FACTORS CONTRIBUTING TOWARDS DELAYED DIAGNOSIS OF CERVICAL CANCER: A CROSS-SECTIONAL STUDY OF CERVICAL CANCER PATIENTS ADMITTED AT MNH AND HEALTH CARE PROVIDERS IN MAGU DISTRICT.

BY

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CERTICIFICATION

The undersigned certifies that he has read and hereby recommends for acceptance by the University of Dar es Salaam a dissertation entitled: *Factors contributing toward delayed diagnosis of cervical cancer: A cross-sectional study of cervical cancer patients admitted at MNH and health care providers in Magu district*, in partial fulfillment of the requirements for the degree of Master of Medicine in Obstetrics and Gynaecology.

Dr. K.E.W. Ngwalle, MD, M. Med. (Dar)-SUPERVISOR

DECLARATION

AND

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I, Andrea Barnabas Pembe, declare that this dissertation is my own original work and that it has not been presented and will not be presented to any other University for a similar or any other degree award.

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DEDICATION

This book is dedicated to the late Andrea Kayungilo Pembe, from whom I got the name.

Andrea B Pembe

ABSTRACT

Objective: To identify factors contributing to late presentation of patients with cervical cancer to health care facilities. To determine the level of knowledge of health care providers on cervical cancer and the availability of basic facilities for gynaecological examination in the primary health care facilities.

Study design: A cross-sectional study.

Setting: Conducted in two parts. First part at Muhimbili National Hospital (MNH) and the second part in Magu district involving the district hospital and primary health care facilities.

Population: First part included two hundred and three women with cancer of the cervix who were admitted at MNH from 1st August to 30th November 2000. The second part included 54 health care providers working in Magu district.

Results: Two hundred and three patients with cervical cancer were included in the study out of which 78.3% had advanced stage of the disease. All patients were symptomatic. The median durations that elapsed between experiencing first symptoms and reporting to a modern health care facility were 4(2,9) months and 4(1,12) months in the early and delayed groups respectively. Socio-demographic characteristics were not significantly associated with early diagnosis.

The first person consulted and the advices given were not associated with early diagnosis of the disease (X^2=3.13;df=4:p=0.537 and X^2=1.02;df=3;p=0.796 respectively). The symptoms that they presented with at MNH were not significantly associated with early diagnosis.

Study on knowledge of cancer of the cervix from primary health care settings was conducted on 54 health care providers from Magu district. Out of these, 22 (40.7%) health care providers had heard of a pap smear with the level of awareness being highest among the higher cadres (X^2=19.6;df=2;p=0.001). Their level of knowledge on cancer of the cervix ranged from 1 to 13 on a score scale of "0 to 17" (mean score 4.63). The knowledge on symptoms, risk factors and control were significantly higher in higher cadres than in lower cadres while that on treatment was not significantly different (p=0.5194).

All health care facilities had almost all basic facilities for gynaecologic examination except light source, which was present in only 44.2% of the facilities.

Conclusion: Most patients presented with advanced stages of cancer of the cervix at MNH. The Socio-demographic characteristics, first person consulted and duration that passed before reporting to modern health care facilities was not different in the early and delayed diagnosed groups. Most patients in both groups failed to recognize the abnormal

nature of the symptoms, which contributed to longer durations before reporting to modern health care facilities.

Study on knowledge of cervical cancer among health care providers in Magu district showed that knowledge on the disease was very low. The availability of basic gynaecological examination facilities was encouraging.

Recommendation: The community at large should be made aware of the disease and the importance of reporting early to modern health care services. Continuing education and training of health care providers on cancer of the cervix should be instituted. More studies are recommended on women's perception of symptoms referable to cancer of the cervix in the Community.

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ABBREVIATIONS

WHO	World Health Organization
TDHS	Tanzania Demographic and Health Survey
ORCI	Ocean Road Cancer Institute
MNH	Muhimbili National Hospital
SPSS	Statistical Package for Social Sciences
MUCHS	Muhimbili University College of Health Sciences
CO	Clinical Officer
CA	Clinical Assistant
AMO	Assistant Medical Officer
STD	Sexually Transmitted Disease
Pap	Papanicolaou Smear
HIV	Human Immunodeficiency Virus
AIDS	Acquired Immunodeficiency Syndrome
FIGO	International Federation of Gynaecologists and Obstetrician
MCH	Maternal and Child Health
FP	Family Planning

INTRODUCTION AND LITERATURE REVIEW:

Cervical cancer is the most common cancer and the leading cause of cancer related deaths among women in developing countries.[1] It is estimated that 200,000 to 300,000 women die from cervical cancer every year mostly in developing countries.[1, 2] Worldwide there are over 2 million women with invasive cervical cancer and there are over 450,000 new cases each year.[1]

The incidence of carcinoma of the cervix varies considerably from one country to another and may differ significantly in communities in the same country.[3] The regions of the world where the risk is highest are sub-Saharan Africa, Central and southern America and south-east Asia, where cancer of the cervix constitute 20-30% of all cancers in women.[4] The highest age standardised incidence of cervical cancer in a 1985 world wide study of cancer incidence was reported in eastern and southern Africa, where the rates were over 45 per 100,000 women.[5]

In Zimbabwe it was shown that cancer of the cervix affect most semiliterate rural women of low socio-economic status.[6] Rates are also related to marital status – higher in married women than in single, and higher in widowed or divorced women than in married.[4]

The true prevalence of the disease in Tanzania is not known due to lack of community-based data. Hospital based data indicate that the prevalence is high and is the commonest gynaecological malignancy.[7, 8, 9]

Epidemiological studies have identified a number of possible risk factors for the development of cervical cancer. Among known factors include multiple sexual partners, a partner with multiple sexual partners, and early age of sexual debut.[10] Many epidemiological, clinopathological and molecular studies have linked the presence of specific types of human papillomavirus (HPV) to the development of cervical cancer and its precursors.[11, 12] The sexual behaviour mentioned above which are associated with cervical cancer are likely to be proxy indicators of human papillomavirus exposure than independent factors.

The most common symptom of cervical cancer is abnormal vaginal bleeding or discharge. Abnormal bleeding may take the form of postcoital spotting, intermenstrual bleeding or postmenopausal bleeding. Serosanguineous or yellowish vaginal discharge, frequently associated with a foul odour, may accompany an advanced or necrotic carcinoma. Pelvic pain may result from locally advanced tumour. Urinary or rectal symptoms can be associated with bladder or rectal invasion in advanced stage of the disease. Although abdominal pain is

not a common symptom but a study by Armon et al found it to be the commonest complain (52%). Forty three per cent of the patients complained of abnormal vaginal bleeding and 20% presented with only vaginal disharge.[7]

Most of the women in developing countries are diagnosed at an advanced stage compared to developed countries. In Nigeria about 81% of cases are diagnosed in stages III- IV.[13] Sanghvi estimated that in 1980, 62% of patients presented with cervical cancer in stages III-IV in Kenya.[14] In Tanzania most patients (>70%) present with an advanced stage of the disease.[7, 8, 9]

For each successive stage of the disease at the time of diagnosis the overall risk of dying increases by 2.5 fold.[15] Thoms et al 1995 did a study in Atlanta, in which it was found that the four-year survival differed significantly according to the clinical stage at diagnosis. It was found that the four-year survival in clinical stage IA was 94%, stage IB was 79%, stage II was 39%, stage III was 26% and stage IV was 0%. [16] Therefore women in developing countries are more at risk of dying of the disease when they present at tertiary health facilities.

Studies in different developing countries have shown that women's knowledge on cervical cancer is very poor, leave alone knowledge on abnormalities of vaginal bleeding and discharge.[17, 18, 19] Poor knowledge is not the only factor that contributes to delay to reach tertiary facilities, but the social network, values, opinions, and cultural background act to suggest or advise an individual into taking or not taking a particular course of action regarding health care.

In the study done by Fruchter and his colleagues in United States,[20] it was found that the average interval between onset of symptoms and first medical visit in symptomatic women was 5.5 months. In this study 17.5% of the patients were asymptomatic. These patients' disease was detected by Pap smear test or by cervical biopsy, so there was no delay to the first medical visit. Those delayed more than 1 month were 51(52.6%). The main reason for delay for those reported more than 1 month was that they thought the symptoms were normal (52.9%). Other reasons that were given were fear or embarrassment.

In a similar study, which was done in Madagascar, showed that the diagnosis of cancer of the cervix was delayed on average of about 8.48+/-7.12 months.[21]

In a study that was done by Stein and his colleagues in Zimbabwe, [22] found that the average patient delay in seeking medical advice was 8.1 months. Most patients (80%) sought help for the first time from modern medical services; only 16% visited traditional healers first. In this study the major reason advanced as to the cause for delay by most patients was that they did not recognise their initial symptoms as being possible signs of cancer. Other reasons were fear, poverty and unavailability of medical services.

According to the demographic and health survey of 1999 about 68% of the population of Tanzania lives in rural areas.[23] Women living in this area are served in primary health care facilities in which clinical officers and clinical assistants provide medical care. The primary health care facility is a level at which intervention could be achieved by educating health care providers about the symptoms and signs of early cancer and the necessary examination techniques.[24, 25] It has also been pointed out that by using primary health care providers the awareness of the population as regards the prevention and early detection of cervical cancer can be raised.[22, 24, 25] Cervical cancer control is possible through primary prevention by reduction of the known risk factors or secondary prevention -through screening, detection and treatment of pre-cancerous lesions and early cervical lesions.[5]

According to the training curriculum for Clinical Officers and Clinical Assistants prepared by the Ministry of Health, Clinical Officers and Clinical Assistants must be able to perform routine gynaecological examination including speculum and vaginal examination. They must be able to detect abnormal changes of the cervix. It is clearly indicated that any patient with suspected cancer of the cervix should be referred to a higher level of care.[26]

Arrilo-Santillar and colleagues[27] reported a cross sectional study on health care professionals in Mexico on their level of knowledge on cervical cancer. A "1 to 10-scale" questionnaire was used to test the knowledge. The study showed that the mean knowledge was 4.74 and specialist physicians had higher knowledge (mean 5.21) than social workers (mean 3.07). The knowledge level was generally lower when trying to identify aetiological aspects and treatment perspectives in all cadres. It was concluded that it was necessary to improve educational interventions for health care professionals in order to promote professional competence and thus improve the quality of medical care.

Another study that involved female health care workers in Mexico to ascertain their degree of knowledge on cervical cancer using 0 to 24

points showed that their average knowledge was 8+/-4 that corresponded to a very low degree.[28]

STATEMENT OF THE PROBLEM.

Cervical cancer has the highest incidence in eastern and southern Africa where rates over 45 per 100,000 women have been reported.[5] In Tanzania the prevalence of the disease is not known although hospital based data indicate that it is the commonest gynaecological malignancy.[7, 8, 9]. Cervical cancer is curable if diagnosed at an early stage. However most patients in Tanzania present late with advanced stages of the disease to the tertiary health care facilities.[7, 8, 9]

It is presumed that two major areas may lead to late presentation to tertiary health care facilities. These are late reporting to the health facility with an already advanced stage of the disease (patient delay) or a provisional diagnosis is made late despite early reporting by the patient to the health care providers (health care providers' delay). On the part of the patients, their recognition of illness is defined by their view of reality and not by the health professionals' medical criteria, which may not necessarily coincide. As a result utilisation of medical services may be influenced by recognition of symptoms and the assessment that the symptoms are serious enough to justify medical care.

Assistant Medical Officers (AMO), Clinical Officers (CO) and Clinical Assistants (CA) work in Primary health care facilities, where they see

majority of patients and therefore, are the integral part of the health system. Knowledge and skill on prevention, diagnosis, treatment and control of the disease among them is deemed important. It is through these cadres of health workers that community awareness with regards to prevention and early detection can be raised. The availability of basic examination facilities should go hand in hand with adequate knowledge and skills.

This study endeavoured to look into the possible causes associated with late presentation of patients with cervical cancer to reach Muhimbili National Hospital (MNH).

RATIONALE:

Reducing the morbidity and mortality caused by cancer of the cervix is one of the principles in controlling the disease. Strategies to achieve this end should be comprehensive and have adequate coverage to ensure that the maximum number of persons at risk is reached. To achieve this in the Tanzanian context, AMO, CO and CA have important roles that include not only in the detection of those with frank disease but also in educating the community on the risk factors associated with the disease, early symptoms and strategies for prevention of the disease.

This study attempted to look into possible causes leading to late presentation of patients with cancer of the cervix to reach Muhimbili National Hospital (MNH). Could this be due to delay of patients with symptoms referable to cancer of the cervix to report to health care facilities or the part of health care providers' poor knowledge on diagnosis of the disease. Lack of basic facilities for gynaecological examination could be yet another reason.

The obtained data may serve a basis to organise and plan training of health care providers. The data may also be useful in sensitising communities and raising awareness of the disease as well as providing information for future establishment of a national cervical cancer control programme. This will be a great contribution to control of a hitherto poorly addressed, highly prevalent condition in the country.

BROAD OBJECTIVE:

1. To identify factors contributing to delayed diagnosis of cancer of cervix among patients admitted at Muhimbili National Hospital.

SPECIFIC OBJECTIVES:

1. To determine the proportion of cervical cancer patients presenting late for treatment of the disease at Muhimbili National Hospital.

2. To determine reasons for delay in patients presentation to health care facility when symptoms of cervical cancer were already present.

3. To determine the level of knowledge of AMO, CO and CA on risk factors, symptoms, treatment and control of cancer of the cervix.

4. To assess the availability of basic facilities for gynaecological examination at the district and primary health care facilities.

METHODOLOGY:

Study Area and Study Population:

The study was conducted in two parts, Muhimbili National Hospital and Magu district In Mwanza region. This hospital was chosen because it is the National referral hospital and all patients suspected of having cancer of the cervix are referred to it. At this hospital the patients are investigated and if found to have advanced disease are sent to Ocean Road Cancer Institute (ORCI). ORCI is the sole radiotherapy unity in the whole of Tanzania. In 1997 and 1998 there were 1169 and 1054 cases of cancer admitted at the institute respectively. Among those cases 500 (42.8%) and 490(46.5%) were cancer of the cervix in respective years.[29] Overall there was an average of eight to nine patients with cancer of the cervix admitted every week.

The second part was conducted in Magu district in Mwanza region. Magu district was chosen as a study area because most of the patients with cancer of the cervix who are referred to MNH are coming from the Lake Zone and particularly Mwanza region (Verbal communication to the director of ORCI). Magu district has an area of 4790 square kilometres. Its population is 426,116 out of which 217,319 are females.[30] As one moves out of town towards the peripheral areas one

enters a typical rural setting, which is sparsely populated. The district is organised into 6 divisions, 27 wards and 125 villages.

There are two hospitals; one is a government district hospital and the other belongs to a voluntary agency. There are 4 health centres all belong to the government. The district has 14 private dispensaries and 37 government dispensaries. Each dispensary has at least one Clinical Assistant and each health centre has at least one Clinical Officer and two Clinical Assistants who provide general health care for patients, which includes diagnosis, treatment and referrals. Each of the two hospitals has one graduated Medical Officer who is the in-charge and a number of Assistant Medical Officers and Clinical Officers.

Study design:

This was a cross sectional study. The first part involved all patients admitted at MNH and diagnosed to have cancer of the cervix during the study period. Two hundred and three patients were involved in the study.

The second part involved AMO, CO, and CA in the district, who were taking care of patients in government and non-government institutions. These were assessed on their level of knowledge of diagnosis, treatment

and control of cancer of the cervix. The availability of basic gynaecological examination facilities in their health facilities was also assessed.

Sample Size:

The sample size was calculated based on the assumption that 80% of patients with cancer of the cervix present late at MNH and the worst acceptable proportion could go as high as 86%. The sample size was calculated in order to achieve a 95% confidence interval with a power of 80%. Using the above information on the statcal (Epi info 6 programme) the total sample size was 179. Assuming a response rate of 90% and adjusting for this the final sample size was 199.

$n = Z^2pq/d^2$

Where

n= Estimated total sample size.

Z= The standard normal deviate, usually set at 1.96, which corresponds to the 95%confidence interval.

p= the proportion in the target population estimated to have a particular characteristic of interest. In this case a characteristics of interest was late presentation of cancer of the cervix patients.

q= 1-p

d= Detectable difference.

Sampling technique:

All patients with cancer of the cervix admitted between 1st of August and 30th November 2000 who satisfied the criteria and were willing to participate were included. Also this applied to all patients who were admitted into the gynaecological wards with other problems and later to be discovered to have cancer of the cervix.

All Assistant Medical Officers, Clinical Officers and Clinical Assistants who were taking care of patients in the district were included in the study. In health care facilities where there was no Clinical Officer or Clinical Assistant, no interview took place except for the assessment of availability of basic facilities for gynaecological examination.

Pre-testing of the research tools:

The questionnaire was translated into Swahili, which was the local language of all the patients. The Swahili translated questionnaires were pre-tested before embarking on full-scale study to test their adequacy. The procedures planned for the full study were employed. The results were used to correct the inconsistency of some words and adding important issues that had been left out. Also the pre-testing was used in confirming the usefulness of the interviewers questionnaire.

Data collection method:

First part:

Two methods were used in gathering the required information. These were patients' records and interviews. The patients' records were used to obtain stage of the disease and confirmation of the histological diagnosis. Residents and gynaecologists clinically staged all patients. The criteria of the International Federation of Gynaecologists and Obstetricians were used to define the clinical stage of the disease. Patients were interviewed using a semi-structured questionnaire. Data on demographic factors, presenting symptoms, the duration of symptoms, each patient's sequential attempt to obtain help for the disease and the duration of delay at each were collected. The reasons for the delays were also sought.

The principal investigator and 2 pre-trained nurses working in the gynaecological wards conducted the interviews. The use of assistants was necessitated by the fact that referred patients are admitted daily into the wards. The principal investigator checked all filled questionnaires by the pre-trained nurses.

Second part:

Visits were made to all health facilities in Magu district. The principal investigator and a pre-trained research assistant collected the data through interview and observation. Health care providers were interviewed using a structured questionnaire designed to assess their level of knowledge on diagnosis, treatment, and control for cervical cancer (Appendix II). A checklist (Appendix III) was used to assess the availability of basic facilities for gynaecological examination. Those health care providers who were found absent in their health care facilities in the first visit were re-visited and regarded as non-respondents if found absent the second time. Every day after data collection, the principal investigator and the research assistant met to discuss problems encountered during the day, ready for the next day. In ensuring quality of data at the end of each working day the principal investigator checked all questionnaires filled by the research assistant.

Data processing and Analysis:

When data collection was completed, serial numbers were assigned to the questionnaires to facilitate identification of the different patient data. Thereafter responses for the open-ended questions were reviewed, categorised and coded for the computer data entry. The data were entered into the computer by the principal investigator with the help of

the computer technician using the statistical package for social sciences (SPSS) and EPI INFO6 computer programmes. Data cleaning and validation was done by editing data entry errors and inconsistencies. Chi- squared test was used to determine association between variables. Where the chi-square test was not valid the Yates corrected Chi square test was used. The comparisons of the medians between two groups was done using Kruskal-Wallis test. The results were deemed significant at p-value of less than 0.05.

Ethical Consideration:

Ethical clearance for the study was sought from the research and publications committee of Muhimbili University College of Health Sciences (MUCHS). Permission to conduct the study was obtained from district authorities and the director of Muhimbili National Hospital (MNH). Participation was sought from participants after proper detailed explanation of the aim of the study. Informed verbal consent suffices for one to be included in the study. Those who disagreed were not included in the study. There were only 4 patients who disagreed. The interview process was conducted confidentially and each participant was approached and interviewed separately.

Limitation of the study

The interviewer being a medical personnel and conducting the interview at the health facility the interviewee may have feared to give the right situation of the disease. This was minimised by reassuring the interviewee that the information given would be used for the research purpose only and not for any other purpose.

Some patients had difficult in recalling some of the information, particularly the duration of illness and the time, which had lapsed between different events. Digital counting was noted implying some inaccuracy in their recall of the exact duration.

Another difficulty, which was faced and may have affected the validity of the study was:

- Some health care providers in the district were not in their health facilities during the study period.

DEFINITION OF TERMS USED IN THE TEXT:

Duration before seeking modern health care services:

In this study, it was counted as the duration that elapsed since the patient noticed symptoms referable to cancer of the cervix up to the time she reported to the first modern health care facility.

Early diagnosis of cancer of the cervix:

The cut-off point for early and advanced cancer of the cervix is controversial. In this study, early diagnosis was defined as diagnosis of cancer of the cervix when it was in FIGO stage IA to IIA. The cut-off point for an early disease was chosen at stage IIA because the disease has not significantly spread outside the pelvis and surgery can be done in some cases with a five-year survival of more than 70%.

Delayed diagnosis of cancer of the cervix:

In this study it was defined as diagnosis of cancer of the cervix when the stage of the disease had reached FIGO stage IIB and beyond. Other terms like late diagnosis and advanced disease may be used interchangeably.

Knowledge about cancer of the cervix:

Knowledge on cancer of the cervix items were divided into four knowledge sub-scales. The sub-scales were knowledge on symptoms, risk factors, treatment and control. Each correct response was scored as one point and incorrect one as zero. The responses were added to get scores in the sub-classes and total scores. The mean scores were determined for the various knowledge scales. The correct responses for each sub-class were:

1.Symptoms.

1. Intermenstrual bleeding.
2. Postmenopausal bleeding.
3. Post-coital bleeding.
4. Abnormal vaginal discharge. **Subtotal score 4**

2. Risk factors.

1. Multiple sexual partners.
2. Early age at sexual debut.
3. A partner with multiple partners.
4. Sexually transmitted infections.
5. Early age of first pregnancy. **Subtotal score 5**

3.Treatment.

1. Surgery for early cancer.
2. Radiotherapy for early cancer.
3. Radiotherapy for advanced cancer.
4. Cytotoxic drugs for advanced cancer. **Subtotal score 4**

4. Control.

1. Avoid multiple sexual partners.
2. Delay entry into sexual relationship.
3. Prevention of sexually transmitted infections.
4. Screening for early disease. **Subtotal score 4**

The total knowledge score was 17.

RESULTS:

A total of 203 patients were included in the study. One hundred ninety nine were referred from peripheral health units while four were self-referral to Muhimbili National Hospital.

Figure 1 shows that more than 78% of patients presented at MNH with an advanced cervical cancer (FIGO classification stage IIB-IVB). Only 44 out of the 203 cancer of the cervix patients (21.7%) reached MNH with an early stage of the disease.

Figure I: Distribution of patients according to stage of cancer of the cervix on admission

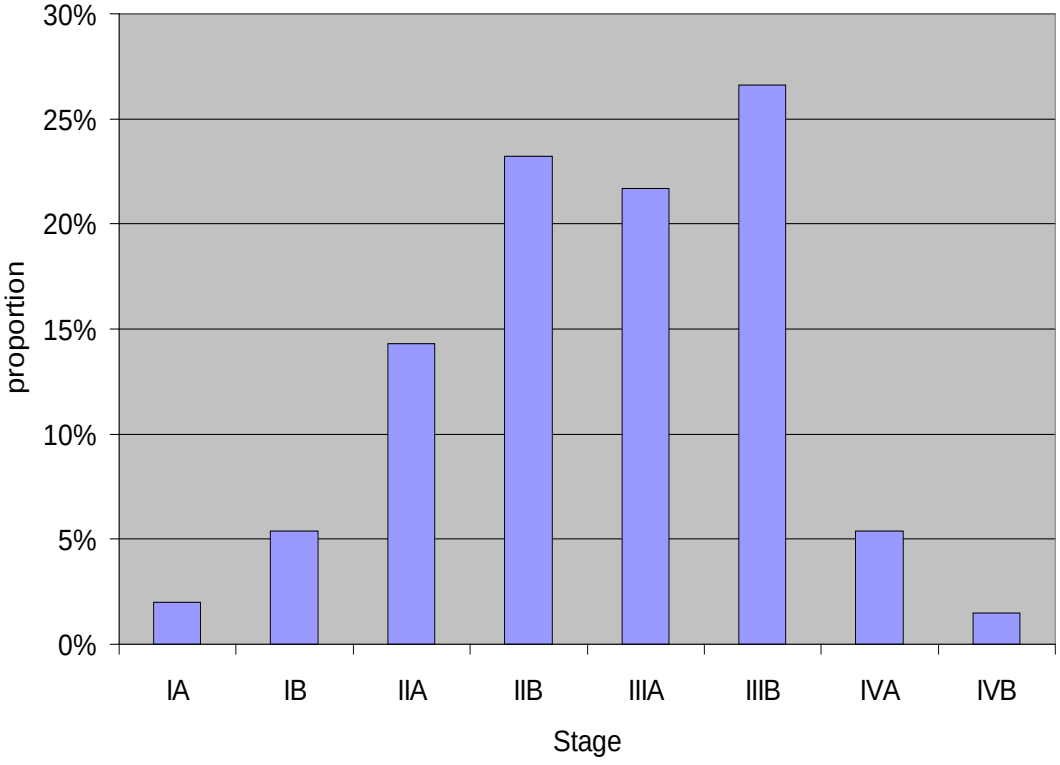


Table 1: Distribution of patients according to duration (in months) of symptoms which they presented with at Muhimbili National Hospital.

Symptom	Early Diagnosis Median(Q_1,Q_3)	Delayed Diagnosis Median(Q_1,Q_3)	Kruskal-Wallis H P-value
Abnormal vaginal discharge	4(3,12)	6(3,10)	K-W H=0.06;df=1 P=0.803
Lower abdominal pain	6(3,10)	5(3,12)	K-W H=0.09;df=1 P=0.766
Post coital bleeding	4(2,6)	6(3,12)	K-W H=2.61;df=1 P=0.106
Post menopausal bleeding	5(3,6)	5(3,12)	K-W H=0.57;df=1 P=0.450
Intermenstrual bleeding	5(4,10)	6(3,9)	K-W H=0.04;df=1 P=0.834
Other	4(2,10)	4(3,6)	K-W H=0.10;df=1 P=0.750

Q_1=25th centile Q_3=75th centile

Majority of patients presented in decreasing order with abnormal vaginal discharge (80.8%), lower abdominal pain (63.9%), postcoital bleeding (36.9%), postmenopausal bleeding (33.0%) and intermenstrual bleeding (28.6%). There was no patient who was asymptomatic. Comparing those whom had early and those who had delayed diagnosis no statistical differences were found in terms of the duration of symptoms (Table 1).

Table 2: Socio-demographic characteristics of the studied patients.

	All N=203	**Early Diagnosis N=44**	**Delayed Diagnosis N=159**	**X^2 P-value**
Age (years)				
<45	64(31.5%)	18(40.9)	46(28.9)	
45-55	89(43.8%)	17(38.6)	72(45.3)	X^2=2.31;df=2
>55	50(24.7%)	9(20.5)	41(25.8)	P=0.315
Marital status				
Single	3(1.5)	0(0.0)	3(1.9)	
Married/cohabiting	116(57.1)	28(63.6)	88(55.3)	X^2=1.59;df=2
Divorced/separated/widowed	84(41.4)	16(36.4)	68(42.8)	P=0.452
Occupation				
Housewife	32(15.8)	7(15.9)	25(15.7)	
Peasant	157(77.3)	35(79.5)	122(77.7)	
P business/self employed	6(3.0)	1(2.3)	5(3.1)	X^2=0.52;df=3 P=0.914
Employed	8(3.9)	1(2.3)	7(4.4)	
Parity				
5 or less	80(39.4)	15(34.1)	65(40.9)	X^2=0.41*
More than 5	123(60.6)	29(65.9)	94(59.1)	P=0.521
Education				
No formal education	133(65.5)	32(72.7)	101(63.5)	X^2=0.92*
Some formal education	70(34.5)	12(27.3)	58(36.5)	P=0.34

Yates corrected.

Table 2 summarises the socio-demographic characteristics of the study population. The age ranged from 26 years to 77 years, with the majority of them being in the age group between 45 and 55 years (43.8%). The median age was 50(42,55) years. One hundred and sixteen (57%) of them were currently married or cohabiting while 84 (41.4%) were divorced, separated or widowed. The majority 123 (60.6%) had had more than 5 deliveries at the time of referral to Muhimbili National Hospital, with a mean parity of 6. More than sixty-five per cent of the studied patients had no formal education.

Table 3: The distribution of patients according to the time passed before seeking modern health care services.

Duration (months)	**All N=203**	**Early Diagnosis N=44**	**Delayed Diagnosis N=159**	**X^2 p-value**
<1	13(6.4)	0(0.0)	13(8.2)	
1-3	81(39.9)	20(45.5)	61(38.4)	X^2=4.37
4-6	40(19.7)	10(22.7)	30(18.9)	P=0.224
>6	69(34.0)	14(31.8)	55(34.6)	

The duration that elapsed between a patient experiencing first symptoms and reporting to a modern health care facility ranged from a day to more than 5 years. The median duration were 4(2,9) months for those with early disease and 4(1,12) months for those with delayed

disease. The mean for both groups were 11.1(sd=21.79) months and 8.37(sd=11.53) respectively.

Although the duration that elapsed was not statistically different between those with early diagnosis of the disease and those with delayed diagnosis of the disease, but none in the early diagnosis of the disease presented within the first month of symptoms.

Table 4: Distribution of patients according to the first person consulted after they noticed the symptoms.

First person informed	All N=203	Early Diagnosis N=44	Delayed Diagnosis N=159	X^2 test p-value
Husband/spouse	91(44.8)	22(50.0)	69(43.4)	
Relative	80(39.4)	13(29.5)	67(42.1)	
Health care provider	5(2.5)	1(2.3)	4(2.5)	X^2=3.13;df=4 P=0.537
Traditional healer	5(2.5)	2(4.5)	3(1.9)	
Others	22(10.8)	6(13.6)	16(10.1)	

Most patients first sought advice from their husband/spouses and relatives. Very few first sought advice from health care providers (10.8%) and traditional healer (2.5%). The duration of symptoms before the respondents sought advice ranged from a day to more than 3 months,

with an average of 26.8 days. Most patients sought advice when the symptoms had lasted for more than 14 days.

Table 5: Reasons given by patients for delay in seeking advice.

Reason	**All** **183**	**Early Diagnosis** **43**	**Delayed Diagnosis** **140**	**X^2 test p-value**
Thought it was normal	114(62.3)	33(76.7)	81(57.9)	
Fear of the symptoms	24(13.1)	5(11.6)	19(13.6)	X^2=5.83;df=3 P=0.120
Didn't know it was symptom of cancer	26(14.2)	3(7.0)	23(16.4)	
Other	19(10.4)	2(4.7)	17(12.1)	

The reason given for the delays in seeking advise was obtained from 183 patients. Twenty patients thought that they sought advice early with an average duration of symptoms before seeking advice of 2 weeks. The commonest reason given was that patients thought the symptom were normal life phenomenon (Table 5). When they were asked specifically what they suspected when they had the first symptoms only 3.9% thought they had cancer of the cervix and the rest thought of other problems than cancer of the cervix. There were no statistical difference between those who were diagnosed of having early cervical cancer and those with delayed cervical cancer (Fisher exact 2-tailed p-value=1.00).

Table 6: Distribution of patients according to the advice given to them by first person consulted.

Advice given	All N=203	Early Diagnosis N=44	Delayed Diagnosis N=159	X^2 test p-value
Attend HCF	148(72.9)	34(77.3)	114(71.7)	
Attend T/healer	30(14.8)	5(11.4)	25(15.7)	X^2=1.02;df=3
Given medicine	8(3.90	1(2.3)	7(4.4)	P=0.796
No advise given	17(8.4)	4(9.1)	13(8.2)	

Regarding the advice given to patients by the first person consulted, an overwhelming majority (72.9%) was advised to attend health facility. Advises given were not significantly different in the two groups.

Table 7: Attendance to traditional healers

Attendance to T/healer	All N=203	Early Diagnosis N=44	Delayed Diagnosis N=159	X^2 test p-value
Attended T/healer	84(41.4)	20(45.4)	64(40.3)	
Didn't attend T/healer	119(58.6)	24(54.6)	95(59.7)	X^2=0.2* P=0.65

* Yates corrected

During the course of their illness 84 (41.4%) patients attended to traditional healers. The duration that they attended ranged from a day to more than a year, with a median of 4 (3, 12) weeks. There was no statistical difference in terms of delay diagnosis between those who attended to traditional healers and those who didn't attend to traditional healers.

KNOWLEDGE OF HEALTH CARE PROVIDERS.

A total of 54 health care providers were interviewed from all health care facilities in Magu. Of these 40 (74.1%) work in Dispensaries, 6 (11.1%) in Health centres and 8 (14.8%) in Hospitals. There was a larger representation of Clinical assistants (57.4%) compared to Clinical officers (CO) and Assistant medical officers (AMO). Their age ranged from 27 to 54 years, with the median age of 39 (35,43) years. There were 47 (87%) males and 7 (13%) females.

Table 8: The association between hearing of a pap smear and designation of health care provider. (Percents in bracket)

Designation	**Pap smear**		
	All	**Heard**	**Not heard**
	N=54	**N=22**	**N=32**
AMO	4(7.4)	4(100.0)	0(0.0)
CO	19(35.2)	13(68.4)	6(31.6)
CA	31(57.4)	5(16.0)	26(84.0)

X^2=19.6; df=2; P=0.001

When health care providers were asked which cancer affects most women in their working area, cervical cancer was mentioned by 40 (74.1%) of healthcare providers. Only 22 (40.7%) health care providers had heard of pap smear while the majority 32 (59.3%) had not heard of

the investigation. Of the 22 who had heard of pap smear only 14 (63.6%) knew it correctly. A significantly large proportion of higher cadres had heard of the pap smear compared to the lower cardre (p-value <0.001).

Table 9: Knowledge of health care providers on cancer of the cervix

Knowledge	**AMO N=4**	**CO N=19**	**CA N=31**	**Kruskal-Wallis p-value**
Symptoms				
Median(Q_1Q_3)	3.00(2.5,3.5)	2.00(1.0,2.0)	1.00(1.0,1.0)	K-W H=17.7;df=2 P=0.00014
Mean(SD)	3.00(0.816)	1.74(0.872)	1.00(0.836)	
Risk factors				
Median(Q_1Q_3)	2.50(2.0,4.0)	2.00(0.0,3.0)	0.00(0.0,1.0)	K-W H=18.0;df=2 P=0.00012
Mean(SD)	3.00(1.414)	1.53(1.172)	0.452(0.850)	
Treatment				
Median(Q_1Q_3)	2.50(1.5,3.0)	2.00(1.0,2.0)	1.00(0.0,2.0)	K-W H=5.9;df=2 P=0.05194
Mean(SD)	2.25(0.957)	1.75(0.964)	1.00(1.095)	
Control				
Median(Q_1Q_3)	2.50(1.0,3.5)	1.00(0.0,2.0)	0.00(0.0,0.0)	K-W H=12.7;df=2 P=0.00171
Mean(SD)	2.25(1.708)	1.26(1.098)	0.42(0.923)	

The table shows the distribution of health care providers according to the point scored on knowledge of cancer of the cervix. The expected maximum score was 17. The total average score was 4.63 with a minimum score of 1 and the maximum score of 13. The knowledge on symptoms, risk factors and control of cervical cancer was significantly

higher among the upper cadres than lower cadres. But knowledge on the treatment was not significantly different in different cadres.

Table 10: The availability of basic facilities for gynaecological examination. (Number of health care facilities=43)

Facility	Available	Percent
Examination room	43	100.0
Examination couch	43	100.0
Light source	19	44.2
Sterilizer	39	90.7
Speculum	43	100.0
Gloves	43	100.0
Kidney dish	43	100.0
Antiseptics	40	90.0
Cotton wool/gauze	43	100.0
Biopsy forceps	0	0.0
Wooden spatula	6	14.0
Acetic acid	0	0.0
Glass slides	11	25.6

Almost all health care facilities had important examination facilities to undertake clean and safe basic gynaecological examination except for the light source, which was present only in 44.2% of facilities. Other facilities like biopsy forceps, wooden spatula, and acetic acid were virtually absent in almost all health care facilities.

DISCUSSION

As one of the most common cancers in developing countries like Tanzania, cervical cancer has had a devastating impact on women health throughout the world. Where as the picture in developed world shows that majority of the cases are diagnosed in the early stage, the situations in developing world is different. This had been clearly demonstrated in this study whereby more than 78% of the studied patients presented with advanced stages of the disease. These findings are similar to findings obtained in Nigeria whereby 81% of the cases were diagnosed to be in stage III-IV.[13] In India only 5% of patients with cancer of the cervix report in the early stages.[30] The distribution of different stages was also similar to other studies done in the region. In Kenya in 1980 it was reported that 10.2% presented with stage I disease, 28.1% stage II, 56.0% stage III, and 5.7% were in stage IV.[31]

This late presentation may be attributed to a number of factors. Among these factors delay in presentation of patients to modern health care facilities is significant. It has been found in this study that the duration, which elapsed between a patient experiencing first symptoms and reporting to the modern health care facility, ranged from a day to more than 5 years. On average patients presented after 8.96(sd=14.4) months of symptoms and the median was 4(1,10). Previous studies in Zimbabwe

and Madagascar reported similar results. For instance in Zimbabwe it was found that of the 50 patients interviewed had waited for 8.1 months before they reach modern health care services.[22] In Madagascar the average patient delay was 8.41 months.[21]

By dividing the studied patients into those who reported with early disease and those with advanced disease it was found that the mean were 11.1(sd=21.79) months and 8.37(sd=11.53) respectively. The difference was not statistically significant and suprisingly those with early disease reported longer duration. This may be explained by unreliability of patients' recall of symptoms. Studies have found that the duration of symptoms reported by patients with advanced disease was often remarkably short.[20, 22] This could be attributed to poor recall by sickler patients or a more fulminant disease.

When the patients in this study were asked specifically what they suspected when they observed the first symptoms, only 3.9% thought of cancer of the cervix and there was no difference between those with early diagnosis and those with delayed diagnosis. This may indicate low level of knowledge as it has been shown before by different studies.[17, 32]

Fruchter and his colleagues in the United States[20] showed that 36.2% of the patients presented within one month of the symptoms and 26.3% and 37.5% in the one month to three months and more than three months respectively. In this study it has been shown that only 6.4% of the patients presented within one month of symptoms and majority (53.7%) after three months of symptoms.

In the study by Fruchter et al it was also found that more advanced disease was generally associated with longer patient delay. Therefore the longer delay found in this study could explain the fact that the majority of the patients (78.3%) presented with advanced stage of the disease as compared to those found by Fruchter and his co-workers.

The symptoms related to cancer of the cervix could also contribute towards delay of patients reporting to health care facility. Most of the symptoms are related to normal physiological change in the body, reproductive problems or other pathologies. This is because almost 70% of the patients with cancer of the cervix are premenopausal.[31] In this study 67% of the patients were premenopausal. Also there are traditional taboos, which prohibit open discussion of sexual matters, thereby making women shy from reporting symptoms such as vaginal discharge. More over, vaginal discharge is often interpreted as sexually

transmitted disease (STD) which is stigmatized.[17] But looking into duration of symptoms in those patients who were diagnosed early and those diagnosed late, it was found that there was no differences between the two groups with respect to the type of symptoms they presented with at MNH (Table 1). The absence of differences could represent the same level of awareness about the disease among the studied patients rather than the implication on the initial symptoms.

Although majority of the patients (87.7%) first consulted their spouses or relatives, a significant number of them (72.9%) were advised to attend modern health care facility. However a good number of them were poorly advised to go to tradition healers, some given medicines to use or no advice was given at all. This could contribute to the patients' delay to present to the modern health care facilities though this study has shown no association between advice given and stage of diagnosis of the disease.

Although very few 5 (2.5%) patients first consulted traditional healers and few (14.8%) were advised to attend to traditional healers but as many as 84(41.4) patients attended to traditional healer during the course of their illness. This may have contributed to delay to reach health care facilities and thus contributing to delayed diagnosis at MNH

though this data showed that there was no statistical difference at stage of presentation between those who attended to traditional healer and those who didn't attend. The absence of difference may have been contributed by the fact that there are so many factors, which may cause patient to delay to reach MNH.

A number of previous studies have demonstrated an overall lack of knowledge on cancer of the cervix in both women as well as health care providers.[17, 18, 19, 27, 28, 32] This has been confirmed on the part of health care providers in this study in which it was found that on the scale of 0-17 the average score was 4.63 which was very low. AMO had more knowledge than CO and CO had more knowledge than CA. The difference in knowledge is explained by the different intensities of training for these cadres. The AMO are more trained in the medical field than the rest of the cadres and thus be more knowledgeable not only on cancer of the cervix but also many other diseases.

Generally poor knowledge about the dynamics of the disease and its management may influence their attitude toward the patients and this may be an indirect explanation of low knowledge of women on the disease. This may also be an indirect contributing factor for most of the

patients with cancer of the cervix not attending health care facilities early when they have symptoms related to cancer of the cervix.

According to Sparen improvement in public and professional awareness of cancer of the cervix is the one, which has resulted in diagnoses at earlier stages in Sweden. The rate of cure in early stages improved when basic local treatments were introduced but only little of the progress was attributed to the introduction of more advanced treatment technologies.[15]

In this study it is evident that very few 22(40.7%) health care providers had heard of a papanicolaou (pap) smear, leave alone knowing it correctly. In Tanzania as is in Zimbabwe there is no systematic cervical cancer screening programmes currently available but the opposite situation was found in Zimbabwe by Chirenje where the majority (97%) of staff in the primary health care facilities were aware of the Pap smear.[33]

Although the contribution of massive cytological screening for precancerous state of the cervix is seen in developed countries where the incidence rate of the disease is now low and the stage distribution has shifted to earlier stages, [34, 35] but the cost is quite high in terms of

facilities, expertise, and logistics so very few developing countries can afford such programmes.[31, 36] There are alternative approaches to cervical cytological screening. The unmagnified visual screening especially inspection of the cervix stained by 3 to 5% acetic acid as recently demonstrated by Megevant in a south African study, [37] seem very promising and more applicable to low resource countries.

Specific and basic facilities required for speculum examination namely examination room, examination couch and speculum were available in all the surveyed health care facilities. The availability of other facilities like light source, sterilizer, and gloves was also good. But the situation is not very different in any East, Central, and Southern African country in which most (81%) primary health care facilities have equipment for speculum examination.[33, 38]

Taking into consideration the availability of basic facilities for speculum examination in the primary health care facilities, the screening for cancer using clinical approaches can be undertaken (Downstaging). This is distinct from screening test and results in detection of the disease at a less advanced stage in the absence of screening. The process of downstaging may be integrated with the preexisting primary health care programmes that offer related services like family planning (FP), sexually

transmitted disease (STD) and maternal/child health (MCH) services to ensure appropriate follow-up. This approach is applicable in developing countries like Tanzania where cytological screening is not possible in the near future.

CONCLUSIONS

1. Majority (78.3%) of the cancer of the cervix patients reach MNH with an advanced stage of the disease, when the chances of successful treatment are slim and treatment is expensive. The socio-demographic characteristics (age, marital status, occupation, parity and education) had no influence on early diagnosis of the disease and early reporting to modern health care facilities.

2. Most patients in the early and delayed diagnosed group thought the initial symptoms were normal change in their body (62.3%) and didn't recognise the symptoms were related to cancer of the cervix (14.2%). These contributed to their delay to attend first health care facilities.

3. Majority (84.2%) of patients informed first their husbands/spouses or relatives when they had the symptoms and majority (72.9%) were advised to attend modern health care facilities. There was no difference between the early and delayed diagnosed group on whom first consulted, which implies that if the community awareness of the disease is increased then more patients will have access to correct advices.

4. The study showed that generally, health care providers had very poor knowledge (mean 4.63 on a scale of 0 to 17) on cancer of the cervix. This may be the contributing factor on the delay to suspect the disease thus contributing to patient reaching MNH with an advanced stage of the disease.

5. Most of the primary health care facilities and the district hospital have basic facilities for gynaecological examination. This makes easy integration of the clinical approaches to the existing women's health programmes.

RECOMMENDATIONS

1. Education of the community on risk factors, early symptoms and curability of the disease. This may encourage early decision to seek modern health care services. The education should extend not only to women but also to their husbands/spouses as have been seen that many women first inform them when they have symptoms referable to cancer of the cervix.

2. Due to findings that health care providers had poor knowledge of cervical cancer, it is suggested that more emphasis should be put on education of the health care providers. Correct information on the risk factors, symptomatology, curability and prevention of the disease need be provided. There after these health care providers should be encouraged to give education to the community thus raising the community awareness on the disease.

3. This study could not explain awareness and attitudes towards the symptoms of the disease and what happened after patient attended health care facility. It is therefore recommended an in depth study of the community awareness of the disease and their attitude toward the symptoms referable to cancer of the cervix as well as attitude toward modern health care facilities when they

have such symptoms. Another study on the referral system of patients with cancer of the cervix is also recommended.

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APPENDIX I

Questionnaire-Patients

Identification and socio-demographic characteristic:

1. Serial no. /__/__/__/
2. Hospital registration no.: /__/__/__/__/__/__/
3. Name of patient: _____
4. Date of interview __/__/2000
5. Stage of the disease:

   1.Ia 2.Ib 3.IIa 4.IIb

   5.IIIa 6.IIIb 7.Iva 8.Ivb
6. Reason for referral (Referral diagnosis): _____
7. Age: /__/__/years.
8. Residence (Region): _____
9. Education level:

   1.No formal education

   2.Primary education

   3.“O” secondary education

   4.“A” secondary education

   5.College/university
10. Occupation:

    1.Unemployed

    2.Peasant

    3.Business/self employed

    4.Salaried employment

11. Marital status:

    1.Single

    2.Married/Cohabiting

    3.Divorced/Separated

    4.Widow

12. Religion:

    1.Moslem

    2.Christian

    3.Pagan

    4.Other (specify) _____

13. Parity /__/__/ number.

14. What symptoms and for how long have you been experiencing them?

	Months
1.Intermenstrual bleeding	[ ][ ]
2.Abnormal vaginal discharge	[ ][ ]
3.Postmenopausal vaginal bleeding	[ ][ ]
4.Post-coital bleeding	[ ][ ]
5.Abdominal pain	[ ][ ]
6.Other (specify)_____	[ ][ ]

15. What did you think you were suffering from when you first noticed the symptoms?

    1.Cancer of the cervix

    2.Other (specify)_____

16. Who did you first inform when you noticed this/these symptoms?

    1.Husband

    2.Relative (Specify)_____

    3.Tradition healer

    4.Religious leader

    5.Health worker

    6.Other (mention)_____

17. What time had passed before you inform him/her?

    /__/__/weeks.

18. Why did you take all that that long before informing her/him?

    1.I thought it was normal

    2.I had fear

    3.I didn't know if the symptoms related to cancer

    4.I Informed him/her early

    5.Other (mention)_____

19. What suggestions/advice did he/she give?

    1.Go to health facility

    2.Go to traditional healer

    3.None

    4.He/She gave me medicine to use

    5.Other (mention)_____

20. What did you decide to do?

    1.Go to traditional healer

    2.Go to modern health care facility

    3.Use the medicines given

    4.Other (mention)_____

21. Have you ever attended to the traditional healer for this illness?

    1.Yes (To Q 22)

    2.No (To Q 23)

22. For how long did you attend there? (Probe to get total duration)

    /___/___/weeks

23. From which health care facility did you first seek help for your illness?

    1.Dispensary 2.Health centre

    3.District hospital 4.Regional hospital

    5.Mission hospital 6.Tertiary hospital

24. After noticing the symptoms, what time had passed before you reported to the health care facility?

    /__/__/weeks/months

25. Why did you take all that long before you reported to the health care facility?

    1.Financial constraints

    2.Went to the traditional healer

    3.Relatives refused

    4.Other (mention)_____

APPENDIX II

QUESTIONNAIRE

Health care provider

IDENTIFICATION:

1.Serial number /__/__/__/

2.Date__/__/2000

3.Name of the health facility: _____

4.Status of the health facility:

1.Dispensary

2.Health centre

3.Hospital

5.Type of the health facility:

1.Government

2.Private

3.Religious

SOCIAL AND DEMOGRAPHIC PROFILE:

6.Age /__/__/

7.Sex: 1.male

2.female

8.Level of formal education: 1.Standard seven

2.Form four

3.Form six

4.Others _____

9.Marital status: 1.Married/cohabiting

2.Single

3.Widowed

4.Divorced/Separated

10.Status of health provider: 1.Medical officer

2.Assistant medical officer

3.Clinical officer

4.Clinical assistant

11. Year of qualification /__/__/__/__/

12. For how long have been working? /__/__/

KNOWLEDGE ON CERVICAL CANCER:

13.What type of services do you provide?

1.Attending patients

2.Other (mention)_____

14.What is the commonest cancer in your catchment area?

1.Cancer of the cervix

2.Another (mention)_____

15.What is the commonest cancer affecting women in your catchment area?

1.Cancer of the cervix

2.Another (mention)_____

16.What are the symptoms of cancer of the cervix?

1.Intermenstrual bleeding

2.Postcoital vaginal bleeding

3.Postmenopausal bleeding

4.Abnormal vaginal discharge

5.Lower abdominal pain

6.Don't know

17.What are the risk factors/behaviour associated with cancer of cervix?

1.Multiple sexual partners

2.Early age at first coitus

3.Male partner with multiple partners

4.Sexual transmitted infections

5.Smoking

6.Early age at first pregnancy

7.No causative or related factor

18.Have you ever heard of the pap smear?

1.Yes (To que 19)

2.No

19.What is the pap smear? 1.Cervical smear to identify abnormal cells

2.Other (Specify) _____

20.What do you do when a woman comes with symptoms suggestive of the cancer of the cervix? 1.Do speculum vaginal examination (To Q 21)

2.Other (mention)_____

21.What do you expect to see? 1.Abnormally looking cervix

2.Other (mention)_____

22.What do you do when you suspect that it is cancer of the cervix

1.Refer

2.Treat her at the facility

3.counsel her to go back home

4.Other (mention)_____

23.Is cervical cancer treatable?

1.Yes (to Q 22 &23)

2.No

24.If yes, What is the treatment of early cervical cancer?

1.Surgery

2.Radiotherapy

3.Cytotoxic drugs

4.Other (specify)_____

25.What are the treatment of advanced cancer of the cervix?

1.Radiotherapy

2.Cytotoxic drugs

3.Other (mention)_____

26.Can cancer of the cervix be prevented?

1.Yes (To Q 27)

2.No

27.How can cancer of the cervix be prevented?

1.Avoid promiscuity

2.Avoid sexual activity at an early age

3.Avoid STI

4.Screening and treatment of early disease

5.Other (specify)_____

28.Is your community informed of cervical cancer?

1.Yes

2.No

29.If yes, how is it informed about cervical cancer?

1.Radio

2.Television

3.Newspaper/magazines

4.Health education at the facility

5.Pamphlets

6.Others (specify)_____

30.If no, give reasons. _____

APPENDIX III

CHECK LIST FOR FACILITY SUPPORT

Name of health facility: _____

Type of health facility: _____

Designation and number of the trained staff:

1. Medical Officers	/__/__/
2. Assistant Medical Officers	/__/__/
3. Clinical Officers	/__/__/
4. Clinical Assistants	/__/__/
5. Nursing midwife	/__/__/
6. MCH-Aides	/__/__/
7. Auxiliary nurse	/__/__/

ITEM	YES	NO
1. Examination room	/__/	/__/
2. Examination couch	/__/	/__/
3. Light source	/__/	/__/
4. Sterilizer	/__/	/__/
5. Speculum	/__/	/__/
6. Gloves	/__/	/__/
7. Kidney dish	/__/	/__/
8. Slides	/__/	/__/
9. Antiseptics	/__/	/__/
10. Acetic acid	/__/	/__/
11. Spatula	/__/	/__/
12. Biopsy forceps	/__/	/__/
13. Cotton wool/gauze	/__/	/__/