FACTORS THAT INFLUENCE THE UPTAKE OF BREAST CANCER SCREENING AMONG WOMEN OF REPRODUCTIVE AGE IN MOSOCHO DIVISION, KISII CENTRAL DISTRICT, KENYA.

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OCTOBER 2012.
DECLARATION

This thesis is my original work and has not been presented for a degree in any other university.

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This thesis is dedicated to my lovely wife, Mariah and our two children, Lisa and
Maxi whose love and patience have been a great source of inspiration.

IV

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<td>AIDS</td>
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<td>GOK</td>
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<td>KEMRI</td>
<td>Kenya Medical Research Institute</td>
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<td>KNBS</td>
<td>Kenya National Bureau of Statistics</td>
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<tr>
<td>KNH</td>
<td>Kenyatta National Hospital</td>
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<tr>
<td>MCH</td>
<td>Maternal and Child Health</td>
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<td>MOE</td>
<td>Ministry of Education</td>
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ABSTRACT

Every year breast cancer kills approximately 40,000 women globally (American Cancer Society, 2006). Globally, breast cancer incidence is on the rise, especially in developing countries and from 2000-2006, breast cancer was the most diagnosed cancer among women in Kenya and 80% - 90% of those women presented with stage 3 and 4 of the disease. In order to more effectively promote breast preventive medical care programs, it is important to identify the key determinants of women’s behavior regarding their decisions to engage in screening. The aim of this study was to identify the factors that influence the uptake of breast examination and screening for cancer among women in the division. The Health belief model formed the basis for this study and Cross-sectional survey research design was used in the study. Data was collected using interviewer administered questionnaires, a key informant interview and a focus group discussion. The study targeted women of reproductive age (15 – 49 years) randomly sampled from 245 households within Mosocho division. The households from the 5 locations were systematically sampled and the data obtained analyzed using both descriptive and inferential statistics. Descriptive statistics included frequency charts and tables while inferential statistics included the use of Pearson’s chi-square ($\chi^2$) and Correlation analysis. The statistical package for social sciences (SPSS) was used to compute the statistics. Fifty five point nine percent of the respondents had never undertaken any form of breast screening in the last two years. The breast screening uptake was lowest among women aged 30 – 39 years (17.2%) and among women with middle college level of education (6.0%). This research found significant associations between SECDs, psychosocial factors, institutional factors and women’s level of knowledge about breast cancer with breast screening uptake. Women with lower socioeconomic status were found to be less likely to undertake screening services. Institutional characteristics such as breast health education and guidance by nurses were found to be significant and positively associated with screening uptake among the women. The study findings will help the ministries of health and education to formulate policies that are directed at promotion of early breast health seeking behavior among the women and generate information on the role of MCH clinics in creating awareness of breast
screening to reduce the incidence of late breast cancer. This analysis also provides evidence about the extent of utilization of breast cancer preventive care among women in a developing country and gives guidance on promoting early breast cancer screening among women.
CHAPTER ONE
INTRODUCTION

1.0 Introduction

This chapter presents; the background of the study, statement of the problem, research questions, null hypotheses, objectives and significance of the study, limitations of the study, the theoretical and conceptual framework, the scope and definition of terms.

1.1 Background of the study

Every year breast cancer kills approximately 40,000 women globally (American Cancer society, 2006) and is the leading cause of cancer death among women. More than 1.2 million women are diagnosed with breast cancer annually worldwide (WHO, 2006). Female breast cancer incidence rates vary internationally, ranging from 3.9 cases per 100,000 in Mozambique to 101.1 in the United States (American Cancer Society, 2006). Generally, Africa and Asia have the lowest rates ranging between 3.9 – 29.9 cases per 100,000 persons (Ibid, 2006). These low rates have been attributed to low screening rates and incomplete reporting (McGrath, 2004). Breast cancer in Africa is characterized by presentation with advanced disease, lack of information about breast cancer incidence, high cost of screening and inaccessibility of screening facilities (ibid, 2004). In Kenya, one out of every nine women is diagnosed with advanced breast cancer (Neondo, 2006). Most Kenyan women regard the diagnosis of breast cancer a death sentence, thus delaying their health seeking behavior. The belief that breast cancer is incurable leads to a delay in seeking medical care as other culturally acceptable options are explored in tandem with the cultural definition of the disease (Muchiri, 2006).
Currently, the Government of Kenya (GOK) has no national cancer registry. Breast cancer screening and research are not well established in Kenya because most funding over many years has been directed toward HIV/AIDS and malaria and politicians have not been recognizing breast cancer as an immediate priority (Musimbi, 2008). According to the Kenya Medical Research Institute (KEMRI) by 2006, only two out of eighty seven health facilities in Nyanza provided specialized breast screening, suggesting inaccessibility, especially to the rural population. Very few laboratories are well equipped to undertake breast cancer research (Musimbi, 2008) and the present cancer management infrastructure is unable to handle all newly diagnosed cases (Ibid, 2008). According to the surgeon in charge of breast cancer, it is estimated that the prevalence of breast cancer screening was 0.2 among women attending MCH clinic at Kisii level 5 hospital. WHO (2007) proposes that health promotion should provide curricula to empower women with competency in taking reproductive health actions including breast screening. The Ministry of Health (MOH) - Kenya recommends the establishment of friendly services in existing facilities to promote women’s reproductive health (MOH, 2005). Many factors however, are bound to affect breast screening among women of reproductive age. It is therefore necessary to obtain information about the factors that influence screening, their distribution and how important they are in decision making about participation in breast cancer screening.

1.2 Statement of the Problem and Justification

Globally, breast cancer incidence is on the rise, especially in developing countries. There were 1.4 million cases of breast cancer that were diagnosed across the world in 2008 compared to only 500,000 cases in 1975 (Farley et al., 2008). In Kenya this is causing a lot of concern in the realm of women’s health, yet there is scanty evidence on
research undertaken to stem out the increase. Between 2000-2006, breast cancer was the most diagnosed cancer among women in Kenya and 80% - 90% of those women presented with stage 3 and 4 of the disease, when treatment cost is prohibitively high and survival chances are too low (Apffelstaedt, 2006). The number of women referred from Kisii level 5 hospital to Kenyatta National Hospital (KNH) for specialized screening, diagnosis and treatment increased from 54 in 2006 to 96 in 2008, representing approximately 78% increase. About 32% of the referred cases presented with stage 3 and 4 of the disease. Cultural and religious practices are major determinants of breast health behavior (Muchiri, 2006), however very few studies have been done to find out how such practices influence the women’s screening behavior especially in developing countries. Though Maternal and Child Health (MCH) clinics educate women on breast self examination, very little effort has been made to investigate their compliance and its impact on breast cancer control in the district.

Breast cancers screening advertising campaigns have been demonstrated to increase breast screening uptake by 2-13 %.( Naidoo and Wills, 2009). Despite this, very few studies have been undertaken to determine the role of advertisement in breast screening uptake.

Studies have shown that the incidence of late breast cancer decreases greatly when regular breast screening is undertaken (Apffelstaedt, 2006). Despite the benefits associated to regular BSE, few women actually examine their breasts. Infact a majority do not even know how to do BSE (Aydin, 2008), hence the necessity of this study to investigate the extent to which women in Mosocho division conduct breast screening and the factors that influence uptake.
1.3 Research Questions

(i) What proportion of women in Mosocho has undertaken breast cancer screening over the last two years?

(ii) What socio-economic, cultural and demographic factors (SECDs) influence screening for breast cancer among the women in Mosocho?

(iii) What psychosocial factors influence breast screening among the women in Mosocho?

(iv) What institutional characteristics in Maternal and Child Health (MCH) clinics influence breast screening among the women in Mosocho?

1.4 Null Hypotheses

(i) There is no association between socio-economic, cultural and demographic factors (SECDs) with breast cancer screening uptake among the women.

(ii) There is no association between psychosocial factors and breast screening among the women.

(iii) There is no association between institutional characteristics in MCH clinics and breast screening uptake.

(iv) There is no association between the women’s knowledge about breast cancer screening and the uptake of breast screening.

1.5 Objectives of the Study

1.5.1 General Objective

To examine the factors that influence breast cancer screening uptake among women of reproductive age in Mosocho division, Kisii central district.
1.5.2 Specific Objectives

(i) To determine the proportion of women in Mosocho that has undertaken breast screening in the last two years.

(ii) To determine the socio-economic, cultural and demographic (SECDs) factors influencing the uptake of breast cancer screening among the women.

(iii) To determine the psychosocial factors influencing breast cancer screening uptake among the women.

(iv) To determine institutional characteristics influencing uptake of breast cancer screening among the women.

1.6 Significance of the Study and the Out-put

This study came up with mechanisms for the promotion of early detection and treatment of breast cancer among women of reproductive age. Secondly, this study generated information on the role of MCH clinics in creating awareness of breast screening and reducing the incidence of late breast cancer. Thirdly, it generated information for policy formulation by the Ministry of Health (MOH) to promote early breast health seeking behavior among the women (WHO, 2006) and facilitate the removal of barriers to accessing medical care among the women. Finally, this study contributed to the knowledge base with regard to factors that affect BSE and participation in clinical screening by women in the district for which very little information was available and may provide further light on the promotion of cancer screening in developing countries.
1.7 Delimitation and Limitation
The study focused on women of reproductive age within Mosocho division, Kisii central district alone due to the limited time and financial resources that were available for the research.

1.8 Theoretical and Conceptual Framework
The Health Belief model (Barnyard, 2002) formed the theoretical basis for this study.

1.8.1 The Health Belief Model

![Health Belief Model Diagram](chart.png)

(Barnyard, 2002)

**Figure 1.1**: Chart illustrating the relationship between the constructs of the Health Belief Model.
The chart in fig. 1.1 above summarizes the constructs of the health belief model. The model assumes that people fear diseases and that the health actions of people are motivated by the degree of perceived threat (fear) and the expected fear reduction action, as long as that possible reduction outweighs physical and psychological barriers to taking action (net benefits) to facilitate participation in gainful health actions. This study was outlined using the four constructs of the health belief model;

**Perceived susceptibility:** This was the women’s perception that they would be at risk of developing breast cancer, which motivated them to take up breast screening. When women perceived that they were susceptible to breast cancer, they were likely to take up early breast screening in the event that they suspected any breast changes. In fig. 1.1, this is captured as “Will I get it?”

**Perceived severity:** This was the women’s opinion on the seriousness of developing terminal breast cancer. Women would change their health behavior and take up breast screening depending on how serious they considered the consequences of developing terminal breast cancer. In fig. 1.1, this is captured by the phrase “How dangerous is it?”

**Perceived benefits:** This was the women’s opinion of the effectiveness of early breast screening as a measure of reducing the effects of late breast cancer. Women would take up breast screening for cancer when guaranteed that early detection would be feasible and beneficial. This forms part of the cost/benefit analysis under the sub-title of assessments in fig. 1.1.
**Perceived barrier:** This was the women’s opinion of the concrete and psychological cost of undertaking early breast screening against not taking it up. These included the physical, psychosocial, economic and demographic variables that would inhibit breast screening uptake. After a cost/benefit analysis, such barriers could be overcome to facilitate the uptake of screening for breast cancer.

**Cues to action:** The woman’s own conscience could internally drive her to undertake early breast screening to reduce chances of developing terminal breast cancer. External factors like media advertisements, awareness campaigns and posters would prompt the women to take up screening for breast cancer as shown in fig. 1.1 to enable women to overcome the psychosocial, demographic and structural barriers and bring about screening uptake.
1.8.2 Conceptual Framework

The conceptual framework below was used to operationalise the health belief model in the study to investigate how the factors may influence breast screening uptake among women.

(Modified from Carolyn et al., 2002)

Fig 1.2: Conceptual framework of the factors that influence breast cancer screening among women.

1.9 Scope and Operational Definition of Terms.

1.9.1 Scope

The study was carried out among women of reproductive age in Mosocho division, Kisii Central district.
1.9.2 Operational Definition of Terms.

**Breast cancer**: Is a malignant growth that begins in the tissues of the breast and is characterized by abnormal cells multiplying in an uncontrolled manner.

**Breast self examination**: A diagnostic technique regularly performed by a woman on her breast to check for lumps or other changes.

**Clinical breast examination**: A physical exam of the breast performed by a health care provider to check for lumps or other changes.

**Cancer Diagnosis**: Involves imaging, pathology, hormone status and staging to confirm the occurrence of breast cancer in a patient.

**Health promotion**: Combination of educational and environmental support for action and condition of living conducive health.

**Incidence**: Frequency with which breast cancer cases appear in a particular group of people at a specific place and time.

**Screening**: Examination involving diagnostic techniques or physical test to detect the presence of breast cancer.

**Stigma**: An attitude or feeling of disgrace by those affected by breast cancer.

**Surveillance**: Careful observation of a group of people for detection of the presence of breast cancer.
CHAPTER TWO
LITERATURE REVIEW

2.1 Introduction

This chapter presents literature review about current trends in breast cancer and the factors that influence the uptake of breast cancer screening obtained from published findings from theses, Journals and books.

2.2 Current trends in breast cancer

Breast cancer is a multifaceted disease known to be caused by both internal and external risk factors including tobacco, alcohol, numerous chemical substances, radiation, and some infectious organisms. According to the Kenya Medical Research Institute (KEMRI) Cancer Incidence Report (2006), internal factors which may predispose one to cancer include inherited genetic mutations, hormone imbalances, immune disorder conditions and some metabolic disorders. These Causative Factors may act together and or in sequence to trigger the development of cancer.

Nearly 1.4 million cases of breast cancer were diagnosed across the world in 2008, compared with about 500 000 cases in 1975. This represents about 11% of all new cancer cases, and 23% of all female cancers. It is predicted that the number of cases will rise to 2.1 million by 2030 (Farley et al., 2008). Breast cancer is the most common cause of cancer-related deaths among women worldwide. With more than 450 000 deaths each year, breast cancer accounts for about 14% of all female cancer deaths (ibid, 2008).
Currently, Kenya has no national cancer registry to provide an accurate view of the cancer situation. However, it is estimated that cancer is the third leading cause of death in the country after infectious and cardiovascular diseases (Ministry of public health & sanitation and Ministry of medical services – Kenya, 2010). In 2005, cancer was estimated to have killed approximately 18,000 people in the country and more cancer cases are being reported in Kenya at the present time than 10 years ago. This is partly attributed to physical inactivity, unhealthy diets, overweight (obesity), drugs and environmental changes. The health systems in the country have traditionally concentrated on the prevention and control of communicable diseases at the expense of a rising burden of non-communicable diseases such as cancer. This has resulted in major weaknesses in cancer prevention and control initiatives leading to bias in resource allocation (ibid, 2010).

According to the regional cancer registry at KEMRI, about 80% of reported cases of cancer in Kenya are diagnosed at advanced stages, when very little can be achieved in terms of curative treatment (KEMRI, 2006). This is largely due to the low awareness of cancer symptoms, inadequate screening services and diagnostic facilities, and poorly structured referral system. Cancer research in Kenya is not commensurate with the magnitude of the problem. This is due inadequate funding and training facilities in cancer research. There is also no comprehensive cancer surveillance system (ibid, 2006). According to the surgeon in charge of breast cancer, it is estimated that the prevalence of breast cancer screening was 0.2 among women attending MCH clinic at Kisii level 5 hospital.
2.3 Socio-Economic, Cultural and Demographic Factors

Studies have demonstrated that breast cancer screening uptake may be impacted by socio-economic and demographic factors that include; income status (Bouchardy et al., 2006) and economic deprivation (Alice et al., 2008). Socio-economic status has been shown to be a powerful driver of uptake in breast screening (Moser et al., 2009) and most importantly, deprived populations seem to have later stage presentation in breast cancer in London (Cuthbertson et al., 2009). In a study of the association between uptake of breast screening and socio-economic deprivation, travel distance, urban-rural status, location and type of screening unit, the strongest association of breast screening uptake was with socio-economic deprivation especially with significantly lower uptake from deprived areas (Maheswarab et al., 2006). Very little research has been done especially in developing countries like Kenya to establish the influence of socio-economic deprivation and income status on the uptake of clinical breast examination and mammography.

Little is known about the influence of culture and beliefs about breast cancer and its implications on preventive health behavior, but Gulshan et al. (2007) established that perceptions of cancer and health behavior are influenced by cultural beliefs. Such common themes among Asian women in London include cancer being a taboo subject, a stigma and misunderstandings about causation. Cultural myths in Africa are the greatest impediment to breast cancer screening and many women are afraid to discuss the disease openly (WHO, 2006). Women would rather consult gods or pray to know why and who is behind the conditions, thus delaying presentation for screening and treatment (Ibid, 2006). Cultural beliefs and practices accentuate difficulties in understanding of breast cancer and screening (Moller, 2008). Culture affects both the risk factors for cancer and the meaning of the disease, yet it establishes time norms for behavior and guides members to respond
emotionally, cognitively and socially to the disease (Gulshan et al., 2007). Culture influences women’s attitude to BSE (ibid, 2007). According to Sarah et al. (2007), cultural attitudes about breast screening and perceived personal importance of breast screening are the strongest predictors of attendance and non attendance of breast screening. In some cultures, women consider cancer a white man’s disease, while some believe that breast cancer is caused by the devil or is a curse from God. Other women believe in not exploring the unknown, therefore if a lump in the breast is not detected and treated earlier, it will regress and never develop into a cancerous tumor (ibid, 2007). Deshpande et al. (2009) point out that in some studies; religiosity has been negatively associated with breast health promoting behavior, while others have found spirituality to be positively associated with such health behavior.

Cancer control strategies targeting women must therefore include messages that are consistent with their beliefs, attitudes and experiences (Baron et al., 2008). The believe in invulnerability to breast cancer, by which women link the occurrence of breast cancer to tragic luck, also delays reporting and screening uptake (Cullati et al., 2009). Others believe that breast cancer isn’t a serious illness, whereas others believe that susceptibility to breast cancer is the will of God which can moderate the effect of perceived seriousness of the disease on BSE practice and screening uptake. Others believe that talking about the disease will cause its’ onset hence delay reporting and screening uptake (ibid, 2009).

Bulaporn and Clark (2008) found that among Thai women, the cost of screening and the distance to screening facilities play a major role in determining the uptake of screening services for breast cancer. The high cost of clinical breast examination and mammography especially in developing countries is a big hindrance to the uptake of such services by
women (WHO, 2006). Maheswarab et al. (2006) found out that breast screening uptake decreased significantly with an increase in travel distance to screening facility. Barter and Taket (2007) however found no association with their sample nearness to the screening site and attendance, reporting access as a concern due to decline of appointment on the basis of inconvenience. Chan et al. (2008) has demonstrated that a lower education level among women is a vital variable associated with low breast screening uptake and 57% of the studies carried out among Latin American women in the USA demonstrated that age was a significant predictor of screening mammogram (Weller et al., 2009). However, Lee et al. (2010) found a negative correlation between breast screening participation and the age of women. It is therefore important to investigate the role of cultural attitudes and demographic characteristics on breast screening uptake especially in the context of a developing country for comparison with the status in developed countries.

### 2.4 Psychosocial factors

The fear of finding something wrong and the feeling that it is better not to know have been reported as barriers to breast cancer screening among Iranian women (Lamyian et al., 2007). Hay et al. (2006) found a positive relationship between breast cancer worry and the screening behavior of women. The concern about the pain and discomfort associated with preventive procedures has also been cited as a deterrent for Latinas (Schueler et al., 2008). Repression and denial have been reported to pre-emptively exclude cancer threat from consciousness among women thus generating avoidance behavior in breast cancer screening (Magai et al., 2007). Shyness, embarrassment and feelings of discomfort if mammography is conducted by a male or a strange health professional have been cited as barriers to the uptake of breast cancer screening among Asian American women (Tzu–Yin Wu et al., 2008). Magai et al. (2007) found that greater embarrassment predicted poorer
screening when other variables were controlled (i.e. age, socioeconomic status, physician recommendation and anxiety) and that women with high embarrassment scores were 29% less likely to screen. Aygul and Ayse. (2011) observed that among elderly Turkish women neglect and postponement due to lack of physical signs and feeling of well being were barriers in breast screening. In Kenya, the most common reason influencing the decision for breast cancer screening in Ol-kalou, Nyandarua district was that many women did not associate it with any direct benefits. Given that breast cancer is not prevalent in the region, many women did not see the reason for taking breast cancer screening (Muchiri, 2006). The role of such psychosocial variables in breast screening decisions among women in Africa has least been studied in current research.

2.5 Institutional characteristics

In their 2008 review, Schueler et al. (2008) found a negative relationship between rurality and uptake of screening mammography (Adj OR 0.75, 95% CI 0.63–0.90). However, in the 2010 review by Guessous et al. (2010) only 30% of studies (3 of 10) found that rural residence was a significant barrier to the uptake of colorectal cancer screening. Ackerson and Grete – beck, (2007) have pointed out that transportation problems, such as large distances between women’s residence and health facilities and the absence of mass transit systems, may also present barriers to regular breast screening in rural areas. Maheswarab et al. (2006) found out that breast screening uptake decreased significantly with an increase in travel distance to screening facility. Out-of-pocket expenses were found to influence the uptake of mammograms: women having to pay out-of-pocket costs were less likely to be screened than those who have health insurance policies, to take care of the expenses (ibid, 2006).
Cohen (2010) determined that nurses not only have a positive effect on patient compliance with breast screening, but educate women on identifying breast changes and help them to decide what to do if change is identified. Meissner et al. (2007) found that the intervention of a nurse is more likely than any factor to act as a motivator for breast screening. However many healthcare clinics in Kenya do not have adequate number of nurses and their workload is extremely over demanding. Many health facilities do not have breast health protocols relating to detection of lumps in the breast; neither do they have mammogram facilities (Musimbi, 2008). The aspects of breast cancer screening covered in MCH clinics are scanty and little evaluation is done to investigate the women’s level of compliance, especially to BSE. Besides, not a lot of emphasis is laid on breast health compared to other health aspects in MCH clinics (ibid, 2008).

Nevin et al. (2007) demonstrate that BSE accuracy of the women increased after education. Besides, their attitude and behavior towards BSE improved, hence the suggestion that the main reasons why the women were not performing BSE were lack of knowledge and motivation prior to education. Teaching in social settings has also been shown to improve knowledge about breast cancer and screening (Sarah et al., 2009). The presence of a qualified nurse in a clinic to provide intensive educational interventions, avail information about the benefits of BSE and breast screening can improve uptake of breast cancer screening (WHO, 2006). There is need to find out whether the uptake of clinical breast examination and mammography in Mosocho may be associated to hospital factors comparable with other developing countries for purposes of improvement.
2.6 Breast Health Promotion and Education

Breast health promotion entails a two dimensional approach; provide knowledge to try and prevent breast cancer or if it has occurred to find it and treat it as early as possible (David and Rassaby, 2008). A knowledgeable public carries out breast self examination and talks to medical specialists about the appropriate high risk age for breast screening (Ibid, 2008). Women choose to adopt breast cancer screening, if they receive reliable information from hospital facilities they trust, backed by vigorous holistic debate. According to Teresa de Perez (2007), decentralization of health promotion through personalized breast action plans in Cuba achieved tremendous lifestyle changes, especially through face to face education. This keeps the public informed and creates a generation of opportunities for distribution and social exchange of breast health knowledge. Accordingly, an effective Breast Health Education (BHE) programme targeting women should include educational handouts, seminar programs, guides for health promotion and education prepared by MOH, television programs and a commission to co-ordinate educational activities (Ibid, 2007).

The Kenya Breast Health Programme (KBHP) educates women to care for their breasts through regular self-examination and organizes workshops for exchange of information with the public (Neondo, 2006). Health promotion talks are given regularly by medical professionals in Kenya through the media outlets but not every region of the country receives the broadcasts (Musimbi, 2008). Educational approaches such as; repetition, reinforcement and hands on learning have been demonstrated not only to increase masterly of BSE but also to generally increase breast screening uptake (Meissner et al., 2007). Similarly Randolph and Swanath, (2008) argue that breast health education is a vital step towards discussions about breasts, promoting breast cancer awareness and countering misconceptions about breast cancer screening that are common among women. Mass media
campaigns keep the topic of breast screening in the public eye and educational interventions should specifically be designed to improve screening among women, by including media messages to discuss the need for screening and dispel misconceptions about cancer and screening (Kim et al., 2009). Advertisement campaigns for breast screening have been demonstrated to increase screening uptake in the areas covered by the advertising campaign by 2-13% (Cohen, 2010). Such advertisements in Kenya and mass media campaigns have been less vigorous except during the breast cancer month of October, but even then breast awareness is majorly raised in urban centers and very little effort has been made to reach rural women whose breast health characteristics are unique. Besides, very little evaluation has ever been done to investigate the impact of mass media and advertisement on breast cancer screening and control in Kenya.

2.7 Challenges to Breast Cancer Control in Africa.

Breast health awareness campaigns have been inadequate, coupled with lack of affordable screening facilities, especially in most rural centers (Huertha and Grey, 2007). Where screening facilities are available the cost is prohibitively high (WHO, 2006). Due to lack of logistics and funds, health agencies can only provide BHE and promotion (Huertha and Grey, 2007). Lack of major cancer registries in Africa pose a major challenge in providing statistics about breast cancer for planning purposes (WHO, 2006).
3.1 Introduction

This chapter presents the research methodology including: the Research design, sampling procedure, sample size determination, validity and reliability of the research instrument, data collection and analysis methods, ethical and logistical considerations. The data collected from the respondents through the interviewer administered questionnaires was entered into an excel worksheet, cleaned and thereafter transferred to SPSS (Statistical Package for Social Sciences). Chi - square ($\chi^2$) test and correlation analysis were used to determine the associations and differences between the variables. Descriptive analyses were done and the information obtained was summarized in tables and frequency charts.

3.2 Research Design

This study used cross sectional survey research design. The design was preferred to obtain diverse information about the women’s attitudes and habits related to breast screening uptake using interviewer administered questionnaires, a key informant interview and a focus group discussion, involving selected women from the study population. In the study, information about the factors that influenced early screening for breast cancer among women was sought. This data was processed to provide descriptive information.

3.3 Variables

The dependent variable was the uptake of breast screening for cancer, whereas the independent variables were; SECD factors, psychosocial factors, institutional characteristics at MCH clinics and knowledge concerning breast cancer screening.
3.4 Inclusion Criteria

Women aged between 15 – 49 years within the division, from systemically sampled households were included in the study. A breast cancer surgeon with at least 5 years experience at the level 5 hospital was selected as the key informant. Two women from each of the five locations who had been resident in the locations within at least the last 5 years were included in the focus group discussions.

3.5 Exclusion Criteria

Women who declined to be interviewed and those that were either mentally challenged or tipsy were excluded from the study.

3.6 Study Location

This study was carried out in Mosocho division, Kisii District, Kenya. It covers 104.4 km² and is located on latitude 0.6° and longitude 34.75° (Appendix I). The study area had 67,945 women of the reproductive age group 15 – 49 years in 29,930 households, according to 2009 census data (KNBS, 2010). Most women in this region are subsistence farmers and small scale traders; however 51% of the population in the division lives below the poverty line. A total of 245 of these women were sampled for inclusion in the study.

3.7 Sample Size

This was determined using the formula by Fisher’s et al. (1998).

\[ n = \frac{Z^2pqD}{d^2} \]

Where;

- \( n = \) the desired sample size (if the target population is greater than 10,000)
- \( Z = \) the standard normal deviate 1.96 at 95% confidence interval
- \( P = \) estimated prevalence of breast cancer screening was 0.2
among women attending MCH clinic at Kisii level 5 hospital

\[ q = 1 - p = 0.80 \]

\[ d = \text{level of statistical significance set at 0.05.} \]

\[ D = \text{design effect} = 1 \text{ and therefore;} \]

\[ n = \frac{1.96^2 \times 0.2 \times 0.80}{(0.05)^2} = 245 \text{ women.} \]

3.8 Sampling Procedure

3.8.1 Locations and Households

A random sample of 5 locations out of the 21 in the division was first selected for inclusion in the study using a list of random numbers. Households were then systematically sampled from each of the 5 locations proportionate to the number of households in the location for inclusion, until the desired sample size was attained. The table 3.0 below represents the households selected and the sampling interval per location.

<table>
<thead>
<tr>
<th>Serial number</th>
<th>Location</th>
<th>Households per location</th>
<th>Sampled Households</th>
<th>Sampling interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Nyakoe</td>
<td>3 818</td>
<td>93</td>
<td>3</td>
</tr>
<tr>
<td>2.</td>
<td>Matieko</td>
<td>1 660</td>
<td>39</td>
<td>3</td>
</tr>
<tr>
<td>3.</td>
<td>Iranda</td>
<td>2 027</td>
<td>49</td>
<td>3</td>
</tr>
<tr>
<td>4.</td>
<td>Raganga</td>
<td>1 338</td>
<td>32</td>
<td>3</td>
</tr>
<tr>
<td>5.</td>
<td>Bigege</td>
<td>1 300</td>
<td>32</td>
<td>3</td>
</tr>
</tbody>
</table>

3.8.2 Women

One woman from each household was randomly selected for participation in the study from the systematically sampled households to obtain 245 women from the 5 locations.
Two women from each of the 5 locations were purposefully sampled based on the years of residency within the location to form the focus group and a male key informant (surgeon in charge of breast cancer) was selected from the Kisii level 5 hospital for interview.

3.9 Research Instruments

Structured and open ended questionnaires used in the study were constructed in line with the objectives of the study. The items were concise and in a logical sequence. Some items were rated on the Likert scale. A focus group discussion guide was used to provide backup information alongside a key informant interview guide that was used to interview the key informant. In studying the relationship between knowledge of the respondents about causation and screening for breast cancer with breast screening uptake the respondents were given 10 basic knowledge questions about breast cancer and screening and those who scored 4 and above were considered to have high knowledge, while scores below 3 were considered to be low knowledge about breast cancer and screening.

3.10 Pilot Study

A pilot test was carried out involving 25 respondents from Keumbu division to obtain data that was analyzed by SPSS to determine the reliability coefficient. The questionnaires were interviewer administered and the participants were encouraged to make suggestions about the instructions, clarity of questions and relevance. The responses were used to improve the clarity, relevance and reliability of items in the questionnaire.

3.11 Validity

The validity of the questionnaire was based on expert opinion and a field test. The supervisors and a panel of experts (statistians) from Kenyatta University examined the
questionnaire and the appropriate changes they recommended on validity were made. The field pilot results were also considered in improving the validity of the questionnaire and for logistical planning.

3.12 Reliability

The reliability coefficient obtained from the pilot test and the split-half technique was utilized in assessing the reliability of the questionnaire. The results of the pilot study confirmed that the test instruments could provide valid and reliable results. Field assistants were trained and briefed on the conduct of the research to improve reliability.

3.13 Data Collection

Primary data was collected using structured and open-ended questionnaires, a key informant interview schedule and a focus group discussion guide.

3.14 Data Analysis

The data collected was analyzed using the Statistical Package for Social Sciences (SPSS). Frequency charts, proportions and tables were used in data presentation. Chi square and correlation analysis were used to determine the association between the dependent (breast screening uptake) and independent variables (SECDs, psychosocial factors, institutional characteristics and women’s knowledge about breast cancer and screening).

3.15 Ethical and Logistical Considerations

Permission to carry out the study was sought from the Board of Post Graduate Studies of Kenyatta University and the Ministry of Higher Education. Further clearance for research was sought from Kisii level 5 Hospital’s ethical and research committee. Informed consent
from the respondents was sought by adequately outlining to them the objectives of the study and completing a consent form. The respondents were assured of confidentiality with all the information they would provide in the questionnaire.
CHAPTER FOUR
RESULTS AND DISCUSSION

4.1 Introduction
This chapter presents the characteristics of the respondents, the main results obtained from the research, analyses of the research findings, discussion and conclusions.

4.2 Results
4.2.1 Socio-demographic characteristics of the respondents
The highest percentage of the respondents was in the age bracket 20 - 29 years while the least percentage was in the age bracket 40 - 49 years. The highest percentage of the respondents was of middle college level and those in marital unions (Table 4.1)

Table 4.1: Socio-demographic characteristics of the respondents in percentage

<table>
<thead>
<tr>
<th>Age category</th>
<th>Number (n)</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>15 – 19 years</td>
<td>73</td>
<td>29.8</td>
</tr>
<tr>
<td>20 – 29 years</td>
<td>82</td>
<td>33.5</td>
</tr>
<tr>
<td>30 – 39 years</td>
<td>58</td>
<td>23.7</td>
</tr>
<tr>
<td>40 – 49 years</td>
<td>32</td>
<td>13.0</td>
</tr>
<tr>
<td>Level of Education</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Primary</td>
<td>34</td>
<td>13.8</td>
</tr>
<tr>
<td>Secondary</td>
<td>94</td>
<td>38.4</td>
</tr>
<tr>
<td>Middle college</td>
<td>117</td>
<td>47.8</td>
</tr>
<tr>
<td>Marital Status</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Marital unions</td>
<td>134</td>
<td>54.7</td>
</tr>
<tr>
<td>Single</td>
<td>111</td>
<td>45.3</td>
</tr>
</tbody>
</table>
4.2.2: Uptake of Breast Cancer screening among the respondents

Figure 4.1 below presents the percentage uptake of Breast Cancer Screening among the women.

![Pie chart showing percentage uptake of Breast Cancer screening among the women.](image)

**Fig 4.1: Percentage Uptake of Breast Cancer screening among the women**

One hundred and thirty seven women (55.9%) of the 245 respondents confirmed never to have undertaken BSE, Clinical Breast Examination or Mammography at all within the last two years.

**4.2.2.1: Breast self examination uptake among the respondents**

Within the last two years, only 108 respondents had undertaken BSE, representing 44.10% of the total respondents, whereas 55.9% of the total number of respondents had never undertaken BSE. However, it was 50% of the 108 respondents that had undertaken the examination once a month (Table 4.2), as recommended by WHO (WHO, 2006). Among the 137 women who had never undertaken BSE, 65% were unaware of what it entails.
**Table 4.2: Percentage uptake of breast self examination among the women**

<table>
<thead>
<tr>
<th>Uptake of BSE</th>
<th>Number (n)</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Once in more than a year</td>
<td>27</td>
<td>25</td>
</tr>
<tr>
<td>Annually</td>
<td>27</td>
<td>25</td>
</tr>
<tr>
<td>Monthly</td>
<td>54</td>
<td>50</td>
</tr>
<tr>
<td>Total</td>
<td>108</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Figure 4.2 presents the percentage of respondents confident in the conduct of breast self examination among the 54 respondents who undertook the examination monthly.

![Pie chart showing percentage confidence in BSE]

**Fig 4.2: Percentage confidence in the conduct of BSE among the respondents**

Among the women who carried out BSE monthly, 33.30% were not confident that their BSE conduct was proper enough to identify a lump in the breasts.

**4.2.2.2: Clinical breast examination uptake**
Within the last two years, only 100 of the total respondents had ever undertaken clinical breast examination, representing 40.82%. The percentage of the respondents who did not adhere to the WHO recommendation of undertaking clinical breast examination annually (WHO, 2006), was 43.4% (Table 4.3).

Table 4.3: Percentage uptake of Clinical breast examination among the respondents

<table>
<thead>
<tr>
<th>Clinical examination uptake</th>
<th>Number (n)</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Once a year</td>
<td>56</td>
<td>56.6</td>
</tr>
<tr>
<td>Once in more than a year</td>
<td>44</td>
<td>43.4</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td>100.0</td>
</tr>
</tbody>
</table>

4.2.2.3: Mammogram uptake among the women in the last two years

Within the last two years, 67 of the total number of respondents had undertaken mammography, representing 27.3% of the total sample size. Seventy three point one percent of the 67 respondents, most of who were in the age bracket 40 – 49 years confirmed to have undertaken a mammogram once a year (table 4.4). Among the total number of respondents (245), 70.2% did not understand what mammography involves.

Table 4.4: Percentage uptake of Mammograms among the women

<table>
<thead>
<tr>
<th>Uptake of mammograms</th>
<th>Frequency(n)</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Once a year</td>
<td>49</td>
<td>73.1</td>
</tr>
<tr>
<td>Once in more than a year</td>
<td>18</td>
<td>26.9</td>
</tr>
<tr>
<td>Total</td>
<td>67</td>
<td>100.0</td>
</tr>
</tbody>
</table>

4.2.2.4: Source of information about breast cancer and screening
A majority of the respondents obtained information about breast cancer and screening through the radio. Among the respondents informed about breast cancer and screening, 36.9% of the respondents obtained information about breast cancer and screening through the radio, whereas 8.9% of the respondents obtained the information through other sources including the internet (Fig. 4.3).

4.2.3: The influence of SECD on the uptake of breast cancer screening

4.2.3.1: The influence of demographic factors on breast screening uptake

The demographic factors, Age, marital status, level of education and distance to breast screening facilities were found to be significantly associated to breast screening uptake among the women (Tables 4.5 and 4.6). There is significant negative correlation between age and clinical breast screening uptake ($\chi^2 = 163.613$, df = 3, $p = < 0.001$), ($r = -0.530$, $p = < 0.001$).
p <0.001). The marital status of the respondents has significant positive correlation with breast screening uptake ($\chi^2 = 159.988$, df = 1, p = < 0.001), ($r = + 0.261$, p = 0.001). There is significant positive correlation between the educational level of the respondents and breast screening uptake ($\chi^2 = 191.139$, df = 2, p = < 0.001), ($r = + 0.304$, p = 0.001). However, travel distance to the screening facility has significant negative correlation with clinical breast screening uptake ($\chi^2 = 81.972$, df = 1, p<0.001), ($r = - 0.306$, p<0.001). About 28.0% of variations in age account for the highest negative association with breast screening uptake among the respondents. These associations are shown in tables 4.5 and 4.6.

**Table 4.5: Influence of demographic variables on breast screening uptake**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Beta</th>
<th>Simple correlation (r)</th>
<th>T</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>-0.258</td>
<td>-0.530</td>
<td>-6.038</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Marital status</td>
<td>0.241</td>
<td>+0.261</td>
<td>3.448</td>
<td>0.001</td>
</tr>
<tr>
<td>Educational level</td>
<td>0.151</td>
<td>+0.304</td>
<td>3.271</td>
<td>0.001</td>
</tr>
<tr>
<td>Distance to screening facility</td>
<td>-0.328</td>
<td>-0.306</td>
<td>-4.725</td>
<td>&lt;0.001</td>
</tr>
</tbody>
</table>

($R^2 = 66.2\%$ $F = 117.742$ p< 0.001)

**Table 4.6: Relationship between demographic factors and breast screening uptake**
The respondents within the age bracket 15 –19 years had the highest uptake (87.7%); while the respondents in the age bracket 30 –39 years had the least uptake of breast screening (17.2%). Breast screening uptake considerably decreases with increase in age up to 39 years. Married women had the highest screening uptake (75.0%) whereas single women had the least uptake (5.5%). The uptake was highest among respondents with secondary level of education (83.0%), while it was lowest among respondents with middle college level of education (6.0%). However, 41.9% of the respondents who failed to undertake clinical breast examination indicated that the travel distance to the screening facility affects breast screening uptake.

4.2.3.2: The influence of socio – economic and cultural factors on breast screening uptake
There are significant associations between socio-economic and cultural factors on breast screening uptake respectively (Table 4.7).

Table 4.7: Relationship between socio-economic and cultural factors on breast screening uptake

<table>
<thead>
<tr>
<th>Variable</th>
<th>Breast Screening Uptake</th>
<th>Uptake n (%)</th>
<th>No uptake n (%)</th>
<th>Total</th>
<th>df</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Economic status</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;50th percentile</td>
<td>7(13.5)</td>
<td>45(86.5)</td>
<td>52</td>
<td>52.037</td>
<td>1</td>
<td>&lt;0.001**</td>
</tr>
<tr>
<td>≥50th percentile</td>
<td>101(52.3)</td>
<td>92(47.7)</td>
<td>193</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cost of screening</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Agree</td>
<td>99(52.7)</td>
<td>89(47.3)</td>
<td>188</td>
<td>54.868</td>
<td>1</td>
<td>&lt;0.001**</td>
</tr>
<tr>
<td>Disagree</td>
<td>9(15.8)</td>
<td>48(84.2)</td>
<td>57</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Socio – cultural beliefs</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Agree</td>
<td>91(90.1)</td>
<td>10(9.9)</td>
<td>101</td>
<td>217.983</td>
<td>1</td>
<td>&lt;0.001**</td>
</tr>
<tr>
<td>Disagree</td>
<td>17(11.8)</td>
<td>127(88.2)</td>
<td>144</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>commitment</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Agree</td>
<td>102(66.2)</td>
<td>52(33.8)</td>
<td>154</td>
<td>114.127</td>
<td>1</td>
<td>&lt;0.001**</td>
</tr>
<tr>
<td>Disagree</td>
<td>6(6.6)</td>
<td>85(93.4)</td>
<td>91</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 4.8: Influence of socio-economic and cultural variables on breast screening uptake

<table>
<thead>
<tr>
<th>Variable</th>
<th>Beta</th>
<th>Simple correlation (r)</th>
<th>T</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Socio – economic status</td>
<td>0.122</td>
<td>+ 0.071</td>
<td>1.722</td>
<td>0.050</td>
</tr>
<tr>
<td>Cost of mammogram</td>
<td>-0.132</td>
<td>- 0.236</td>
<td>-2.081</td>
<td>0.039</td>
</tr>
<tr>
<td>Socio - cultural</td>
<td>0.652</td>
<td>+ 0.720</td>
<td>12.885</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Socio - commitments</td>
<td>0.521</td>
<td>- 0.233</td>
<td>8.681</td>
<td>&lt;0.001</td>
</tr>
</tbody>
</table>

(R² = 66.2% F = 117.742 p< 0.001)

There is significant positive correlation between the socio-economic status of the respondents and breast screening uptake (χ² = 52.037, df = 1, p < 0.001), (r = + 0.071,
p = 0.050) and 86.5% of the respondents whose economic status was below the 50th economic percentile did not undertake breast screening (Tables 4.7 and 4.8).

A highly significant negative correlation occurs between the cost of screening and the uptake of clinical breast screening \((\chi^2 = 54.868, \text{df} = 1, p < 0.001)\), \((r = -0.236, p = 0.039)\) and 47.3% of the respondents did not undertake clinical breast examination due to the high cost of screening (Tables 4.7 and 4.8). Socio–cultural factors have significant positive correlation with clinical breast examination \((\chi^2 = 217.983, \text{df} = 1, p < 0.001)\), \((r = +0.720, p = <0.001)\) and 9.9% of the respondents did not undertake clinical breast screening due to socio–cultural factors (Tables 4.7 and 4.8). A significant negative correlation occurs between commitments and the uptake of clinical breast examination among the respondents \((\chi^2 = 114.127, \text{df} = 1, p = <0.001)\), \((r = -0.233, p = <0.001)\) and 33.8% of the respondents who indicated that socio–commitments may influence uptake did not undertake clinical breast examination (Tables 4.7 and 4.8). About 51.8% of the variations in socio–cultural variable accounted for the highest positive association with breast screening uptake.

4.2.4: The influence of psychosocial factors on breast cancer screening uptake

The table 4.9 below presents psychosocial factors that influence breast cancer screening uptake. Fear, pain, stigma and embarrassment are significantly associated to mammogram screening uptake.

<p>| Table 4.9: Influence of psychosocial factors on breast screening uptake |
|---|---|---|---|---|---|---|
| Variable | Breast Screening Uptake | | | | | |
| | Uptake | No uptake | Total | (\chi^2) value | df | P - value |</p>
<table>
<thead>
<tr>
<th></th>
<th>n (%)</th>
<th>n (%)</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Fear</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Agree</td>
<td>100(61.3)</td>
<td>63(38.7)</td>
<td>163</td>
<td>97.162</td>
</tr>
<tr>
<td>Disagree</td>
<td>8(9.8)</td>
<td>74(90.2)</td>
<td>82</td>
<td></td>
</tr>
<tr>
<td><strong>Pain</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Agree</td>
<td>6(5.3)</td>
<td>107(94.7)</td>
<td>113</td>
<td>218.446</td>
</tr>
<tr>
<td>Disagree</td>
<td>102(77.3)</td>
<td>30(22.7)</td>
<td>132</td>
<td></td>
</tr>
<tr>
<td><strong>Stigma</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Agree</td>
<td>101(63.1)</td>
<td>59(36.9)</td>
<td>160</td>
<td>102.605</td>
</tr>
<tr>
<td>Disagree</td>
<td>7(8.2)</td>
<td>78(91.8)</td>
<td>85</td>
<td></td>
</tr>
<tr>
<td><strong>Embarrassment</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Agree</td>
<td>103(73.6)</td>
<td>37(26.4)</td>
<td>140</td>
<td>230.576</td>
</tr>
<tr>
<td>Disagree</td>
<td>5(4.8)</td>
<td>100(95.2)</td>
<td>105</td>
<td></td>
</tr>
</tbody>
</table>

There is significant association between fear and breast screening uptake \( \chi^2 = 97.162, \) \( df =1, \ p < 0.001 \) and 38.7\% of the respondents did not undertake BSE due to the fear associated to finding breast cancer (Table 4.9). The anticipated pain during a mammogram is significantly associated to the uptake of mammograms among the respondents \( \chi^2 = 218.446, \) \( df =1, \ p < 0.001 \) and 94.7\% of the respondents did not undertake a mammogram due to the anticipated pain (Table 4.9). Socio – stigma is highly associated to clinical breast screening uptake \( \chi^2 = 102.605, \) \( df =1, \ p < 0.001 \) and 36.9\% of the respondents who did not undertake breast screening attributed it to the socio – stigma associated to it (Table 4.9). The concern that breast screening is embarrassing is significantly associated to the uptake of clinical breast examination \( \chi^2 = 230.576, \) \( df =1, \ p < 0.001 \) and 26.4\% of the respondents who did not undertake breast screening indicated that embarrassment influences clinical breast cancer screening uptake (Table 4.9).

**4.2.5: Influence of Institutional characteristics on breast screening uptake**
The provision of breast health education, guidance and follow up by nurses on BSE and breast screening advertisements had highly significant positive correlation with breast screening uptake among the women (Tables 5.0 and 5.1).

**Table 5.0: Influence of Institutional variables on breast screening uptake**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Beta</th>
<th>Simple correlation (r)</th>
<th>T</th>
<th>P  value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Breast health education at MCH</td>
<td>0.392</td>
<td>+ 0.654</td>
<td>3.695</td>
<td>0.002</td>
</tr>
<tr>
<td>Nurses’ guidance and follow up</td>
<td>0.375</td>
<td>+ 0.458</td>
<td>2.032</td>
<td>0.005</td>
</tr>
<tr>
<td>Breast screening Advertisement</td>
<td>0.213</td>
<td>+ 0.396</td>
<td>10.708</td>
<td>0.003</td>
</tr>
</tbody>
</table>

\( (R^2 = 66.1\% \ F = 17.015 \ p = < 0.001) \)

**Table 5.1: Relationship between Institutional characteristics and breast screening uptake**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Breast Screening Uptake</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Uptake n %</td>
</tr>
<tr>
<td>Breast Health Education at MCH</td>
<td></td>
</tr>
<tr>
<td>Provided</td>
<td>86(91.5)</td>
</tr>
<tr>
<td>Not provided</td>
<td>22(14.6)</td>
</tr>
<tr>
<td>Nurses’ guidance and follow up</td>
<td></td>
</tr>
<tr>
<td>Provided</td>
<td>90(93.8)</td>
</tr>
<tr>
<td>Not provided</td>
<td>18(12.0)</td>
</tr>
<tr>
<td>Breast screening advertisement</td>
<td></td>
</tr>
<tr>
<td>Provided</td>
<td>70(89.7)</td>
</tr>
<tr>
<td>Not provided</td>
<td>38(22.8)</td>
</tr>
</tbody>
</table>
Breast health education at MCH has significant positive correlation with breast screening uptake \( (\chi^2 = 193.470, df = 1, p < 0.001) \), \( (r = +0.654, p = 0.002) \) and 85.4\% of the women who did not undertake clinical breast examination had never been provided with breast health education at the hospital facility (Tables 5.0 and 5.1). There is significant positive correlation between guidance and follow up by nurses on BSE and the uptake of screening \( (\chi^2 = 200.231, df = 1, p < 0.001) \), \( (r = 0.458, p = 0.005) \). About 88.0\% of the women who did not undertake BSE had never been guided by nurses on the necessity and conduct of BSE (Tables 5.0 and 5.1). Advertisement on breast cancer screening has a significant positive correlation with the uptake of breast screening \( (\chi^2 = 145.158, df = 1, p < 0.001) \), \( (r = +0.396, p = 0.003) \). About 77.2\% of the women who did not undertake clinical breast examination had never seen brochures on breast cancer screening. However, 42.8\% of variations in breast health education at MCH account for the highest positive association with breast screening uptake.

**4.2.6: Influence of knowledge on breast screening uptake**

The association between knowledge about breast cancer and screening against the uptake of screening among the respondents is highly significant and positive. The respondents were given 10 basic knowledge questions about breast cancer and screening and those who scored 4 and above were considered to have high knowledge, while scores below 3 were considered to be low knowledge about breast cancer and screening.
Table 5.2: Relationship between knowledge about breast cancer and screening with the uptake of breast cancer screening

<table>
<thead>
<tr>
<th>Variable</th>
<th>Breast Screening Uptake</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Uptake n %</td>
<td>No uptake n %</td>
<td>Total</td>
<td>$\chi^2$ value</td>
<td>df</td>
<td>P - value</td>
</tr>
<tr>
<td>Knowledge of breast cancer &amp; screening</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>High</td>
<td>102 (53.7)</td>
<td>88 (46.3)</td>
<td>190</td>
<td>55.909</td>
<td>1</td>
<td>&lt;0.001**</td>
</tr>
<tr>
<td>Low</td>
<td>6 (10.9)</td>
<td>49 (89.1)</td>
<td>55</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 5.3: Association of knowledge variable on breast screening uptake

<table>
<thead>
<tr>
<th>Variable</th>
<th>Beta</th>
<th>Simple correlation (r)</th>
<th>T</th>
<th>P - value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knowledge of breast cancer and screening</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>High knowledge</td>
<td>0.863</td>
<td>+ 0.654</td>
<td>9.950</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Low knowledge</td>
<td>0.568</td>
<td>+ 0.478</td>
<td>8.476</td>
<td>&lt;0.001</td>
</tr>
</tbody>
</table>

($R^2 = 22.8\% \quad F = 71.848 \quad p = < 0.001$)

There is significant positive correlation between the respondents’ knowledge concerning breast cancer screening and the uptake of screening ($\chi^2 = 55.909, \ df = 1, \ p < 0.001$), ($r = + 0.654, \ p = < 0.001$). Eighty nine point one percent of the respondents who did not undertake screening had low knowledge about breast cancer and the screening process (Tables 5.2 and 5.3). About 42.8% of variations in high knowledge variable account for the highest positive correlation with breast screening uptake among respondents.
4.2.7: Influence of attitude on breast cancer screening uptake

Significant negative association was found between the attitudes that breast cancer is caused by witchcraft ($\chi^2 = 60.641$, df =1, p < 0.001), ($r = -0.112$, p = 0.002) and breast screening is not necessary ($\chi^2 = 157.372$, df =1, p < 0.001), ($r = -0.233$, p = <0.001) against breast screening uptake among the respondents (Tables 5.4 and 5.5). Accordingly, 41.3% of the respondents who undertook breast cancer screening did not believe that breast cancer could be caused by witchcraft. Ninety point nine percent of the respondents who did not undertake breast screening held that breast screening is unnecessary and valueless. Significant positive association was found between the attitude that breast feeding may cause cancer ($\chi^2 = 214.784$, df =1, p < 0.001), ($r = +0.396$, p = < 0.001) and breast screening may lead to the loss of breasts ($\chi^2 = 180.457$, df =1, p < 0.001), ($r = +0.662$, p = < 0.001) respectively against breast screening uptake (Tables 5.4 and 5.5). However, 43.8% of variations in the belief that screening leads to loss of breasts accounts for the highest significant positive association with breast cancer screening among the other belief related attitudes.
Table 5.4: Relationship between attitude and the uptake of breast cancer screening

<table>
<thead>
<tr>
<th>Variable</th>
<th>Breast Screening Uptake</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Uptake n  %</td>
<td>No uptake n %</td>
<td>Total</td>
<td>( \chi^2 ) value</td>
<td>df</td>
<td>P - value</td>
</tr>
<tr>
<td>Breast cancer caused by witchcraft?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Agree</td>
<td>16(72.7)</td>
<td>6(27.3)</td>
<td>22</td>
<td>60.641</td>
<td>1</td>
<td>&lt;0.001**</td>
</tr>
<tr>
<td>Disagree</td>
<td>92(41.3)</td>
<td>131(58.7)</td>
<td>223</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cancer caused by breast feeding?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Agree</td>
<td>99(85.3)</td>
<td>17(14.7)</td>
<td>116</td>
<td>214.784</td>
<td>1</td>
<td>&lt;0.001**</td>
</tr>
<tr>
<td>Disagree</td>
<td>9(7.0)</td>
<td>120(93.0)</td>
<td>129</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Screening leads to the loss of breasts?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Agree</td>
<td>80(88.9)</td>
<td>10(11.1)</td>
<td>90</td>
<td>180.457</td>
<td>1</td>
<td>&lt;0.001**</td>
</tr>
<tr>
<td>Disagree</td>
<td>28(18.1)</td>
<td>127(81.9)</td>
<td>155</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Breast screening necessary?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Agree</td>
<td>98(72.6)</td>
<td>37(27.4)</td>
<td>135</td>
<td>157.372</td>
<td>1</td>
<td>&lt;0.001**</td>
</tr>
<tr>
<td>Disagree</td>
<td>10(9.1)</td>
<td>100(90.9)</td>
<td>110</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

However, 85.3% of the respondents who undertook BSE held that breast cancer is caused by breast feeding (Table 5.4).

Table 5.5: Influence of attitude variables on breast screening uptake

<table>
<thead>
<tr>
<th>Variable</th>
<th>Beta</th>
<th>Simple correlation (r)</th>
<th>T</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Belief that:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>witchcraft causes breast cancer</td>
<td>-.091</td>
<td>-0.112</td>
<td>-3.120</td>
<td>.002</td>
</tr>
<tr>
<td>Breast feeding causes breast cancer</td>
<td>.213</td>
<td>+0.396</td>
<td>10.708</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Screening leads to breast loss</td>
<td>.383</td>
<td>+0.662</td>
<td>14.323</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>screening not necessary</td>
<td>.521</td>
<td>-0.233</td>
<td>8.681</td>
<td>&lt;.001</td>
</tr>
</tbody>
</table>

\( R^2 = 83.5\% \)  \( F = 412.698 \)  \( p< 0.001 \)
Eighty five point three percent of the respondents who undertook clinical breast examination believed that breast cancer may be caused by breast feeding. About 88.9% of the respondents who undertook clinical breast screening held the attitude that the uptake of screening may lead to the loss of breasts.

**4.2.8: Influence of cultural and religious practices on the uptake of breast cancer screening**

There is significant negative association between cultural practices and breast screening uptake among the respondents ($\chi^2 = 222.687$, df =1, $p < 0.001$), ($r = - 0.056$, $p = <0.001$), (Tables 5.6 and 5.7). However, there is very less correlation between cultural practices and breast screening uptake, with variations in cultural practice variable only accounting for a mere 0.31% of breast screening uptake among respondents.

**Table 5.6: Association of cultural and religious practice variables on breast screening uptake**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Beta</th>
<th>Simple correlation (r)</th>
<th>T</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cultural practices</td>
<td>- 0.027</td>
<td>- 0.056</td>
<td>-1.017</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Religious practices</td>
<td>+ 0.519</td>
<td>+ 0.930</td>
<td>16.793</td>
<td>&lt;.001</td>
</tr>
</tbody>
</table>

($R^2 = 78.1\% ~ F = 430.941 ~ p< 0.001$)

Religious practices and clinical breast screening uptake have significant positive association ($\chi^2 = 183.647$, df =1, $p < 0.001$), ($r = + 0.930$, $p = <0.001$) (table 5.6 and 5.7).

About 80.4% of the variations in religious practice variable account for the highest positive correlation with clinical breast screening uptake among the respondents.
Table 5.7: Relationship between cultural and religious practices with screening uptake

<table>
<thead>
<tr>
<th>Variable</th>
<th>Breast Screening Uptake</th>
<th></th>
<th></th>
<th></th>
<th>df</th>
<th>P - value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Uptake n %</td>
<td>No uptake n %</td>
<td>Total</td>
<td>$\chi^2$ value</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cultural practices</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Agree</td>
<td>90(92.8)</td>
<td>7(7.2)</td>
<td>97</td>
<td>222.687</td>
<td>1</td>
<td>&lt;0.001**</td>
</tr>
<tr>
<td>Disagree</td>
<td>18(12.2)</td>
<td>130(87.8)</td>
<td>148</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Religious practices</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Agree</td>
<td>40(83.3)</td>
<td>8(16.7)</td>
<td>48</td>
<td>183.647</td>
<td>1</td>
<td>&lt;0.001**</td>
</tr>
<tr>
<td>Disagree</td>
<td>68(34.5)</td>
<td>129(65.5)</td>
<td>197</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

4.3: Discussion

4.3.1: The influence of demographic factors on breast screening uptake

Demographic factors such as, age, marital status, level of education and travel distance to breast screening facilities were found to be significantly associated to breast screening uptake among the women (Table 4.6). There is significant negative association between age and clinical breast screening uptake. The respondents within the age bracket 15 – 19 years had the highest uptake, while the respondents in the age bracket 30 – 39 years had the least uptake of breast screening, hence breast screening uptake considerably decreases with increase in age (Table 4.5 and section 2.3). This was probably due to loss of keenness about breast health or the assumption that all is well given the lumps are not painful yet or due to concentrating more on daily chores to fend for their families.

Most respondents within the category 15 – 19 years were keener on breast health issues and screening due to presence of nurses and matrons in their schools who sensitized the girls on how to conduct breast self examination and the necessity of breast cancer screening. The girls are also more concerned about their fertility, ability to get married and establish
families in contrast to the older category. Breast screening uptake slightly increases at the age bracket 40 – 49 years compared to the category 30 – 39 years because being an high risk group, most respondents had appointments for clinical breast examination and mammography due to the elevated risk. A study on breast cancer carcinoma at coast provincial hospital, Mombasa showed that 60.5% of the female patients attending mammography were in the 30 to 60 year age group (Calleb, 2006). Fifty seven percent of the studies carried out among Latin American women in the USA demonstrated that age was a significant predictor of screening mammogram (Weller et al., 2009). Lee et al. (2010) also found a negative correlation between breast screening participation and the age of women.

The marital status of the respondents has significant positive association with breast screening uptake. Married women had higher screening uptake compared to single women, probably because of the increased awareness about their responsibility in being healthy enough and live longer to fend for their children to adulthood. The focus group argued that married women were more cautious of their breast changes than single respondents probably due to the involvement of their male partners in pressuring them for screening.

There is significant positive association between the educational level of the respondents and breast screening uptake. The uptake was highest among respondents with secondary level of education while the lowest uptake was among respondents with middle college level of education. Respondents with secondary level of education had highest screening uptakes due to interaction with matrons and nurses in boarding schools or increased awareness of breast cancer and screening due to interaction with each other, the media and teachers on the issue compared to their primary school counterparts. The low breast
screening uptake among the respondents with middle college level of education according to the focus group discussion was attributed to negligence and the attitude that screening is not very important as a result of the low frequency of breast cancer in the division. Chan et al. (2008) has also demonstrated that a lower education level among women is a vital variable associated with low breast screening uptake (section 2.3).

However, the travel distance to the screening facility has a significant negative association with clinical breast screening uptake. Forty one point nine percent of the respondents who failed to undertake clinical breast examination pointed out that the distance to the screening facility negatively affects clinical and mammogram breast screening uptake. The longer the travelling distance to the screening facility the more expensive the fare hence a cost implication for the respondent. Currently, the closest facility that serves the wider Nyanza region for mammograms is the Agakhan hospital in Kisumu, given that the one at the new Nyanza provincial hospital broke down more than three years ago, hence inaccessibility to the rural population, due to the inconvenience of the long distance and cost implication to those that are economically deprived (see section 2.3).

Besides, the inconvenience of long distance not only discourages the uptake of screening due to its disruptive effect on other household chores but also increases the cost. The focus group stated that longer distance to the screening facility makes it inaccessible especially to the rural women. Bulaporn and Clark (2008) also found that among Thai women, the distance to screening facilities plays a major role in determining the uptake of screening services for breast cancer. Maheswarab et al. (2006) found out that breast screening uptake decreased significantly with an increase in travel distance to screening facility. Ackerson and Grete – beck, (2007) have pointed out that transportation problems, such as large
distances between women’s residence and health facilities and the absence of mass transit systems, may also present barriers to regular breast screening in rural areas. Barter and Taket (2007) however found no association with their sample nearness to the screening site and attendance, reporting access as a concern due to decline of appointment on the basis of inconvenience.

4.3.2: The influence of socio-economic and cultural factors on breast screening uptake

There is significant positive association between the socio-economic status of the respondents and breast screening uptake and 86.5% of the respondents whose economic status was below the 50th economic percentile did not undertake breast screening. This is because such respondents living below the 50th economic percentile prioritize the achievement of basic needs for their family to auxiliary requirements of breast screening. According to the focus group, economic deprivation among the women is a great hindrance to the uptake of breast screening because the lumps being, painless are dismissed as being secondary to the satisfaction of food, shelter and clothing needs. Besides, such women cannot afford insurance schemes for treatment and screening. Socio-economic status has been shown to be a powerful driver of uptake in breast screening (Moser et al., 2009) and most importantly, economically deprived populations seem to have later stage presentation in breast cancer in London (Cuthbertson et al., 2009). In a study of the association between uptake of breast screening and socio-economic deprivation, travel distance, urban-rural status, location and type of screening unit, the strongest association of breast screening uptake was with socio-economic deprivation especially with significantly lower uptake from deprived areas (Maheswarab et al., 2006). Income status (Bouchardy et al., 2006) and
economic deprivation (Alice et al., 2008) have been cited to influence clinical and mammogram uptake amongst women (see section 2.3).

A significant negative association occurs between the cost of screening and the uptake of clinical breast screening and 47.3% of the respondents did not undertake clinical breast examination due to the high cost of screening. In the wider Kisii region, the cheapest consultation fee for clinical examination is one thousand Kenyan shillings, but may vary up to three thousand Kenyan shillings per visit. The cheapest charges for mammogram at Agakhan hospital in Kisumu is five thousand Kenyan shillings. Considering that many women in the region live below one American dollar per day makes the cost of clinical examination and mammogram beyond the local women hence reducing uptake. Bulaporn and Clark (2008) found that among Thai women, the cost of screening and the distance to screening facilities play a major role in determining the uptake of screening services for breast cancer (see section 2.3). The high cost of clinical breast examination and mammography especially in developing countries is a big hindrance to the uptake of such services by women (WHO, 2006).

Socio – cultural factors have significant positive association with clinical breast examination and 9.9% of the respondents did not undertake clinical breast screening due to socio – cultural factors. Most respondents have myths about the causation of breast cancer; they stigmatize the condition thus hindering presentation and open discussion of the condition in the early stages when treatment is possible. According to the focus group, breast cancer is not understood to be a disease but as a misfortune whose explanation lies further than treatment in a hospital facility. Cultural myths in Africa are the greatest impediment to breast cancer screening and many women are afraid to discuss the disease
openly (WHO, 2006). Women would rather consult gods or pray to know why and who is behind the conditions, thus delaying presentation for screening and treatment (Ibid, 2006). Gulshan et al. (2007) established that perceptions of cancer and health behavior are influenced by cultural beliefs. Such common themes among Asian women in London include cancer being a taboo subject, a stigma and misunderstandings about causation. Cultural beliefs and practices accentuate difficulties in understanding of breast cancer and screening (Moller, 2008).

According to Sarah et al. (2007), cultural attitudes about breast screening and perceived personal importance of breast screening are the strongest predictors of attendance and non-attendance of breast screening. In some cultures, breast cancer is considered as a white man’s disease that is rare among the blacks, while other women believe in not exploring the unknown. Therefore if a lump in the breast is not detected and treated earlier, it will regress and never develop into a cancerous tumor (ibid, 2007). Deshpande et al. (2009) point out that in some studies, religiosity has been negatively associated with breast health promoting behavior, while others have found spirituality to be positively associated with such health behaviors (see section 2.3). Cancer control strategies targeting women must therefore include messages that are consistent with their beliefs, attitudes and experiences (Baron et al., 2008). The belief in invulnerability to breast cancer also delays reporting and screening uptake (Cullati et al., 2009). Other women believe that breast cancer isn’t a serious illness, which can moderate the effect of perceived seriousness of the disease on BSE practice and screening uptake. Others believe that talking about the disease will cause its’ onset hence delay reporting and screening uptake (ibid, 2009).
4.3.3: The influence of social commitments on breast screening uptake

Commitments are significant and negatively associated to the uptake of clinical breast examination among the respondents and 33.8% of the respondents who indicated that socio-committments may influence uptake did not undertake clinical breast examination. Most women in the division are normally overburdened by family responsibilities or commitment to their farms or businesses and hardly find time to go for clinical breast screening. This coupled with the fact that the lumps in the breasts are not painful, makes most women to wish them away with time, thus reducing screening uptake. Aygul and Ayse (2011) observed that among elderly Turkish women, postponement and neglect due to lack of physical signs and feeling of well being were barriers to breast screening.

4.3.4: The influence of psychosocial factors on breast cancer screening uptake

There is a highly significant association between fear and breast screening uptake and 38.7% of the respondents did not undertake BSE due to the fear associated to finding breast cancer. The women fear for the outcome of the screening, given that breast cancer is heavily stigmatized in the community. They fear for the resultant psychological stress and social rejection that would occur should breast cancer be detected, hence shun away from breast screening. According to the focus group, other women regard breast screening as a death sentence and will therefore prefer not to know the status of their breast health. This is due to fear for the screening’s outcome and the resultant stress associated with cancer in the breasts (see section 2.4).

The fear of finding something wrong and the feeling that it is better not to know, have been reported as barriers to breast cancer screening among Iranian women (Lamyian et al., 2007). However, Hay et al. (2006) found a positive relationship between breast cancer worry and the screening behavior of women.
The anticipated pain during a mammogram is significantly associated to the uptake of mammograms among the respondents and 94.7% of the respondents did not undertake a mammogram due to the pain anticipated. Women believe that mammograms are very painful because they are invasive. Therefore most women strive to avoid the procedure. The concern about the pain and discomfort associated with preventive procedures has also been cited as a deterrent for breast screening among Latinas (Schueler et al., 2008).

Socio–stigma is highly associated to clinical breast screening uptake and 36.9% of the respondents who did not undertake breast screening attributed it to the socio–stigma related to it. The community attaches heavy stigma on breast cancer and its’ presumed resultant loss of breasts, in case the screen is positive. Women diagnosed of breast cancer are segregated against by men during marriage because of the thought of transmitting it to the children and the feeling that such women are likely to undertake mastectomy, which would lead to the loss of breasts (a symbol of fertility). Thus, most women would rather not undertake breast screening to avoid establishing their breast health status (see section 2.4).

According to WHO (2006), cultural myths are the greatest impediment to breast cancer screening and many women are afraid to discuss the disease openly due to the associated stigma. According to Sarah et al. (2007), the belief that talking about the disease will cause its onset and the stigma associated to breast cancer itself repress the urge to explore the unknown lumps in the breasts.

The concern that breast screening is embarrassing is significantly associated to the uptake of clinical breast examination and 26.4% of the respondents who did not undertake breast screening indicated that embarrassment influences clinical breast cancer screening uptake.
Women are greatly embarrassed when male health professionals conduct clinical examination of the breasts, and the confirmation that a woman has breast cancer after the screening not only embarrasses the woman, but the entire family and community due to the implications. Some women feel shy to explain their condition to male attendants and strangers (whose confidence they are not guaranteed) in screening facilities. Shyness, embarrassment and feelings of discomfort if mammography is conducted by a male or a strange health professional have been cited as barriers to the uptake of breast cancer screening among Asian American women (Tzu–Yin Wu et al., 2008). Magai et al. (2007) found that greater embarrassment predicted poorer screening when other variables were controlled (i.e. age, socioeconomic status, physician recommendation and anxiety) and that women with high embarrassment scores were 29% less likely to screen (see section 2.4).

4.3.5: The influence of Institutional characteristics on breast screening uptake

Breast health education at MCH has highly significant positive association with breast screening uptake and 85.4% of the women who did not undertake clinical breast examination, had never been provided with breast health education at the hospital facility. Regular breast health education should be provided at the MCH clinic to create awareness, in order to improve breast screening uptake. Most women indicated that they were not aware of breast health, the role of early breast screening in prevention of breast cancer and how to conduct BSE. The consultant surgeon at the Kisii level 5 facility said that breast health education is covered once a week at the MCH clinic and that the hospital didn’t have an operational breast clinic, neither did they have an operational breast health protocol. The aspects of breast cancer screening covered in MCH clinics in Kenya are scanty and little evaluation is done to investigate the women’s level of compliance, especially to BSE. Besides, not a lot of emphasis is laid on breast health compared to other health aspects in
MCH clinics (Musimbi, 2008). Educational approaches such as; repetition, reinforcement and hands-on learning have been demonstrated not only to increase mastery of BSE, but also to generally increase breast screening uptake (Meissner et al., 2007). Similarly Randolph and Swanath, (2008) argue that breast health education is a vital step towards normalizing discussions about breasts, promoting breast cancer awareness and countering misconceptions about breast cancer screening that are common among women (see section 2.5). Nevin et al. (2007) demonstrate that BSE accuracy of the women increased after education. Teaching in social settings has also been shown to improve knowledge about breast cancer and screening (Sarah et al., 2009).

There is significant positive association between guidance and follow up by nurses on BSE and the uptake of screening and 88.0% of the women who did not undertake BSE had never been guided by nurses on the necessity and conduct of BSE. Nurses play a great role in guiding women on how to conduct BSE, the appropriate age to start clinical examination and mammography and the necessity for early breast screening in the prevention of breast cancer. The presence of a qualified nurse in a clinic to provide intensive educational interventions and avail information about the benefits of BSE and breast screening can improve uptake of breast cancer screening (WHO, 2006). Cohen (2010) determined that nurses not only have a positive effect on patient compliance with breast screening, but educate women on identifying breast changes and help them to decide what to do if a change is identified. Meissner et al. (2007) found that the intervention of a nurse is more likely than any factor to act as a motivator for breast screening. However many healthcare clinics in Kenya do not have adequate number of nurses and their workload is extremely over demanding (see section 2.5). According to the key informant at the Kisii level 5 hospital, only the essentials of breast self examination are covered at the health facility and
no follow up for compliance to breast screening uptake among the women is ever made by the nurses.

Advertisement on breast cancer screening has significant positive association with the uptake of breast screening and 77.2% of the women who did not undertake clinical breast examination had never seen brochures on breast cancer screening. Lack of such advertisements through mass media, mean that most women are not only unaware of breast screening procedures, when and where to undertake them, but also lack information about breast cancer. This reduces breast cancer screening uptake. The focus group suggested that messages about breast cancer screening that are put through brochures and the radio, especially in vernacular may greatly improve breast cancer screening uptake among women. Mass media campaigns keep the topic of breast screening in the public eye and educational interventions should specifically be designed to improve screening among women; by including media messages to discuss the need for screening and dispel misconceptions about cancer and screening (Kim et al., 2009). Advertisement campaigns for breast screening have been demonstrated to increase screening uptake in the areas covered by the advertising campaign by 2-13% (Cohen, 2010). According to Teresa de Perez (2007), decentralization of health promotion through personalized breast action plans in Cuba achieved tremendous lifestyle changes, especially through face to face education (see section 2.5).

4.3.6: The influence of knowledge on breast screening uptake

There is a significant positive association between the respondents’ knowledge concerning breast cancer screening and the uptake of screening and 89.1% of the respondents who did not undertake screening had low knowledge about breast cancer and the screening process.
Low knowledge about causation and vulnerability of the respondents to breast cancer imply that the respondents are unaware of the implications of breast changes, the necessity of early breast screening and where to obtain the screening services. The focus group discussion pointed out that knowledge about the vulnerability of an individual, the severity of late breast cancer and the importance of early screening may bring about the uptake of early screening among the women. The key informant said that lack of information on what to do in case of a lump being felt in the breasts may greatly influence early uptake of breast screening. According to David and Rassaby (2008), a knowledgeable public not only carries out BSE, but also consults medical experts about any breast changes and the appropriate health actions to take in order to avoid the complicated effects of late breast cancer (see section 2.6).

4.3.7: The influence of attitude on breast cancer screening uptake

A significant negative correlation was found between the attitude that breast cancer is caused by witchcraft and breast screening is not necessary against breast screening uptake among the respondents. Accordingly, 41.3% of the respondents who undertook breast cancer screening did not believe that breast cancer could be caused by witchcraft. This means that a large percent of respondents held that breast cancer could be caused by witchcraft, a belief that compromises early screening in hospital facilities, as other culturally acceptable options are sought due to the cultural definition of the disease. Cultural beliefs and practices accentuate difficulties in understanding of breast cancer and screening (Moller, 2008). Ninety point nine percent of the respondents who did not undertake breast screening held that breast screening is not necessary and does not have value. Such women look at clinical examination as a waste of time, money and an inconvenience; given that the lumps are initially not painful, thus delaying early breast
screening (see section 2.3). Women in Nyandarua argued that because breast cancer is not prevalent in the region, they neither saw the reason for undertaking the screening nor did they see any direct benefit associated to breast screening uptake (Muchiri, 2006).

A significant positive association was found between the attitude that breast feeding may cause cancer and breast screening may lead to the loss of breasts respectively, against breast screening uptake. Eighty five point three percent of the respondents who undertook clinical breast examination believed that breast cancer may be caused by breast feeding and 88.9% of the respondents who undertook clinical breast screening held the attitude that the uptake of screening may lead to the loss of breasts. Many women believe that the tiny lumps that form in the breasts during breast feeding eventually may develop to become cancerous, but only in a few women. However, they hold that lumps are normal, especially during breast feeding or as a result of injury during breast feeding. This delays breast health seeking behavior, hence delaying screening uptake (see section 2.3).

According to the focus group when women breast feed in the public “the evil eye” may cause lumps in the breasts that may eventually become cancerous. The “evil mouth” from elders, who have been wronged, may utter a curse upon a breast feeding mother, which may cause cancerous lumps in the breasts. Women may fear for the loss of breasts during mastectomy; as a result of advanced breast cancer, hence hindering breast screening uptake. The focus group said that the community attaches great value to breasts and that they are a symbol of beauty, fertility and womanhood. They said that the attitude that screening may lead to the loss of breasts upon finding a cancerous lump, may cause some women to avoid undertaking clinical breast examination. The concern that clinical breast
examination or mammograms may trigger the loss of breasts when advanced breast cancer is confirmed may cause women to fear and shun away from screening (Baron et al., 2008).

4.3.8: The influence of cultural and religious practices on breast screening uptake

There is significant negative association between cultural practices and breast screening uptake among the respondents. An overwhelming 92.8% of the respondents who undertook clinical breast examination held that some cultural practices may influence breast screening uptake. Some cultural practices like consulting seers and magicians, massaging lumps using local herbs, laceration and “not talking about the lumps, so that they do not become cancerous” may delay presentation and breast screening uptake. As the culturally acceptable options are being sought, breast cancer progresses towards stage three, making treatment very difficult. According to Baron et al. (2008), the practice of assuming the lumps in the breasts, so that they may never develop to become cancerous compromises early breast cancer screening uptake (see section 2.3).

Religious practice and clinical breast screening uptake have significant positive association. However, 83.3% of the respondents who undertook clinical breast examination held that some religious practices may influence breast screening uptake. Religious practices such as praying and waiting upon the intervention of God in the event of lumps in the breasts and seeking the intervention of God through prayer may delay presentation and reduce early breast screening uptake. Deshpande et al. (2009) point out that in some studies; religiosity has been negatively associated with breast health promoting behavior, while others have found spirituality to be positively associated with such health behavior (see section 2.3).
CHAPTER FIVE

Summary, Conclusions and Recommendations

5.1 Introduction

This chapter contains a summary of the characteristics of the respondents, the study findings, conclusions and recommendations.

5.2 Summary of the study findings

A majority of the respondents (33.5%) were women aged between 20-29 years. Most of the respondents (47.8%) had middle level of education. Fifty five point nine percent of the respondents had never undertaken any form of breast screening in the last two years. The least breast screening uptake was among respondents of the age group 30 –39 years (21.9%), and among respondents with middle level college level of education (6.0%). However, 50 % of the respondents who had undertaken BSE did not conform to the WHO recommendation of undertaking the screening once a month. Forty three point four percent of the respondents who had undertaken clinical breast examination did not conform to the WHO recommendation of undertaking the screening annually, whereas 26.9% of the respondents who had undertaken mammograms did not conform to the annual recommendation by WHO. A majority of the respondents (36.9%) obtained information about breast cancer and screening through the radio.
SECDs in breast cancer screening uptake

There is significant negative association between: age and clinical breast screening uptake, travel distance to the screening facility and clinical breast screening uptake, the cost of screening and the uptake of clinical breast screening, Commitments and the uptake of clinical breast examination among the respondents. Forty one point nine percent of the respondents did not undertake breast screening due to the long distance to screening facilities, whereas 47.3% of the respondents did not undertake clinical breast examination due to the high cost of screening. However, significant positive association was found between: marital status of the respondents and breast screening uptake, the socio-economic status of the respondents and breast screening uptake, Socio – cultural factors and clinical breast examination, educational level of the respondents and breast screening uptake. Eighty six point five percent of the respondents whose economic status was below the 50th economic percentile did not undertake breast screening, due to economic deprivation, and 9.9% of the respondents did not undertake clinical breast screening due to socio – cultural factors. Thirty six point nine percent of the respondents who did not undertake breast screening attributed it to the socio – stigma associated to breast cancer. Thirty three point eight percent of the respondents did not undertake clinical breast examination due to socio commitments.

Psychosocial factors in breast cancer screening uptake

A significant association was found between: fear and breast screening uptake, the anticipated pain during a mammogram and the uptake of mammograms among the respondents, socio – stigma and clinical breast screening uptake, the concern that breast screening is embarrassing and the uptake of clinical breast examination. Thirty eight point seven percent of the respondents did not undertake BSE due to the fear associated to
finding breast cancer, whereas 94.7% of the respondents held that the pain and discomfort associated to mammograms was a deterrent to mammogram uptake, especially among older women. Only 26.4% of the respondents held that embarrassment inhibits breast screening uptake.

**Institutional characteristics in breast screening uptake among women**

Significant positive associations were found between: Breast health education at MCH and breast screening uptake, guidance and follow up by nurses on BSE and the uptake of screening, advertisement on breast cancer screening and the uptake of breast screening, and the respondents’ knowledge concerning breast cancer screening and uptake of screening. Eighty nine point one percent of the respondents who did not undertake screening had low knowledge about breast cancer and the screening process and 85.4% of the women who did not undertake clinical breast examination had never been provided with breast health education at the hospital facility. Eighty eight percent of the women who did not undertake BSE had never been guided by nurses on the necessity and conduct of BSE.

**Attitude in breast screening uptake among the women**

A significant negative correlation was found between: the attitudes that breast cancer is caused by witchcraft and breast screening are not necessary with breast screening uptake among the respondents. A significant positive association was found between: the attitude that breast feeding may cause cancer and breast screening may lead to the loss of breasts respectively against breast screening uptake. Eighty five point three percent of the respondents who undertook clinical breast examination believed that breast cancer may be caused by breast feeding and 88.9% of the respondents who undertook clinical breast
screening held the attitude that the uptake of screening may eventually lead to the loss of breasts.

**Cultural and religious practices in breast screening uptake among the women**

There is significant negative association between cultural practices and breast screening uptake among the respondents. Religious practices and clinical breast screening uptake have significant positive association. Ninety two point eight percent of the respondents who undertook clinical breast examination held that some cultural practices may influence breast screening uptake.

**5.3 Implication of the study findings**

Fifty five point nine percent of the women interviewed indicated that they had never undertaken any form of breast screening in the last two years, hence the need for more innovative and aggressive ways to improve breast cancer screening uptake among the women.

A majority of the respondents (36.9%) received information about breast cancer and screening through the radio, hence the need to explore the diversification of radio programmes and advertisements on breast cancer screening to create greater awareness, correct misconceptions and promote breast screening uptake.

The low breast screening uptake among respondents of the age group 30 – 39 years (21.9%) imply the necessity for breast screening promotion to target this age group.
The low breast screening uptake among respondents with middle level college level of education (6.0%) necessitates that a holistic and interventional breast health education programme be introduced at middle college level to promote breast screening uptake.

Forty one point nine percent of the respondents did not undertake breast screening due to long travel distance to screening facilities, hence the need to explore the introduction of mobile screening units to mitigate the influence of long distances to screening facilities on screening uptake.

5.4 Conclusions

a. The proportion of women in Mosocho division that have ever undertaken any form of breast cancer screening in the last two years is forty four point one percent.

b. Socio – Economic Cultural and Demographic factors such as age, travel distance to screening facility, cost of screening, most cultural practices and socio – commitments have significant negative correlation with breast cancer screening uptake. However, marital status, educational level, socio – economic status, most religious practices and socio – cultural factors have a significant positive association with breast cancer screening uptake. Cultural attitudes such as breast cancer being due to witchcraft and the necessity of breast screening are significant and negatively correlate with breast screening uptake.

c. Psychosocial variables such as fear, anticipated pain and discomfort, stigma and concern for embarrassment were found to be significantly associated to breast cancer screening uptake among the respondents.

d. Institutional characteristics such as Breast Health Education, guidance and follow up by nurses on BSE, Advertisements on breast cancer and screening have significant and positive correlation with breast cancer screening uptake.
d. The level of respondent’s knowledge about breast cancer and screening has a significant positive association with breast screening uptake.

This study therefore rejects the null hypotheses that:
Socio-economic, cultural and demographic factors have no association with the women’s uptake of breast cancer screening. There is no association between psychosocial factors and breast screening uptake among women. There is no association between institutional characteristics in MCH clinics and breast screening uptake. There is no association between the women’s knowledge about screening and the uptake of breast cancer screening.

5.5 Recommendations
This study makes the following recommendations:

a. The Ministry of Public Health and Sanitation through hospital authorities should diversify Breast health education in MCH clinics to incorporate; more breast health education sessions, guidance by nurses on BSE and regular follow up by nurses to ensure compliance.

b. The Ministry of Public Health and Sanitation should intensify advertisements on breast cancer and screening through; radio, television, issue of brochures and posters to bring about increased awareness and an attitude change to promote uptake.

c. The Ministry of Education and that of Public Health should work on a policy framework to disseminate breast cancer screening information to women of reproductive age at middle level colleges through an integrated curriculum and public forums to counter fear and misconceptions.
d. The Ministry of Health should come up with a breast cancer screening policy to facilitate subsidies of consultation and screening fee and introduce mobile screening units to improve uptake.

5.6 Suggestions for further research

1. Study on the level of efficiency in the conduct of BSE among women of the reproductive age.

2. Study on the promotion of breast cancer screening among women aged 30 - 39 years and above.

3. Study on the factors that influence the adoption of breast health education in middle level colleges.
References


Aydin, A. I. (2008) Factors associated with Breast Self Examination Practices and Beliefs in Female Workers at a Muslim Community. European journal of oncology nursing, Vol. 12, issue 2; 127 – 133.


Barter, G.S and Taket, A. (2007) Women and Health: Views of Women living in Lambent, South walk and Lewis ham (with a focus on Breast Screening), South Bank University, London.


APPENDICES

Appendix I: MAP SHOWING LOCATION OF THE STUDY AREA IN KENYA
Appendix II – Questionnaire

(To be read and questions answered in the language in which the volunteer is fluent).

**Title of the study.**

Factors that influence the uptake of breast cancer screening among women of reproductive age in Mosocho division, Kisii central district, Kenya.

**Institution**

Kenyatta University

**Principal investigator**

Macheneri Paul

**Participation information**

You have been requested to be part of this research study. It is very important to understand the concepts which apply to all participants of this study.

i) Participation is voluntarily

ii) The Study is intended to contribute to the improvement of breast cancer screening in Mosocho division.

iii) Once enlisted, your responses are filled into the questionnaire by the interviewer (Responses will not be linked to you).

iv) There is no penalty for refusing to participate.

v) You are free to ask questions after you read the explanation so that you can understand the nature of the study clearly.

**Assurance of confidentiality of volunteers’ identity.**

All the information including records for your participation as a research subject shall remain CONFIDENTIAL; your name will not be used in any report resulting from this study. You shall be supplied by a copy of this consent form.
FOR INFORMATION OR ANSWERS TO QUESTIONS CONCERNING YOUR RIGHTS AS A RESEARCH SUBJECT YOU MAY CONTACT.

The Chairman of the Kenya National Ethical Review committee, C/O Kenya Medical Research Institute, P.O. BOX 54840 – 00100, Nairobi, Kenya, Tel: 722541.

IF THERES IS ANY PORTION OF THIS CONSENT EXPLANATION SHEET THAT YOU DO NOT UNDERSTAND, ASK THE INVESTIGATOR BEFORE SIGNING.

I acknowledge receipt of this agreement, to include: the consent explanation and the Informed consent agreement.

Volunteer’s signature________________________ age______ date ______________

Volunteer’s printed name____________________ age______ date ______________

Parent’s signature__________________________ age______ date ______________

Parent’s printed name:________________________ age______ date ______________

Witness’s signature________________________ age______ date ______________

Witness’s printed Name____________________ age______ date ______________
A. BACKGROUND INFORMATION ABOUT THE RESPONDENT

TICK THE MOST APPROPRIATE RESPONSE (√)

1. To which age category do you belong?
   15 – 19 years  ☐  20 – 29 years  ☐  30 – 39 years  ☐  40 – 49 years  ☐

2. What is your level of education?
   Primary  ☐  Secondary  ☐  Middle level college  ☐  University  ☐
   Not basic education  ☐

3. What is your marital status?
   Single  ☐  Married  ☐  Divorced  ☐  Widowed  ☐

4. What is your income status?
   Low income  ☐  Medium income  ☐  High income  ☐

5. Have you ever heard of breast cancer screening?
   Yes  ☐  No  ☐

6. If your answer in 4 above is yes, through which medium did you get information about Breast cancer screening?
   Radio  ☐  Television  ☐  Newspapers  ☐
   Internet  ☐  Teacher  ☐  Nurse/Doctor  ☐
   Other  ☐  (Please specify)

_______________________________________________________________________
_______________________________________________________________________
_______________________________________________________________________
_______________________________________________________________________

B. KNOWLEDGE OF BREAST CANCER, SCREENING AND PSYCHOSOCIAL FACTORS

Please tick the number that best describes your opinion about breast cancer and screening for Question 7 – 14. The numbers represent the following responses:
1 = Disagree strongly, 2 = Disagree, 3 = Neutral, 4 = Agree, 5 = Agree strongly

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<thead>
<tr>
<th>INFORMATION ABOUT BREAST CANCER</th>
<th>1</th>
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<td>7. Is a curse</td>
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<td>8. Results due to breast feeding</td>
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<td>9. Caused by witchcraft</td>
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<td>10. Smoking increases its risk</td>
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<td>11. May be inherited</td>
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<td>12. Results due to breast injury</td>
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<td>13. Early screening prevents breast cancer</td>
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<td>14. Screening leads to the loss of breasts</td>
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TICK THE MOST APPROPRIATE RESPONSE (√)

15. How often do you carry out breast self examination?
   Once a year  □  once a month  □  never  □  once a week  □

If your answer in 15 above is never, give a reason(s) for your answer
____________________________________________________________________
____________________________________________________________________
____________________________________________________________________

16. Have you ever been taught how to conduct breast self examination?
   Yes  □  No  □
17. If you have ever done a breast self examination, how do you rate your ability to do the self breast examination?

- Extremely confident
- Confident
- Not confident
- Extremely not confident

18. How often have you undertaken a clinical breast examination by a nurse or doctor within the last two years?

- Once in more than a year
- Once a year
- Never
- Not sure

19. Do you intend to undertake a clinical breast examination by a nurse or doctor at the clinic next year?

- Yes
- No
- Not sure

20. How often did you undertake a mammogram or a breast scan within the last two years?

- Once in two years
- Once a year
- Never
- Not sure

21. Do you intend to undertake a mammogram or a breast scan at a clinic next year?

- Yes
- No
- Not sure
Using the scale below complete the table to indicate the factors that are likely to influence your decision on clinical breast examination and mammogram/breast scan next year; 1 = Disagree strongly, 2 = Disagree, 3 = Neutral, 4 = Agree, 4 = Agree strongly.

<table>
<thead>
<tr>
<th>POSSIBLE FACTOR</th>
<th>DEGREE OF INFLUENCE</th>
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<tbody>
<tr>
<td>22. Family history of breast cancer</td>
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<tr>
<td>23. Consequence of presenting with advanced cancer</td>
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<tr>
<td>24. Serious concern that a mammogram will be painful</td>
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<td>25. Fear of finding breast cancer</td>
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<tr>
<td>26. Valuability and importance of breast cancer screening</td>
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<td>27. Concern about the embarrassment of having a mammogram</td>
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</table>

C. HEALTH FACILITY BASED FACTORS, SOCIO-ECONOMIC, CULTURAL AND DEMOGRAPHIC FACTORS (SECDs).

28. How often did you have educational sessions about breast health and screening by nurses/doctor at the Maternal and Child Health clinic within the last two years?
   Once a year ☐ once every six months ☐ once every three months ☐ once a month ☐
   Never ☐

30. How many times did nurses/doctors guide you on how to perform breast self-examination at the Maternal and Child Health clinic within this year?
   Once a year ☐ once every six months ☐ once every three months ☐ once a month ☐
   Never ☐

31. How often were you provided with brochures/hand outs or shown video tapes on breast cancer screening at the Maternal and Child Health clinic within this year?
   Very frequently ☐ frequently ☐ rarely ☐ never ☐
32. How often were you advised by a nurse/doctor at the Maternal and Child Health clinic to go for a mammogram/a breast scan in the last two years?
   Very frequently [ ]  frequently [ ]  rarely [ ]  never [ ]

33. Other health issues are given more attention in Maternal and Child Health clinics compared to breast health issues.
   Disagree strongly [ ]  Disagree [ ]  Neutral [ ]  Agree [ ]  Agree strongly [ ]

34. Regular follow up of mothers by nurses at Maternal and Child Health clinics using specially designed breast examination cards can improve breast screening performance.
   Disagree strongly [ ]  Disagree [ ]  Neutral [ ]  Agree [ ]  Agree strongly [ ]

35. Advertisements through the radio may improve breast screening uptake.
   Disagree strongly [ ]  Disagree [ ]  Neutral [ ]  Agree [ ]  Agree strongly [ ]

For Question 36 – 44, use the scale provided below to show the degree of your Response; 1 = Disagree strongly, 2 = Disagree, 3 = Neutral, 4 = Agree, 1 = Agree strongly

<table>
<thead>
<tr>
<th>PROBABLE FACTOR(S) THAT INFLUENCES BREAST CANCER SCREENING UPTAKE AMONG WOMEN</th>
<th>1</th>
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<tbody>
<tr>
<td>36. Cultural practices</td>
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<td>37. Religious practices</td>
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<td>38. Stigma associated to cancer</td>
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<td>39. Cost of a mammogram/breast scan</td>
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<td>40. Socio – economic status</td>
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<td>41. Distance to screening facilities</td>
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<td>42. Level of education</td>
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<tr>
<td>43. perception that breast screening is not important</td>
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<td>44. Social and work related commitments</td>
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</table>
Appendix III – Key informant interview schedule

1. Does the Kisii level 5 health facility have an operational breast clinic within it? If so, state the facilities and services offered.

________________________________________________________________________________________________________________________

2. Is there an operational breast health protocol used by nurses/doctors in the health facility? Explain.

________________________________________________________________________________________________________________________

________________________________________________________________________________________________________________________

3. How many women were referred from MCH clinic to the breast clinic within the last two months?

________________________________________________________________________________________________________________________

________________________________________________________________________________________________________________________

4. Does the health facility have a working mammogram/breast scan facility within it?

________________________________________________________________________________________________________________________

________________________________________________________________________________________________________________________

5. What specific aspects of breast cancer and screening if any are covered at the MCH clinic?

________________________________________________________________________________________________________________________

________________________________________________________________________________________________________________________

6. About how much time is allocated for breast health education relative to other health issues in a month within the MCH clinic? Give a reason(s) for your response.

________________________________________________________________________________________________________________________

________________________________________________________________________________________________________________________
7. Does the health facility have follow up visitation cards for women on BSE and clinical examination? Explain.

___________________________________

___________________________________

___________________________________

8. Does the health facility have breast health brochures, magazines, books and videos/CDs on breast cancer and screening in the breast clinic/MCH clinic for distribution to the women? Explain

___________________________________

9. In your opinion, what factors are likely to influence the ability of women of reproductive age to undertake breast examination and screening for cancer?

___________________________________

___________________________________

___________________________________
Appendix IV - Focus group discussion guide

1. Do women regularly undertake breast self examination within the division as required? Give reasons for this response.

2. Do the women who have suspicious lumps in their breasts go for clinical examination in MCH clinics always? Give reasons for this response.

3. How does attitude about breast cancer (such as its cause and urgency) and breast cancer screening (such as its necessity) affect breast cancer screening uptake?

4. How do cultural practices (such laceration and consulting herbalists) and religious practices (like prayer and consulting pastors) affect the uptake of breast cancer screening?

5. Explain how level of education, marital status, distance to screening facilities, income status and the cost of screening may influence breast screening uptake among women.

6. How does fear, pain and embarrassment of women influence breast screening uptake?

7. How does the knowledge about breast cancer and breast screening influence the uptake of screening by the women? Explain.
Appendix V – Research Authorization by National Council for Science and Technology (NCST)

[Image of research authorization form]

THIS IS TO CERTIFY THAT:

Prof./Dr./Mr./Mrs./Miss/Institution
Paul Machener

of (Address) Kenyatta University
P.O. Box 43844, Nairobi

has been permitted to conduct research in

Kisii Central
Location
District.
Province

on the topic: Factors that influence the uptake of breast cancer screening among women of reproductive age in Mosocho Division, Kisii Central District, Kenya.

for a period ending 30th July, 2012

Research Permit No: NCST/RR/12/1/MED/011/129

Date of issue 30th August 2011

Fee received KES 1,000

Applicant's Signature

Secretary, National Council for Science and Technology
Appendix VI – Research Approval by the Research and Ethics Committee of Kisii Level 5 Hospital

MINISTRY OF MEDICAL SERVICES

Telegramme "medical" Kisii
Telephone: (058) 31310 KISH
Fax: (058) 31310

MEDICAL SUPERINTENDENT
KISH LEVEL 5 HOSPITAL
P.O. BOX 92
KISH.

1st May 2011

MACHENERI PAUL
KENYATTA UNIVERSITY

RE: APPROVAL TO CARRY OUT RESEARCH IN KISH CENTRAL ON FACTORS THAT INFLUENCE THE UPTAKE OF BREAST CANCER SCREENING AMONG WOMEN OF REPRODUCTIVE AGE IN MOSOCHO DIVISION, KISH CENTRAL DISTRICT, KENYA

Following your application to be allowed to carry out the above stated research, am glad to inform you that you have been given an approval to carry out the study.

The approval is valid for one calendar year starting from date of this approval letter.

Wish you all the best in your research.

Thank you.

DR. LINUS M. WAFULA
SECRETARY RESEARCH & ETHICS COMMITTEE