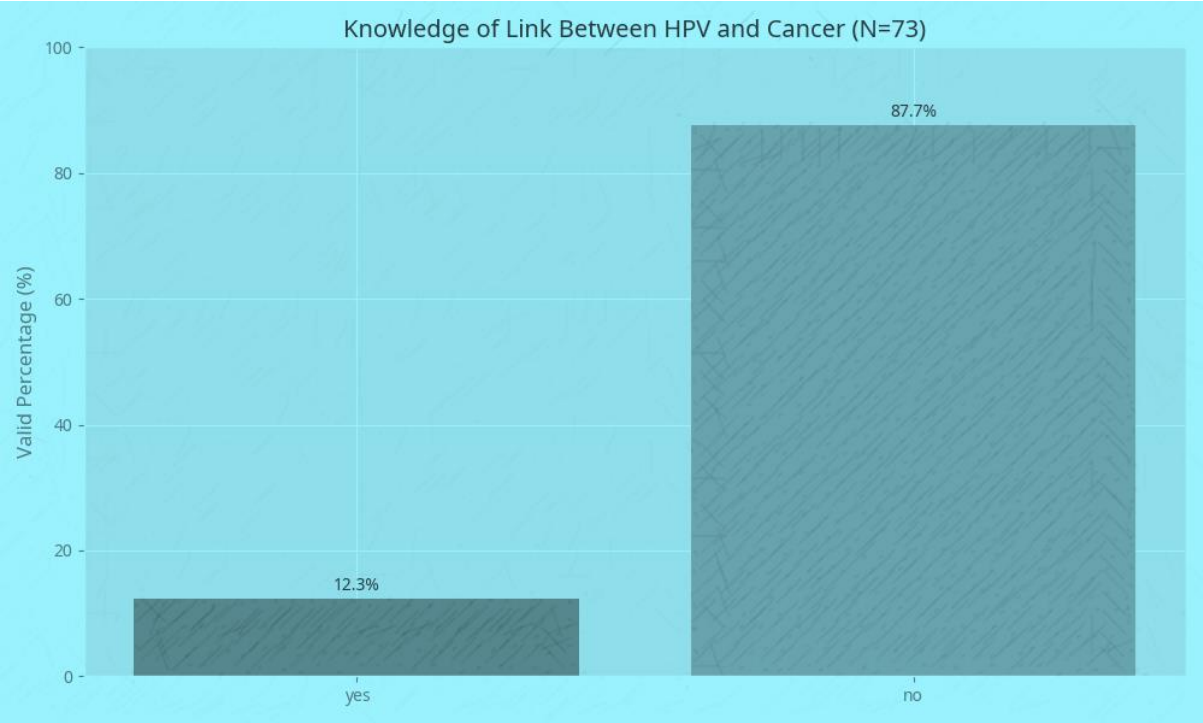
The majority of the participants were between 26-35 years of age with 91.8% of them married.

**Awareness of the disease and Virus**

The vast majority of respondents (94.5%) reported never having heard of the HPV virus. Awareness of cervical cancer itself is only slightly higher at 9.6%. This lack of foundational knowledge is a major barrier to prevention and early detection efforts. The questions related to awareness of disease shows that 77.85% of the female respondents were unaware of the disease.





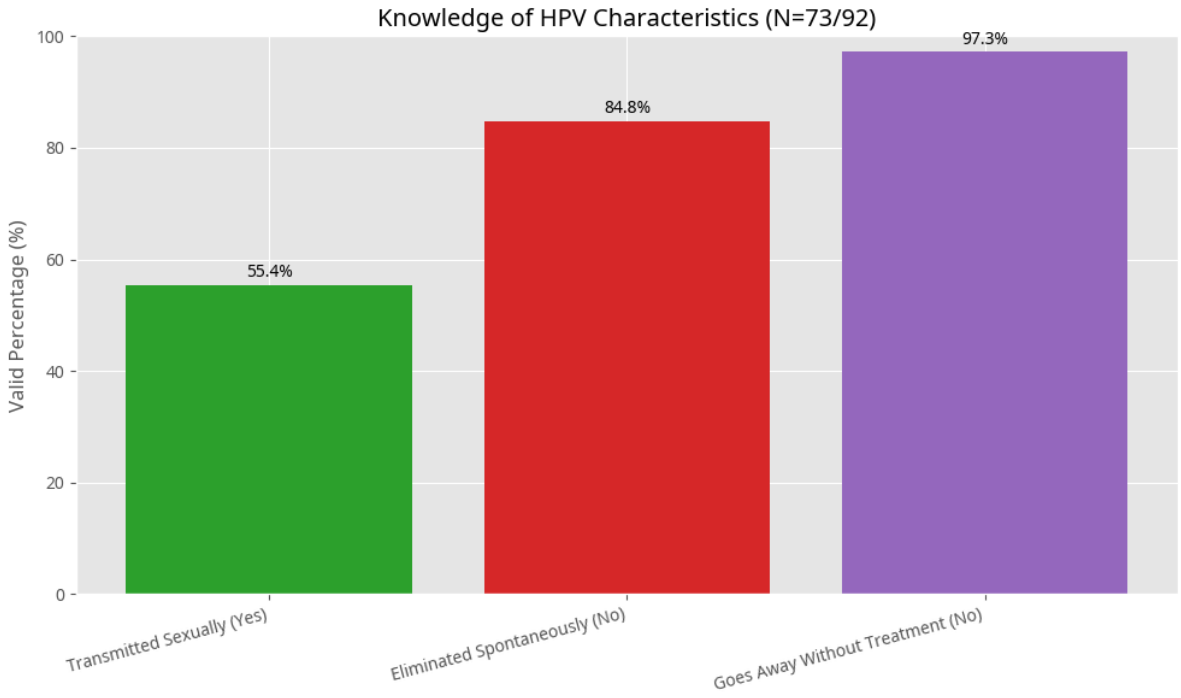

**Knowledge of HPV Characteristics**

Knowledge regarding the characteristics of HPV infection is mixed, with some correct beliefs but also significant misconceptions.

| Question | Yes (Valid %) | No (Valid %) | I Don't Know (Valid %) |
|---|---|---|---|
| Do you think that HPV can be transmitted sexually? (N=92) | 55.4% | 42.4% | 2.2% |
| Do you think HPV infection can be eliminated spontaneously? (N=92) | 14.1% | 84.8% | 1.1% (Other) |
| Does HPV usually go away without treatment? (N=73) | 2.7% | 97.3% | - |

A majority (55.4%) correctly believe that HPV can be transmitted sexually. Furthermore, a high percentage (84.8%) correctly believe that HPV infection cannot be eliminated spontaneously, and 97.3% correctly believe it does not usually go away without treatment. This suggests that while the name "HPV" is unknown, some of the clinical realities of the infection are correctly perceived by a subset of the population.

However, only 10.9% of respondents (N=92) knew which symptoms are associated with HPV infection, with 83.7% stating they did not know.

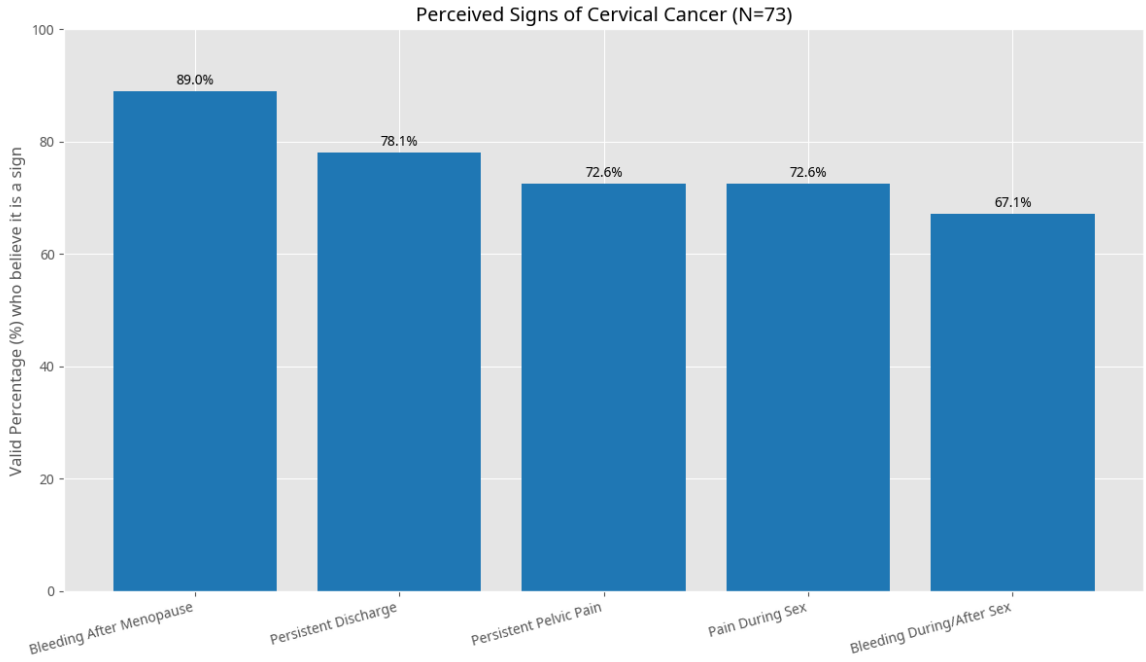



**Perceived Signs of Cervical Cancer**

In contrast to the low etiological awareness, respondents showed a high perceived awareness of several potential signs of cervical cancer (N=73). The most recognized sign was vaginal bleeding after menopause, with 89.0% of respondents believing it could be a sign.

| Perceived Sign of Cervical Cancer | Yes (Valid %) | No (Valid %) | I Don't Know (Valid %) |
|---|---|---|---|
| Vaginal bleeding after menopause | 89.0% | 6.8% | 4.1% |
| Persistent vaginal discharge that smells unpleasant | 78.1% | 20.5% | 1.4% |
| Discomfort or pain during sex | 72.6% | 23.3% | 4.1% |
| Persistent pelvic pain | 72.6% | 19.2% | 8.2% |
| Vaginal bleeding during or after sex | 67.1% | 23.3% | 9.6% |

The high recognition of these symptoms, particularly post-menopausal bleeding, is a positive finding, as it suggests that women may be prompted to seek medical attention based on these indicators.




## DISCUSSION

Cervical cancer remains one of the most preventable yet under-recognized health issues affecting women in Pakistan. Despite being the fourth most common cancer among women globally, awareness of its risk factors, early symptoms, and preventive strategies—including screening and vaccination—remains critically low in the Pakistani population. Several interconnected social, cultural, and healthcare system–related factors contribute to this gap.

First, lack of education and limited access to health information significantly restrict women's understanding of cervical cancer. A large proportion of women, particularly in rural areas, have low literacy levels, making it difficult for them to receive and interpret health messages. Health literacy is further impacted by inadequate public health campaigns specifically targeting reproductive cancers, resulting in poor knowledge about early warning signs such as abnormal vaginal bleeding or pelvic pain.

Second, cultural taboos surrounding reproductive health create barriers to open discussions about cervical cancer. In many communities, topics related to sexual and reproductive health are considered sensitive, preventing women from seeking information or sharing concerns. This silence discourages timely medical consultation and reinforces a lack of awareness about preventive measures like Pap smear testing and HPV vaccination.

Moreover, limited availability of screening services in primary healthcare facilities contributes to the low uptake of preventive testing. Even when services exist, many women are unaware of their importance or perceive screening as unnecessary in the absence of symptoms. Healthcare providers themselves may not routinely counsel women on cervical cancer prevention due to time constraints, limited training, or prioritization of other health issues.

Another critical factor is the low awareness and accessibility of the HPV vaccine, which is highly effective in preventing cervical cancer. The vaccine is not yet fully integrated into the national

immunization program, and its cost, combined with limited knowledge about its benefits, reduces its uptake.

Socioeconomic constraints also play a major role. Women with financial limitations, restricted mobility, or dependence on male family members for health-seeking decisions are less likely to access preventive services or health education sessions.

Finally, misconceptions—such as the belief that cervical cancer only affects promiscuous women or that it is “not common”—further discourage preventive behaviors.

Overall, the low awareness of cervical cancer among women in Pakistan highlights significant gaps in education, cultural openness, healthcare service delivery, and public health prioritization. Addressing these issues requires comprehensive awareness campaigns, incorporation of the HPV vaccine into the national immunization schedule, training healthcare providers, and empowering women through improved access to information and services. These strategies are essential for reducing the burden of cervical cancer and improving women’s health outcomes nationally.

## CONCLUSION AND RECOMMENDATIONS

The analysis reveals a crucial awareness dichotomy: a comparatively high degree of perceived awareness regarding the symptoms contrasts with a significant lack of information regarding the cause (HPV) and the illness term (cervical cancer).

The primary conclusion is that basic awareness of HPV and its link to cervical cancer is severely deficient in the surveyed population.

Recommendations for Public Health Intervention:

1. **Prioritize HPV Education:** Public health campaigns must focus on the name "HPV," its prevalence, and its direct causal link to cervical cancer.

2. **Promote Vaccination:** Educational materials should clearly communicate that HPV is sexually transmitted and that vaccination is the most effective primary prevention strategy.

3. **Leverage Symptom Awareness:** Campaigns should continue to reinforce the importance of seeking medical advice for recognized symptoms (e.g., post-menopausal bleeding, unusual discharge) while simultaneously linking these symptoms back to the underlying cause (HPV-related changes).

4. **Address Knowledge Gaps:** Specific messaging is needed to clarify that while the body can sometimes clear the virus, HPV infection is not something that "usually goes away without treatment," reinforcing the need for screening and follow-up.

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## Appendix

### Anex 'A' Demographic Details

| Age in years | | | | | |
|---|---|---|---|---|---|
| | | **Frequency** | **Percent** | **Valid Percent** | **Cumulative Percent** |
| **Valid** | **15-25** | 16 | 12.6 | 21.9 | 21.9 |
| | **26-35** | 30 | 23.6 | 41.1 | 63.0 |
| | **36-45** | 23 | 18.1 | 31.5 | 94.5 |
| | **46-55** | 2 | 1.6 | 2.7 | 97.3 |
| | **56-60** | 2 | 1.6 | 2.7 | 100.0 |
| | **Total** | 73 | 57.5 | 100.0 | |
| **Missing** | **System** | 54 | 42.5 | | |
| **Total** | | 127 | 100.0 | | |

| Married single divorced or widow | | | | | |
|---|---|---|---|---|---|
| | | **Frequency** | **Percent** | **Valid Percent** | **Cumulative Percent** |
| **Valid** | **married** | 67 | 52.8 | 91.8 | 91.8 |
| | **single** | 5 | 3.9 | 6.8 | 98.6 |
| | **widow** | 1 | .8 | 1.4 | 100.0 |
| | **Total** | 73 | 57.5 | 100.0 | |
| **Missing** | **System** | 54 | 42.5 | | |
| **Total** | | 127 | 100.0 | | |

### Anex 'B' Questions related to awareness of the disease

| Have you heard of HPV virus | | | | | |
|---|---|---|---|---|---|
| | | **Frequency** | **Percent** | **Valid Percent** | **Cumulative Percent** |
| **Valid** | **yes** | 4 | 3.1 | 5.5 | 5.5 |
| | **no** | 69 | 54.3 | 94.5 | 100.0 |
| | **Total** | 73 | 57.5 | 100.0 | |
| **Missing** | **System** | 54 | 42.5 | | |
| **Total** | | 127 | 100.0 | | |

| Ever heard of relation between HPV and any type of cancer? | | | | | |
|---|---|---|---|---|---|
| | | **Frequency** | **Percent** | **Valid Percent** | **Cumulative Percent** |
| **Valid** | **yes** | 9 | 7.1 | 12.3 | 12.3 |
| | **no** | 64 | 50.4 | 87.7 | 100.0 |
| | **Total** | 73 | 57.5 | 100.0 | |
| **Missing** | **System** | 54 | 42.5 | | |
| **Total** | | 127 | 100.0 | | |

| **Have you heard of cervical cancer** | | | | | |
|---|---|---|---|---|---|
| | | **Frequency** | **Percent** | **Valid Percent** | **Cumulative Percent** |
| **Valid** | **yes** | 7 | 5.5 | 9.6 | 9.6 |
| | **no** | 66 | 52.0 | 90.4 | 100.0 |
| | **Total** | 73 | 57.5 | 100.0 | |
| **Missing** | **System** | 54 | 42.5 | | |
| **Total** | | 127 | 100.0 | | |

**Anex 'C' Questions related to the disease**

| **Does HPV usually go away without treatment** | | | | | |
|---|---|---|---|---|---|
| | | **Frequency** | **Percent** | **Valid Percent** | **Cumulative Percent** |
| **Valid** | **yes** | 2 | 1.6 | 2.7 | 2.7 |
| | **no** | 71 | 55.9 | 97.3 | 100.0 |
| | **Total** | 73 | 57.5 | 100.0 | |
| **Missing** | **System** | 54 | 42.5 | | |
| **Total** | | 127 | 100.0 | | |

**Anex 'D' Questions related to Signs and Symptoms of the disease**

| **Do you think persistent vaginal discharge that smells unpleasant can be sign of cervical cancer** | | | | | |
|---|---|---|---|---|---|
| | | **Frequency** | **Percent** | **Valid Percent** | **Cumulative Percent** |
| **Valid** | **yes** | 57 | 44.9 | 78.1 | 78.1 |
| | **no** | 15 | 11.8 | 20.5 | 98.6 |
| | **i dont know** | 1 | .8 | 1.4 | 100.0 |
| | **Total** | 73 | 57.5 | 100.0 | |
| **Missing** | **System** | 54 | 42.5 | | |
| **Total** | | 127 | 100.0 | | |

| **Do you think discomfort or pain during sex can be sign of cervical cancer** | | | | | |
|---|---|---|---|---|---|
| | | **Frequency** | **Percent** | **Valid Percent** | **Cumulative Percent** |
| **Valid** | **yes** | 53 | 41.7 | 72.6 | 72.6 |
| | **no** | 17 | 13.4 | 23.3 | 95.9 |
| | **i dont know** | 3 | 2.4 | 4.1 | 100.0 |
| | **Total** | 73 | 57.5 | 100.0 | |
| **Missing** | **System** | 54 | 42.5 | | |
| **Total** | | 127 | 100.0 | | |

| Do you think vaginal bleeding after menopause could be sign of cervical cancer | | | | | |
|---|---|---|---|---|---|
| | | Frequency | Percent | Valid Percent | Cumulative Percent |
| Valid | yes | 65 | 51.2 | 89.0 | 89.0 |
| | no | 5 | 3.9 | 6.8 | 95.9 |
| | i dont know | 3 | 2.4 | 4.1 | 100.0 |
| | Total | 73 | 57.5 | 100.0 | |
| Missing | System | 54 | 42.5 | | |
| Total | | 127 | 100.0 | | |

| Do you think persistent pelvic pain could be sign of cervical cancer | | | | | |
|---|---|---|---|---|---|
| | | Frequency | Percent | Valid Percent | Cumulative Percent |
| Valid | yes | 53 | 41.7 | 72.6 | 72.6 |
| | no | 14 | 11.0 | 19.2 | 91.8 |
| | i dont know | 6 | 4.7 | 8.2 | 100.0 |
| | Total | 73 | 57.5 | 100.0 | |
| Missing | System | 54 | 42.5 | | |
| Total | | 127 | 100.0 | | |

| Do you think vaginal bleeding during or after sex could be sign of cervical cancer | | | | | |
|---|---|---|---|---|---|
| | | Frequency | Percent | Valid Percent | Cumulative Percent |
| Valid | yes | 49 | 38.6 | 67.1 | 67.1 |
| | no | 17 | 13.4 | 23.3 | 90.4 |
| | i dont know | 7 | 5.5 | 9.6 | 100.0 |
| | Total | 73 | 57.5 | 100.0 | |
| Missing | System | 54 | 42.5 | | |
| Total | | 127 | 100.0 | | |

| Do you know which symptoms are associated with HPV infection | | | | | |
|---|---|---|---|---|---|
| | | Frequency | Percent | Valid Percent | Cumulative Percent |
| Valid | yes | 10 | 7.9 | 10.9 | 10.9 |
| | no | 77 | 60.6 | 83.7 | 94.6 |
| | 2 | 5 | 3.9 | 5.4 | 100.0 |
| | Total | 92 | 72.4 | 100.0 | |
| Missing | System | 35 | 27.6 | | |
| Total | | 127 | 100.0 | | |

**Anex 'E' Questions related to Prevalence & mode of transmission of the disease**

| In your opinion how common is HPV infection amongst women | | | | | |
|---|---|---|---|---|---|
| | | Frequency | Percent | Valid Percent | Cumulative Percent |
| Valid | very common | 12 | 9.4 | 13.0 | 13.0 |
| | not common | 32 | 25.2 | 34.8 | 47.8 |
| | i dont know | 44 | 34.6 | 47.8 | 95.7 |
| | 3 | 4 | 3.1 | 4.3 | 100.0 |
| | Total | 92 | 72.4 | 100.0 | |

| | | | | | |
|---|---|---|---|---|---|
| **Missing** | **System** | 35 | 27.6 | | |
| **Total** | | 127 | 100.0 | | |

| **Do you think HPV infection can be eliminated spontaneously** | | | | | |
|---|---|---|---|---|---|
| | | **Frequency** | **Percent** | **Valid Percent** | **Cumulative Percent** |
| **Valid** | **yes** | 13 | 10.2 | 14.1 | 14.1 |
| | **no** | 78 | 61.4 | 84.8 | 98.9 |
| | **2** | 1 | .8 | 1.1 | 100.0 |
| | **Total** | 92 | 72.4 | 100.0 | |
| **Missing** | **System** | 35 | 27.6 | | |
| **Total** | | 127 | 100.0 | | |

**Anex 'F' Questions related to Transmission & diagnostic test of the disease**

| **Do you think that HPV can be transmitted sexually** | | | | | |
|---|---|---|---|---|---|
| | | **Frequency** | **Percent** | **Valid Percent** | **Cumulative Percent** |
| **Valid** | **yes** | 51 | 40.2 | 55.4 | 55.4 |
| | **no** | 39 | 30.7 | 42.4 | 97.8 |
| | **i dont know** | 2 | 1.6 | 2.2 | 100.0 |
| | **Total** | 92 | 72.4 | 100.0 | |
| **Missing** | **System** | 35 | 27.6 | | |
| **Total** | | 127 | 100.0 | | |

| **Have you ever heard about pap smear test** | | | | | |
|---|---|---|---|---|---|
| | | **Frequency** | **Percent** | **Valid Percent** | **Cumulative Percent** |
| **Valid** | **yes** | 34 | 26.8 | 37.0 | 37.0 |
| | **no** | 58 | 45.7 | 63.0 | 100.0 |
| | **Total** | 92 | 72.4 | 100.0 | |
| **Missing** | **System** | 35 | 27.6 | | |
| **Total** | | 127 | 100.0 | | |

**Anex 'G' Questions related to post briefing compliance for the diagnostic test of the disease**

| **After the information given to you do you think you will continue to practise the pap smear test regularly in future?** | | | | | |
|---|---|---|---|---|---|
| | | **Frequency** | **Percent** | **Valid Percent** | **Cumulative Percent** |
| **Valid** | **yes** | 71 | 55.9 | 77.2 | 77.2 |
| | **no** | 6 | 4.7 | 6.5 | 83.7 |
| | **i cannot decide right now** | 15 | 11.8 | 16.3 | 100.0 |
| | **Total** | 92 | 72.4 | 100.0 | |
| **Missing** | **System** | 35 | 27.6 | | |
| **Total** | | 127 | 100.0 | | |

| In case of no to continuing performing pap smear test what could prevent you from practising this? | | | | | |
|---|---|---|---|---|---|
| | | Frequency | Percent | Valid Percent | Cumulative Percent |
| Valid | fear of discovering the disease | 2 | 1.6 | 2.2 | 2.2 |
| | economic resources | 19 | 15.0 | 20.7 | 22.8 |
| | time | 12 | 9.4 | 13.0 | 35.9 |
| | lack of medical prescription | 22 | 17.3 | 23.9 | 59.8 |
| | not interesting to me | 11 | 8.7 | 12.0 | 71.7 |
| | others | 1 | .8 | 1.1 | 72.8 |
| | i will practise test regularly | 25 | 19.7 | 27.2 | 100.0 |
| | Total | 92 | 72.4 | 100.0 | |
| Missing | System | 35 | 27.6 | | |
| Total | | 127 | 100.0 | | |

**Anex 'H' Questions related to vaccine knowledge and post briefing compliance for the vaccine administration for the disease**

| Have you heard of HPV or cervical cancer vaccine | | | | | |
|---|---|---|---|---|---|
| | | Frequency | Percent | Valid Percent | Cumulative Percent |
| Valid | yes | 14 | 11.0 | 15.2 | 15.2 |
| | no | 78 | 61.4 | 84.8 | 100.0 |
| | Total | 92 | 72.4 | 100.0 | |
| Missing | System | 35 | 27.6 | | |
| Total | | 127 | 100.0 | | |

| How have you been convinced for receiving vaccination? | | | | | |
|---|---|---|---|---|---|
| | | Frequency | Percent | Valid Percent | Cumulative Percent |
| Valid | following doctor's recommendation | 64 | 50.4 | 69.6 | 69.6 |
| | by yourself | 5 | 3.9 | 5.4 | 75.0 |
| | others | 23 | 18.1 | 25.0 | 100.0 |
| | Total | 92 | 72.4 | 100.0 | |
| Missing | System | 35 | 27.6 | | |
| Total | | 127 | 100.0 | | |

| Do you think women who have received the HPV vaccine need to have pap smear test | | | | | |
|---|---|---|---|---|---|
| | | Frequency | Percent | Valid Percent | Cumulative Percent |
| Valid | yes | 51 | 40.2 | 55.4 | 55.4 |
| | no | 27 | 21.3 | 29.3 | 84.8 |
| | i dont know | 14 | 11.0 | 15.2 | 100.0 |
| | Total | 92 | 72.4 | 100.0 | |
| Missing | System | 35 | 27.6 | | |
| Total | | 127 | 100.0 | | |

| After receiving information do you think you will get vaccinated against HPV in future | | | | | |
|---|---|---|---|---|---|
| | | Frequency | Percent | Valid Percent | Cumulative Percent |
| Valid | yes | 82 | 64.6 | 89.1 | 89.1 |
| | no | 9 | 7.1 | 9.8 | 98.9 |
| | i cannot decide right now | 1 | .8 | 1.1 | 100.0 |
| | Total | 92 | 72.4 | 100.0 | |
| Missing | System | 35 | 27.6 | | |
| Total | | 127 | 100.0 | | |

| In your family decision about vaccination belongs to | | | | | |
|---|---|---|---|---|---|
| | | Frequency | Percent | Valid Percent | Cumulative Percent |
| Valid | mother | 3 | 2.4 | 3.3 | 3.3 |
| | father | 10 | 7.9 | 10.9 | 14.1 |
| | both | 78 | 61.4 | 84.8 | 98.9 |
| | myself | 1 | .8 | 1.1 | 100.0 |
| | Total | 92 | 72.4 | 100.0 | |
| Missing | System | 35 | 27.6 | | |
| Total | | 127 | 100.0 | | |