

# DETERMINANTS OF DELAY IN SEEKING MEDICAL CARE AMONG WOMEN WITH INVASIVE CERVICAL CANCER IN WESTERN KENYA

Mary Flaviane Nyangasi<sup>1</sup>, Justus Osero<sup>2</sup> and Peter Gichangi<sup>3</sup>

## Abstract

**Introduction:** Cervical cancer is the leading cause of cancer morbidity and mortality among women in Kenya. Although curable if detected early, its incidence is on the rise and many women are presenting with advanced disease. Reducing the time from onset of symptoms to diagnosis will effectively improve quality of life and prognosis of patients.

**Methods:** This cross-sectional study was conducted in two county referral hospitals in rural Kenya between March and May 2016. 274 respondents participated in the study. Face to face interviews using a pretested structured questionnaire and medical records review were carried out. Descriptive and inferential statistics were analyzed using Statistical Packages for Social Sciences version 21 (SPSS Inc, USA). Chi square test was used to derive relationships between variables; results were considered significant with p value  $\leq 0.05$ .

**Results:** 55% of patients waited more than three months before seeking care despite accessibility to health facilities and good social support mainly because they did not appraise the symptoms as serious. There were also significant delays in the diagnostic process with majority of patients waiting for results for up to three months. Psychosocial factors such as beliefs and perceptions held by the patients about initial symptoms and their social support networks were the most significant predictors of delay in seeking medical care. A general lack of knowledge on cervical cancer also contributed to delay.

**Conclusion:** There is need to raise awareness about cervical cancer to empower the public and health workers in general to recognize its signs and symptoms early.

**Key Words:** Cervical cancer, Delay, Symptoms

## INTRODUCTION

Cervical cancer is a curable disease if diagnosed early. However, research by different scholars (Chadza *et al.*, 2012; Ndikom and Ofi, 2012) has established that many women seek treatment when the disease has reached an inoperable stage. Hospital management of cervical cancer patients in most developing countries remains a challenge as over 80% of women are diagnosed at advanced stages of the disease when effective treatment is no longer possible (Chadza *et al.*, 2012). This has contributed to the high mortality rates due to cervical cancer in developing countries. Cervical cancer is the third most commonly diagnosed cancer in women worldwide with more than 85% burden in developing countries (Jemal *et al.*, 2011).

Eastern Africa has the highest incidence (42.7/100,000) as well as the highest mortality rates from cervical cancer worldwide (GLOBOCAN, 2012). Currently, cervical cancer is the commonest cause of cancer deaths among women in Kenya (Bashir *et al.*, 2012) and this is attributed to the fact that most patients present late (Gichangi *et al.*, 2003). Therefore efforts to promote early detection continue to be the focus of fighting cervical cancer. The goal of early detection is to diagnose and treat cervical cancer patients in an early stage when the prognosis for long-term survival is best (Gyenwali *et al.*, 2013). Studies (Chadza *et al.*, 2012; Jemal *et al.*, 2011; Gyenwali *et al.*, 2013) have shown that women diagnosed with early or local (stage 1) cervical cancer have a 98% chance of surviving 5 years after diagnosis. However, the five year survival is decreased to 17% with distant cancer at diagnosis (ASCO, 2009).

Delays in seeking medical care are influenced by both patient characteristics and health system factors (Chadza *et al.*, 2012). Patient delay refers to the time from onset of symptoms to the first medical consultation (as the time gap of more than 3 months (Pakseresht, 2014). Delays by patients could be due to differences in socio-demographic and cultural factors, a strong belief in traditional medicine, negative perceptions of the disease, poverty, poor education and denial (Pakseresht, 2014). Health system factors that contribute to delay are complex and are influenced mostly by doctor and institutional factors, such as delays in scheduling appointments, lack of enough trained personnel to adequately diagnose and treat patients and poor referral systems (Chadza *et al.*, 2012). To ensure optimal care and survivorship outcomes, it is important to understand and address these diagnostic and therapeutic issues. This study was therefore done to determine factors responsible for late presentation and diagnosis in Western Kenya.

## METHODS

A cross-sectional study of patients with invasive cervical cancer was carried out between May 2016 and August 2016. This enabled determination of the factors that contribute to delay in seeking medical care at one point in time from a patient's perspective.

### Variables

The independent variables were socio-demographic, psychosocial, cultural and healthcare system factors. The dependent variable was the delay in seeking medical care among women with cervical cancer.

<sup>1</sup>Ministry of Health Kenya,

<sup>2</sup>Department of Community Health, Kenyatta University

<sup>3</sup>Department of Human Anatomy, University of Nairobi

**Correspondence and Reprint Requests:** Mary Flaviane Nyangasi

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**Location of the study**

The study was conducted in Western region of Kenya about 400km from Nairobi at Jaramogi Oginga Odinga Teaching and Referral hospital (JOOTRH) in Kisumu county and Kakamega County Referral Hospital (KCRH) in Kakamega county. The two were chosen as the major referral hospitals in Nyanza and Western province respectively. The similar distance from Nairobi city (where the only fully equipped public cancer treatment centre is located) and a relatively higher prevalence of HIV/AIDS in Nyanza which is associated with higher incidence of cervical cancer also influenced the selection. JOOTRH and KCRH both have gynecological units which conduct screening and diagnosis of cervical cancer and perform surgery on stage 1 cancer. Patients with advanced disease are either referred to the national referral hospital for chemoradiation or sent to the JOOTRH palliative care unit for palliative care and pain management.

**Study Population**

The study population involved all patients with cervical cancer either accessing care at outpatient clinics or admitted in the gynecological wards at the two hospitals. According to the records at the two hospitals, the annual population was about 952 patients (Table 1).

**Table 1** Population of the Study

Hospital	Outpatient	Inpatient	Total
Jaramogi Oginga Odinga Teaching and Referral hospital	489	106	595
Kakamega County Referral Hospital	275	82	357
Totals	764	188	952

Source: (Hospital records, 2014)

This comprised of cervical cancer patients/survivors diagnosed in the last five years either attending outpatient clinics or admitted in the gynecological wards.

**Inclusion criteria**

1. Women within 1-5 years of a diagnosis of cervical cancer
2. Women aged 18 years and above

**Exclusion criteria**

1. Patients experiencing any other cancer
2. Psychiatric/very ill patients
3. Women unwilling to participate

**Sampling Techniques**

Western Kenya was purposively selected for the study due to the relatively higher incidence of HIV/AIDS which would translate to higher incidence of cervical cancer, a stage four AIDS defining illness. JOOTRH and KCRH were purposively selected for the study as the major referral hospitals within the region. Proportionate sampling method was used whereby selected hospital units (the outpatients and inpatients) were used to get number of participants per facility.

Systematic random sampling was then used to select patients within the outpatient and inpatient groups; amongst the outpatients, every 2nd patient on the queue who gave consent to participate in the study and met the inclusion criteria was picked for interview while for inpatients, every 2nd patient on the second bed from the starting point (the

bed nearest to the entrance) who was willing to participate in the study, gave consent and met the inclusion criteria, took part in filling the interviewer administered questionnaire.

**Sample Size Determination**

The sample size was determined using the Epi Info 7 StatCalc computer program for calculating sample size for population proportions. Using a confidence level of 95%, expected frequency of 50% and confidence limit of 5%, the sample size was 274 patients. These will be sampled proportionately among patients with cervical cancer either attending outpatient clinics or admitted in the gynecological wards.

**Data Analysis**

Once the appropriately filled questionnaires were availed and analyzed for completeness, the data in hard copy were entered in Microsoft Excel, reviewed for consistency and completeness and analyzed with the use of statistical package for social sciences (SPSS) version 21. Frequencies were presented as absolute values and percentages. Associations between categorical variables and patient delay were assessed using contingency tables and Chi-square tests. Strength of association was measured using 95% confidence intervals. The categorical data was summarized as graphs, frequency charts and tables then association done by chi-square. To facilitate analysis, some of the variables investigated were dichotomized into two: e.g below 50 years or above 50 years for age. Binary logistic regression was carried out to find the significant predictor for delay in seeking medical care. For all tests, a  $p \leq 0.05$  (5% level of significance) was considered to be statistically significant.

**RESULTS**

Out of 274 questionnaires given out to respondents, 268 questionnaires were dully filled. 6 questionnaires were excluded due to incompleteness. Of the 268 women included in the analysis, 55% (n=147) delayed in seeking medical care while 45% (n=121) did not delay in seeking medical care and sought care within three months of onset of signs and symptoms.

Majority of the respondents 56% (n=150) were aged 50 years and below. About 44% (n=118) were above 50 years of age. The findings indicate that of the respondents, 37.3% (n=100) had 3-4 children while 11.2% (n=30) of the respondents had no child.

The study established that up to 62.3% (n=167) of the respondents had used contraceptives and only 37.7% (n=101) of the respondents had never used contraceptives. Majority of the respondents 97% (n=260) were Christians, 1.9% (n=5) of the respondents were Muslims and only 1.1% (n=3) of the respondents had other faiths.

Out of the 268 respondents, 65.7% (n=176) were married, 14.2% (n= 38) were single, 12.35% (n=33) were widowed, 5.6% (n=15) were separated and only 2.2% (n=6) were divorced.

Regarding education status, the study established that majority 42.9% (n=115) of the respondents had primary school education while 30.6% (n=82) of them had secondary education. 21.3% (n=57) of them had no formal education and only 5.22% (n=14) of them had college/university education.

On employment status, majority of the respondents 76.9% had no formal employment at the time of the interview. Majority of the respondents (73%) had no health insurance plans while only 18.7% of the respondents relied on government health insurance.

Again, regarding initial signs and symptoms, some cited fear (34%), embarrassment (16.8%), attribution to something else like stress or diet (12.7%) while 5.6% of them thought they had been bewitched.

The findings revealed that 51% (n=137) of the respondents did not immediately accept the doctors' diagnosis while 49% of the respondents immediately accepted the doctors' diagnosis. Out of the 137 respondents who did not accept their diagnosis, 77.9% of the respondents did not believe the diagnosis since they did not consider themselves at risk while 8.8% of the respondents thought there might be another alternative explanation. Another 8.1% (n=11) did not believe medical treatment could cure cancer while 2.9% (n=4) of the respondents had personal/ family reasons for not accepting the diagnosis and treatment.

The study findings also indicate that 66.8% of the respondents knew they had cervical cancer while 17.5% of the respondents did not know they had cervical cancer. For another 15.7% of the respondents, the research assistants could not say with certainty whether the respondents knew they had cervical cancer.

In terms of cultural practices, majority of the respondents (50%) first consulted a nurse while 24% of the respondents first visited a doctor. Another 9.7% of the respondents first consulted traditional healers; however, another 16% of the respondents first consulted a pharmacist. Up to 61% of the respondents had the habit of seeking over-the-counter medications. The findings also indicate that 57.5% (n=154) of the respondents are normally ready to see the doctor for medical reasons while 42.5% (n=114) of the respondents do not readily consult a doctor whenever they have a medical problem. Of the respondents who failed to see the doctor, 51.9% fail to access the doctor because it is too expensive, 18.7% felt the journey was too far and complicated, 6.7% don't trust male doctors examining their private parts, 6.3% are too busy to go to the doctor, 2.6% were already on other treatment and medical treatment would worsen their illness while 12.3% believed doctors would not understand them. Regarding their preventive health orientation, at least 52.2% were aware of and had ever been screened for cervical cancer. The findings indicate that 85.1% of the respondents took less than 4 hours for them to access a clinic and only 14.9% of the respondents took more than 4 hours to access a clinic.

Only 14% of the respondents had a biopsy done within less than one month of seeking medical attention. For the majority (54%) it took at least 1-3 months to have a biopsy done since they first consulted a health care professional. On average, the majority (36%) of the respondents had the biopsy results three months after having had a biopsy done.

The findings also indicate that many patients were treated for several other illnesses before a diagnosis of cervical cancer was finally made. Majority of the patients (54%) had consulted 3-5 doctors by the time a diagnosis of cervical cancer was made. Cross-tabulation was done to determine association between the determinants of delay in seeking

medical care among women with invasive cervical cancer in Western Kenya and the predictor variables. Pearson's Chi-square statistics was used to determine the association. The predictor variables included socio-demographic factors, psychosocial, cultural and health system characteristics. The P value less than 0.05 will be significant at 95 percent confidence interval.

## DISCUSSION

### Social-demographic Factors and Delay in seeking Medical care

The study established that up to 55% of the cervical cancer patients in the two hospitals had delayed in seeking medical care and 80% had advanced disease by the time of the diagnosis. This compares with Otieno *et al* (2010) who found that up to 69.3% of breast cancer patients presented late. In this study, it was also established that more than half of the patients were less than 50 years of age and from bivariate analysis, younger age was a significant factor in delay in seeking treatment( Table 2).

**Table 2** Socio-demographics And Delay in Seeking Care

Characteristic	Category	Delayed (n=147)	Did not delay (n=121)	P value, Chi Square
Age Distribution in Years	50 years and below	82(30.6)	68(25.4)	$\chi^2= 6.837$ df= 1 p= 0.009
	Above 50 years	66(24.6)	52(19.4)	
Average number of Children	0	12(4.5)	18(6.7)	$\chi^2= 11.454$ df= 3 p= 0.010
	1-2	29(10.8)	51(19)	
	3-4	57(21.3)	43(16)	
Religion	Above 5	33(12.3)	25(9.3)	$\chi^2=0.289$ df=1 p=0.302
	Christian	144(53.7)	116(43.3)	
Marital Status	Muslim	3(1.1)	5(1.9)	$\chi^2=1.929$ df=1 p=0.178
	Married	87(32.5)	89(33.2)	
Education Level	Not currently married	60(22.4)	32 (11.9)	$\chi^2=4.522$ df=3 p=0.042
	No formal schooling	35(23.8)	22(18.2)	
	Secondary School	48(32.6)	34(28.1)	
	Primary School	60(41)	55(45.5)	
Access to Health Insurance	College/University	4(2.7)	10(8.3)	$\chi^2=0.445$ df=1 p=0.032
	No Health Insurance	104(38.8)	92(34.3)	
Employment Status	Has Health Insurance	43(16)	29(10.8)	$\chi^2=1.566$ df=1,p=0.04
	Yes	28(19)	33(27)	
	No	119(81)	88(73)	

This also concurs with a previous study by Otieno *et al* (2010) who also found that younger patients tend to present late with cancer as compared to older patients. The study found that more than two thirds of the patients had ever used contraceptives and most women had 3-4 children. These findings are comparable with the Kenya Demographic Health Survey, 2014 findings which show that the contraceptive prevalence rate in the area is about 67% and most women have an average of 3.9 children in Kenya. Majority of the patients had primary school education. About one fifth of the women had no formal education which was higher than the national figure at 7% (KDHS, 2014). In this study, education level was a significant factor in delay in seeking medical care. This concurs with previous studies which found education level to be a significant factor in accessing medical care. The findings on the employment status indicate that majority of the patients were not employed at the time of the interview which significantly affected their delay in seeking medical care. The finding agrees with Kimlin (2010) who held that lower socioeconomic status negatively impacted access to healthcare and is associated with poorer outcomes. The study

further established that majority of the patients had no access to health insurance. The finding concurs with Kimlin (2010) who opined that socio-economic factors and insurance coverage influence diagnostic and therapeutic delays.

This implies further that financial constraints of the patients contributes to delay in seeking medical care as patients may not be capable of affording the treatment in the first place.

**Psychosocial Factors and Delay in Seeking Medical Care**

On the first symptom the patients experienced, the study findings established that 42.9% experienced abnormal vaginal bleeding, 32.5% of the respondents indicated experiencing lower abdominal pain, 14.2% of the respondents experienced abnormal vaginal discharge, 10.1% of the respondents experienced back pain and only 0.4% of the respondents experienced dizziness (Table 3). These findings are consistent with Chadza et al., (2012) who opined that when women develop cervical cancer they present with various symptoms, the common ones being vaginal discharge, lower abdominal pains, backache and post coital bleeding in that order.

**Table 3** Psychosocial Factors And Delay in Seeking Medical Care

Characteristic	Categories	Those who delayed(n=147)	Those who did not Delay(n=121)	Chi Square, p value
Availability of Social Support Network	Yes	118(44.5)	97(36.6)	$\chi^2=2.857$ df=1 p=0.063
	No	20(7.5)	30(18.9)	
	I thought it was not serious	45(16.8)	37(13.8)	
Patient perception of initial signs and symptoms	I was afraid	49(18.3)	42(15.7)	$\chi^2=5.97$ df=4 p=0.006
	Embarrassment	25(9.3)	20(7.5)	
	I thought it was because of something else-stress, diet, poor hygiene, etc	19(7.1)	16(6)	
	I thought i had been bewitched	8(3)	7(2.6)	
Acceptance of Diagnosis	Yes	67(25)	64(24)	$\chi^2=4.163$ df=1 p=0.041
	No	72(26.8)	65(24.2)	
Patient knowledge of cervical cancer diagnosis	Yes	83(31)	96(35.8)	$\chi^2=6.428$ df=2 p=0.04
	No	25(9.3)	22(8.2)	
	Cannot say with certainty	31(11.6)	11(4.1)	

The beliefs and perceptions held by the patients on experiencing the first signs and symptoms indicated that majority of the respondents thought it was not serious on experiencing the first symptom. This concurs well with Gyenwali et al., (2013) who opined that patient behavior of not recognizing symptom seriousness contributed to delay in presentation. Other patients seemed to have perceived something was wrong and they needed to see a doctor but engaged in denial to buy time with half of them being afraid, a few feeling embarrassed and some patients thinking it was something else like either stress or diet. A small number of respondents thought that they had been bewitched. These findings concur with the Christophe (2014) who found out that a person's individual perception regarding a condition as well as available enabling or modifying factors will lead to the likelihood of taking a desirable health action. The action depends on the degree of perceived threat or fear of cervical cancer.

A strong social support network was also established among the patients as more than three quarters of the patients shared the first symptom with their family members. However, out of these patients with social support network, majority still delayed in seeking medical care. This may indicate that majority of the patients' social connections in this setting may not have the right knowledge concerning cervical cancer signs and symptoms that would influence the patient to seek early medical care. The findings are consistent with Christophe (2014) who opined that the participant's social and family environment and the social support received also appear to be decisive factors.

Regarding acceptance of the diagnosis, half of the respondents did not immediately accept the doctors' diagnosis while another half of the respondents immediately accepted doctors' diagnosis. Among those who did not accept the diagnosis, majority did not believe the diagnosis given by the doctor since they had never considered themselves at risk of cervical cancer. Others reasons for non-acceptance of the diagnosis were thoughts that there might be another alternative explanation, wanting another medical opinion and due to personal/ family reasons. Non-acceptance of diagnosis can contribute further to delays in seeking treatment especially upon referral.

Even after diagnosis, a significant number of patients in this setting did not know they had cervical cancer and this correlated significantly with delay. This indicates a low perception which may be due to lack of awareness of cervical cancer. It is also noteworthy that due to the general fatalistic view of cervical cancer, many family members deterred health professionals from disclosing the illness to the patients despite counseling.

The results of the bivariate analysis established a statistically significant association between patient beliefs/ perception of symptoms, acceptance of diagnosis, knowledge of cervical cancer diagnosis and delay in seeking health care for p values 0.006, 0.041 and 0.04 are all less than 0.05 at 95% level of significance. The findings on the most significant factor for delay indicate that patient's beliefs and perception is the most significant predictor for delay. This means that a lot of emphasis needs to be put on changing patients' perceptions and beliefs if we are to reduce delays in seeking medical care.

**Cultural Factors and Delay in Seeking Medical Care**

The study sought to establish the beliefs and perceptions regarding traditional medicine. Patients were asked the first professional they had consulted and from the findings, a tenth of the respondents consulted traditional healers and other complementary therapists and this concurs with Birhanu et al, (2012) who established that some patients prefer traditional medicine to modern medicine believing that it gives immediate symptomatic pain relief even though some participants thought that it is not curative. Another group first consulted a chemist/pharmacist, half of the patients consulted a nurse and a quarter of them first consulted a doctor.

The study looked at the health behavior in terms of use of over the counter medications and upto two thirds of the patients admitted to buying over the counter medications. It was also established that the more these patients sought for over the counter medications, the more they were likely to

delay in seeing the doctor. This is probably due to the symptomatic relief of symptoms they got from the medications.

On the readiness of the patients to see the doctor, the study found out that more than half of the respondents readily saw the doctor for medical reasons. Of the patients who do not readily see a doctor, majority failed to access the doctor because it was too expensive. Another fifth of the respondents felt the journey was too far and complicated which is consistent with the findings of Chadza *et al.*, (2012) who opined that other barriers include; long distance to the facility and means of transportation to reach the health facility. The study also established that some patients do not go to hospitals since some of the doctors are male yet they do not trust male doctors examining their private parts. Again, slightly over a tenth of the patients did not like to do to hospital because of the doctors' attitudes- they don't like to bother the doctor with little problems since the doctors would not understand them.

The history of cervical screening was established and from the findings, more than a half of the patients have had cervical cancer screening before the onset of the symptoms (Table 4). The screening rate was higher than the national average of 18% (KDHS, 2014) probably because many of the patients were also attending the HIV/AIDS clinic where an active screening programme was already in place. Patients with suspicious lesions were then referred to the gynaecological clinic. From the bivariate analysis, the study found out statistically significant association between first professional consulted, consultation with chemist before diagnosis, readiness to see the doctor, history of cervical screening and delay in seeking medical care for the p values 0.0001, 0.013, 0.048 and 0.022 are all less than 0.05 at 95% level of significance.

access the clinic yet 42.5% of them still delayed in seeking medical care (Table 5). This implies that other determinants such as acceptability of the medical care offered in terms of diagnosis and treatment could play a bigger role in delay in seeking medical care despite availability of services. In contrast, other studies had indicated that longer distances to health facility led to delays in seeking medical care (Chadza *et al.*, 2012). In this setting, it is not clear why patients delayed despite being in close proximity to health facilities. Approximately half of the respondents had not consulted an obstetrician before coming to the facility indicating the non-availability of specialists in this setting. The study also established that many patients were misdiagnosed at some point and made numerous visits to health facilities before a diagnosis of cervical cancer was eventually made. This concurs with Chadza, 2012 whose study established that patients with cervical cancer in Malawi made numerous visits to health facilities before they were finally diagnosed with cervical cancer. All the patients were misdiagnosed at some point and had been put on treatment for conditions like sexually transmitted infections, back pain and pelvic inflammatory disease before a diagnosis of cervical cancer was eventually made. This could point to a general lack of knowledge on cervical cancer symptoms among health workers, lack of adequate obstetricians within this region and poor referral systems and linkages among health care workers who see the patients.

This study established significant delays within the health systems with only about 14% of patients having a biopsy done within one month of their first medical consultation. This indicates that there is a generally low index of suspicion of cervical cancer signs and symptoms among health workers leading to mismanagement and delays in sending patients for biopsies.

**Table 4** Influence of Cultural Practices on Delay in Seeking Medical Care

Characteristic	Categories	Those who delayed (n= 147)	Those who did not delay (n=121)	Chi Square
Beliefs about traditional medicine (First Professional Contacted)	Traditional healer / Herbalist / Complementary therapist	23(8.6)	3(1.1)	$\chi^2=18.958$ df=3 p=0.0001
	Pharmacy/chemist s	24(9.0)	19(7.1)	
	Nurse	68(25.4)	66(24.6)	
	Doctor	32(11.9)	33(12.3)	
Use of over-the -counter medications during illness	Never	55(20.6)	49(18.5)	$\chi^2=12.629$ df=4 p=0.013
	Once	20(7.5)	29(10.8)	
	Twice	21(7.9)	25(9.3)	
	3-4 times	37(13.9)	14(5.2)	
Health seeking behavior	5 times or more	14(5.2)	3(1.1)	$\chi^2=3.394$ df=1 p=0.048
	Usually ready to see doctor	73(27.2)	81(30.3)	
	Not usually ready to see doctors	74(27.6)	40(14.9)	
	Too expensive	76(28.4)	63(23.5)	
Beliefs about medical treatment	Too far-too complicated a journey	21(7.8)	29(10.8)	$\chi^2=11.479$ df=6 p=0.075
	I don't trust male doctors examining my private parts	7(2.6)	11(4.1)	
	I am too busy to go to the doctor	13(4.9)	4(1.5)	
	Medical treatment would worsen my illness since I was already on treatment	6(2.2)	1(0.4)	
	I don't like to bother the doctor since they don't understand me	22(8.2)	11(4.1)	
History of cervical cancer screening	Other	2(0.7)	2(0.7)	$\chi^2=5.001$ df=1 p=0.025
	Had screening prior	72(26.6)	69(25.8)	
	Never been screened	75(28.2)	52(19.4)	

**Health System Characteristics and Delay In Seeking Medical Care**

The findings on the length of journey respondents took to access the clinic indicated that 85% took less than 4 hours to

Furthermore, the study established that only a third of the patients got their results within a month from the time a sample was taken for biopsy. This indicates challenges in provision of adequate pathology services within the hospital.

**Table 5** Influence of Health System Characteristics on Delay in Seeking Medical Care

Characteristic	Categories	Those who delayed(n=147)	Those who did not delay(n= 121)	Chi Square
Accessibility to the Clinic	Less than 4 hours	121(45.1)	107(39.9)	$\chi^2=3.069$ df=1
	More than 4 hours	26(17.7)	14(5.2)	p =0.080
Time taken to have a biopsy for diagnosis	< 1 month	14(5.2)	23(8.6)	$\chi^2=7.613$
	1-3 months	73(27.2)	71(26.5)	df=2
	>3 months	46(17.2)	41(15.3)	p =0.22
Time taken to getting diagnostic results	< 1 month	42(15.7)	38(14.2)	$\chi^2=4.353$
	1-3 months	43(16.04)	47(17.5)	df=2
	>3 months	52(19.4)	46(17.16)	p =0.113
Misdiagnoses	Pelvic Inflammatory Disease	35(13)	31(11.6)	$\chi^2=6.289$
	Back pain	48(18)	55(20.5)	
	Sexually transmitted Infection	33(12.3)	30(11.2)	p =0.279
	Other Gynae Infections	19(7.1)	17(6.3)	

Indeed, during the period of the study, patients were advised to take their biopsy specimens to a nearby private laboratory and bring their results back. This was because of lack of necessary biopsy equipment within the hospital laboratory.

The findings of the bivariate analysis and binary logistic regression analysis did not establish any statistically significant association between any of the health facility factors and delay in seeking medical care among cervical cancer patients in this setting.

**CONCLUSION**

Social-demographic factors such as younger age, higher number of children, low education level, lack of health insurance and unemployment contribute to delay in seeking medical care.

Psychosocial factors such as beliefs and perceptions held by the patients about initial symptoms were the most significant predictors that contribute to delay in seeking medical care. In acceptance of diagnosis and lack of knowledge on cervical cancer also contribute to delay in seeking medical care.

Cultural factors such as strong beliefs in traditional healers, use of over-the –counter medications and beliefs and myths regarding medical treatment more often contribute to delay in seeking medical care. A medical history of cervical cancer screening leads to reduction in delay in seeking medical care for cervical cancer.

Health system characteristics do contribute to further delays in accessing cancer treatment though they may not directly lead to delay in seeking medical care. In this setting, complexities within the health systems in terms of scheduling multiple appointments, misdiagnoses probably as a result of low index of suspicion of cervical cancer among health workers, delays in requesting for biopsies and delays in getting biopsy results led to further delay in patient accessing the necessary cancer treatment services. The study has established that it is not enough to put up health facilities nearby. A lot has to be done to make the available services acceptable and to educate the patients on importance of seeking care in the facilities.

**Competing interests**

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**References**

Adewole, I. F. (2013). Protection against cervical cancer:What has been achieved? *Africa Organization for Research and Training in Cancer* (p. 1). Durban, South Africa: GlaxoSmithKline.

Bashir, I., Kuria, S., Mueke, S., Qureshi, Z. and Mugo, N. (2012). *National Cervical cancer prevention program in Kenya: strategic plan 2012-2015*. Nairobi, Kenya: Ministry of Public Health and Sanitation and Ministry of Medical Services.

Chadza, E., Chirwa, E., Maluwa, A., Malata, A., Kazembe, A. and Chimwaza, A. (2012). Factors that contribute to delay in seeking cervical cancer diagnosis and treatment among women in Malawi. *Journal of Health*, Vol 4, No. 11, 1015-1022.

Christophe, V., Leroy, T., Seillier, M., Duthilleul, C., Julieron, M., Clisant, S., Foncel, J., Vallet, F. and Lefebvre, J. (2014). Determinants of patient delay in doctor consultation in head and neck cancers(Protocol DEREEDIA). *British Medical Journal Open*, 4:e005286.

Cooper, D.R., & Schindler, P.S. (2003). *Business Research Methods*. (8th ed.). Boston: McGraw-Hill Irwin.

Denny, L. Quinn, M. and Sankaranarayanan, R. (2006). Screening for cervical cancer in developing countries, *Science Direct*, 3, 71-77

Dwivedi, A. K., Dwivedi, S. N., Deo, S., Shukla, R., Pandey, A. and Dwivedi, D. K. (2012). An epidemiological study on delay in treatment initiation in cancer patients. *Scientific Research*, 4 (2), 66-79.

Farmer et al., (2010). Expansion of cancer care and control in countries of low and middle income: a call to action. Published by *Lancet*, retrieved on 24/06/2016 from <http://www.pitt.edu/~super1/lecture/lec41141>

Ferlay, J., Soerjomataram, I., Ervik, M., Dikshit, R., Parkin, D.M., Forman, D. and Bray F.(2012). GLOBOCAN 2012 v1.0, Cancer incidence and mortality worldwide: IARC Cancerbase No.11. *International Agency for research on cancer*.

- Fonseca-Moutinho, J. A. (2011). Smoking and cervical cancer. *ISRN Obstetric and Gynaecology*, 2011;847684.
- Gichangi, P., Estambale, B., Bwayo, J., Rogo, K., Ojwang, S., Opiyo, A. and Temmerman, M. (2003). Knowledge and practice about cervical cancer among patients at KNH, Nairobi, Kenya. *International Journal of Gynaecological Cancer*, 13(6), 827-833.
- Gyenwali, D., Pariyar, J. and Onta, S. R. (2013). Factors Associated with Late Diagnosis of Cervical Cancer in Nepal. *Asian Pacific Journal of Cancer Prevention*, 14, 4373-4377
- Heissey, R., Clemons, M., Granek, L., Fergus, K., Hum, S., Lord, B., McCready, D. R. and Fitzgerald, B. (2011). Health care strategies to promote earlier presentation of symptomatic breast cancer: perspectives of women and family physicians. *Current Oncology*, 18(5) ce 227-237.
- Anita Christie,  
Jemal, A., Bray, F., Center, M.M., Ferlay, J., War, E., and Forman, D. (2011). Global cancer statistics CA. *Cancer Journal Clinician*, 61(2):69-90.
- Kenya National Bureau of Statistics (2015). Kenya facts and figures. Retrieved from <http://www.knbs.or.ke> on August 24, 2015
- Khunmun, R. (2006). Health seeking behaviour of cervical cancer patients in gynaecological unit. Bangkok Metropolitan Administration Medical College and Vajira Hospital. *Indian Journal of Community Medicine*, 31, 140-145.
- Kimlin, T. A., Gonzalez, P., Lim, J., Chung, C., Paz, P., Somlo, G. and Wakabayashi, M. T. (2010). Diagnostic and therapeutic delays among a multiethnic sample of breast and cervical cancer survivors. *Cancer*, 3195-3204.
- Lim, A. W., Ramirez, A. T., Hamilton, W., Sasieni, P., Julietta P. and Forbes, J. L. (2014). Delays in diagnosis of young female patients with symptomatic cervical cancer in England. *British Journal of General Practice*, oct 64(627) e602-e610.
- Markowitz, L. E., Hariri, S., Lin, C., Dunne, E. F., Steinau, M., McQuillan, G. and Unger E. R. (2013). Reduction in human papillomavirus(HPV) prevalence among young women following HPV vaccine introduction in the United States, National health and nutrition examination surveys. *Journal of Infectious diseases*, 208:385-393.
- Muchiri, M. (2006). Factors influencing women decision for breast cancer screening; a case study of OI-Kalou Division Nyandarua District, Kenya. *UICC World cancer congress*, (p. 183). Washington DC.
- Munyaradzi, D., January, J. and Maradzika, J. (2014). Breast cancer screening among women of child bearing age. *Healthcare for Women International* , 35:818-827.
- Ndikom, M. C. and Ofi, A. B (2012). Awareness, perception and factors affecting utilization of cervical cancer screening services among women in Ibadan, Nigeria: a qualitative study, *Reprod Health*, 9. 245-263
- Ngugi, C. W., Boga, H., Muigai, A. W. T., Wanzala, P. and Mbithi, J. N. (2012). Factors Affecting Uptake of Cervical Cancer Early Detection Measures Among Women in Thika, Kenya, *Health Care for Women International*, 33:7, 595-613.
- Otieno, E. S., Micheni, J. N., Kimende, S. K. and Mutai, K. K. (2010). Delayed presentation of breast cancer patients. *East Africa Medical Journal*, 87(4), 147-150.
- Pakseresht, S., Ingle, G. K., Garg, S. and Sarafraz, N. (2014). Stage at diagnosis and delay in seeking medical care among women with breast cancer, Delhi, India. *Iran Red Crescent Medical Journal*, 16(12),e14490.
- Pineros M., Sánchez, R., Cendales, R., Perry, F. and Ocampo, R. (2009). Patient delay among Colombian women with breast cancer. *Salud Publica Mexico*, 51(5):372-380.
- Sekaran, U. and Bougie, R. (2013). *Research Methods for Business: A Skill-Building Approach*, 6th Edition, South Illinois.
- Shahid, S., Bleam, R., Bessarab, D. and Thompson, S. C. (2010). "If you don't believe it, it won't help you" Use of bush medicine in treating cancer among Aboriginal people. *Journal of EthnoBiology and Ethnomedicine*, 6(18), 1-9.
- Society, A. C. (2009). *Cancer facts and figures* . Atlanta, GA: American Cancer Society.
- Vittinghoff E, Sen S, and McCulloch C. E. (2009). Sample size calculation for evaluating mediation. *Statistics in Medicine*;28: 541-557
- Wittet, S. and Tsu, V. (2008). Cancer prevention and the millenium development goals. *Bulletin Of the World Health Organization*, 86(6)488-491.
- Yau, T.K., Choi, C. W., Nq, E., Yeung, R., Soong, I. S. and Lee A.W. (2010). Delayed presentation of symptomatic breast cancers in Hong Kong: experience in a public cancer centre. *Hong Kong Med J* 16:373-7

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