Study of Knowledge, Attitude and Practices of Women of Reproductive age related to the risk Factors, Prevention and Early Detection of Cervical Cancer in Maldives

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Awareness of the magnitude of disease and possible warning signs of cervical cancer among the general public is important to all efforts to reduce the burden of this disease. Hence, acommunity based survey was carried out to assess the women's awareness regarding thiscritical issue.

The objective of this study was to assess the knowledge, attitude and practice towards cervical cancer among women. A questionnaire based survey was conducted among 20 to 50 years old women, systematically sampled to represent three regions of Maldives.

A total of 2845 women were interviewed at home. More women knew of 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 of cervical cancer. Only 6.2% of the women reported to have Pap smear ever. Many women had the misconception that cervical cancer is infectious.

The Ministry of Health extends gratitude to the United Nations Population Fund (UNFPA) who had supported the research to study the Knowledge, Attitude and Practices (KAP) of the target age group of women in Maldives. A special word of thanks goes to the Chief consultant Dr. Partha Sarathi Basu who trained and guided fhe Investigators (Maldives Nurses Association) and also analyzed the data.

In this instance I would also like to acknowledge the Investigators (Maldives Nurses Association) for their considerable contribution.

Cervical cancer is completely preventable if precancerous cell changes are timely detected and treated appropriately. The Ministry of Health advices every woman to learn the facts about cervical cancer and seek professional help in preventing the onset of this disease.

Dr Sheeza Ali
Director General of Health Services

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1.0 INTRODUCTION & OBJECTIVES

1.1 Study Background

The true incidence of cervical cancer in Maldives is not known as there is no hospital or population based cancer registry. Maldives is situated in South Asia, which has the highest age standardized incidence rate of cervical cancer (25/100,000 women) among all regions of the continent. It is likely that in absence of any organized screening program in the country, Maldives also has high cervical cancer incidence similar to its neighboring countries. Cervical cancer is a public health problem in Maldives, especially because the facilities for diagnosis and treatment are very limited.

Both primary and secondary prevention strategies are highly effective against cervical cancer. Primary prevention through Human Papilloma Virus (HPV) vaccination is still out of bounds for the national program of Maldives, principally due to its high cost. However, secondary prevention through cervical cancer screening is the need of the hour. Experience from developed countries has shown that well planned, organized cervical cancer screening programs and augmentation of the health care services to treat the disease at pre-cancer stage can significantly reduce the burden of cervical cancer. Detection and treatment of cervical pre-cancer is much less expensive than treatment of invasive cancer and cervical cancer screening is one of the most cost-effective public health interventions if organized properly.

The Ministry of Health, Government of Maldives will shortly launch a population based cervical cancer screening program in which women between 30 to 50 years of age will be screened by VIA (Visual Inspection with Acetic Acid) test. Some of the key determinants of success of a screening program are the awareness of the target population, their perceptions about preventive health care and acceptability of such a strategy. Even within the same country these factors may vary depending on the ethnicity, culture and literacy of the population. A study to evaluate the knowledge, attitude and practices (KAP) of the women sampled systematically to represent the population will provide valuable information to organize the country program.

An analysis of the capability of the health system is important to formulate evidence based health policies that will be feasible to implement and be sustainable. Accordingly it is vital that quality information is collected within the health sector and the information is analyzed to generate appropriate indicators which reflect the health situation of the country. The proposed new national guideline for implementation of cervical cancer screening program in Maldives has proposed that the women would be screened at the atoll hospitals and the regional hospitals. The screen positive women will be referred to the tertiary hospital and some of the regional hospitals for further evaluation and treatment. It is imperative to generate information from the atoll hospitals and the regional hospitals regarding their existing services, facilities and staff strength so that an action plan can be developed to augment these facilities to provide cervical cancer screening services.

The present study has two major components. The first component is a knowledge, attitude and practice (KAP) survey of the female populations regarding prevention and early detection of cancers in general and cervical cancer in particular. The second component aims to collect information from the select health facilities to assess their preparedness for the introduction of cervical cancer screening program.

1.2 Significance of the study

The finding of this study will provide information regarding the knowledge and practices of the women which can make them susceptible to cervical cancer or prevent detection of the disease at an early stage. This will help to develop targeted awareness campaign to provide appropriate information which in turn will lead to behavioral modifications and saving of lives from cervical cancer. Furthermore the study would give insight into the availability of screening, acceptability of such a preventive intervention among the general population and expected compliance to screening if a cervical cancer screening program is implemented in Maldives in due course. The assessment of the capacity of the health systems will help to select appropriate centers to introduce new services related to cervical cancer screening and upgrade them by fulfilling the deficiencies identified.

1.3 Study Objectives

1.3.1 General objectives of the KAP Study

- To assess the level of knowledge, attitude and practices of women of reproductive age of 20-50 years on their understanding of the risk factors of cervical cancer, its early detection and prevention.
1.3.2 Specific Objectives of the KAP Study

- To obtain standard demographic information relevant to the subject of study e.g. age distribution of the sampled population, literacy status and socio-economic conditions
- To assess the proportion of women who have knowledge of the symptoms of cancer in general and cervical cancer in particular, and to study the relations between the knowledge and various demographic factors
- To calculate the proportion of women who have knowledge of the risk factors of cer vical cancer and to study the correlation between the level of knowledge and various demographic factors
- To estimate the proportion of women who have knowledge of cervical cancer prevention through screening and vaccination and to know the proportion of women who did PAP smear screening.

2.0 METHODOLOGY

2.1 Materials and Method of the KAP Survey

2.1.1 Research design

This was a cross-sectional study based on questionnaire survey that was conducted among the population of the atolls in three different regions of Maldives from April 2012 till June 2013. The atolls were selected from South, Central and North regions.

2.1.2 Definitions of Terms

Knowledge: Knowledge of women regarding the cancers in general and the risk factors of cervical cancer and its prevention through screening in particular.

Attitude: Attitude is the belief that can influence the exposure of the sampled population to different risk factors for cervical cancer and their intention to follow the cervical cancer prevention and detection strategies based on the existing knowledge.

Practice: Practice of the women which can expose them to the risks of cervical cancer and influence the compliance to cervical cancer screening.

Respondents 'mentally fit' are defined as women oriented to people, place and time at the time of interview and also women free of mental illnesses.

For the purpose of this study Male' and Addu city were considered as 'urban', H. Dh. Kulhudhuffushi as 'semi-urban' and F. Nilandhoo as 'rural' based on socio economic development.

2.1.3 Selection of Target Population

The target population for the KAP study was women between 20 – 50 years age. The survey was carried out among the residences of 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 population of the country resides in these two cities. Kulhudhufushi is an island in Haa Dhaal Atoll and is semi-urban. Nilandhoo is the capital island in Faafu Atoll.

This particular age group was selected as they are the best target to be educated about the risk factors like unsafe sexual practices, smoking etc. and also about the importance of regular screening.

Inclusion and exclusion criteria

The selection criteria for the women to participate in the study were that the women should voluntarily participate in the study. Expatriate women were included in the study only if they were married to Maldivian men.

2.1.4 Sample size calculation

The total female population belonging to the target age group was calculated from the last census (2006) data for each ward of Male,Addu City ,H. Dh.Kulhudhufushi and F. Nilandhoo. Assuming that the response to the most key question of the survey '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% confidence level and 95% statistical power to the study. It was also taken into consideration that 5% of all the filled up forms will be incomplete and rejected. Thus the total sample size taken was 3597.

2.1.5 Sampling and conduct of survey

Sampling frame used to select the survey sample was the household lists that were obtained from the respective Island Councils in the study areas. Households were selected at a pre-defined interval based on population proportionate to size. One eligible woman from each household was selected. In case there was no eligible woman in a particular household, the next house on the list was visited to select 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 drawing lots (write the names in separate pieces of paper, fold them and ask any of the members to pick one).

Trained investigators conducted interviews and filled questionnaires. Each interviewee was informed about the purpose of the study by reading out from a covering letter and explaining it to them. The interviewer informed the subjects that the information would be used for improvement of health care services and the anonymity of the responders would be strictly maintained. The subjects could opt for not disclosing their names. One to one interview was conducted at the homes of the respondents.

2.1.6 Research instruments:

A structured questionnaire was designed in local language (Dhivehi) based on the feedbacks received from the Focus Group Discussions (FGD) conducted during the month of November 2011. FGDs were carried out by the investigators with the following groups:

- Women between 20-30 years of age (5 in number and included rural and urban women)
- Women between 31-50 years of age (5 in number and included rural and urban women)
- Men with partners between 20-50 years of age (5 in number and included rural and urban men)
- Community health workers, nurses and gynecologists (7 in number)

The final Questionnaire consisted of three parts:

Part 1: Demographic and socio-economic data: the Demographic information included the Region, /City, Atoll and Ward where the respondent resided. Information related to age, education, marital status, employment and income were also collected in this section.

Part 2: KAP related to all cancers and cervical cancer: There were questions aimed to assess the knowledge, attitude and practices related to all cancers in general and prevention and early detection of cervical cancer in particular.

Part 3: Exposure to risk factors of cervical cancers: This component consisted of questions to identify the behavior and practices of the target population that could potentially expose them to the risk factors of cervical cancer.

2.1.7 Pre-testing of the questionnaire

The questionnaire was pretested among 10 women of the target age group in Male' in November 2012 .Necessary revisions were made based on the feedbacks to make the questions more clear and understandable.

2.1.8 Quality Assurance

The filled up forms were brought back to the study secretariat for quality checks by the study coordinator. Completed questionnaires were randomly checked for completeness and consistency. No forms were rejected due to incomplete and inconsistencies as all interviewers were competently trained and oriented on the questionnaire

2.3 Data Analysis

Upon completion of data collection, all the filled up questionnaires of KAP survey were examined for completeness and consistency by the investigators. The questionnaires which were 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). The data were analyzed to generate the following:

- Frequency distribution of various demographic parameters of the respondents
- Tables showing the frequency of each response obtained for the listed questions
- For some of the key questions cross-tabulations were done to show the frequency of different responses by the variables like age, place of residence (rural or urban) and education.

Chi square tests were used to assess whether there was a significant difference in the frequencies of the responses across different variables. A p-value of less than 0.05 was considered as significant.

2.4 Ethical considerations

Study obtained ethical approval from the National Health Research Committee of the Ministry of Health and Gender and the Department of National Planning. Permission from the relevant island/ city councils were obtained to proceed with the survey. The National Health Research Committee approved taking verbal consent only from the subjects and waived written consent since there was possibility of less than minimal harm to the participating subjects.

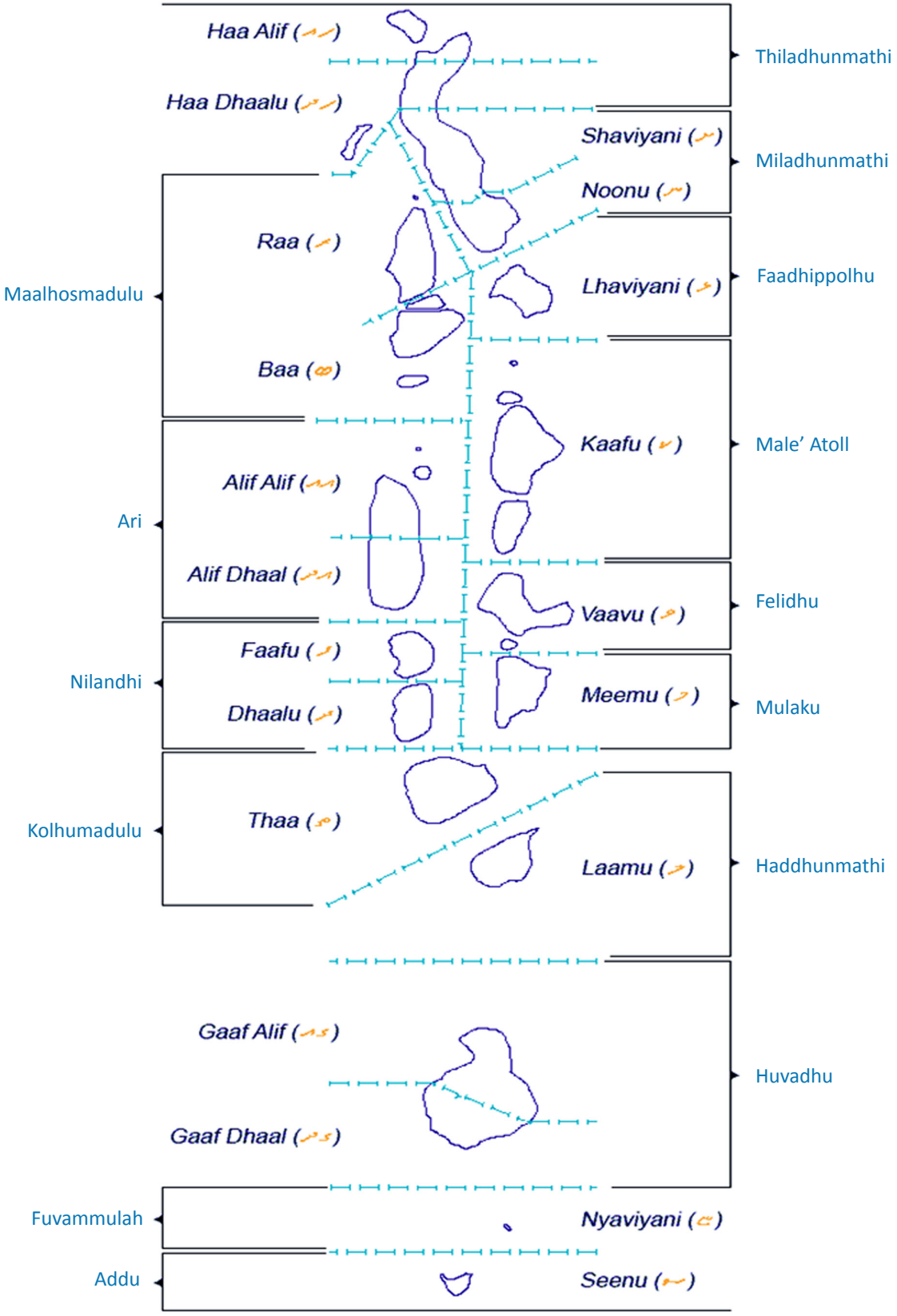

Figure 2.1Map highlighting the study sites for the KAP Survey

3.0 RESULTS OF KAP SURVEY

The survey was initiated in August 2012 and was completed in July 2013. The original plan was to interview 3597 women. There were 88 women who refused to participate and nearly 600 women who were not available for interview either because they were absent from home or because the households were wrongly listed with the island council. The total number of women who participated in the study was 2902. For 57 women the questionnaire forms were incomplete and these were rejected. Finally 2845 completed questionnaires were entered in the database and analyzed.

3.1 DEMOGRAPHIC, GENERAL & SOCIAL INFORMATION

3.1.1.Geographic Distribution of the Study Population

The survey was conducted at the capital city, Male' (central region), Addu City (southern region), Kulhudhufushi (northern region) and Nilandhoo (Faafu Atoll). The distribution of the responders by the Atolls is given in Table 3.1.1 (Figure 3.1.1). These Atolls represent North, Central and South areas of the country.

Atoll	No. of Respondents	%
Kaafu (Urban)	1635	57.5
Seenu (Urban)	822	28.9
Haa Dhaal (Semi-urban)	263	9.2
Faafu (Rural)	125	4.4
Total	**2845**	**100.0**

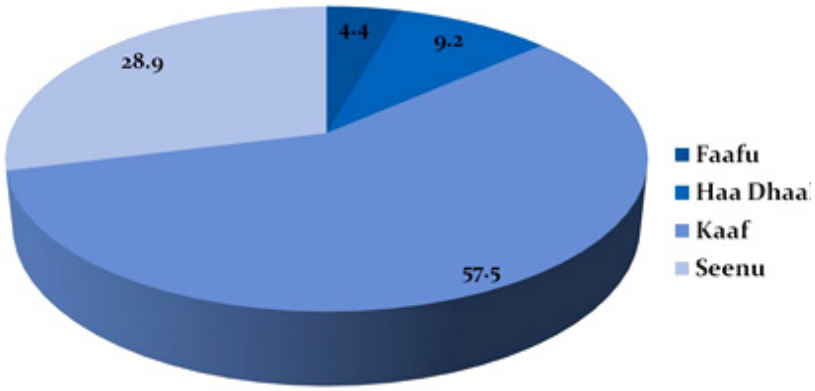

Table 3.1.1 (Figure 3.1.1): Distribution of the study subjects by the Atolls

The distribution of the subjects by the wards (in the urban areas) and islands (in the semi-urban or rural areas) is given in Table 3.1.2.

Ward/ Island	No. of Respondents	%
Galolhu	292	10.3
Henveiru	309	10.9
Villimale	388	13.6
Maafannu	266	9.3
MachanGoalhi	328	11.5
Villimale	388	13.6
Hulhumale'	55	1.9
Feydhoo	79	2.8
Hithadhoo	263	9.8
Maradhoo	115	4
Hulhudhoo	110	3.9
Meedhoo	98	3.4
MaradhooFeydhoo	150	5.3
Nilandhoo	120	4.2
Kulhudhufushi	272	9.6
Total	**2845**	**100.0**

Table 3.1.2: The distribution of the subjects by wards/islands

3.1.2 Demographic & Social Parameters

The age of the women participating in the study was between 20 to 50 years. They were divided into three different age groups for analysis – 20 to 30 years, 31 to 40 years and 41 to 50 years. The age distribution is shown in Table 3.1.3 **(Figure 3.1.2)**.

Age Distribution	Number of Respondents	%
20-30 yrs	1153	40.5
31-40 yrs	882	31.0
>40 yrs	810	28.5
Total	**2845**	**100.0**

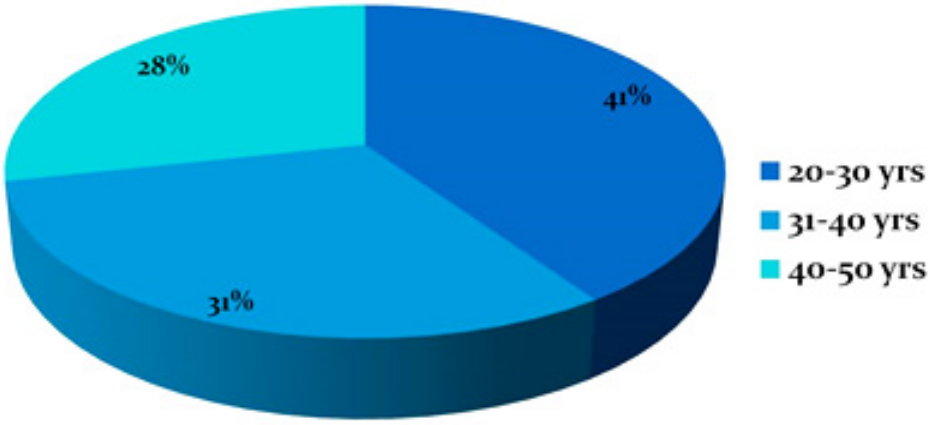

Table 3.1.3 (Figure 3.1.2) Age distribution of the study subjects

The subjects were distributed in the three age groups with a slightly higher numbers in the youngest age group of 20 to 30 years.

The distribution of the subjects by their level of education is shown in Table 3.1.4.

Level of Education	No. of Respondents	%
No formal schooling	311	10.9
Primary	934	32.8
Secondary	1233	43.3
Diploma	227	8.0
Degree & above	140	4.9
Total	**2845**	**100.0**

Table 3.1.4. Distribution of the subjects by education

Nearly 90% of the subjects had formal education. Majority (71.4%) of the women with no formal schooling belonged to the 40 years and above age group. Among the subjects of age group20 to 30 years, 98.5% had formal education. However, the number of women having higher education (diploma and above) was limited and was more frequently seen in the 20-30 years age group. Level of education was significantly better in the urban areas compared to the semi-urban or the rural areas (Figure 3.1.3).

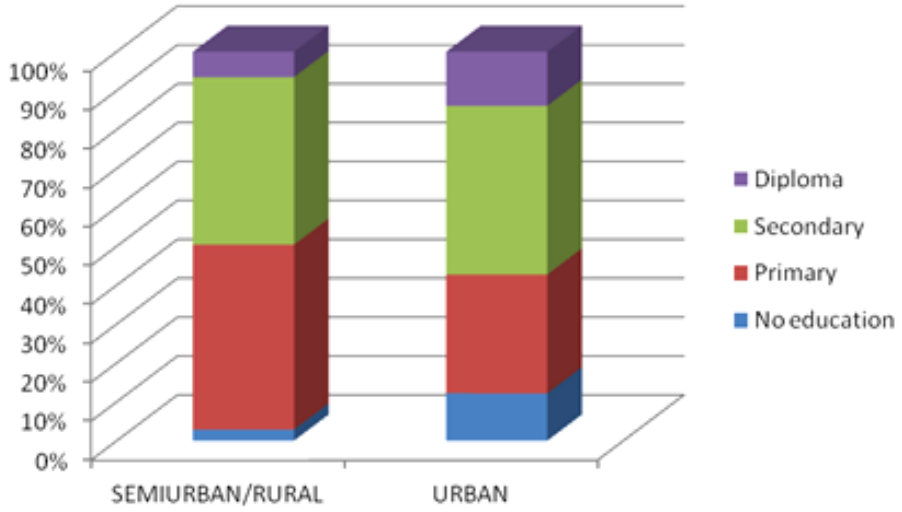

Figure 3.1.3. Education level of the participants by their place of residence [X2=69.32; d.f. 3; p=0.0]

The majority of the study subjects were ever married and only 8.1% were never married. The distribution of the subjects by marital status is shown in Table 3.1.5.

Marital Status	No. of Respondents	%
Never married	230	8.1
Married	2301	80.9
Divorced	275	9.7
Widowed	39	1.3
Total	**2845**	**100.0**

Table 3.1.5. Marital status of the study participants

Most of the respondents were homemakers and only one third were employed outside home (Figure 3.1.4)

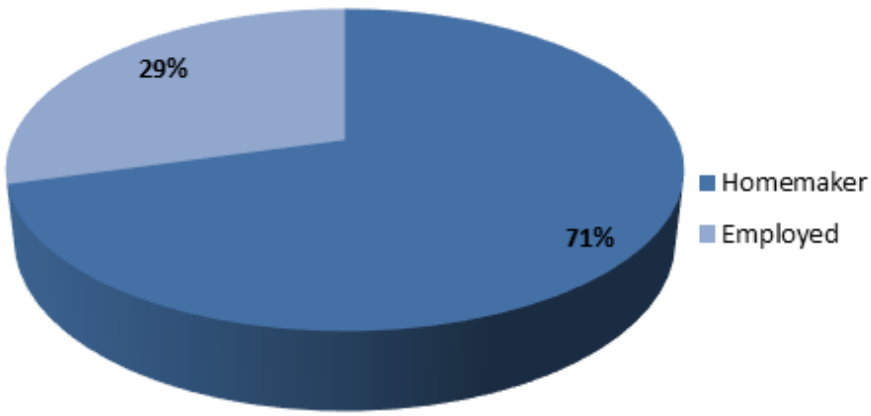

Figure 3.1.4. Status of employment of the study subjects

The proportion of employed women was significantly higher in the 20-30 years age group (35.5%) compared to the women in the 41- 50 years age group (22.5%).
The personal monthly income of the employed subjects and the monthly family income of all the subjects are shown in Tables 3.1.6 and 3.1.7.

Personal Income per Month (MVR)	No. of Respondents	%
<5000	192	23.0
5000-8000	352	42.1
8000-10000	158	18.9
>10000	133	15.9
Total	**835**	**100.0**

Table 3.1.6 monthly personal incomes of the employed subjects

Family Income per Month (MVR)	No. of Respondents	%
1. <5000	374	13.3
2. 5000-8000	555	19.8
3. 8000-10000	466	16.6
4. >10000	1411	50.3
Total	**2806**	**100.0**

Table 3.1.7 monthly family incomes of the subjects

The proportion of women belonging to the higher income groups was significantly higher in the urban areas compared to the semi-urban or rural areas (Figure 3.1.5).

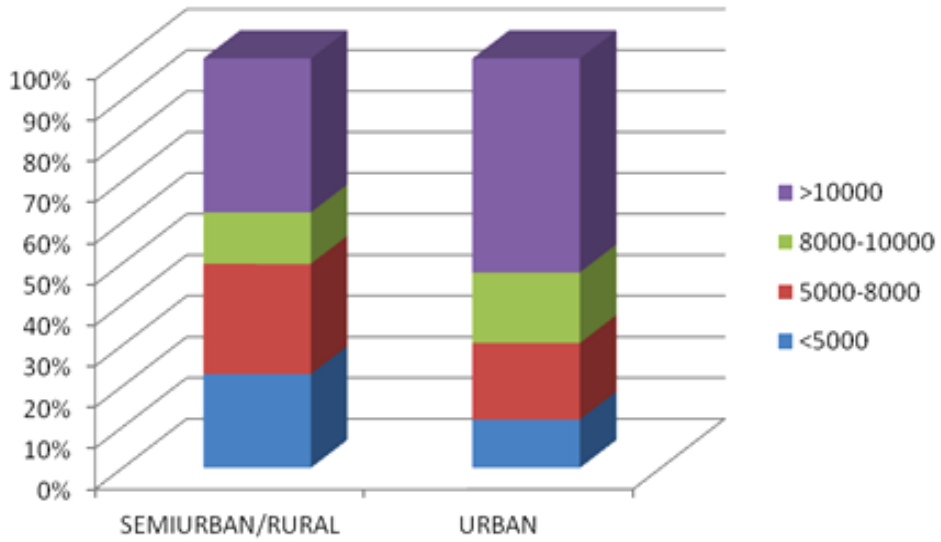

Figure 3.1.5. Monthly family income of the participants by their place of residence
X2=59.3; d.f. 3; p=0.0]

The details of the health insurance coverage of the women participated in the study are given in Table 3.1.8.

Health Insurance	No. of Respondents	%
National Insurance	2537	89.2
Private Insurance	103	3.6
Service Insurance	81	2.8
Others	7	0.2
No Insurance	117	4.1
Total	**2845**	**100.0**

Table 3.1.8. Health insurance coverage available to the subjects

All the citizens of Maldives can avail the government sponsored health insurance scheme. In our study nearly 90% of the subjects were aware they are covered by the national insurance Aasandha, supported by the Government. Some of the women are the beneficiaries of health insurance offered by private organizations or through Maldives National Defence Force (MNDF) or other services. Universal Health insurance coverage was enforced by law from 1st January 2012,. Those who responded as not being covered by the insurance could have been unaware of Aasandha scheme (Universal Health Insurance coverage) or might have exhausted their limit of coverage for the year.

3.2 KNOWLEDGE OF CANCERS IN GENERAL & CERVICAL CANCER IN PARTICULAR

Some of the questions were intended to assess the knowledge about the common signs and symptoms of cancers. The survey also aimed to assess the knowledge of the women about cervical cancer, its signs, symptoms and prevention. The responses were compared between different variables e.g. age groups, education and place of residence.

3.2.1 Knowledge of cancer in general

The women were asked an open ended question "Which cancers of the body have you heard of" and they were allowed to give multiple responses. The common cancers which the women said that they had heard of are listed in Table 3.2.1 in order of frequency.

Site of Cancer	Number of respondents	% (N=2845)
Breast	1643	57.7
Blood	1254	44.1
Cervix	1080	38.0
Lung	845	29.7
Oral/throat	766	26.9
Liver	296	10.4
Rectum	114	4.0
Prostate	106	3.7
Stomach	105	3.7

Table 3.2.1.Response to 'which cancers of the body have you heard of?'

Out of the total study participants, 2430 women (85.4%) could specify at least one of the common cancer they have heard of. The most common cancer that the women ever heard of was breast cancer, which was followed by blood cancer. Cervical cancer was third most common cancer the women knew about and 38.0% of the surveyed women reported having heard of this cancer. Significantly higher proportion of women in the younger age group heard of breast cancer compared to the elderly women (Figure 3.2.1). The knowledge also improved significantly with improvement in the level of education (Figure 3.2.2).

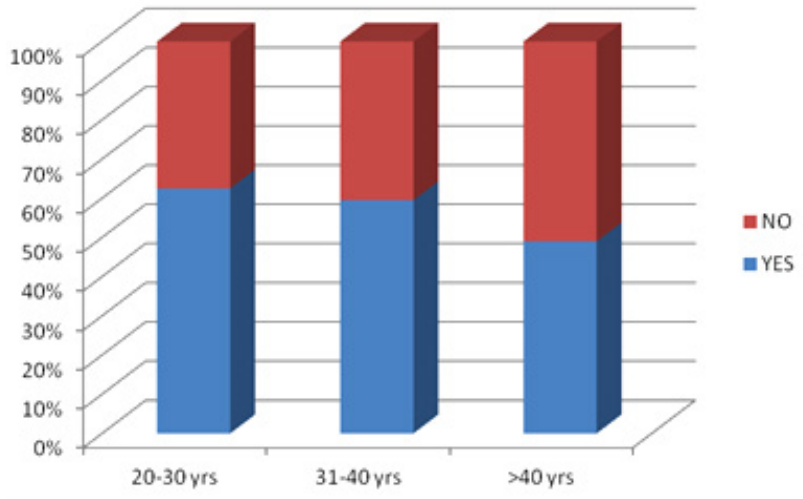

Figure 3.2.1.Knowledge of breast cancer compared between the age groups [X2=37.29; d.f.=2; p=0.00]

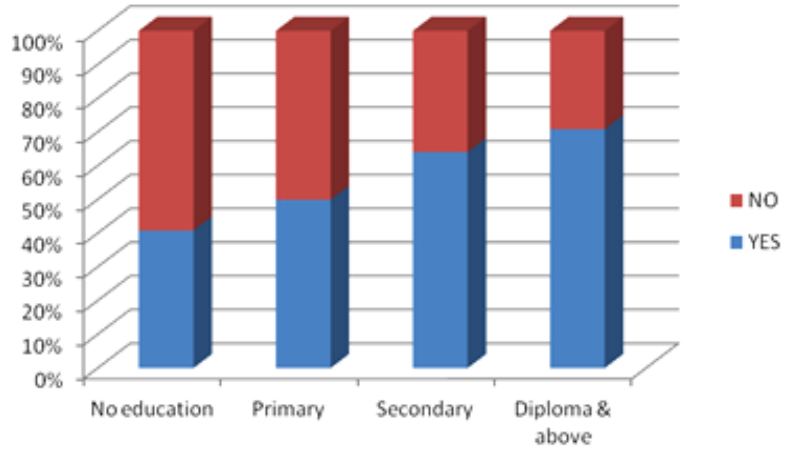

Figure 3.2.2. Knowledge of breast cancer compared between women with different levels of education [X2=196.08; d.f.=3; p=0.00]

Similar trends of improvement in knowledge with age and with level of education were observed for cervical cancer as well but it was not statistically significant (Figure 3.2.3 and Figure 3.2.4).

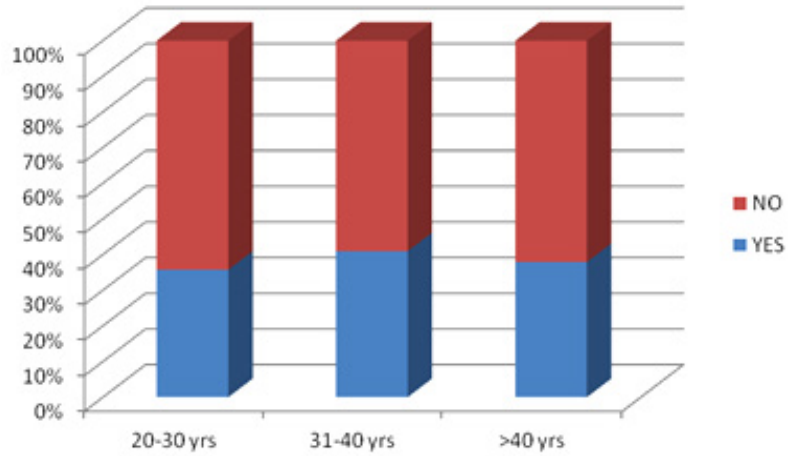

Figure 3.2.3. Knowledge of cervical cancer across the age groups [X2=5.7; d.f.=2; p=0.06]

The proportions of women with knowledge of cervical cancer and breast cancer did not differ significantly with places of residence. Cervical cancer was known to 35.8% of the rural/semi-urban women and 38.3% of the urban women [X2=0.9; d.f.=1; p=0.34]. Among the rural/semi-urban women 56.1% knew of breast cancer while among the urban women 58.0% knew of breast cancer [X2=0.47; d.f.=1; p=0.49].

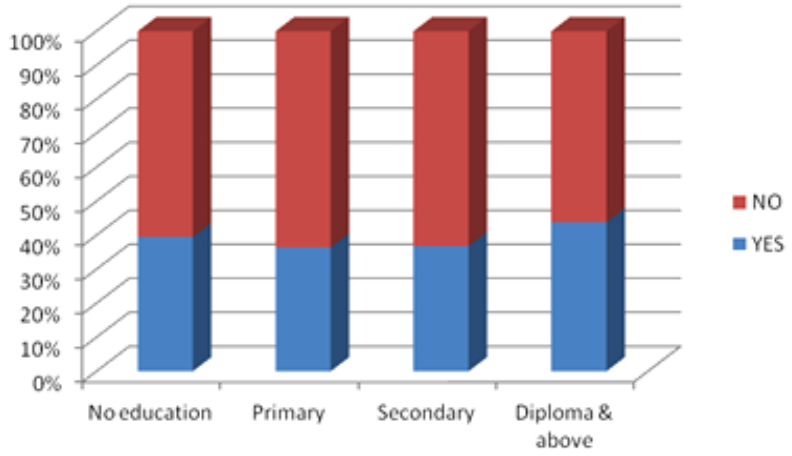

Figure 2.4. Knowledge of cervical cancer among women with different levels of education [X2=7.23; d.f.=3; p=0.06]

Women were asked to list the common symptoms of cancer. It was an open ended question and women could give as many answers she wanted. We intended to find out how many of them were aware of the most common symptoms of cancer like a rapidly growing lump anywhere in the body, 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. The number of women who identified these symptoms correctly is given in table 3.2.2.

Common Symptoms of Cancer	No. of Respondents	% (N=2845)
Rapidly growing lump	718	24.4
Ulcer not healing	308	10.5
Abnormal bleeding	238	8.1
Change in regular bladder/bowel habits	44	1.5
Persistent hoarseness of voice	19	0.6
Persistent cough	66	2.2

Table 3.2.2. Number of women who correctly enumerated the common symptoms of cancer

The number of women who identified at least one symptom correctly was 986 (34.6%). The proportion of women who has given at least one correct response was significantly higher in the group of women with higher level of education (diploma and above) (Table 3.2.3). Some of the women mentioned about fever, vomiting, pain and breathing difficulty as symptoms of cancer.

Level of Education	No. Responded correctly	%
No formal schooling (N=311)	95	30.5
Primary (N=934)	270	28.9
Secondary (N=1233)	427	34.6
Diploma & above (N= 367)	194	52.9

Table 3.2.3. Proportion of women belonging to different education levels who correctly enumerated at least one symptom of cancer

3.2.2 Knowledge about Cervical Cancer & Attitude towards the Disease

A total of 1080 (37.9%) women responded that they had ever heard of cervical cancer. These women were questioned further to assess their level of knowledge about cervical cancer. They were asked to enumerate the common risk factors of cervical cancer. This was an open ended question and the women could give multiple responses. Table 3.2.4 shows the number and frequency of women who gave correct responses.

Risk Factors for Cervical Cancer	No. of Respondents	% (N=1080)
Multiple sex partners	239	22.1
Genital tract infections	233	21.6
Lack of Hygiene	170	15.7
Sex at young age	136	12.6
Having too many children	107	9.9
Incidence in family	62	5.7
Smoking	53	4.9

Table 3.2.4. Responses of women to the question 'what are the risk factors of cervical cancer?'

Only 585 (20.5%) women gave one correct response. More women in the higher education group gave at least one correct response than women with lower education level (Table 3.2.5).

Level of Education	No. Responded Correctly	%
No formal schooling (N=311)	49	15.8
Primary (N=934)	141	15.1
Secondary (N=1233)	257	20.8
Diploma & above (N= 367)	138	37.6

Table 3.2.5. Proportion of women belonging to different levels of education who correctly enumerated at least one risk factor of cervical cancer

The women were also asked about the common symptoms of cervical cancer. This was an open ended question and multiple answers were allowed. The details of the responses of the women are shown in Table 3.2.6.

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	15.0
Bleeding after sex	91	8.4
Bleeding after menopause	40	3.7

Table 3.2.6. Number of women correctly identifying different symptoms of cervical cancer

Only 548 (19.2%) women who gave one correct response and higher proportion of them belong to the higher education levels. (Table 3.2.7)

Level of Education	No. Responded Correctly	%
No formal schooling (N=311)	49	15.7
Primary (N=934)	125	13.4
Secondary (N=1233)	293	23.8
Diploma & above (N= 367)	131	35.7

Table 3.2.7. Proportion of women belonging to different levels of education who correctly enumerated at least one symptom of cervical cancer

Irregular menstrual bleeding is a very common and an important symptom of cervical cancer. Only 17.6% of the women gave this response as a common symptom of cervical cancer. The knowledge improved with education but there was no significant difference across age groups (Figure 3.2.5 and Figure 3.2.6)

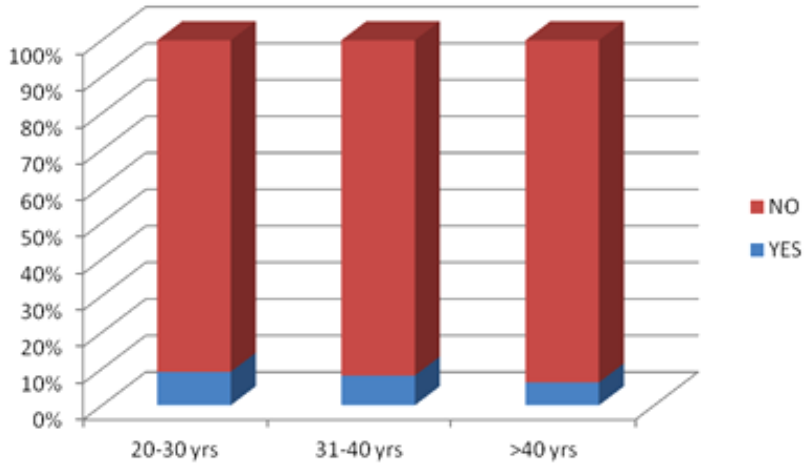

Figure 3.2.5. Knowledge of irregular bleeding as symptom of cervical cancer among age groups [X2=5.42; d.f.=2; p=0.07]

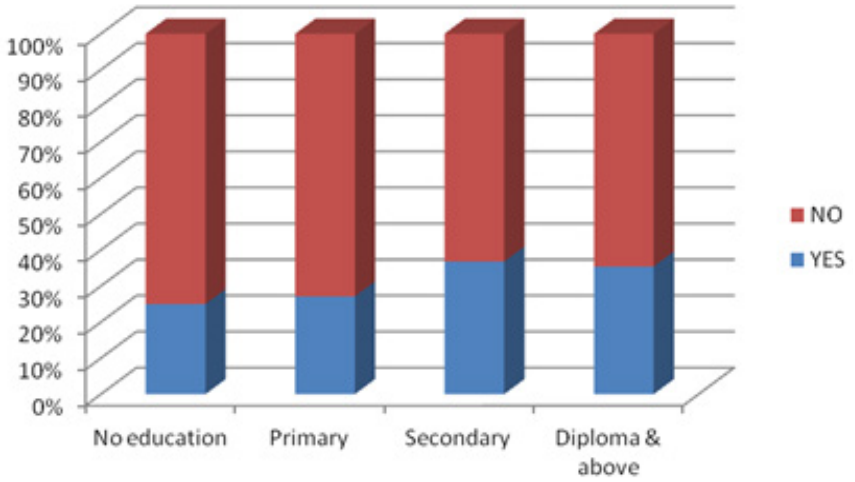

Figure 3.2.6. Knowledge of irregular bleeding as symptom of cervical cancer among different education levels [X2=35.9; d.f.=3; p=0.00]

The women 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(22.5%). The details of the responses and the number of women who gave these responses are listed in Table 3.2.8. When the correct responses were compared with the level of education of the responders a higher proportion of the correct responses were from the more educated women. (Table 3.2.9)

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

Table 3.2.8. Number of women who correctly identified methods to prevent cervical cancer

Level of Education	Number of respondents	%
No formal education (N=311)	53	17.0
Primary (N=934)	151	16.2
Secondary (N=1233)	299	24.2
Diploma & above (N= 367)	138	37.6

Table 3.2.9. Level of education of women correctly enumerating at least one risk factor of cervical cancer

Women who had ever heard of cervical cancer were also asked if they thought that the cancer could be 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 Pap smear test. To this question only 524 (18.4%) responded that they had heard of the test. There was no significant difference between the age groups as far as the knowledge of Pap smear was concerned (Figure 3.2.7). Knowledge of the test was significantly higher among women with higher education (Figure 3.2.8).

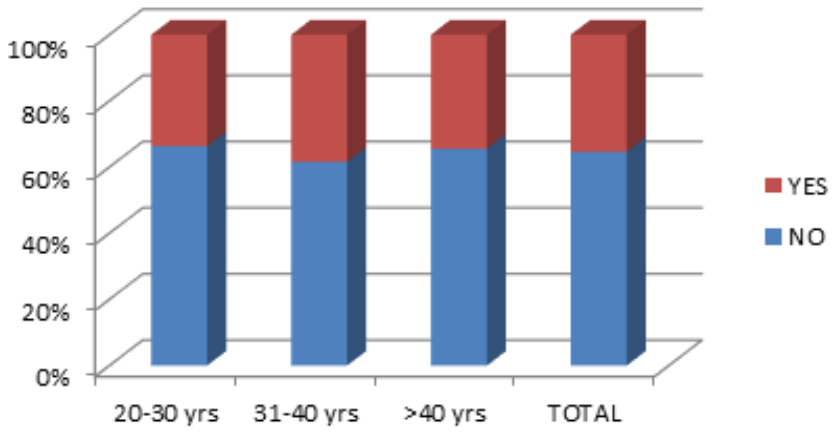

Figure 3.2.7. Knowledge of Pap smear across different age groups [X2=2.85; d.f.=2; p=0.24]

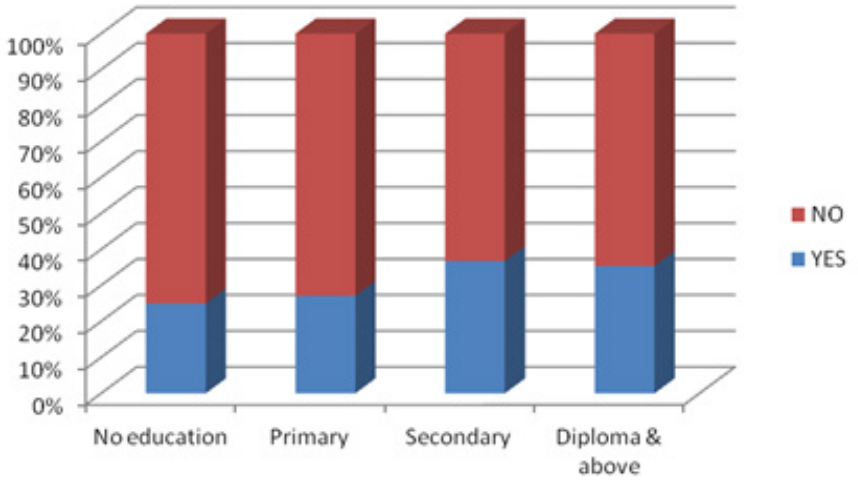

Figure 3.2.8 Knowledge of Pap smear among women with different levels of education [X2=15.64; d.f.=3; p=0.001]

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 (Figure 3.2.9).

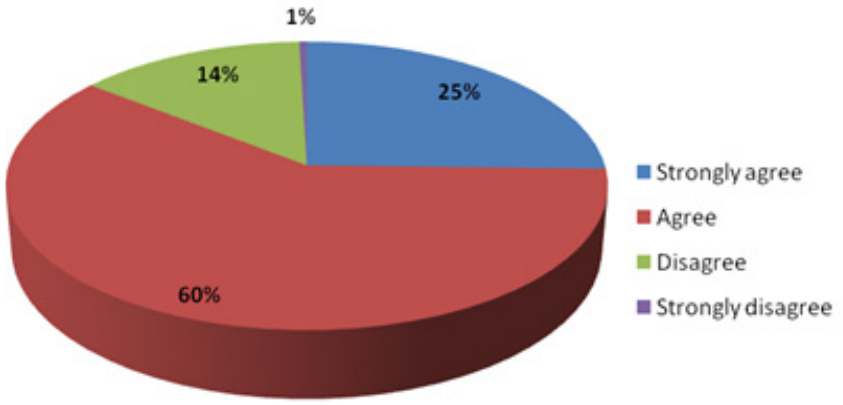

Figure 3.2.9. Response to 'Do you agree that cervical cancer can be cured if detected early?'

3.3 PRACTICES RELATED TO CERVICAL CANCER PREVENTION & EARLY DETECTION

Cervical cancer being caused by Human Papillomavirus, a sexually transmitted infection, has certain risk factors related to sexual practices. Early age at sexual debut, multiple sex partners, multiple sex partners of the male partner etc. are the known risk factors. Early age at pregnancy and too many pregnancies are factors that increase the risk of cervical cancer. Prevalence of these risk factors and their relationship to different variables among Maldivian women were studied.

3.3.1 Age at sexual experience and age at first marriage

The women were asked at what age they had sex for the first time. Out of the 2630 women who ever had sex, 22.1% reported their first sexual experience was below the age of 18 years and 60.8% below the age of 21 years (Table 3.3.1).

Age at First Sex	No. of Respondents	%
<15 years	151	5.7
15 - 17 years	431	16.4
18 - 20 years	1017	38.7
>21 years	925	35.2
No answer	62	2.4
Can't remember	44	1.7
TOTAL	**2630**	**100.0**

Table 3.1. Age at the onset of sexual life

Age at sexual activity was compared across age groups and the levels of education of the responders. It was observed that the younger women and more educated women had sexual debut at later age (Figure 3.3.1 and Figure 3.3.2).

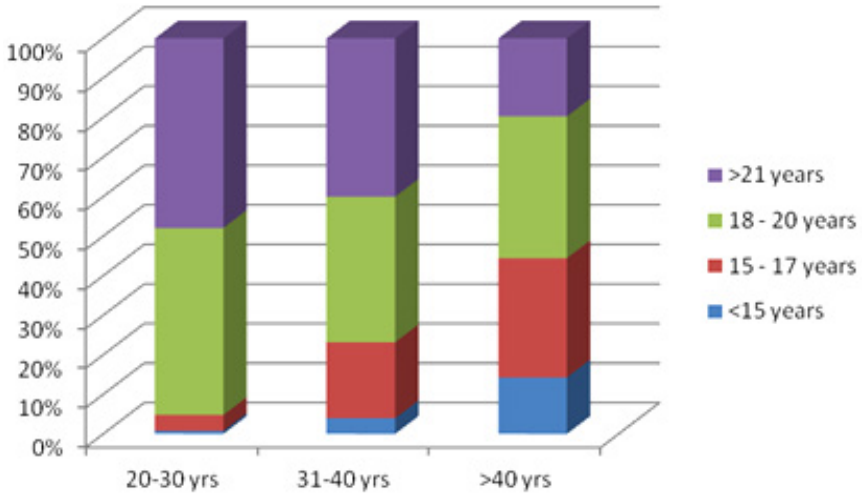

Figure 3.3.1. Comparison of age at the onset of sexual life across different age groups [X2=420.85; d.f.=6; p=0.00]

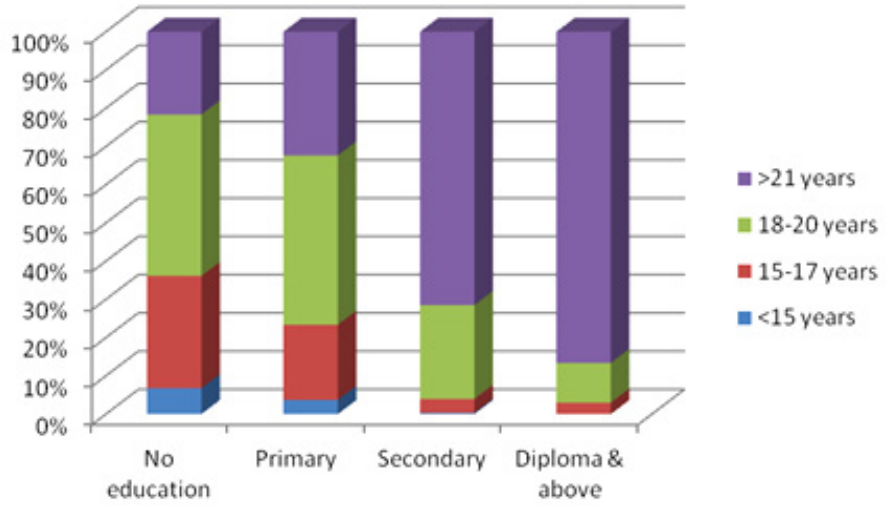

Figure 3.3.2. Comparison of age at the onset of sexual life across different levels of education [X2=739.59; d.f.=9; p=0.00]

All the ever married women were asked about their age at the time of first marriage. Out of 2602 married women, 63.5% responded that they were below 21 years at the time of first marriage (Table 3.3.2). The age at first marriage was higher among younger women and better educated women.

Age at First Marriage	No. of Respondents	%
<18 yr	971	37.3
19 - 20 yrs	681	26.2
21 - 25 yrs	799	30.7
>25 yrs	151	5.8
TOTAL	**2602**	**100.0**

Table 3.3.2. Age of the women at the time of first marriage

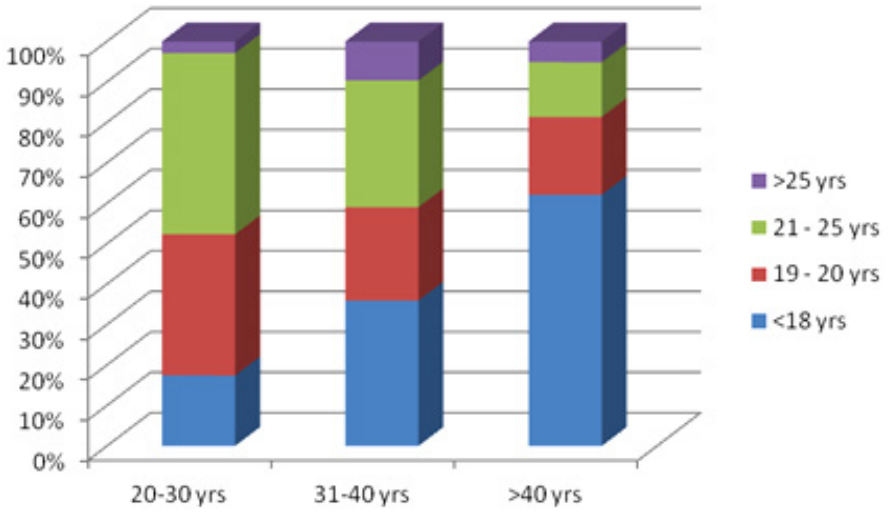

Figure 3.3.2. Comparison of age at first marriage by age groups [X2=451.1; d.f.=6; p=0.00]

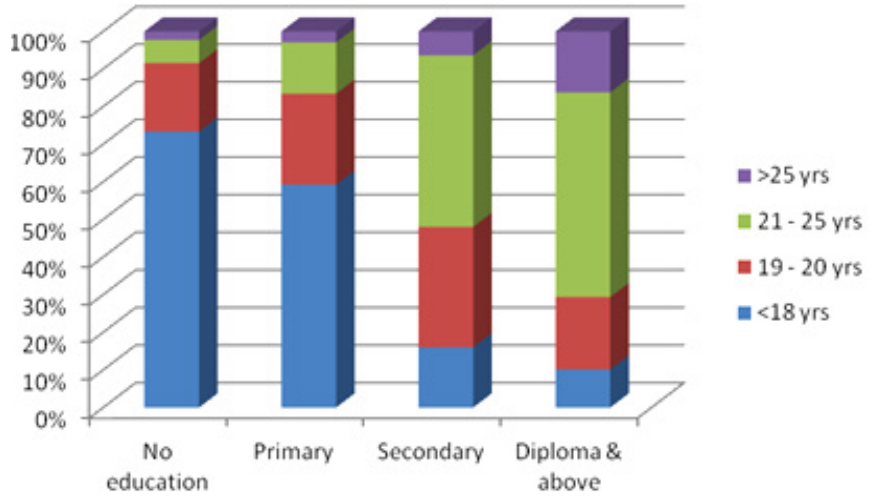

Figure 3.3.4. Comparison of age at first marriage by levels of education [X2=799.1; d.f.=9; p=0.00]

3.3.2 Number of marriages of the women and their husbands

For cultural reasons it was not possible to directly ask about the number of sex partners. So 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 (Table 3.3.3). The husbands of nearly one third of the women had multiple marriages (Table 3.3.4). Majority of the women who had multiple marriages belonged to the elderly age group and had lower levels of education (Figure 3.3.5 and Figure 3.3.6)

Number of Times Married	No. of Respondents	%
1 time	1740	66.8
2 to 3 times	715	27.5
4 to 5 times	107	4.1
>5 times	42	1.6
Total	2604	100.0

Table 3.3. Number of marriages of the participating women

Number of Marriages of Husbands	**No. of Respondents**	**%**
1 time	1660	63.5
2 -3 times	673	25.7
4 - 5 times	86	3.3
>5 times	27	1.0
Dont know	169	6.5
Total	**2615**	**100.0**

Table 3.4. Number of marriages of the husbands of the participating women

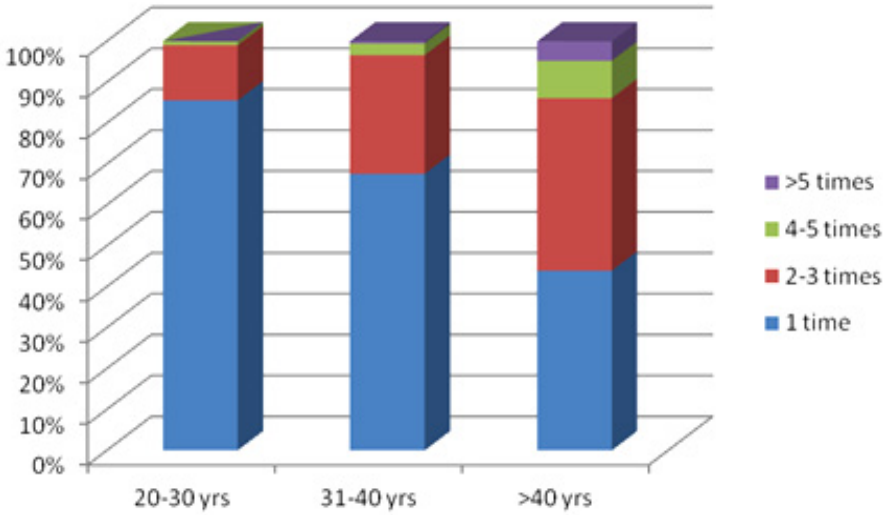

Figure 3.3.5.Number of marriages among women of different age groups [X2=388.69; d.f.=6; p=0.00]

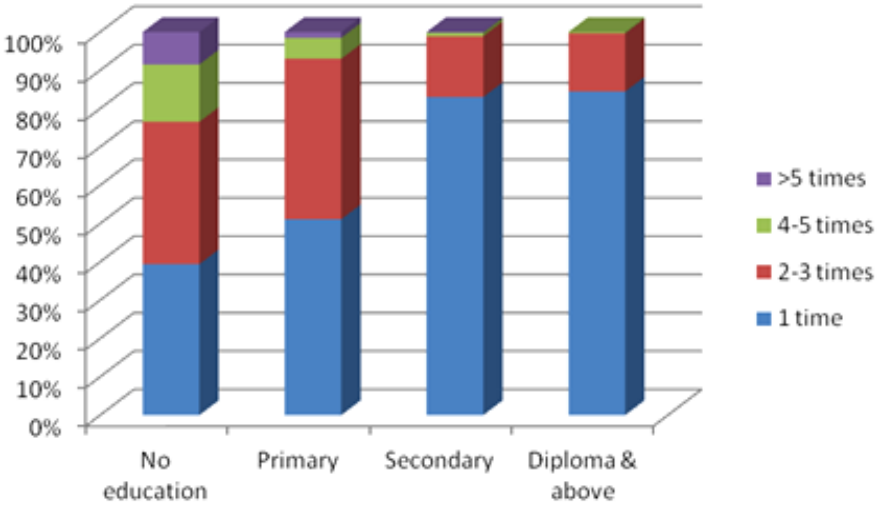

Figure 3.3.6. Number of marriages among women of different levels of education [X2=511.15; d.f.=9; p=0.00]

3.3.3. Number of Pregnancies and Age at First Pregnancy

Nearly half of the women participating in the study had more than two pregnancies (Table 3.5). The age at first pregnancy was below 21 years in 47.6% of the women (Table 3.6). The age at first pregnancy was higher among the younger and more educated women (Figure 3.7 and Figure 3.8).

Number of Pregnancies	No. of Respondents	%
0-2	1139	46.4
3-4	738	30.1
5-6	340	13.9
>6	237	9.7
TOTAL	**2454**	**100.0**

Table 3.3.5. Distribution of the subjects by the number of pregnancies

Age at first pregnancy	No. of Respondents	%
<15 years	57	2.4
15-17 years	303	12.7
18-20 years	776	32.5
>20 years	1235	51.7
Can't remember	17	0.7
TOTAL	**2388**	**100.0**

Table 3.3.6. Distribution of the subjects by the age at first pregnancy

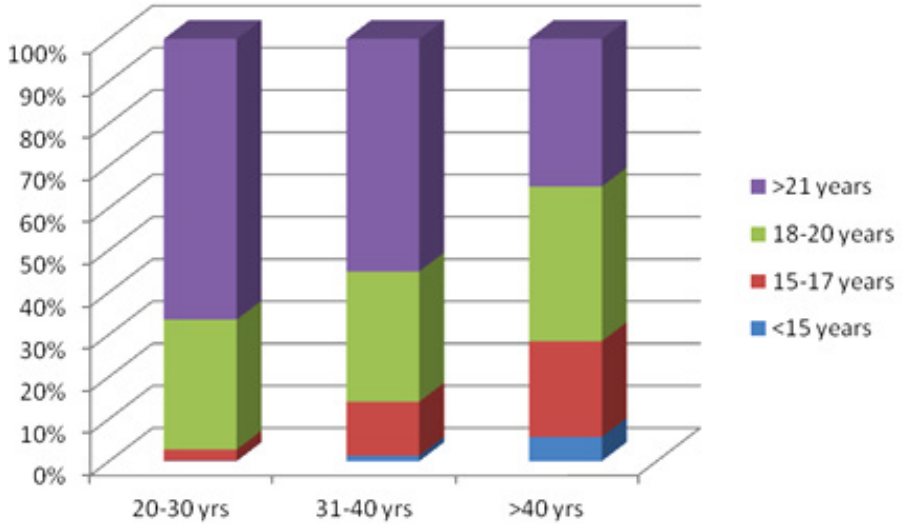

Figure 3.3.7. Comparison of the age at first pregnancy among different age groups [X2=258.8; d.f.=6; p=0.00]

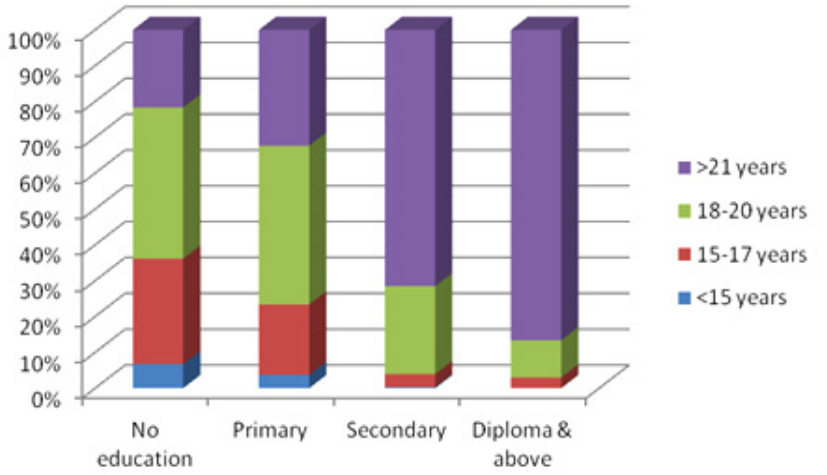

Figure 3.3.8. Comparison of the age at first pregnancy among women of different levels of education [X2=570.26; d.f.=9; p=0.00]

It was observed that out of the women who identified sex at early age 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 themselves.

The number of women using oral contraceptive pills was very low. Only 2.6% of the currently married women reported to be using the pills.

3.3.5 Smoking Habits

5.1% of surveyed population was found to be 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. The habit of smoking was less prevalent in the younger age group (Figure 3.3.9). Majority of the smokers were either illiterate or only had primary education (Figure 3.3.10). However, 33.3% of the women informed that they were exposed to second hand smoke since their husbands were smokers. Majority (59.7%) of these women were exposed to second hand smoke for more than one year.

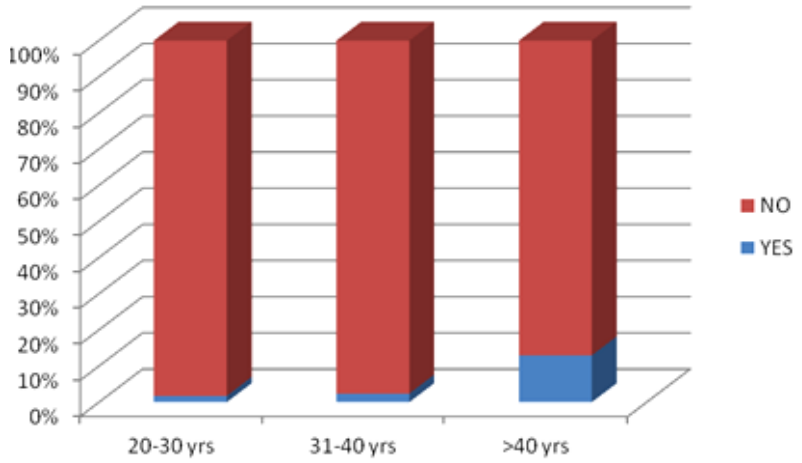

Figure 3.3.9. Smoking habit among women belonging to different age groups [X2=141.8; d.f.=2; p=0.00]

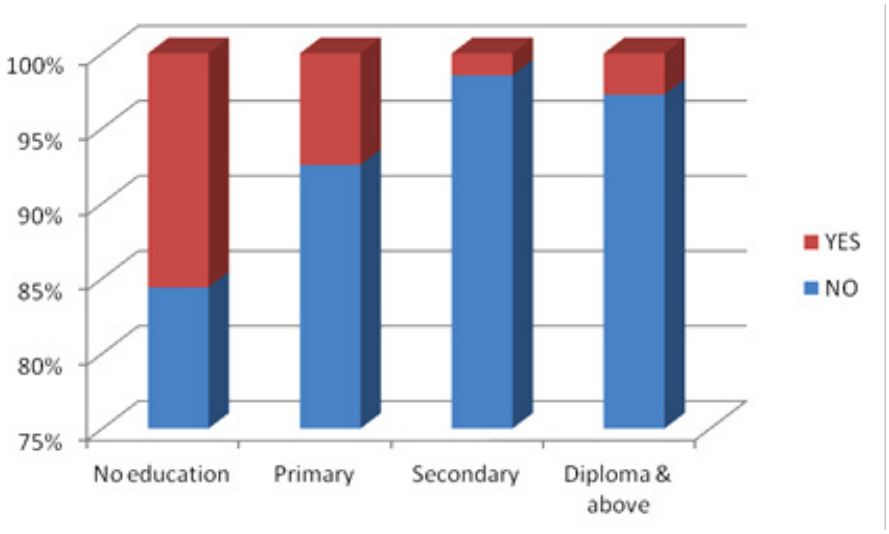

Figure 3.3.10. Smoking habit in women with different levels of education [X2=117.74; d.f.=3; p=0.00]

4.0 DISCUSSION

Maldives consist of about 1900 islands widely dispersed over a relatively large area. Due to this unique geographic feature conducting any population based study is a challenge in the country. The present knowledge, attitude and practice (KAP) study on cancer is the first study of its kind in Maldives. The participants were representative of different age groups (between 20 to 50 years), education levels and economic conditions. The participants were selected from urban as well as semi-urban/rural areas.The proportionof participants from the urban regions was disproportionately higher (86%) in the study, though nearly 60% of the total population of the country are residents of semi-urban/rural areas. Due to logistic inconvenience it was not feasible to conduct the survey in too many islands.

The younger study population was distinctly different from the older population in several socio-economic parameters. The literacy rate and the proportion of women with higher education were significantly more in the younger women due the Government's policy of universal free education. As a result greater proportion of them were employed and belonged to the higher income category. This has a direct implication on their knowledge, attitude and practices, which we will discuss in the subsequent sections.

Majority of the women have heard of some cancer or other. Breast cancer was the most commonly known cancer among the study participants. The knowledge of cervical cancer was comparatively poor. As expected, younger women or women with higher education had better knowledge of breast cancer compared to their counterparts belonging to the older age groups or to the lower education levels. However, this was not the case with cervical cancer. The knowledge of cervical cancer was poor among all age groups irrespective of their education levels. The rural and the urban women were comparable as far as their knowledge of breast cancer or cervical cancer was concerned.

The knowledge of the common early symptoms was generally poor with only 34.6% women knowing at least one of the symptoms. Majority of them only knew that a rapidly growing lump or a non-healing ulcer could be cancer. But the knowledge of the other common symptoms of cancer 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. The level of knowledge improved with improvement in the literacy level.

We observed that only 38% of the study population was aware of cervical cancer. Even among this small number of women only half knew about some of the risk factors of cervical cancer like multiple sex partners, genital tract infections and lack of proper hygiene. The knowledge of some of the early symptoms of cervical cancer was limited to only half of the women who have heard of cervical cancer. Some of the very important symptoms of cervical cancer are vaginal bleeding after sexual intercourse and vaginal bleeding after menopause. Very few of the subjects knew about these symptoms. On the other hand a large number of women thought that pain was an early symptom of cervical cancer, which in reality is a late symptom. 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 have actually had the test at least once.

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.

Even among the women who knew about cervical cancer 16% had the misconception that cervical cancer is an infectious disease. This has a great practical implication as such misconception can stigmatize the disease and prevent women from actively seeking early detection services. Majority of the women agreed that cervical cancer is curable if detected early. Such positive attitude to the disease can ensure good participation of the women to cervical cancer screening services.
The women are 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. Education has an influence on both these factors. Women who have higher education (majority of whom are in the younger age group) have been found to avoid early sex or marriage.

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 who had multiple partners. Again as the level of education improved such practices were avoided.

Pregnancy at young age and too many pregnancies are the recognized risk factors for cervical cancer and are highly prevalent in the studied women. Nearly half of the women had first pregnancy by the age of 20 years and about half of the women had more than two pregnancies. The young and educated group of women have been found to delay the first pregnancy and avoid too many children. The practice of using oral contraceptive pills was very low.

Another important risk factor for cervical cancer is smoking of tobacco. Exposure to second hand tobacco smoke is equally harmful. The prevalence of smoking among the women was low and almost none of those who are current smokers have the knowledge of smoking as a risk factor for cancer. Even if the women themselves do not smoke they are exposed to second-hand smoke because of the rampant practice of smoking among their male partners. Creation of general awareness against smoking and tobacco use will be very much essential.

To conclude, the awareness about cervical cancer, its risk factors and the methods of prevention is limited in the 20 to 50 year old women in Maldives. Even among the women who are aware of some of these factors, there is a gap between the knowledge and actual practices. One of the crucial reason for low level of awareness is the fact that there is no cervical cancer screening program in the country. Since there is no program there is no concerted effort to make the women aware of the disease or its prevention. This is in spite of the fact that the exposure of the women to the risk factors of cervical cancer is high and the disease is prevalent 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 and the national policy of providing mandatory free education to all the citizens in the country.

4.1 Limitations of the study

The limitations of the study are the biases inherent to any questionnaire survey based study which are as follows:

Selection Bias: In spite of taking adequate care to follow the scientifically valid methods of representative samples, selection bias cannot be ruled out entirely as only a small proportion of the total target population will be studied.

Social Acceptability Bias:, the women may not be truthful all the time in their responses in apprehension of hurting the sentiments of the interviewers.

Recall Bias: The women need to respond to some of the survey questionnaires based on their memory where there is chance of error.

However, attempts were made to minimize such errors as much as possible through appropriate research design and methodology.

APPENDIX

Acknowledgments

The survey was completed as a result of collective effort from United Nations Family Planning Association (UNFPA), Health Protection Agency (HPA), Maldives and Maldives Nurses Association. We thank UNFPA for providing financial assistance to conduct this important survey in Maldives. We acknowledge the collaborative effort of Health protection Agency, Reproductive Health division and Maldives Nurses Association for developing the study protocol, data collection and analysis.

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ANNEX 1

Assessment of the Capacities of the Health System for the Introduction of Cervical Cancer Screening Program in the Maldives.

To conduct a situational analysis of the health system of the country to assess their preparedness to initiate a cervical cancer screening program

Specific Objectives

- To collect information from the Atoll hospitals and the Regional hospitals about their staff structure, available services and facilities
- To collect information from these hospitals regarding the cervical cancer screening services already offered by the health services

Materials and Method

- A questionnaire was designed to enlist the staff strength, availability of supplies and consumables and the equipments relevant to cervical cancer screening at various health facilities. It also contained questions related to the cervical cancer screening activities performed over last one year in the health facility. The questionnaire was sent to the in charges of the Atoll hospitals and the Regional hospitals through the Health Protection Agency. The questionnaire was filled up by the in charge or a per son designated by him/her. The completed questionnaire was sent back to the Health Protection Agency for analysis

Data Analysis

The completed health system assessment forms were entered in MS Excel database and the data were analyzed to have frequency distribution tables for different variables separately for the Atoll hospitals and the Regional hospitals.

RESULTS OF THE ASSESSMENT OF CAPACITY OF HEALTH SYSTEM

The assessment was conducted in 13 Atoll Hospitals and 5 Regional Hospitals. The locations of the hospitals, the number of female populations they cater to and the category of hospital are listed in Table 5.1.

City/Atoll	Total femalePopulation (15-49 years)	Category of Hospital
Gn	1710	Atoll Hospital
Kuhudhufushi	3517	Regional Hospital
HaaAlif	2996	Atoll Hospital
Tha	2268	Atoll Hospital
Vaavu	330	Atoll Hospital
URH	2977	Regional Hospital
Faafu	755	Atoll Hospital
Baa	1837	Atoll Hospital
Thinadhoo	2882	Regional Hospital
Alif Dhal	1368	Atoll Hospital
Laamu	2272	Regional Hospital
Dhaal	3496	Atoll Hospital
LhNaifaru	1709	Atoll Hospital
Addu City	4428	Regional Hospital
AlifAlif	993	Atoll Hospital
Noonu	2179	Atoll Hospital
Shaviyani	2324	Atoll Hospital
Meem	982	Atoll Hospital

Table 5.1. List of hospitals and the number of female population covered by them

The atoll hospitals are the primary level of health facility. Some of them have in-patients and specialist gynaecologists. The staff pattern and strength of different categories of staff in the Atoll Hospitals are given in Table 5.2.

City/Atoll	Number of Staff					
	Medical Officer	Gynaecologist	Pathologist	Nurse	Lab Tech	Female Health Workers
Gn	3	1	0	37	3	7
HaaAlif	2	1	0	28	4	3
Tha	4	1	0	22	4	2
Vaavu	1	0	0	9	2	0
Faafu	1	1	0	20	2	2
Baa	4	1	0	25	2	6
Alif Dhal	5	1	0	42	3	9
Dhaal	2	1	0	28	2	3
LhNaifaru	3	0	0	25	3	3
AlifAlif	2	0	0	17	2	2
Noonu	2	1	0	18	3	2
Shaviyani	2	0	0	20	3	2

Table 5.2. The staff pattern and staff strength at the Atoll Hospitals

The Regional Hospitals provide secondary level of care. They have specialist gynaecologists and in-patient services. The staff pattern and strength of the different categories of staff in the Regional Hospitals are given in Table 5.3.

City/Atoll	Number of Staff					
	Medical Officer	Gynaecologist	Pathologist	Nurse	Lab Tech	Female Health Workers
Kuhudhufushi	8	1	0	78	10	10
Ungoofaaru	2	1	0	33	3	2
Thinadhoo	3	1	0	27	6	7
Laamu	3	1	0	42	6	4
Meemu	3	0	0	27	2	2
Addu City	7	1	0	74	7	6

Table 5.3. The staff pattern and staff strength at the Regional Hospitals

All the hospitals were assessed for their capacity to do cervical cancer screening either by cytology or by VIA. The lists of existing facilities at the Regional and Atoll Hospitals that can be utilized for cervical cancer screening program are shown in the Table 5.4 and Table 5.5.

Gynaecological examination rooms with focusing lights that are required to do screening either by VIA or by cytology are available in majority of the Regional and Atoll Hospitals. Cytology laboratory for Pap smear is existing only in one Regional and two Atoll Hospitals. Colposcopy facility is not available in any of the hospitals. Histopathology laboratory is present only in one Regional Hospital and one Atoll Hospital. Facilities for treatment of cervical pre-cancer by either cryotherapy or by LEEP are not available in any of the hospitals. However supply of nitrous oxide or carbon-di-oxide is there in majority of the health facilities. Almost all Regional Hospitals and some of the Atoll Hospitals have operation theatre where hysterectomy is done.

In last one year none of the hospitals have done any Pap smear cytology.

City/ Atoll	Screening Facilities		Diagnostic Facilities		Treatment Facilities				Others	
	Focusing Light	Cytology Lab	Colposcope	Histology Lab	Cryotherapy Machine	N2O/CO2Gas	Operation Theatre	Electro- Surgical Unit	Sterilizer	Computerized Records
GN	YES	NO	NO	NO	NO	YES	YES	NO	YES	YES
HAAALIF	YES	NO	NO	NO	NO	NO	YES	NO	YES	YES
THAA	YES	NO	NO	NO	NO	YES	YES	NO	NO	NO
VAAVU	YES	YES	NO	YES	NO	NO	YES	NO	YES	YES
FAAFU	YES	NO	NO	NO	NO	NO	YES	NO	YES	YES
BAA	NO	YES	NO	NO	NO	NO	YES	NO	YES	YES
ALIF	YES	NO	NO	NO	NO	YES	YES	NO	YES	YES
DHAAL	NO	NO	NO	NO	NO	NO	YES	NO	YES	YES
LHAVIYANI	NO	NO	NO	NO	NO	YES	YES	NO	YES	YES
ALIFALIF	YES	NO	NO	NO	NO	YES	YES	NO	YES	YES
NOONU	YES	NO	NO	NO	NO	NO	YES	NO	NO	NO

Table 5.4. Availability of facilities required for cervical cancer screening at the Atoll Hospitals

City/ Atoll	Screening Facilities		Diagnostic Facilities			Treatment Facilities			Others	
	Focusing Light	Cytology Lab	Colposcope	Histology Lab	Cryotherapy Machine	N2O/CO2Gas	Operation Theatre	Electro- Surgical Unit	Sterilizer	Computerized Records
KUHUDHUFUSHI	NO	NO	NO	NO	NO	YES	YES	NO	YES	NO
UNGOOFAARU	YES	NO	NO	NO	NO	YES	YES	NO	YES	YES
THINADHOO	NO	NO	NO	NO	NO	YES	YES	NO	NO	NO
Laamu Yes	NO	NO	NO	NO	NO	YES	YES	NO	YES	YES
ADDU CITY	YES	YES	NO	YES	NO	YES	YES	NO	YES	YES
MEEMU	YES	NO	NO	NO	NO	YES	YES	NO	YES	NO

Table 5.5. Availability of facilities required for cervical cancer screening at the Regional Hospitals

Health Protection Agency
Ministry of Health,
Male', Maldives