Utilization of Cervical Cancer Screening and Associated Factors among Women in Bhaktapur, Nepal

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ABSTRACT

Background

Cervical cancer is the most common cancer among women in Nepal causing highest cancer mortality among women of reproductive age. However, it can be prevented through early and regular screening.

Objective

To assess utilization of cervical cancer screening, its awareness and perception among women, and associated factors.

Method

A cross-sectional study was conducted where 360 women of age 30-60 years were randomly selected and interviewed from five administrative wards of Bhaktapur municipality.

Result

Utilization of cervical cancer screening through Pap test or Visual Inspection with Acetic acid was found in 32.2% women and 47.8% were aware of cervical cancer and its screening tests. 100% of them had high level of perceived benefits and facilitators. More than 80% of them had low level of perceived barriers and susceptibility. Women of age group 51-60 years were more likely to perform the screening test (AOR=13.14) whereas unemployed women were at higher odds of performing the test (AOR=3.29). Women who were aware of cervical cancer and its screening were more likely to perform the screening (AOR=53.65). Women having low level of perceived barriers (AOR=5.83) and high level of perceived seriousness (AOR=6.67) were more likely to perform the screening.

Conclusion

Only one third of women had performed Pap test/VIA and those who were aware of cervical cancer and had high level of perception were more likely to perform the screening. Thus, more rigorous and tailor-made awareness programs should be developed by health program planners to increase the screening rate among younger and working women.

KEY WORDS

Awareness, Cervical cancer screening, Perception, Utilization

INTRODUCTION

Cervical cancer is one of the world's deadliest but most easily preventable forms of cancer. Worldwide, it is the fourth most frequent cancer in women with incidence rate of 13.3% in 2020 and mortality rate of 7.3% where death rates are considerably higher in developing countries.[1,2] In Nepal, 11.4 million women are at risk of cervical cancer with incidence rate higher than worldwide (14.2%) and mortality rate of 9.46%.[3] It is the most frequent cancer among women in Nepal and also the first leading cause of cancer deaths among women.[3] Having a scientifically established cause, well-organized cervical screening programs or widespread good quality cytology can reduce cervical cancer incidence and mortality.[4,5] In Nepal, cervical cancer screening coverage rate is only 2.8%.[3]

Few studies in Nepal have found that the underutilization of screening services is affected by knowledge and attitude of women about cervical cancer and screening tests.[6,7] Utilization of cervical cancer screening is a health seeking behavior and many complex factors may influence a woman's decision about cervical cancer screening. But there has been little work in assessing other factors that can affect utilization of cervical cancer screening such as perception of cervical cancer screening, wealth quintile, women empowerment index, etc.

Thus, this study aimed to assess utilization of cervical cancer screening among women and identify the factors that can affect the women's utilization of cervical cancer screening which can help health program planners to develop appropriate programs to motivate women to perform cervical cancer screening tests.

METHODS

A descriptive cross-sectional study was conducted in randomly selected five administrative wards of Bhaktapur municipality, Nepal. The study population were women of age group 30-60 years as this is the target age group for cervical cancer screening according to national guidelines.[9] Data was collected in 360 women from 26th January to 5th March, 2020. Women ever diagnosed with cervical cancer were excluded from the study.

Two stage proportionate sampling method was used where at first stage, out of total 10 wards, 5 wards (ward 2, 4, 6, 7, 10) were selected through Probability Proportionate to Size (PPS) sampling and proportionate sampling was done to determine the number of women to be selected from each ward. After obtaining the list of households of each ward from the respective ward office, systematic random sampling was used to reach the households. One eligible woman from each household was selected and if more than one eligible woman were living in the household, Kish method was applied to choose one woman only.

Ethical approval for the study was received from Institutional Review Committee (IRC) of Institute of Medicine, Tribhuvan University (IOM, TU) and formal permission was obtained from Bhaktapur municipality office to collect the data. An informed verbal and written consent were taken from the respondents after explaining the purpose and procedure of the study. Confidentiality was maintained and voluntary participation was ensured. Women who did not undergo cervical cancer screening were personally counseled for it with the help of nurses assigned in ward offices.

Face to face interview was conducted using structured questionnaire. The average time taken to complete one face to face interview was approximately 25-30 minutes. The first section of questionnaire included information about socio-demographic characteristics and validated questionnaire from Nepal Demographic Health survey (NDHS) was used to assess wealth quintile and women empowerment index. The second section was related to awareness of cervical cancer and its screening, utilization of cervical cancer screening and, perception of cervical cancer screening. The awareness level was divided into aware and unaware. The participants who had heard of cervical cancer and its screening were regarded as aware and the participants who had never heard of cervical cancer and its screening were regarded as unaware. If a woman had ever performed Pap smear/VIA test at least once in lifetime then she was categorized in 'yes utilization'. If a woman had never done Pap smear/VIA test in her life then she was categorized in 'no utilization'. Health Belief Model Scale for cervical cancer and pap smear test was used to measure perception. It is a validated tool adapted from a study for which permission from author was obtained.[10] The tool was modified according to the context of the study and then translated in Nepali language which consisted of 42 items Likert scale divided into 5 subscales: perceived benefits of pap smear test and health motivation, perceived barriers to pap smear test, perceived seriousness of cervical cancer, perceived susceptibility to cervical cancer, and perceived facilitators to cervical cancer screening. The mean score of each subscale was calculated and if the score of the participant was higher than the mean score of the subscales then it was considered high perception in that subscale otherwise low perception.

Pre-testing of the questionnaire tool was done in 10% of the total sample (36 women) in Suryabinayak municipality and the tool was revised based on the pre-test. The internal consistency of each subscale of the Likert scale was assessed using Cronbach's alpha (α) which ranged from 0.60 to 0.84.

The collected data was systematically coded and entered in EpiData version 3.1. The entered data was exported to IBM SPSS version 17 where checking, cleaning, editing and analysis of the data was performed. Descriptive analysis was done to report frequency, percentage, mean, median and standard deviation. Wealth quintile was analyzed using

Principal Component Analysis (PCA). Chi square test was done to examine binary association between dependent and independent variables. Logistic regression analysis was done to identify factors determining utilization of cervical cancer screening.

RESULTS

Among 360 women who participated in the study, more than half of women 52.2% belonged to the age group of 30-40 years. The median age was 40 years. As demonstrated by Table 1, the most prominent ethnic group was Janajati /Newar 89.7% and religion was Hindu 97.8%. Regarding the educational status of the study participants, around two third of the women 63.1% had education of secondary level and above. Around three fifth of them 46.9% were homemakers. Majority of women who participated in the study were married 93.6%.

Table 1. Socio-demographic characteristics of women (n=360)

Characteristics	Number	Percentage
Age group (years)		
30-40	188	52.2
41-50	130	36.1
51-60	42	11.7
Ethnicity		
Janajati (Newar)	323	89.7
Brahmin/Chettri	26	7.2
Dalit	8	2.2
Madhesi	3	8
Religion		
Hindu	352	97.8
Buddhist	8	2.2
Education status		
Illiterate and no formal education	80	22.2
Below secondary	53	14.7
Secondary level and above	227	63.1
Occupational status		
Homemaker	169	46.9
Business	121	33.6
Service	36	10.0
Agriculture	27	7.5
Daily wage	7	1.9
Marital status		
Married	337	93.6
Widowed	12	3.3
Unmarried	9	2.5
Divorced	2	0.6

Among the participants, only 6.7% had any known history of cervical cancer in their family. Nearly half of them 44.7% had heard about cervical cancer where source of information for most of them 76.9% were health workers followed by family or friends 68.3%. Majority were aware that having multiple sexual partner 81.4%, early marriage and sexual intercourse 80.7% were the risk factors of cervical cancer whereas only around 15% of women were aware that viral infection as a risk factor. Most of the women were aware that vaginal foul smelling, discharge 86.3%, vaginal bleeding 76.4% were the sign/symptoms of cervical cancer whereas only 8% were aware that cervical cancer could be asymptomatic. More than half of the respondents 53.4% were aware about the possibility of early detection and prevention of cervical cancer. More than two third of the respondents 68.2% had never heard about pap smear test/VIA test. Majority of them 97.4% answered that the recommended age for cervical cancer screening was after 30 years. Only 8.8% of them were aware that the frequency of cervical cancer screening was every 3-5 years. Majority of the women 90.7% had never heard of HPV vaccine.

Table 2. Awareness and Perception level of women regarding cervical cancer and its screening (n=360)

Variables	Level	Number	Percentage
Awareness	Aware	172	47.8
	Unaware	188	52.2
Perceived benefits	High	360	100
Perceived barriers	High	41	11.4
	Low	319	88.6
Perceived seriousness	High	301	83.6
	Low	59	16.4
Perceived susceptibility	High	44	12.2
	Low	316	87.8
Perceived facilitators	High	360	100

As demonstrated by Table 2, nearly half of them 47.8% were aware about cervical cancer and its screening. All participants 100% had high level of perceived benefits and perceived facilitators. Majority of the respondents 83.6% had high perceived seriousness whereas most of them 88.6% had low level of perceived barriers and low level of perceived susceptibility. Table 3 shows that only one third of women 32.2% had ever performed cervical cancer screening test.

The bivariate analysis (Chi-square test) showed that age of women, education level of women, occupation of women, age at marriage of women, age at first parity of women, number of children of women, women empowerment index, awareness of women, perceived barriers and perceived seriousness were found to be significantly associated with utilization of cervical cancer screening with $p < 0.05$ at 95 percent CI. However, ethnicity, marital status, wealth index and perceived susceptibility were not found to be associated with utilization. So, the study variables that exhibited significant association with utilization were further subjected to binary logistic regression for adjustment of possible confounders.

Table 3. Utilization of cervical cancer screening among women (n=360)

Variables	Number	Percentage
Ever performed Pap test/VIA test		
Yes	116	32.2
No	244	67.8
Number of screenings done		
Once	78	67.2
Twice	28	24.1
Thrice or more	10	8.7
Time of last screening		
Before three years	5	4.3
Before one year	85	73.2
Within one year	26	22.5
Reason for screening		
Health personnel's advice	108	93.1
Family/friends' advice	6	5.2
Self-initiative	2	1.7
Service taken from		
Screening camp	86	74.1
Hospital	25	21.6
Clinic	5	4.3

After adjustment of possible confounders, table 5 shows that women of age group 51-60 years were 13 times more likely to perform cervical cancer screening than the women of age group 30-40 years (AOR=13.140, 95% CI=2.344-73.670). Women who were homemaker (non-earning women) had 3.2 times greater odds of performing cervical cancer screening than women who were other than homemaker (earning women) (AOR=3.298, 95% CI=1.464-7.428). Table 6 shows that women who were aware of cervical cancer and its screening were 53.6 times more likely to perform cervical cancer screening than women who were unaware of cervical cancer and its screening (AOR=53.645, 95% CI=19.438-148.048). Women with low level of perceived barriers of cervical cancer screening had 6 times greater odds of performing cervical cancer screening than women with high level of perceived barriers of cervical cancer screening (AOR=5.826, 95% CI=1.248-27.203). Women with high level of perceived seriousness of cervical cancer screening were 6.6 times more likely to perform cervical cancer screening than women with low level of perceived seriousness of cervical cancer screening (AOR=6.665, 95% CI=1.987-22.352).

DISCUSSION

Although, The National Guideline for cervical cancer screening, 2010 had the objective to screen at least 50% of women aged 30 to 60 years to reduce 10% cervical cancer burden within 5 years.[9] Unfortunately, the majority (about 95%) of women still never have done cervical cancer

Table 4. Association between demographic factors and utilization of cervical cancer screening (n=360)

Characteristics	Utilization of cervical cancer screening			p-value
	Yes n(%)	Yes n(%)	Total n(%)	
Age (in years)				
30-40	27 (14.4)	161 (85.6)	188 (100)	<0.001*
41-50	64 (49.2)	66 (50.8)	130 (100)	
51-60	25 (59.5)	17 (40.5)	42 (100)	
Education				
Secondary level and above	47 (20.7)	180 (79.3)	227 (100)	<0.001*
Below secondary level	31 (58.5)	22 (41.5)	53 (100)	
Illiterate and no formal education	38 (47.5)	42 (52.5)	80 (100)	
Occupation				
Homemaker	82 (48.5)	87 (51.5)	169 (100)	<0.001*
Other than homemaker	34 (17.8)	157 (82.2)	191 (100)	
Wealth quintile				
Lowest	27 (37.0)	46 (63.0)	73 (100)	0.091
Second	19 (26.8)	52 (73.2)	71 (100)	
Middle	30 (28.8)	74 (71.2)	104 (100)	
Fourth	7 (20.6)	27 (79.4)	34 (100)	
Highest	33 (42.3)	45 (57.7)	78 (100)	
Women Empowerment Index				
Low	8 (36.4)	14 (63.6)	22 (100)	0.010*
Moderate	42 (44.2)	53 (55.8)	95 (100)	
High	66 (27.2)	177 (72.8)	243 (100)	

*Statistically significant (p<0.05) at 95% CI

screening.[11] Other studies done in various parts of Nepal also showed that significant portion of women had never done any cervical cancer screening test.[6-8,12-14] In this study, only 32.2% of women had performed Pap test/VIA. Cervical cancer elimination is a global priority today and World Health Organization has urged countries in its South-East Asia Region to accelerate efforts to eliminate cervical cancer by 2030.[15] Nepal has very low cervical cancer screening coverage rate which needs to be addressed sincerely and Nepal has to work rigorously in order to meet the global target of elimination of cervical cancer.

In this study women who were aware of cervical cancer or cervical cancer screening were 53 times more likely to perform cervical cancer screening than unaware women. But comparatively lesser participants were aware about cervical cancer and screening tests. Other studies done in Nepal also showed that women's awareness about cervical cancer and its screening is inadequate.[6,12-14] The study done in Mid-western Nepal stated that those women who had adequate knowledge were more likely to practice cervical cancer screening.[6] Other international studies also showed a positive relation between knowledge and cervical cancer

Table 5. Relationship between demographic factors and utilization of cervical cancer screening (n=360)

Study variables	COR	AOR	95%CI		p-value
			Lower	Upper	
Age (in years)					
30-40	Ref				
41-50	5.782	2.992	1.267	7.066	0.012*
51-60	8.769	13.140	2.344	73.670	0.003*
Education					
Illiterate and no formal education	Ref				
Below secondary	1.557	2.324	0.560	9.643	0.245
Secondary level and above	0.289	0.494	0.103	2.376	0.379
Occupation					
Other than home-maker	Ref				
Homemaker	4.347	3.298	1.464	7.428	0.004*
Women Empowerment Index					
Low	Ref				
Moderate	1.387	0.877	0.155	4.957	0.882
High	0.653	1.035	0.123	8.735	0.975

*Statistically significant (p<0.05) at 95% CI
COR= Crude Odds Ratio, AOR= Adjusted Odds Ratio, Ref= Reference category

Table 6. Relationship of awareness and perception with utilization of cervical cancer screening (n=360)

Study variables	COR	AOR	95%CI		p-value
			Lower	Upper	
Awareness					
Unaware	Ref				
Aware	25.217	53.645	19.438	148.048	<0.001*
Perceived barriers					
High	Ref				
Low	5.005	5.826	1.248	27.203	0.025*
Perceived seriousness					
Low	Ref				
High	3.567	6.665	1.987	22.352	0.002*

*Statistically significant (p<0.05) at 95% CI
COR= Crude Odds Ratio, AOR= Adjusted Odds Ratio, Ref= Reference category

screening practice among women.[16,17] Again, in the present study majority of the respondents, 93.1% have been advised by health personnel for the screening which is in line with the study done in Kavre where nearly 70% of women went for the screening because of health personnel's advice.[7] Utilization of cervical cancer screening services is a health seeking behavior and awareness among women is an important factor which can influence their behavior to increase the utilization rate of cervical cancer screening. The awareness programs which are being conducted are not sufficient and more awareness programs need to be launched focusing the target groups which may lead to effective utilization of cervical cancer screening services and health professionals can play a key role in increasing the utilization of cervical cancer screening services.

Barriers to cervical cancer screening such as embarrassment to show private parts, fear of vaginal examination, presence of male doctor, lack of time, financial problem, etc. were found to be more prominent in some studies in Nepal.[6,7,18] The findings in this study is quite contrast as more than half 53.6% disagree that they were ashamed to lie on a gynecologic examination table and show their private parts to have a Pap smear and nearly half of the women 49.4% disagree that they preferred a female doctor to conduct a Pap smear test. Again, majority of them disagree that paying for Pap test would stop them from performing the test. Perception level of women towards cervical cancer and its screening is high in almost all domains in this study. But only perceived barriers and perceived seriousness are significantly associated with cervical cancer screening. In a recent study done in Nigeria, there was significant association between: perceived consequences of cervical cancer and readiness to be screened for cervical cancer among women (χ^2 =44.142, p < 0.001).[16] Another study also showed relation between perceived barriers and utilization of cervical cancer screening.[19] Most of the studies including this study show that even though perception of cervical cancer screening is high, its utilization is low. This may indicate that even though women are positive about performing cervical cancer screening, there are other influencing factors not in control of women which might prevent them from utilizing cervical cancer screening. Perception can affect the behavior of the person so identifying the level of perception of the potential beneficiaries can help to increase the screening behavior which is important for the success and benefit of screening program to control and prevent cervical cancer at national level.

Higher aged and illiterate women were more likely to perform cervical cancer screening in this study as shown in other studies done in Kathmandu and Chitwan and Mid-western Nepal.[6,13,14] Also, women who are homemakers (non-earning women) had greater odds of performing cervical cancer screening similar to a study done in Kenya.[20] The higher aged women, homemakers and illiterate women are more exposed to the awareness programs conducted in the community and have time to visit screening camps organized in local wards in comparison with educated women who are employed. This may be the reason of higher utilization of cervical cancer screening in those women in this study. So, awareness programs need be tailored according to the younger and working age group women so a greater number of women can utilize the screening services.

Though not seen in this study, a recent study done to assess relation between wealth related inequalities and utilization of cervical cancer screening services in 18

resource constrained countries demonstrated higher rates of utilization of CCS services seen in women in the richest households (OR = 2.00; 95% CI, p<0.05).21 A study done in Kenya also revealed that cervical cancer screening was more prevalent among women who had higher household wealth index.[20] This study indicates that women empowerment index is significantly associated with utilization of cervical cancer screening in bivariate analysis of this study (p = 0.010). A study done in Kenya studied relation of women's autonomy with use of Pap smear test which revealed that women's decision making power had no association with use of pap smear test but the prevalence of Pap test history was 19% higher among women who had sexual autonomy than women who did not have sexual autonomy.[20] Again another study stated that women who participated in all types of household decision-making were 1.4 times more likely to have heard of a pap smear (OR = 2.00; 95% CI:1.1, 2.1) compared to women with lower participation levels (p < 0.05).[21]

This study used structured questionnaire for assessment of perception where the experiences and reasons for not performing pap test could not be further explored. As the study was focused on the participant's perspective, the service provider perspective of the factors determining the utilization of cervical cancer could not be identified to design the holistic strategies to improve the utilization of cervical cancer screening. So, further studies could be done in the same area focusing on services and service provider aspects of low utilization of cervical cancer screening.

CONCLUSION

This study shows low utilization of cervical cancer screening and low awareness among women regarding cervical cancer and its screening. However, given women's high perception for cervical cancer screening and the active participation of health care workers in local community, there is an opportunity to enhance community level awareness and streamline screening processes. So, tailor-made community-based awareness programs according to age and occupation could be created to improve the screening status of women. As majority of women do not perceive themselves at risk of cervical cancer, health workers could help change the perception of susceptibility of cervical cancer of those women.

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