



Knowledge, Attitude And Practices Regarding Cervical Cancer, Its Screening And Vaccination: A Cross-Sectional Survey In The Urban Slums Of Delhi, India

Nidhi Jha¹, Shiva Singh²

¹Research scholar School of Allied Health sciences and Management, DPSRU, New Delhi

²Project Manager 1000 Days - MCH, Doctor For You, Noida, U.P.

ABSTRACT

Background: Cervical cancer is one of the most preventable cancers with early detection and timely intervention for regular screening of women above 30 and HPV vaccination for young girls. Despite preventive measures cervical cancer remains a significant health issue in urban slums where awareness is low and access to healthcare is limited. Given these challenges the aim of the study is to assess the knowledge, attitude and practices of women living in urban slums regarding cervical cancer, its screening and vaccination.

Methods: Community based cross-sectional survey was conducted among 384 participants in urban slums (Madanpur Khadar and Khanpur). Data was collected using self-administered, semi-structured anonymous questionnaire. The data was coded into MS excel and then imported for data analysis in Statistical Package for Social Sciences (SPSS) version 27 software. Descriptive Statistics were expressed as percentage and frequency. Chi square and Fisher Freeman Halton Exact Test was used to find out the associations among variables. A significant level was set at 0.05.

Results: 86 % of the participants demonstrated “poor knowledge”, 14 % showed “good knowledge” however none of the participants demonstrated high level of knowledge. Nearly 95 % of the participants showed “favourable attitude” towards cervical cancer screening and HPV vaccination while only 5% of the participants demonstrated “unfavourable attitude”. The analysis revealed that 173 (45%) respondents fall into “inadequate practice” in contrast 211 (55) respondents exhibit “adequate practice”. The analysis also revealed no statistically significant association between age and knowledge, with (p value- 0.748), Similarly, no significant associations were found between education and knowledge (p value- 0.547) or marital status and knowledge (p value- 0.412). Additionally, the relationships between attitude and age (p value- 0.151), attitude and education (p value- 0.916), marital status and attitude, as well as attitude and occupation, were not statistically significant. Furthermore, practice showed no significant associations with age (p value- 0.799), education (p value- 0.316), marital status (p value- 0.547), or occupation (p value- 0.767). The only statistically significant association identified was between knowledge and occupation, with (p value- 0.047).

Conclusion: By leveraging the existing positive attitude and access to accurate information, it is possible to enhance the participation in cervical cancer screening and vaccination. This approach will ultimately contribute to better health outcomes and ultimately bridge the gap in cervical cancer prevention among underserved population

Key words: Cervical cancer, HPV vaccination, pap smear

1 INTRODUCTION

Cervical cancer is a malignant growth originating from the cells of the cervix. In early stages it may not exhibit any symptoms. However, in more advanced stages, it can manifest as persistent pelvic discomfort, unexplained weight loss, irregular bleeding between menstrual cycles, unusual vaginal discharge, and bleeding or pain following sexual intercourse discourse. (Agam Bansal.et.al, 2015). The primary cause of cervical cancer is infection with Human Papilloma Virus (HPV), the most prevalent sexually transmitted infection worldwide (Hombiahah Chandana et, al 2020). Cervical Cancer is the fourth most prevalent cancer among women worldwide and second most common cancer in women between the ages of (15 to 44) in India (Min, Zhang, et .al 2024). Screening for cervical Cancer is crucial as early diagnosis significantly increases the chances of complete cure and reduces the risk of recurrence. Various screening methods used in various settings based on the available and adherence, including cytology (Pap Smear), Cotesting (HPV and cytology), primary HPV testing and visual inspection with acetic acid. Cytology commonly known as Pap smear is the most commonly used screening methods in the urban areas of India. It has been shown to reduce the incidence of cervical cancer by approximately 80 percent in developed countries. However, its effectiveness is limited by low sensitivity. In rural areas Visual inspection with Acetic acid is often used as an alternative (Ravi Mehrotra &Kavita Yadav ,2021).

Globally there are three types of vaccine currently available, the bivalent Vaccine (Cervarix™ by GSK, biologicals, Belgium) targets HPV 16 and 18, while quadrivalent vaccine (Gardasil™ by Merck, USA) targets 16, 18, 6, 11. Additionally the 9-valent vaccine (Gardasil 9™ by Merck USA) covers HPV 31, 33, 45, 52, 38 along with 16, 18, 6, 11. In India, the first two vaccines — Gardsil and Cervarix — are available. Despite the availability of these vaccines ICMR reports rise in cervical cancer deaths over past two years in India. This increase is likely due to the near absence of primary prevention, along with delayed detection and lack of accessible, affordable secondary prevention and treatment, additionally low awareness and limited acceptance of preventive measures, such as vaccination, prevent the efforts to control the disease. Cervical Cancer is one of the most preventable cancers with early detection and timely intervention through regular intervention of women above 30 and HPV vaccination for young girls. Despite this preventive measure cervical cancer is a major health issue and urban slums, where awareness is low and access to healthcare is severely limited. Given these challenges the study aims to explore the knowledge attitude and practices of women living in urban slum regarding cervical cancer its, screening and vaccination.

2 METHODS

2.1 Study Design, Period and Area

A community based cross-sectional study was conducted from April to July 2024 in Urban slums (Sangam Vihar and Madanpur Khadar)

2.2 Source and Study Population

The source population were all female residents of the slums selected whose age were above 18 and were willing to participate, however women less than 18 years of age and unwilling to participate were excluded from the study.

2.3 Sample size Determination

The sample size was determined using the single proportion formula taking prevalence of cervical cancer as 50 % at the confidence interval of 95 % and margin of error 5%, the sample size was 384

2.4 Sampling Procedure

The study was conducted in Urban slum (Madanpur Khadar and Khanpur). Both the slum was allocated time to collect the data. Systematic Random sampling technique was used to select the study participants among those who were eligible. The first house was selected followed by the women selected from every alternate house to collect the data.

2.5 Data Collection Methods, Tools and Procedure

The data was collected using self-administered, semi structured anonymous questionnaire. The Questionnaire contained socio-demographic characteristics and questions related to knowledge, attitude and practice regarding cervical cancer, its screening and vaccination. The questionnaire was prepared in English and

translated in Hindi by google translate. Data was collected physical form by the respondents by making them understand the questions and options.

2.6 Operational definitions

Knowledge regarding cervical cancer, its screening and vaccination was assessed by 23 question items that gave maximum score 40 point and minimum of 1 point. The responses were classified into “Poor knowledge”, “Good knowledge” and “High knowledge”. Similarly, in attitude was assessed on the basis of 11 question items where the lowest score was 11 and the highest was 25 and was divided into “Favourable” and “Unfavourable attitude” and practice was assessed on the basis of 5 questions items where the lowest score was 0 and the highest was 7 and was categorised into “Adequate practice” and “Inadequate practice”

2.7 Data Quality Control and Management

2.7.1 Data Processing and Analysis

Data was checked for completeness, coded in MS Excel and then imported for data analysis in Statistical Package for Social Sciences (SPSS) version 27 software. The results were presented using texts, frequency, percentage and graphs. Descriptive Statistics were expressed as percentage and frequency. Chi square and Fisher Freeman Halton Exact Test was used to find out the associations among variables. A significant level was set at 0.05

3 RESULTS

3.1 Sociodemographic Characteristics of the Respondents

Table 1 Sociodemographic Characteristic of the participants

Demographic Characteristics	Number	Percentage
Age		
18–24	67	17%
25–30	92	24%
31–40	100	26%
41–50	88	23%
≥51	37	10%
Educational Level		
Illiterate	102	27%
Primary school	81	21%
Middle school	55	14%
High school	89	23%
Undergraduate	43	11%
Post graduate	14	4%
Marital Status		
Single	76	20%
Married	189	49%
Widowed	48	12%
Divorced	24	6%
Living with partner	25	7%
Married but separated	23	6%
Occupation		
Employed (Full time)	90	23%
Employed (Part time)	86	22%
Self employed	61	16%
Unemployed	66	17%
Full time homemaker	35	9%
Still studying	27	7%
Disabled or too ill to work	17	4%

A total of 403 women were approached out of which 384 consented to be a part of the study. Majority of the participants fall in the age group 31-40 years (100), with smaller group over age 51 years old (37). Women

falling in the age group 25-30 years (92), 18-24 years (67). 41-50 years (88). In terms of education significant no women were illiterate (102) followed by those with high school (89), primary school (81), middle school (55), graduate (43), post graduate (14). Regarding the marital status of the women majority were married (189) and then single (79). A smaller portion include widowed (48), divorce (24) and separated from their husband (42) and 25 women were living with their partner. Occupation wise 90 women were employed full time while others are employed part time (86), self-employed (61), Unemployed (66), homemaker (35), still studying (27) or unable to work due to illness or disability (17)

3.2 Knowledge level of the participants regarding Cervical Cancer, its screening and Vaccination

Out of 384 respondents 331(86%) of the participants demonstrated “poor knowledge” and 53(14%) showed “good knowledge”. None of the participant classified as having “high knowledge”

Table 2 Knowledge of the participants regarding cervical, screening and its vaccination

Knowledge based Question	No of participants (N)	Percentage (%)
Have you ever heard of cervical cancer?		
No	289	75.3
Yes	95	24.7
Cervical cancer is a major health problem for women of reproductive age group in India?		
No	282	73.4
May Be	98	25.5
Yes	4	1
Do you believe early marriage is a risk factor for cervical cancer?		
No	275	71.6
May Be	88	22.9
Yes	21	5.5
Have you ever heard of Human Papilloma virus?		
No	384	100
Yes	0	0
Is HPV a virus?		
No	382	99.5
Yes	2	0.5
Does HPV causes cervical cancer?		
No	378	98.4
May Be	5	1.3
Yes	1	0.3
Is HPV infection very common?		
No	227	59.1
Yes	157	40.9
Can Men be infected with HPV?		
No	372	96.9
Yes	12	3.1
Women should be investigated for HPV?		
No	326	84.9
May Be	55	14.3

Yes	3	0.8
Does HPV spread by sexual contact?		
No	263	68.5
May Be	121	31.5
Yes	0	0
Can HPV infection prevented by barrier method		
No	202	52.6
May Be	165	43
Yes	17	4.4
Does HPV infection cause any symptom in women?		
No	342	89.1
May Be	42	10.9
Yes	0	0
Does the disease spread by HPV is self-limiting		
No	384	100
May Be	0	0
Yes	0	0
Screening helps in prevention of cervical cancer?		
No	247	64.3
May Be	137	35.7
Yes	0	0
Screening causes harm to the patient		
Yes	44	11.5
May be	284	74
No	56	14.6
Have you ever heard of Pap smear / Pap test?		
No	384	100
Yes	0	0
Can HPV lesion be treated?		
Yes	9	2.3
May be	273	71.1
No	102	26.6
Can HPV get cured by medication?		
Yes	24	6.3
May be	360	93.8
No	0	0
Can HPV infection prevented by vaccination?		
No	232	60.4
May be	152	39.6
Yes	0	0

Do you know any nearby area where HPV vaccination is given?		
No	384	100
Yes	0	0
What do you think would be the age group for HPV vaccination? (in years)		
upto 11 years	170	44.3
11–13 years	169	44
14 years and above	46	12
What do you think is pregnancy a contraindication for HPV vaccination?		
No	172	44.8
Yes	212	55.2
Do you know that some people with cervical cancer may not have any symptom?		
No	331	86.2
Yes	53	13.8

Level of knowledge

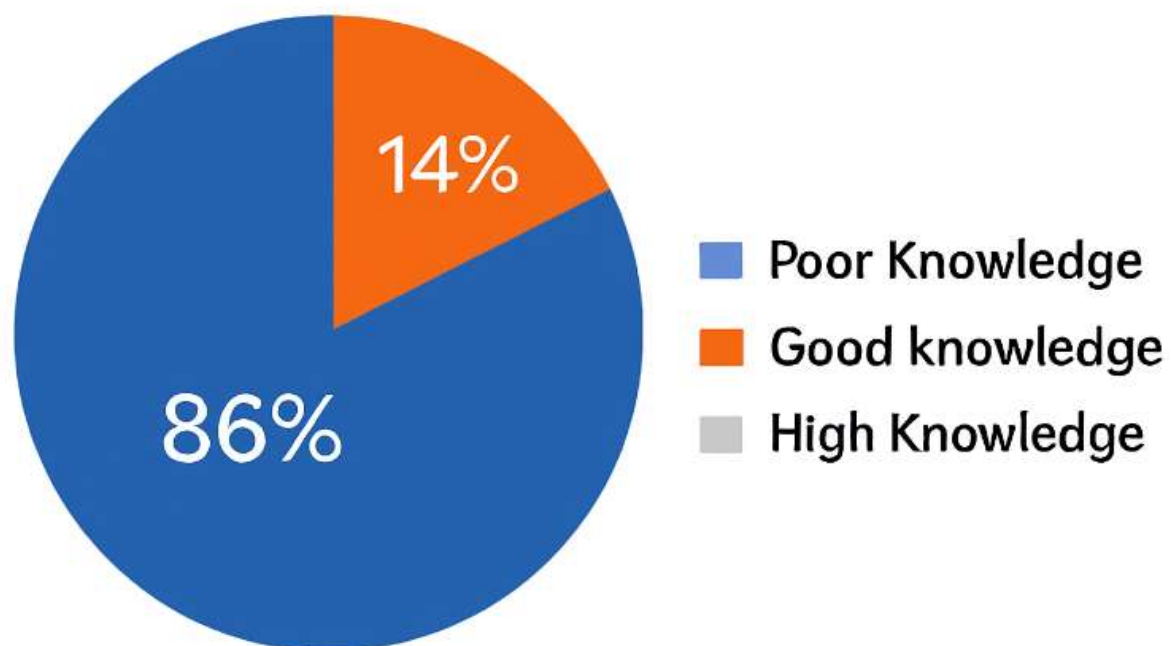


Figure 1 Knowledge level of the participants

3.3 Attitude of the participants regarding cervical cancer screening and vaccination

The analysis showed that a significant no of respondents 364 (95%) has a favourable attitude regarding cervical cancer screening and HPV vaccination, whereas only 20 (5%) has unfavourable attitude representing much smaller population representing less positive view.

Table 3 Attitude of the participants regarding cervical cancer screening and vaccination

Attitude Based Questions	No of participants (N)	Percentage (%)
Should a women be evaluated for cervical cancer throughout her life ?		
Strongly Disagree	0	0.0
Disagree	12	3.1
Neutral	261	68.0
Agree	51	13.3
Strongly Agree	60	15.6
Education on HPV infection should be implemented in schools and college?		
Strongly Disagree	29	7.6
Disagree	26	6.8
Neutral	224	58.3
Agree	25	6.5
Strongly Agree	80	20.8
If your relative/ friend /any lady in neighbour is suffering from cervical cancer would you keep distance from her ?		
Yes	84	21.9
May be	77	20.1
No	223	58.1
If I am eligible I would like to do a regular Pap smear to detect early Cervical cancer ?		
No	18	4.7
May be	93	24.2
Yes	273	71.1
I would like to know more about pap smear		
No	79	20.6
Yes	305	79.4
I am too embarrassed to go to the doctor and discuss about cervical cancer and Pap smear		
Yes	360	93.8
May be	22	5.7
No	2	0.5
I am too busy to find time for Pap smear		
Yes	121	31.5
May be	106	27.6
No	157	40.9
It is against my religious and cultural beliefs to find to undertake Pap -smear		
Strongly Agree	24	6.3
Agree	48	12.5
Neutral	128	33.3
Disagree	13	3.4
Strongly Disagree	171	44.5
Would you get the vaccine if it will be free of cost ?		
No	58	15.1
Yes	326	84.9

Attitude

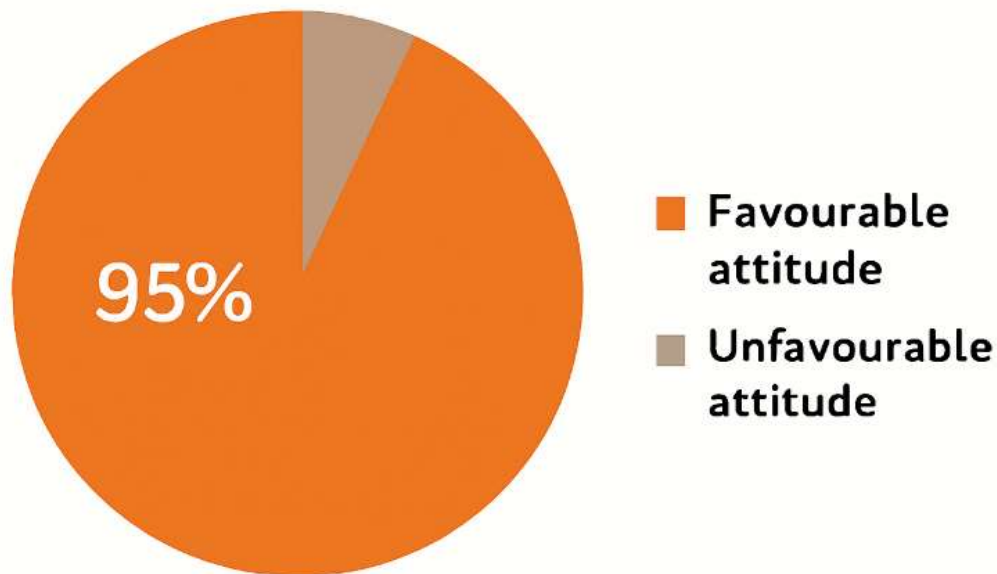


Figure 2 Attitude of the participants

3.4 Practice of the participant regarding cervical cancer screening and HPV vaccination

The analysis revealed that 173 (45%) respondents fall into “inadequate practice” category which means a significant population is not going to engage in preventive measures such as screening and vaccination. In contrast 211 (55) respondents exhibit “adequate practice”

Table 4 Practice of the participants regarding cervical cancer screening and vaccination

Practice Based Questions	No of participants (N)	Percentage(%)
Will you seek out information on how to prevent cervical cancer?		
- No	15	3.9
- May Be	32	8.3
- Yes	337	87.8
Have you ever discussed cervical cancer with any healthcare professional?		
- No	384	100
- Yes	0	0
Are you willing to participate cervical cancer screening/vaccination by government?		
- No	41	10.7
- Yes	343	89.3
Have you ever done a cervical-cancer screening?		
- No	378	97.9
- Yes	8	2.1
If HPV vaccination was available in India would you accept using it yourself?		
- No	33	8.6
- May Be	112	29.2
- Yes	239	62.2

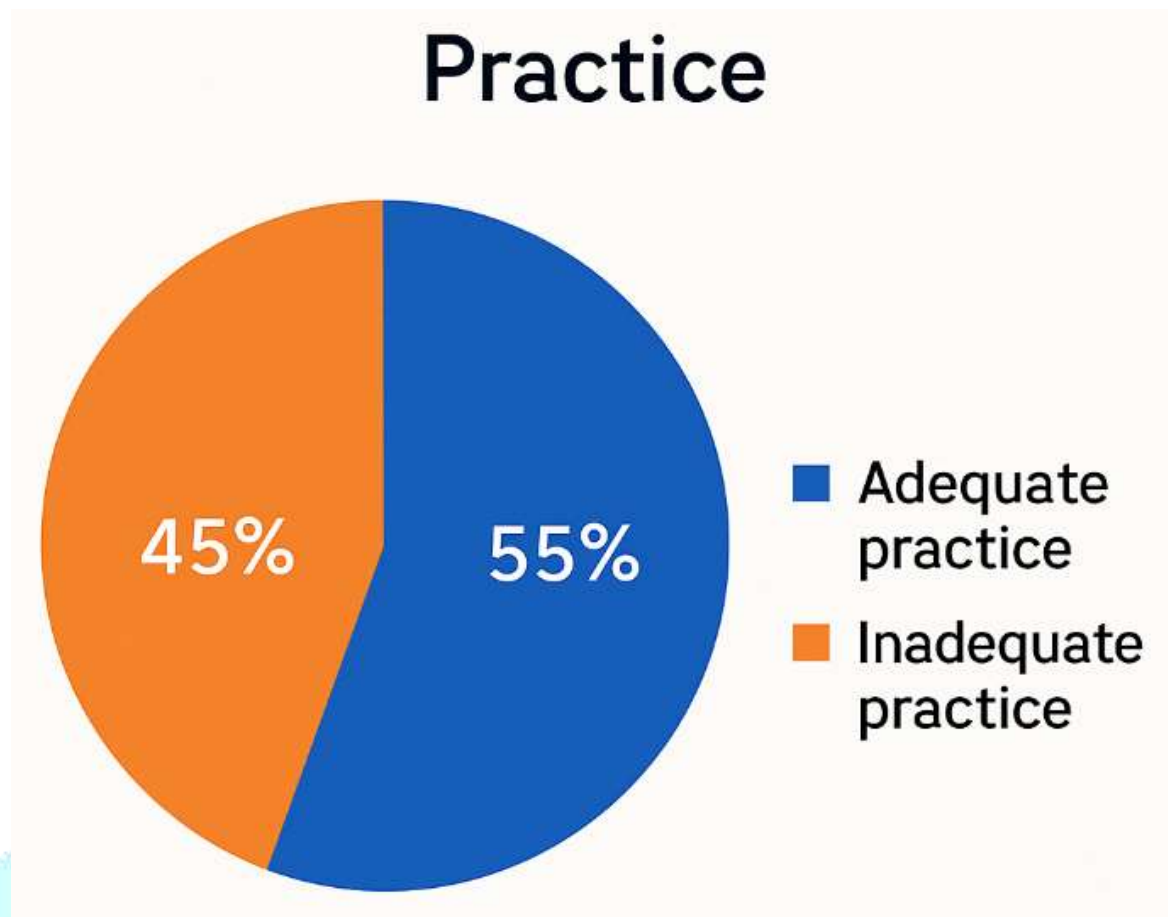


Figure 3 Practice of the participants

3.5 Association between sociodemographic factors (age, educational status, marital status and occupation) and Knowledge, Attitude and Practice

The Fisher-Freeman Halton Exact test revealed no statistically significant association between age and knowledge, with (p value- 0.748). Similarly, no significant associations were found between education and knowledge (p value- 0.547) or marital status and knowledge (p value- 0.412). Additionally, the relationships between attitude and age (p value- 0.151), attitude and education (p value- 0.916), marital status and attitude, as well as attitude and occupation, were not statistically significant. Furthermore, practice showed no significant associations with age (p value- 0.799), education (p value- 0.316), marital status (p value- 0.547), or occupation (p value- 0.767). The only statistically significant association identified was between knowledge and occupation, with (p value- 0.047).

4 DISCUSSION

The study revealed that most participants had poor knowledge about cervical cancer, HPV, and related screening and vaccination, reflecting broader trends in global and local research on knowledge gaps in underserved populations. Globally, studies consistently show low awareness of cervical cancer and HPV among women from lower socio-economic backgrounds. For example, (Lubna Riaz et al. 2020) found that most participants in Karachi lacked sufficient knowledge about cervical cancer and HPV due to inadequate health education. Similarly, Tope Olubodun et al. (2019) reported that only 12.8% of participants had heard of cervical cancer, with awareness of screening and HPV vaccination at 7.9% and 1.6%, respectively. In urban Lagos, Balogun MR et al. (2012) found only 4.2% awareness of cervical cancer. In contrast, (Laofe Ogundipe et al. 2023) noted that while many women recognized the importance of HPV vaccination, those from lower socio-economic backgrounds still showed poor health literacy.

In India, (Bathija GV et al. 2016) reported that only 7.5% of women in urban slums of Old Hubli had heard of cervical cancer, while (Naik DD et al. 2017) found 37.7% awareness in Mumbai, with only 3.6% knowing about Pap smears. These studies indicate that low literacy and insufficient educational initiatives contribute to poor awareness.

The study found a predominance of favourable attitudes towards cervical cancer screening and vaccination, indicating that many respondents support these preventive measures despite their limited knowledge. This discrepancy between attitude and knowledge is noteworthy and aligns with trends observed in similar

contexts. For instance, Tope Olubodun et al. (2017) reported that while most women did not perceive themselves as susceptible to cervical cancer, 88.9% were willing to undergo screening and 93.8% were open to HPV immunization or recommending it to others. Similarly, H. Winarto et al. found that Indonesian urban citizens in Jakarta exhibited poor knowledge yet maintained a positive attitude towards HPV vaccination. Additionally, a study by Seema Kumari et al. highlighted that adolescent girl in eastern Uttar Pradesh demonstrated a positive attitude towards HPV vaccination. This positive attitude towards screening is further supported by (Bansal et al. 2015) and (Sothy Touch et al. 2018), emphasizing the need for educational initiatives to bridge the knowledge gap while leveraging existing favourable attitudes.

Current study shows adequate practice towards cervical cancer screening and HPV vaccination, means that they are willing to participate in screening programs and will seek out information on prevention of cervical cancer and the result of the study aligned with the study done by (Sadiah Minhas, et al 2020), wherein 84% of the women wanted to receive vaccination against cervical cancer, 89% are willing to attend awareness program for cervical cancer prevention, and 84 % wanted to be educated about cervical cancer and its vaccine medical experts.

5 LIMITATION OF THE STUDY

The study small sample size limits the generalizability of the findings. The study was conducted in a specific region and is not applicable to different socio-economic and cultural contexts. The study did not explore behavioural factors associated with attitude and practice towards cervical cancer screening and HPV vaccination.

6 CONCLUSION

The study findings suggest that health education initiative must be broader and more inclusive addressing barriers beyond those associated with education alone. Given the low levels of knowledge observed there is a clear need of comprehensive educational program that reaches all women irrespective of age, educational background, marital status. These programs should be able to overcome stigma and fear associated with participating in screening and vaccination, cultural barriers, dispel misinformation, and increase the perceived relevance of cervical cancer prevention.

7 APPENDIX

7.1 Abbreviation

HPV – Human Papillomavirus

STD- Sexually transmitted disease

SPSS-Statistical package for social science

VIA- Visual inspection via acetic acid

NCCP- National Cancer Control Programme

7.2 Funding: The author received no financial funding for conducting the study

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