

RESEARCH ARTICLE

Knowledge, Attitude and Practices of Women in Maldives Related to the Risk Factors, Prevention and Early Detection of Cervical Cancer

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Abstract

Background: A population-based cervical cancer screening program using visual inspection with acetic acid was launched in Maldives in 2014. Our study aimed to assess the knowledge, attitude and practices of women in relation to risk factors of cervical cancer, early detection of the disease and its prevention. **Materials and Methods:** The questionnaire based survey was conducted among 20 to 50 year old women, systematically sampled to represent three regions of Maldives. Trained investigators interviewed a total of 2,845 women at home. **Results:** The prevalence of the risk factors of cervical cancer like early age at marriage and childbirth, multiple marriages, multiple marriages of the husbands, and multiple pregnancies was high. More women knew about breast cancer than cervical cancer. Even among the small number of women who knew of cervical cancer, only 34.6% had the knowledge of at least one early symptom. Very few women knew that the cancer could be prevented by any test. Only 6.2% of the women reported having ever undergone a Pap smear. Many women had the misconception that cervical cancer was infectious. In Maldives the younger women have high literacy rate due to the policy of universal free education and those with higher levels of education had improved knowledge of cervical cancer and its risk factors. The prevalence of risk factors also reduced with improved literacy. **Conclusions:** Awareness about risk factors and prevention of cervical cancer is limited among Maldivian women in spite of having high exposure to some of the risk factors. A universal literacy program in the country has helped to improve the knowledge of cervical cancer prevention and to reduce the exposure to various risk factors in the younger population.

Keywords: Cervical cancer - knowledge attitude - practices - maldives - screening - Maldives

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Introduction

Republic of Maldives is a nation of 1190 coral islands, which form a 829 km long chain. The Republic is divided into 20 administrative units, also called Atolls. The population consists of 151,459 (50.7%) males and 147,509 (49.3%) females. About 26 percent of the population lives in the capital island of Male.

The true incidence of cervical cancer in Maldives is not known as there is no cancer registry (Globocan, 2012). There are more than 100,000 females above 14 years of age who are at risk of developing cervical cancer (Bruni et al., 2013). A behavioural survey conducted earlier in Maldives observed high prevalence of factors that can predispose the population to Human Papillomavirus (HPV) infection and cervical cancer (UNDP, 2008). These include unprotected sex among youth, multiple sex

partners, the presence of sexually transmitted infections, poor self risk perception and the poor health-seeking behaviors. It is likely that in absence of any organized screening program and due to the high prevalence of various risk factors, Maldives has high cervical cancer incidence like its neighboring countries.

The Ministry of Health and Gender commenced national cervical cancer screening program in Maldives on 19 January 2014 with support from United Nations Population Fund (UNFPA, 2014). Some of the key determinants of success of a screening program are the awareness of the population, their perceptions about preventive health care and acceptability of such strategies (McKie, 1993; Eaker et al., 2001; Wolff et al., 2003; Donta et al., 2012; Ortashi et al., 2013; Ozyer et al., 2013). Even within the country these factors may vary depending on ethnicity, culture and literacy. A study to evaluate the

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knowledge, attitude and practices (KAP) of the women can provide valuable information, based on which the service delivery models for cervical cancer screening and the targeted educational interventions can be planned.

The present population-based study aims to evaluate the knowledge, attitude and practices of the Maldivian women of reproductive age in relation to the risk factors of cervical cancer, its early detection and prevention through screening.

Materials and Methods

A questionnaire-based survey was conducted among the population of the atolls selected to represent three different regions (north, central and south) of Maldives. These atolls were Male', Addu City, Kulhudhufushi and Nilandhoo. Male' is the capital city, whereas Addu City is the non-capital urban city and more than 40% of the total populations of the country reside in these two cities. Kulhudhufushi is a semi-urban island and Nilandhoo is a rural island. Women between 20 to 50 years of age were recruited in the study. This particular age group was selected, as they are the best targets to be educated about the risk factors like unsafe sexual practices, smoking etc. and also about the importance of regular screening. The other selection criteria were that the women should be mentally fit to answer the questions and should be voluntarily participating.

Sample size calculation

The total female population belonging to the target age group was calculated from the census (2006) data for each ward of Male' and Addu City and each island of Kulhudhufushi and Nilandhoo. Assuming that the response to the most key question 'Have you heard of cervical cancer' will be 'yes' in 50% population of Male' (with expected higher number of educated women) and 30% population in other places, the required sample size has been calculated for each ward and island to give 95% power to the study at 95% confidence level. The total sample size calculated for all the targeted wards and islands was 3426. We assumed that 5% of all the filled up forms will be grossly incomplete and will be rejected. The final required sample size arrived at was 3597.

Sampling and conduct of survey

The household lists were obtained from the respective wards and Island Councils in the study areas. The interviewers identified the households at a pre-defined interval (depending on the number of subjects needed) in the list. They visited the identified households and one eligible woman in that household was recruited. In case there was no eligible woman in a particular household, the adjacent house was visited to recruit a suitable subject. If there were more than one woman of the target age group in one household, the interviewer selected one of them by the drawing of lots.

A questionnaire was designed in the Dhivehi language based on the feedbacks received from the focus group discussions (FGD) conducted in November 2011. The investigators carried out FGDs with the following groups:

i) Women between 20-30 years of age (N=5); ii) Women between 31-50 years of age (N=5); iii) Men with partners between 20-50 years of age (N=5); iv) Community health workers, nurses and gynecologists (N=7).

The questionnaire was pretested among 20 women. Necessary revisions were made based on the feedbacks to make the questions more clear and understandable.

The trained female nurses (SH, FF, SM, AN & AS) conducted the interview and filled up the questionnaire. Each interviewee was informed about the purpose of the study by reading out a covering letter before obtaining verbal consent for participation. To minimize social acceptability bias the interviewer informed the subjects that the survey results would only be used to improve health care services and the anonymity of the responders would be strictly maintained.

Quality assurance and data analysis

The filled up forms underwent quality checks by the study coordinator (FF). She randomly checked the filled up questionnaires for completeness and consistency. Forms with incomplete and inconsistent entries were rejected and the persons responsible for filling up the rejected forms were retrained. The questionnaires that were grossly incomplete or had major inconsistencies in the entries were rejected. The completed questionnaires were entered in a database prepared from EPI-Info software (Center for Disease Control, Atlanta, US) for final analysis. Chi square tests were used to assess whether there was a significant difference in the frequencies of the responses across different variables.

Ethical considerations

The ethical approval for the study was obtained from the Health Research Committee of the Ministry of Health. Permission from the relevant island/city councils was obtained to proceed with the survey.

Results

The survey was initiated in August 2012 and completed in July 2013. Total 88 women refused to participate. Nearly 600 women were non-traceable as the

Table 1. Socio-Demographic Characteristics of the Participants

Socio-demographic parameters		No. respondents	%
		(N=2845)	
Places of residence	Male (Urban)	1635	57.5
	Addu City (Urban)	822	28.9
	Kulhudhufushi (Semi-Urban)	263	9.2
	Nilandhoo (Rural)	125	4.4
Age distribution	20-30 Yrs	1153	40.5
	31-40 Yrs	882	31
	>40 Yrs	810	28.5
Education	No Education	311	10.9
	Primary	934	32.8
	Secondary	1233	43.3
	Diploma	227	8
Marital status	Degree & Above	140	4.9
	Single	230	8.1
	Married	2301	80.9
Family Income (Mvr/Month)	Divorced/Widowed	314	11
	<5000	374	13.1
	5000-10000	1021	35.9
	>10000	1450	51

houses were wrongly enlisted with the island councils. The questionnaires were grossly incomplete for 57 respondents and were rejected. Finally 2845 filled up forms were entered in the database and analyzed. The socio-demographic characteristics of the participants are summarized in Table 1.

We studied the prevalence of various risk factors for cervical cancer and their relationships to age and literacy status. Out of the 2630 women who reported to have sex ever, 22.1% had sex below the age of 18 years and 60.8% below the age of 21 years. All the ever-married women were asked about their age at the time of first marriage. Out of 2602 ever married women 63.5% responded that they were below 21 years at the time of first marriage. The age at sexual debut or at first marriage was higher among younger women and those who were more literate.

For cultural reasons it was not possible to ask about the number of sex partners. Multiple marriages are common among both men and women. The women were asked about the number of marriages they had and also the number of marriages their husbands had. Among the ever married women 33.2% had multiple marriages. The husbands of 30% of the respondent women had multiple marriages. The frequency of multiple marriages was less among the younger and the more literate women.

Nearly half of the participants had more than two pregnancies and 23.6% had more than four. The age at first pregnancy was below 21 years in 47.6% of the women. The younger and more literate women tended to defer the first pregnancy.

Smoking was not very common in the surveyed population. Only 5.1% of them were current smokers and another 5.0% were past smokers. Almost none of the current smokers (50/53) knew that smoking could be a risk factor for cervical cancer. Smoking was less prevalent in the younger age group. Majority of the smokers were either illiterate or only had primary education. However, 33.3% of the women informed that they were exposed to second hand smoke since their husbands regularly smokes at home. Majority (59.7%) of these women were exposed to second hand smoke for more than one year.

The women were asked the open-ended question "which cancers of the women have you heard of" and multiple responses were allowed. Out of the total participants, 85.4% could specify at least one cancer. The most common cancer that they ever heard of was breast cancer (57.7%), followed by blood cancer (44.1%). Cervical cancer was the third most common

cancer the women heard about and was known to 38.0%. Significantly higher proportion of women in the younger age group heard of breast cancer compared to the elderly women ($\chi^2=37.29$; d.f.=2; $p=0.00$). The knowledge also improved significantly with improvement in the level of education ($\chi^2=196.08$; d.f.=3; $p=0.00$). The proportion of women ever heard of cervical cancer was higher in younger women compared to older women but the difference was not statistically significant ($\chi^2=5.7$; d.f.=2; $p=0.06$). Similar statistically non-significant improvement in knowledge of cervical cancer was observed with higher level of education ($\chi^2=7.23$; d.f.=3; $p=0.06$).

There was no significant difference in the knowledge of breast and cervical cancer between urban and non-urban population. Among the rural/semi-urban women 56.1% knew of breast cancer while among the urban women 58.0% knew of breast cancer ($\chi^2=0.47$; d.f.=1; $p=0.49$). Cervical cancer was known to 35.8% of the rural/semi-urban women and 38.3% of the urban women ($\chi^2=0.9$; d.f.=1; $p=0.34$).

The women were asked to list the common symptoms of cancer. It was an open ended question and women could give multiple answers. We intended to find out how many of them were aware of the most common symptoms of cancer like a growing lump, an ulcer that is not healing, abnormal bleeding from any part of the body, change in regular bowel or bladder habits, persistent hoarseness of voice and persistent cough. At least one symptom was correctly specified by 986 (34.6%) women. A growing lump in the body was specified as a symptom of cancer by 24.4% respondents. Only 8.1% of the participants knew that abnormal bleeding could be a symptom of cancer.

The women who responded to have heard of cervical cancer (N=1080) were asked about the common symptoms of the disease. This was an open ended question and multiple answers were allowed. The details of the responses of the women are shown in Table 2. There were 548 women who gave at least one correct response. Irregular menstrual bleeding is a very common and important symptom of cervical cancer. Only 17.6% of the women mentioned this as a common symptom of cervical cancer. The knowledge improved with education ($\chi^2=35.9$; d.f.=3; $p=0.00$) but there was no significant difference across age groups ($\chi^2=5.42$; d.f.=2; $p=0.07$).

The subjects who have ever heard of cervical cancer were asked if they knew of any method that could prevent the disease. This was an open ended question and multiple responses were allowed. The total number of women who could identify at least one correct method was 641

Table 2. Number of Women Correctly Identifying Different Symptoms of Cervical Cancer (Multiple Responses Allowed)

Symptoms of Cervical Cancer	No. of respondents (N=1080)	%
Prolonged vaginal discharge	275	25.5
Pain	244	22.6
Irregular menstrual bleeding	190	17.6
Foul smelling vaginal discharge	162	15
Bleeding after sex	91	8.4
Bleeding after menopause	40	3.7

Table 3. Number of Women Correctly Identifying Different Methods to Prevent Cervical Cancer (Multiple Responses Allowed)

Method of Prevention	No. of respondents (N=1080)	%
By regular check up	291	26.9
Avoiding multiple sex partners	279	25.8
Avoiding sex at early age	175	16.2
Not having too many children	136	12.6
By vaccination	60	5.5

(59.3%). The details of the responses and the number of women who gave these responses are listed in Table 3. Higher proportion of the correct responses were from the more educated women.

Among the women who ever heard of cervical cancer, 15.5% (167/1080) thought that the cancer was infectious. An affirmative answer was given by 167 (15.5%) women. All the participants of the study were asked if they had ever heard of a test called Pap test. To this question only 524 (18.4%) responded that they had heard of such a test. There was no significant difference between the age groups as far as the knowledge of Pap smear was concerned ($\chi^2=2.85$; d.f.=2; $p=0.24$). Significantly higher proportion of women with higher education had heard of the test ($\chi^2=15.64$; d.f.=3; $p=0.001$).

Even among the 524 women who have heard of Pap smear, only 176 (33.6%) women had the test at least once. Majority (85%) of the women agreed that cervical cancer is curable if detected early.

We observed that out of the women who identified early age at sex as a risk factor, 42.6% (58/136) had sex by the age of 20 years. Nearly one third (70/239) of the women who knew about multiple partners being a risk factor had more than one marriages themselves. Similarly 37.4% (40/107) of the women who correctly identified multiple pregnancies as a risk factor of cervical cancer had more than two children. This highlights the gap between the knowledge and practice.

Discussion

The present KAP study on cancer is the first of its kind in Maldives. The study subjects were representative of different age groups, literacy levels and economic conditions. The subjects were selected from urban as well as semi-urban and rural areas.

The women participating in the study were already exposed to many of the risk factors of cervical cancer. More than one fifth of the women had initiation of sexual activities at an early age of below 18 years. Age at marriage is also early with 37.3% women getting married at or below the age of 18 years. Nearly one third of the women had multiple marriages and the husbands of at least one third of the women had multiple marriages. The women are at high risk of acquiring HPV infection and subsequent development of cervical cancer by having multiple sex partners themselves or by having husbands with multiple partners (Bosch et al., 1996; Sellors et al., 2003). Pregnancy at young age and too many pregnancies are the recognized risk factors for cervical cancer (Munoz et al., 2002). Nearly half of the women in the study had first pregnancy by the age of 20 years and about half of the women had more than two pregnancies.

Smoking is another important risk factor for cervical cancer (Castellsague and Munoz, 2003). Exposure to second hand tobacco smoke is equally harmful (Trimble et al., 2005; Natphopsuk et al., 2012). Though the prevalence of smoking among the women was low, many of them were exposed to second-hand smoke because of the rampant practice of smoking among their male partners. Creation of a global awareness against smoking and

tobacco use is much needed in the country.

There is a reason for optimism in the observations that with improved education women are becoming more aware of the common risk factors and are trying to avoid them. The current national policy of providing mandatory free education to all the citizens is likely to have a major impact.

Breast cancer was the most commonly known cancer among the participants. The knowledge of cervical cancer was comparatively low. Younger women or women with higher education had better knowledge of breast cancer. However, this was not the case with cervical cancer. The knowledge of cervical cancer was poor among all age groups irrespective of their literacy levels. The rural and the urban women were no different as far as their knowledge of breast cancer or cervical cancer was concerned. This finding was somewhat unexpected, but KAP studies from other Asian countries have also revealed similar homogeneity among the rural and urban populations as far as their knowledge of common cancers are concerned (Toan Tran et al., 2011).

The knowledge of the common early symptoms of cancer was generally poor with only 34.6% women knowing at least one of the symptoms. Majority of them only knew that a growing lump or a non-healing ulcer could be cancer. But the knowledge of the other common symptoms like abnormal bleeding from any site of the body or persistent change in bowel habits etc. was very low. This implies that such symptoms are often ignored, which leads to delayed diagnosis.

We observed that only 38% of the study participants were aware of cervical cancer. Even among this small number of women only half knew about some of the early symptoms of cervical cancer. Irregular menstrual bleeding, vaginal bleeding after sexual intercourse and vaginal bleeding after menopause are the most important early symptoms of cervical cancer. Very few of the subjects knew about these symptoms. On the other hand, 23% of the women thought that pain was an early symptom of cervical cancer, which in reality is a late symptom. Similar low level of knowledge regarding cervical cancer in the general population has also been seen in other Asian countries where there are no cervical cancer screening program.¹⁵ The knowledge of the risk factors and the early symptoms of cervical cancer improved significantly with improvement in literacy level. Very few women know of a vaccine to prevent cervical cancer. This is quite expected since the HPV vaccines are not available in the country. Less than one fifth of the women heard of Pap test or any test for early detection of cervical cancer. Even among the small number of women who have heard of the Pap test very few actually had the test ever.

The gaps between the knowledge and the prevailing practices were even more obvious when we compared the knowledge of the women about the risk factors of cervical cancer and their own practices related to those risk factors. Significant number of women who knew that sex at early age or having multiple sex partners as risk factors had sex at young age or had multiple marriages or both. More than one third of women who knew that multiple pregnancies could be a risk factor had more than

two children themselves.

Significant number of the women had the misconception that cervical cancer was an infectious disease. Such misconception can stigmatize the disease and prevent women from actively seeking early detection services.

To conclude, the exposure of the women of Maldives to the risk factors of cervical cancer is high and the awareness about cervical cancer, its risk factors and the methods of prevention is very limited. Until recently there was no cervical cancer screening program in the country and in absence of a program there was no concerted effort earlier to make the women aware of the disease or its prevention. More emphasis must be given to use of print and audiovisual media in cervical cancer prevention (Nessa et al., 2013). The government of Maldives is now committed to improving the health status of the women with equity and affordability through the introduction of the new cervical cancer screening program. This is likely to change the cervical cancer scenario in the country.

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References

- Basu P, Sarkar S, Mukherjee S, et al (2006). Women's perceptions and social barriers determine compliance to cervical screening: results from a population based study in India. *Cancer Detect Prev*, **30**, 369-74.
- Bruni L, Barrionuevo-Rosas L, Serrano B, et al (2013). ICO Information centre on HPV and cancer (HPV information centre). Human papillomavirus and related diseases in maldives.
- Castellsague X, Munoz N (2003). Chapter 3: cofactors in human papillomavirus carcinogenesis-role of parity, oral contraceptives, and tobacco smoking. *J Natl Cancer Inst Monogr*, **20**, 8.
- Donta B, Begum S, Nair S, et al (2012). Awareness of cervical cancer among couples in a slum area of Mumbai. *Asian Pac J Cancer Prev*, **13**, 4901-3.
- Eaker S, Adami HO, Sparen P (2001). Attitudes to screening for cervical cancer: a population-based study in Sweden. *Cancer Causes Control*, **12**, 519-28.
- GLOBOCAN (2012). Estimated Cancer incidence, mortality and prevalence worldwide in 2012. [Internet]. Lyon: international agency for research on Cancer; 2012.
- Bosch FX, Castellsagué X, Muñoz N, et al (1996). Male sexual behavior and human papillomavirus DNA: Key risk factors for cervical cancer in Spain. *J Natl Cancer Inst*, **88**, 1060-7.
- McKie L (1993). Women's views of the cervical smear test: implications for nursing practice-women who have not had a smear test. *J Adv Nurs*, **18**, 972-9.
- Munoz N, Franceschi S, Bosetti C, et al (2002). Role of parity and human papillomavirus in cervical cancer: the IARC multicentric case-control study. *Lancet*, **359**, 1093-101.
- Natphopsuk S, Settheetham-Ishida W, Sinawat S, et al (2012). Risk factors for cervical cancer in northeastern Thailand: detailed analyses of sexual and smoking behavior. *Asian Pac J Cancer Prev*, **13**, 5489-95.
- Nessa A, Hussain MA, Rashid MH, et al (2013). Role of print and audiovisual media in cervical cancer prevention in Bangladesh. *Asian Pac J Cancer Prev*, **14**, 3131-7.
- Ortashi O, Raheel H, Shalal M, Osman N (2013). Awareness and knowledge about human papillomavirus infection and vaccination among women in UAE.. *Asian Pac J Cancer Prev*, **14**, 6077-80.
- Ozyer S, Uzunlar O, Ozler S, et al (2013). Awareness of Turkish female adolescents and young women about HPV and their attitudes towards HPV vaccination. *Asian Pac J Cancer Prev*, **14**, 4877-81.
- Practical and Cost-effective Screening for Cervical Cancer using VIA Launched in Maldives. UNFPA Maldives. 2014. <http://countryoffice.unfpa.org/maldives/>.
- Sellers JW, Karwalajtys TL, Kaczorowski J, et al (2003). Incidence, clearance and predictors of human papillomavirus infection in women. *CMAJ*, **168**, 421-5.
- Toan Tran N, Choe S, Taylor R, et al (2011). Knowledge, attitude and practice (KAP) concerning cervical cancer and screening among rural and urban women in six provinces of the democratic people's republic of Korea. *Asian Pac J Cancer Prev*, **12**, 3029-33.
- Trimble CL, Genkinger JM, Burke AE, et al (2005). Active and passive cigarette smoking and the risk of cervical Neoplasia. *Obstet Gynecol*, **105**, 174-81.
- UNDP Maldives (2008). Executive summary. biological and behavioural survey on HIV/AIDS-2008. Republic of maldives. the global fund supported programme in maldives. November. 4-5.
- Wolff M, Bates T, Beck B, et al (2003). Cancer prevention in underserved African American communities: barriers and effective strategies-a review of the literature. *WMJ*, **102**, 36-40.