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Determinants of Uptake of Cervical Cancer Screening among Women Attending Tertiary Level Hospital

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ABSTRACT

Background: Cervical cancer, being the fourth commonest cancer in women worldwide, is also the most frequent cause of cancer deaths among women in developing and underdeveloped countries. Screening is the gold standard to control the disease yet, its uptake is still very low among Nepalese women. Thus, the objective of this study was to find out the determinants of uptake of cervical cancer screening among women.

Methods: Data were collected from a total of 220 women visiting gynecology outpatient department of Tribhuvan University Teaching Hospital, Kathmandu by using non-probability purposive sampling technique. Descriptive statistics and binary logistic regression analysis were applied.

Results: The study findings revealed that the prevalence of uptake of cervical cancer screening was about one third (38.6%). Educational qualification had a significant association with the uptake of cervical cancer screening (p=0.017). Women's age (COR=0.267; 95%CI=0.150-0.475), knowledge on availability of health services (COR=5.310; 95% CI=2.947-9.567), awareness on cost of screening services (COR=26.329; 95% CI=12.704-54.566), and knowledge level (COR=2.677; 95%CI= 1.385-5.173) had a significant association with the uptake of cervical cancer screening in bivariate analysis. Age (AOR=0.148; 95%CI=0.058-0.375) and awareness on cost of screening services (AOR=61.048, 95%CI=19.194-194.175) were found as major determinants of uptake of cervical cancer screening.

Conclusions: The findings of this study conclude that the prevalence of uptake of cervical cancer screening was below half. Determinants of uptake of cervical cancer screening were age and awareness on the cost of screening services. So, awareness campaigns about cervical cancer screening are very necessary to increase its uptake and to reduce the morbidity and mortality associated with it.

Keywords: Cervical cancer screening; determinants; uptake

INTRODUCTION

Cervical cancer ranks as the second most common and fourth cause of female cancer among women aged 15 to 44 years in the world.[1] Globally, an estimated 266,000 deaths from cervical cancer occurred in 2012, where 87% of deaths were from less developed regions.[2] In Nepal, it accounts for a large number of deaths among women. Each year 3500 new cases are diagnosed and about 1100 deaths occurred due to cervical cancer.[3]

As screening is the gold standard to control the disease, its uptake is extremely low being only 2.8% in Nepal.[4]

So, it is crucial to identify the determinants of uptake of cervical cancer screening so that it would suggest possible ways to increase its uptake among women. This would greatly increase the proportion of at-risk females that are screened periodically, eventually decreasing the number of complicated cases and cancer-related deaths in females. The objective of this study was to find out the determinants of uptake of cervical cancer screening among women.

METHODS

A descriptive cross-sectional study was carried out in the Gynecology outpatient department (OPD) of Tribhuvan University Teaching Hospital (TUTH), Kathmandu, Nepal. This is a tertiary level hospital having various departments where clients come from different locality with different backgrounds to seek healthcare related to the gynecological problem. Both Pap smear test and Colposcopy based visual inspection with acetic acid (VIA) screening test were done here. The list of eligible clients (women) who visit the Gynecology OPD of TUTH was identified and it was found to be around 1200 per month. Non-probability purposive sampling technique was used.

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Every client who met the inclusion criteria (women aged 20 years and above and willing to participate in the study) was the study population in this study. Data were collected in 220 women from 4th to 30th September 2016. The study was conducted after receiving ethical clearance from the Institutional Review Board (IRB) of Institute of Medicine, Tribhuvan University (IOM, TU) and formal permission was obtained from TUTH to collect the data. The procedure and purpose of the study were explained and respondents were selected based on the inclusion criteria. An informed verbal consent was taken from the respondents before collecting the data. Participation was voluntary and confidentiality was maintained. Face to face interview was conducted using pretested, semi-structured questionnaires. The average time required to complete the interview was about 20-25 minutes.

Semi structured interview questionnaire was developed based on the review of literature. The questionnaire consisted of two parts. Part I was related to socio-demographic characteristics and part II was related to service related factors along with awareness of cervical cancer, its screening and uptake.

Information regarding cervical cancer screening was gathered from respondents on various aspects of cervical cancer such as meaning, risk factors, risk age group, warning signs, prevention and preventive methods, and its screening services. There were altogether ten questions related to knowledge of cervical cancer screening with total score being 47, among which four questions were multiple response type. Each correct response was given a score of 1 and a wrong response, a score of 0. Based on the obtained score, the level of awareness was grouped into two levels as follows:

Low Knowledge: Respondents who obtained a score of less than fifty percent

High Knowledge: Respondents who obtained a score of more than fifty percent

Content validity was established by consulting with a research advisor and subject matter experts. Opinion from the language expert was obtained for comprehensibility and simplicity of language during the translation.

Pretesting of the questionnaire tool was done among 10% of women (i.e. 22 women) in Gynecology OPD, TUTH. Based on pretesting, the instrument was revised and finalized for use in data collection. The collected data were checked for completeness of information, then obtained data were edited, classified, coded, entered, and analyzed by using SPSS version 20. Descriptive (mean, SD, frequency, percentage) and inferential statistics (chi-square, odds ratio, and binary logistic regression) were used for statistical analysis.

RESULTS

Table 1. Sociodemographic Characteristics of the Respondents (n=220).

Characteristics	Number	Percentage
Age in Years		
30 or below	93	42.3
31-40	73	33.2
41-50	44	20
51 or above	10	4.5
Mean±SD	34.38±9.4 years	
Ethnicity		
Brahmin/Chhetri	135	61.4
Janajati	71	32.3
Dalit	11	5.0
Madhesi	3	1.4
Religion		
Hinduism	188	85.5
Buddhism	26	11.8
Christianity	6	2.7
Level of Education		
Illiterate	24	10.90
Informal	10	4.55
Primary	30	13.64
Secondary	74	33.64
Higher secondary	46	20.91
University	36	16.36

Table 1 shows the socio-demographic characteristics of respondents. The age of respondents ranged from 20 to 60 years. The mean age was 34.38 ±9.4 years. Regarding ethnicity, more than half of the respondents (61.4%) belonged to Brahmin/Chhetri. In terms of religion, majority of the respondents (85.5%) followed Hinduism. More than one third of the respondents (33.64%) had education up to secondary level.

Table 2. Service Related Factors of the Respondents (n=220).

Characteristics	Number	Percentage
Distance of health facility		
Less than one hour by bus	214	97.3
More than one hour by bus	6	2.7
Knowledge on availability of screening services		
Yes	92	41.8
No	128	58.2

Awareness on cost of screening services		
Yes	19	8.6
No	69	31.4
Don't Know	132	60.0
Perceived attitude of health worker during OPD Visit		
Good	214	97.3
Bad	6	2.7
Level of knowledge on cervical cancer screening services		
Low	173	78.6
High	47	21.4

Table 2 depicts that almost all of the respondents (97.3%) had the distance of less than one hour by vehicle to reach the hospital. Likewise less than half of them (41.8%) were aware that cervical cancer screening services is available in TUTH. About two third of them (60%) said that they did not have any idea regarding the cost of screening services. Almost all of the respondents (97.3%) perceived the attitude of health worker is good during their visit to Gynecology OPD this time.

Regarding level of knowledge on cervical cancer screening services, only about one fifth (21.4%) of the respondents had high knowledge.

Table 3. Prevalence of Uptake of Cervical Cancer Screening (n=220).

Characteristics	Number	Percentage
Ever been screened		
Yes	85	38.6
No	135	61.4
Total	220	100

Table 3 reveals that about one third (38.6%) of the respondents were ever been screened for cervical cancer.

Table 4 shows the association between respondent's socio-demographic factor and screening uptake where women's age (COR=0.267; 95%CI=0.150-0.475; p<0.001) is significantly associated with the uptake of cervical cancer screening in bivariate analysis as well as in multivariate analysis. Women less than 35 years were less likely to get screened for cervical cancer than those women who were 35 years or more (AOR=0.148; 95%CI=0.058-0.375). Regarding level of education, it is significantly associated with the uptake of cervical cancer screening in chi-square test of independence only (p=0.017).

Table 5 reveals association between respondent's services related factors and screening uptake. The variables that show statistically significant at 95% CI in bivariate analysis were availability of screening services (COR=5.310; 95%CI=2.947-9.567; p<0.001), cost of screening services (COR=26.329; 95% CI=12.704-54.566; p<0.001), and level of knowledge on cervical cancer screening services (COR= 0.374; 95%CI=0.193-0.722; p=0.003). Those variables that show statistically significant at 95% CI in bivariate analysis were further analyzed for potential confounders through multivariate analysis. The variable that shows statistically significant in multivariate analysis was awareness on cost of screening services. Women who were aware on cost of screening services were more likely to get screened than those women who were not aware (AOR=61.048; 95% CI=19.194-194.175).

Table 4. Association between Socio-demographic Characteristics and Screening Uptake (n=220).

Characteristics	Ever been screened		p-Value	COR (95% C.I.)	AOR (95% C.I.)
	Yes n (%)	No n (%)			
Age group					
< 35 Years	36 (26.67)	99 (73.33)	<0.001*	0.267 (0.150-0.475) **	0.148 (0.058-0.375) **
≥ 35 Years	49 (57.64)	36 (42.36)		1	
Level of Education					
Above Secondary level	30 (13.63)	76 (34.54)	0.017*	1.399 (0.463-4.226)	
Upto Secondary level	48 (21.81)	42 (19.09)		0.585 (0.203-1.690)	
Illiterate	7 (3.18)	17 (7.27)		1	

**p-value significant at ≤0.05 level, 1=Reference value, **Significant at 95% CI, COR = Crude Odds Ratio, AOR = Adjusted Odds Ratio*

Table 5. Association between Service Related Factors and Screening Uptake (n=220).

Characteristics	Ever been screened		p-Value	COR (95% C.I.)	AOR (95% C.I.)
	Yes n (%)	No n (%)			
Knowledge on availability of screening services					
Yes	56 (60.87)	36 (39.13)	<0.001*	5.310(2.947-9.567) **	0.679 (0.264-1.750
No	29 (22.66)	99 (77.34)		1	
Awareness on cost of screening services					
Yes	69 (78.4)	19 (21.6)	<0.001*	26.329 (12.704-54.566)**	61.048 (19.194-194.175) **
No	16 (13.11)	116(86.89)		1	
Perceived attitude of health worker during OPD Visit					
Good	81(37.85)	133 (62.15)	0.160***	0.305(0.055-1.700)	
Bad	4 (66.67)	2 (33.33)		1	
Level of knowledge on Cervical Cancer Screening Services					
High	27(57.45)	20 (42.55)		2.677 (1.385-5.173) **	1.422 (0.519-3.897)
Low	58(33.53)	115(66.47)	0.003*	1	

**p-Value significant at ≤0.05 level, **Significant at 95% CI, ***Likelihood ratio 1=Reference Value, COR = Crude Odds Ratio, AOR = Adjusted Odds Ratio*

DISCUSSION

Cervical cancer ranks as the top most malignant disease among Nepalese women. Looking at the cancer mortality profile, it accounts for 18.4% of female cancer death.[5] Yet, screening rate is extremely low (2.8%) in Nepal according to ICO (Catalan Institute of Oncology) Information Center on HPV and Cancer (2016).[4]

In the present study, about one third (38.4%) of the respondents were ever been screened for cervical cancer at least once in their lifetime. This finding is similar to the study done in Bharatpur, Nepal where 39% of the respondents had undergone at least one Pap smear test during their lifetime.[6] In contrast, in a study conducted in Kenya, only 12.5% of the respondents were being screened.[7] Likewise, another study done in a one-day free health camp in Udayapur district of Nepal found very low (7.8%) coverage of Pap smear test.[8] The reason for the low uptake of screening in this study might be due to lack of awareness regarding the availability of screening services, fear of the abnormal results, a perception that the screening service is costly.

The findings of the study show that Brahmin/Chhetri is a major ethnic group (61.4%) who visits the Gynecology OPD of TUTH followed by Janajati (32.3%). This finding supports the national report by Nepal Population and Housing Census 2011 where Chhetri is a major caste followed by Brahmin and Janajati.[9] Furthermore, present study's finding is similar to the findings from the study carried out in two specialized hospital in Nepal where most of the respondents belonged to upper caste and relatively advantaged ethnic group (68.2%).[10]

In the present study, age, educational qualification, availability of screening services, awareness on cost of screening services, and level of awareness on cervical cancer screening services are significantly associated with the uptake of cervical cancer screening.

The result showed the age of the respondents is significantly associated with uptake of cervical cancer screening where women's age below 35 years were less likely to get screened than women's age more than 35 years (AOR=0.148; 95% CI=0.058-0.375). This finding is similar to the study findings conducted in Jamaica where women who were 40-49 years of age were more likely to have ever been screened with Pap smear compared to women who were 19-29 years of age (Adjusted POR=6.29; 95% CI= 2.65, 14.94).[11] Another study conducted in Malaysia also found a significant association between age group and screening uptake where women aged 40-49 years were more likely to get screened than those women aged 20-29 years (AOR=3.027; 95%CI=1.546-5.925; *p*=0.001) (COR=4.393; 95% CI=2.809-6.870; *p*< 0.001).[12] In this study, women aged 35 years or more were more likely to be screened for cervical cancer which favors the target population set by the National guidelines for cervical cancer screening and prevention in Nepal where women aged between 30-60 years is the target population for cervical cancer screening.[13] Moreover, the youngest age group women are less likely to develop cervical cancer compared to older women (aged 30-50 years) even though they are not getting screened as per the standard guideline.[14] Furthermore,

the less the sexual exposure at an early age, the less is the risk of having invasive cervical carcinoma.[15]

In this study, there was a significant association between level of education (p=0.017) and uptake of cervical cancer screening. This finding is in line with a study conducted in India where higher education was significantly associated with the uptake of cervical cancer screening (p= 0.05).[16]

In the present study, the knowledge on the availability of screening services is found to have a significant association with the uptake of cervical cancer screening (COR: 5.310, CI: 2.947-9.567, p<0.001). This finding is supported by the study done in Uganda (COR=11.90; 95% CI=4.64–30.54; p<0.001) and Appalachia (COR=0.14; 95%CI= 0.03–0.59; p<0.01) where a significant association was found between respondent's knowledge of the availability of screening services and uptake of cervical cancer screening.[17, 18] Knowing that where the screening services is provided might work as an enabling factor for the women to be screened for cervical cancer.

This study also found a strong association between awareness on cost of screening services and the uptake of cervical cancer screening in bivariate analysis (OR: 26.329, CI: 12.704-54.566, p<0.001) as well as in multivariate analysis (Adjusted OR: 61.048, CI: 19.194-194.175, p<0.001). Respondents who were known to the cost of screening services were more likely to get screened than those who did not know the cost. This finding is supported in the study done in Appalachia where the cost of screening services was significantly associated (OR=2.29; 95%CI=1.45–3.61; p<0.01) with the screening uptake.[18]

The result of the present study showed only 21.4 % of the respondents had a high level of awareness on cervical cancer screening services. This finding is lower than the finding of a study done in Nigeria, where the level of awareness was found to be 35.56%.[19] Furthermore, in a cross-sectional study conducted in the South-Eastern part of Nigeria, the level of awareness of cervical cancer screening was 52.8%.[19] Both study's findings show higher level of awareness as compared to the present study's finding. The differences in the levels of awareness could be due to the educational status where 74.5% and 63.11% of the respondents had tertiary level of education respectively in those studies[20, 19] in comparison to present study where 41.9% of the respondents attended education level of higher secondary and university degree.

In the present study, the high level of awareness was significantly associated with the uptake of cervical cancer screening (OR: 0.374, CI: 0.193-.722, p=0.003). This finding is in support of the study findings carried out in Tanzania where a high level of knowledge on cervical cancer was significantly associated with the screening uptake (OR=8.90; 95%CI=2.14-16.03; p= 0.00).[21] Besides, a study conducted in Nigeria also found a significant association between awareness of cervical cancer screening and its uptake.[22] Findings of the study emphasized that awareness campaign on cervical cancer screening should be conducted routinely to enlighten the public.

CONCLUSIONS

The factors that were significantly associated with uptake of cervical cancer screening were age, educational qualification, availability of services, cost of services and knowledge level. Predictors of uptake of cervical cancer screening were age and awareness on cost of screening services.

Even though the availability of cervical cancer screening guideline since long time, its uptake is still very low so awareness campaigns on importance of periodic cervical cancer screening should be emphasized using appropriate information, education and communication (IEC) materials. Cervical cancer screening services should be made available in all health facility to increase its accessibility.

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CONFLICT OF INTEREST

None

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