

Factors Affecting Postpartum Care Attendance and the Associated  
Disorders Among Mothers in Nairobi and Machakos, Kenya

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## DECLARATION

I declare that this thesis is my original work and has not been presented for a degree in any other university or any other award.

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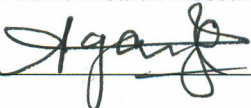
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## DEDICATION

This thesis is dedicated with passion to: my late father Bernard Mwangangi and; my mother Loise Kithia, who educated me, and to God for his constant faithfulness.

## ABSTRACT

Maternal deaths due to pregnancy, puerperal disorders, complications and disabilities continue to be high in developing countries including Kenya. In the meantime, there are scanty claims that postpartum care services that should alleviate these problems are underutilized in spite of their availability in the community. Further, the factors responsible for postpartum care services underutilization by postpartum mothers are largely unknown. Also, the range of postpartum complications and disorders among Kenyan mothers are too undocumented. Consequently, this comparative and descriptive study was designed to investigate the postpartum care services attendance in Machakos District (a rural setting) and Nairobi (an urban area). The study also sought to establish the factors that affect postpartum care services attendance as well as the range and the extent of puerperal conditions common among mothers in the study communities.

Postpartum care services attendance was significantly different in both study areas with Machakos showing about 37.9% attendance compared to approximately 62.1% attendance in Nairobi ( $\chi^2_1 = 38.54, p < 0.01$ ). However, similar factors were found to affect postpartum care services attendance in both areas. Knowledge of postpartum care services, lack of family planning attendance and puerperal disorders experienced by the mothers were found to be the main factors influencing postpartum care services attendance in both study areas. In addition to these factors, place of delivery of last baby and the mode of delivery were found to influence postpartum care attendance in Nairobi.

Breast conditions, genito-urinary tract disorders, anaemia, eclampsia, puerperal pyrexia, postpartum haemorrhage and high blood pressure were the puerperal complications found among women attending maternal and child health and family planning clinics in the two areas studied. Overall, breast disorders (21%) were the commonest ailments found followed

by puerperal pyrexia (19%) while high blood pressure problems (10%) were the least common. Regionwise, there were more mothers with breast disorders in Nairobi than in Machakos while in terms of puerperal pyrexia, the converse was true. Similarly, high blood pressure and genito-urinary tract disorders were approximately 3 times higher in mothers from Nairobi than they were in Machakos. But postpartum haemorrhage was approximately two times higher in Machakos than it was in Nairobi although eclampsia was low (0.3%) in Nairobi and absent in Machakos women.

The study concludes that there is need to design an education programme to popularize postpartum care attendance in order to reduce the puerperal ailments experienced by the mothers in puerperium. Also, training of Traditional Birth Attendants would benefit maternal health during this period.

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**ABBREVIATIONS**

|        |   |
|--------|---|
| FCI    | Family Care International                         |
| GOK    | Government of Kenya                               |
| KDHS   | Kenya Demographic and Health Survey               |
| KPC    | Kenya Population Council                          |
| MCH/FP | Maternal Child Health and Family Planning         |
| MDDP   | Machakos District Development Plan                |
| MI     | Macro International Inc.                          |
| MOH    | Ministry of Health                                |
| Pp     | Pages   |
| SPSS   | Statistical Package for Social Sciences           |
| SMI    | Safe Motherhood Initiative                        |
| UN     | United Nations                                    |
| UNICEF | United Nations International Child Emergency Fund |
| WB     | World Bank  |
| WHO    | World Health Organization                         |
| WP     | World Population                                  |

## CHAPTER ONE

### 1.0: INTRODUCTION AND LITERATURE REVIEW

#### 1.1: General Introduction

Pregnancy related complications are the leading causes of death and disability among women of reproductive age globally. These account for the loss of more than twice as many disability-adjusted life-years than do sexually transmitted diseases such as HIV, or tuberculosis (Maine *et al.*, 1997). Globally the maternal mortality rate is estimated at 430 deaths per 100,000 live births. In developing countries, maternal deaths are estimated at 480 compared to 27 deaths per 100,000 live births in the developed countries. It is estimated that each year 585,000 women die from causes related to pregnancy and childbirth, 90% of them occurring in Asia and Sub Saharan Africa. East Africa has the highest risk of 1,070 maternal deaths per 100,000 live births with Kenya having 650 deaths per 100,000 live births (WHO, 1995 (a), 1996 {a}; UNICEF, 1996). Most maternal deaths occur due to obstetric haemorrhage (25%), obstructed labour (8%), puerperal sepsis (15%), hypertensive disorders of pregnancy (12%), and complications of unsafe abortion (13%) (WHO, 1994). Others include indirect causes (20%) such as anaemia, malaria, heart disease, embolism and anesthesia related complications (Family Care International, 1998).

Women in every country develop medical complications during or after childbirth, but in the developing countries, the majority of maternal deaths occur due to less likelihood of getting prompt adequate treatment, leading to more likelihood of death. Each time a woman gets pregnant, she runs the risk of maternal death and this risk adds up over her lifetime. This risk is 1 in 7 in Africa compared to 1 in 5,882 in the industrialized world (WHO, 1994).

Further, 40% pregnant women experience acute obstetric problems, 15% of them developing life-threatening complications. In the developing countries 300 million women suffer from short or long-term illnesses related to pregnancy and childbirth such as infertility, fistulae,

infections and puerperal psychosis (WHO, 1994; UNICEF, 1996). For every woman who dies in childbirth an estimated 100 women survive childbearing but are afflicted by disease, disability, or physical damage caused by pregnancy-related complications (Koblinsky, 1993). These lead to social and economic consequences such as social stigmatization and isolation, rejection, divorce and frustration leaving a burden of maternal morbidity that can be as agonizing as maternal death itself to those affected. Amazingly, from medical point of view about 63-80% of all direct maternal mortality causes and 58%-98% of all maternal deaths can be prevented if women have access to basic medical care (Makokha, 1980; WHO, 1996 {b}).

Studies that have been done indicate that 61% and 72% of maternal deaths occur during puerperium in the developed and the developing countries respectively (AbouZahr, 1997). In Kenya a study done at Kenyatta National Hospital indicated that the major causes of maternal mortality in the country are haemorrhage (19%) and puerperal sepsis (28%) among others (Makokha, 1980; Ewbank, 1986; Boerma, 1987). This fact suggests that most deaths may be occurring during puerperium in Kenya.

Most of the deaths occur during puerperium when women are least likely to receive the health care they need yet only a small proportion of women in developing countries (less than 30%) and as few as 5% from very poor regions receive postpartum care (Abouzahr, 1997; Royston *et al.*, 1998). Quality health care during puerperium has been identified as one of the single most important intervention for preventing maternal morbidity and mortality, yet the proportion of women who make at least one postnatal visit is least, compared to antenatal and those who are delivered by qualified health personnel (W.H.O, 1998). A need's assessment done in Kenya by the Ministry of Health in 1999 showed that there is low utilization of postpartum care services (Ministry of health, 2000). Generally, there is a trend for mothers to visit antenatal care more than postpartum care yet complications and most maternal deaths

occur during puerperium. Attendance is key to utilization of these life saving services. Information on the prevalence of the postpartum associated disorders is scanty and the factors affecting attendance have not been established.

## **1.2.0: Literature Review**

### **1.2.1: Safe Motherhood Initiative**

The safe motherhood initiative is a global effort to reduce maternal mortality and morbidity. It was launched in Nairobi in 1987 by International and Governmental Agencies to raise global awareness about the impact of maternal morbidity and mortality and to find solutions to the problem (FCI, 1998). By this time maternal mortality was said to be a neglected problem in Kenya. The target was to reduce maternal deaths by at least half by the year 2000, a target not yet realized to date. It aimed to enhance the quality and safety of women's lives and placed special emphasis on the need for prompt, appropriate, and timely use of maternal health services such as postpartum care among others. Postpartum care forms part of the pillars of safe motherhood. In spite of the unprecedented reduction in overall mortality levels achieved in many developing countries maternal mortality levels are still unacceptably high, yet the interventions that make motherhood safe are known and the resources needed are accessible. The necessary services are neither sophisticated nor very expensive and reducing maternal mortality is one of the most cost-effective strategies available in the area of Public Health (WHO, 1994; 1998).

Although safe motherhood initiative aimed at reducing maternal morbidity and mortality ratios by a half by the year 2000, to date maternal health status continues to be poor in Kenya. The current national figure that stands at 650 maternal deaths per 100,000 live births is unjustifiably high as compared to the global figure. In Kenya, the lifetime risk of pregnancy related deaths is 1 in 21 compared to 1 in 5,882 in the developed world. This is because

proven strategies to improve maternal health have been used inconsistently or ineffectively at best (Makokha, 1980; WHO, 1994, 1996 {a}; Family Care International, 1998). Long-term morbidity issues associated with childbirth often receive scant resources even though prompt resolution of complications could ultimately prove cost-effective.

### **1.2.2: Postpartum Care**

Postpartum care refers to the skilled care, attention and supervision given to a mother during puerperium. Postpartum/puerperium refers to the period after the birth of a baby up to 6-8 weeks and is characterized by involution, initiation of lactation and recuperation from the physical and emotional experience of parturition (Myles, 1989). Care during puerperium is very crucial because this is actually a volatile period where the health of the mother may be at risk. Although puerperium is traditionally regarded as a time to rest and regain health, is often in reality the time to take stock and correct any mess carried forward (Hibbard, 1988; Glazener, 1997). It is a period when one can retrospectively analyze the effectiveness of antenatal care services in terms of what has been done in relation to antenatal care and advice. Care during the postpartum period provides opportunities to ensure that the mother is doing well and support to breastfeeding is given. Care during this period enables health workers to detect and manage any problems early before complications set in (WHO, 1998). Postpartum care generally aims at general assessment of the mother in order to detect early and correct/treat any residual abnormalities or disabilities and to advice on contraception and further pregnancies in the light of mother's obstetric history and current status (Hibbard, 1988). Such skilled care should continue to ensure that complications are prevented before they set in. In settings where women deliver at home or are discharged from health facilities soon after delivery, postpartum care can provide an opportunity to diagnose and treat puerperal infections, which are a major cause of postpartum mortality.

There are crucial moments when contact with the health system or caregiver is instrumental in identifying and responding to the needs and challenges of puerperium. In puerperium, such moments are at 6-12 hours, 3-6 days, 6-8 weeks and at 6 months after delivery. At 6-12 hours blood loss is checked to rule out postpartum haemorrhage, pain is controlled, blood pressure is taken to rule out eclampsia, advice is given on the importance of exercises, warning signs and on general care of the mother. At 3-6 days, examination of the mother's breasts, lochia properties and mood changes ensures detection and prevention of infections. At 6-8 weeks, a postnatal check-up is done to detect and rectify any abnormal medical or gynecological conditions resulting from the recent pregnancy, labour or puerperium. This usually involves discussion and assessment of the woman's general, physical and emotional health with particular attention to any symptoms of anaemia, urinary tract infection, emotional distress or depression. To check on general health status, body weight, blood pressure and urine measurements are taken. Pelvic examination is performed to rule out uterine prolapse, cervical lesions, infections and to assess the integrity and muscular function of the pelvic floor. This is done to ensure that involution is complete and healing of any trauma sustained during pregnancy and delivery. A cervical smear for cytology should be taken to detect early cervical cancer. Postpartum period also provides an opportunity for such a mother to start family planning. Further examination is done at 6 months after delivery in order to reduce the long-term morbidity and these include screening for cervical cancer and sexually transmitted infections (Myles, 1999).

### **1.2.3: Maternal Disorders Associated with Postpartum period**

In Kenya information on the number and the prevalence of postpartum complications is scanty. However, a number of postpartum complications are known to occur to mothers elsewhere during postpartum period. Possible complications include infertility, urinary tract infections, fistulae, uterine prolapse, puerperal psychosis, stress incontinence, breast infection,

pulmonary embolus, painful sexual intercourse, haemorrhoids, mastitis and permanent nerve damage.

Puerperal infections refer to the infections due to puerperal sepsis or extra genital infections and incidental infection. These have been known to be important cause of morbidity and mortality for mothers in developing nations. Such a mother suffers pain and illness especially acute stages and eventually result in infertility or death (WHO, 1995 {b}).

Complications of infections may lead to pelvic inflammatory disease which apart from the chronic pain and suffering it causes can lead to damage to the reproductive system, and a range of gynecological disorders such as endometritis, salpingitis, pelvic cellulitis and salpingo-oophoritis leading to infertility (Meyes, 1978; WHO, 1995 (b)). Although infertility does not adversely affect the physical health, its consequences cannot be ignored. In African cultures, the ability to have children is an important sign of an individual's worth and a woman's status in society is often identified with her fertility and failure to have children can be seen as a social disgrace or a cause for divorce.

Since the demand for service to correct infertility can be taxing with limited available resources for health care in developing countries, and treatment for infertility is long, costly, frustrating and often unsuccessful, prevention is most appropriate. Postpartum infections constitute the most important and most preventable cause of infertility.

Puerperal sepsis is most important cause of maternal death following untreated genital tract infection. Symptoms are lower abdominal pain, high fever and vaginal discharge. Predisposing factors include prolonged labour, premature rupture of membranes, frequent unhygienic vaginal examinations, vaginal electronic foetal monitoring and especially caesarian section. Use of unsterilized instruments and unsafe procedures for abortions, poorly observed

rules of cleanliness on the part of Traditional Birth Attendants and others attending births including lack of gloves, clean water, soap (WHO, 1995 (b)).

Lacerations of the cervix or vagina, episiotomies, the site of the abdominal incision from a caesarian section provides ready sites for bacterial invasion. In obstructed labour, pressure necrosis of the rectum or urethra may lead to infection of the necrosed tissue and the formation of vaginal fistulae. Wound infections when mild remain localized but more serious ones can lead to gangrene and shock. Traditional vaginal cuts are known to provide ready sites for bacterial invasion. In obstructed labour pressure necrosis of the rectum or urethra have been known to lead to vesico-vaginal or recto-vaginal fistulae as a result of breakage of the necrosed tissue. Wound infections may either remain localized or lead to gangrene and shock in severe cases (WHO, 1995 (b)).

The postpartum woman is particularly vulnerable to Urinary Tract Infection due to a combination of trauma to the bladder, incomplete emptying of the bladder particularly related to perineal pain and the introduction of bacterial organisms by catheterization.

The presence of residual urine due to decreased bladder tone as a result of enlarged bladder after pregnancy increases risk of postpartum urinary tract infection resulting in cystitis or pyelonephritis. This infection may be unaccompanied by any symptoms except a low-grade pyrexia (Symonds, 1992).

Another devastating form of maternal morbidity is the development of fistulae between the vagina and the urinary bladder, and less commonly the rectum. These openings allow urine or faeces to leak through to the vagina. They are generally the result of trauma from prolonged and/or obstructed labour; occasionally they are due to instrumental delivery. Up to 80,000 women each year develop fistulae worldwide and between 500,000 and 1,000,000 women

now live with fistulae (W.H.O., 1996 {a}). Women with fistulae suffer from incontinence and a persistent odour caused by stale excreta. Younger adolescent mothers are particularly susceptible to developing fistulae, because often they are not fully developed physically and are at higher risk of obstructed labour. This disability can be truly disastrous since women unable to undergo expensive reparative surgery will often spend the rest of their lives hidden or ostracized, and many become social outcasts, turned out of homes and rejected by their spouses if they were married and having families (UNICEF, 1996).

Uterine prolapse is another long- term complication associated with cystocele. In this case the woman complains of pelvic discomfort with dragging or bearing down sensation. Early diagnosis is crucial to prevention.

Puerperal Psychosis is a term that describes a group of illnesses marked by delusions, hallucinations and impaired perception of reality that may present from 3<sup>rd</sup> to 14<sup>th</sup> day of puerperium. About 16% of all women will develop an episode of mental illness during the first 3 months after delivery, and the risk of developing such is 16 times as great as in non-puerperal woman. Two out of 1,000 women with puerperal psychosis will require admission to a psychiatric unit with puerperal psychosis. Such a mother will present with confusion and delirium, disorientation in time and space, and a complete loss of interest in the baby. Early recognition and seeking psychiatric support is important if danger to the mother and the baby is to be avoided. Otherwise mild degrees of depression and emotional lability are almost the norm in puerperium (Symonds, 1992).

Postpartum haemorrhage has been known to be a single most important cause of maternal deaths worldwide. Most of deaths being the consequences of events in the third stage of labour, mostly due to poor management or mismanagement of the mother. The causes of

haemorrhage include retained placenta, uterine atony, vaginal or cervical lacerations and occasionally uterine rupture or inversion.

Other long-term complications include stress incontinence, breast infection, pulmonary embolus, pain during sexual intercourse, haemorrhoids, permanent nerve damage with loss of sensation and muscle deterioration in the feet and legs as a result of obstructed labour. Women who are worst affected often become crippled (Royston, E, *et al.*, 1989). Global experience has shown that all these complications can be prevented if women had access to basic medical care especially during postpartum period since this is when most morbidity and mortality occur (WHO, 1994).

### **1.3: Justification of the study**

Although the International Safe Motherhood Initiative was first launched in Kenya in 1987, maternal deaths associated with pregnancy and postpartum complications continue to be high (WHO, 1996 {a}). Some 650 maternal deaths per 100,000 live births are known to occur in this country in addition to unknown number of complications, disorders and disabilities attributable to lack of proper postpartum care. Yet, these can be controlled by proper utilization of postpartum care facilities.

Postpartum care facilities are available in the country but the few studies done on the utilization of these services suggest that few mothers use them. The factors that affect their utilization are largely unknown and there are limited studies that indicate the extent of postpartum complications in this country. Hence the need to undertake a study that will shed light onto the factors that influence postpartum care attendance and to document the postpartum associated complications in the country. Therefore, this study was designed to determine the factors that affect postpartum care attendance among mothers in an urban center

(Nairobi city) and a rural set set-up (Machakos District) and to document disorders associated with puerperium. It is hoped that the results of this study will find use in policy formulation to improve postpartum care attendance as well as in designing appropriate intervention programs in order to improve the status of maternal health through reduction of maternal morbidity and mortality associated with postpartum complications.

#### **1.4: Null Hypotheses**

- 1.4.1:** Mothers from rural and urban set ups do not differ with respect to the factors that affect postpartum care attendance.
- 1.4.2:** There are no differences in the type of postpartum complications found among mothers in urban and rural settings.

#### **1.5: Study Objectives**

##### **1.5.1: General objective**

To determine the factors affecting postpartum care attendance and the range of postpartum associated disorders amongst mothers in urban Nairobi and rural Machakos, Kenya.

##### **1.5.2. Specific objectives**

1. To determine postpartum care attendance among mothers in the study population.
2. To identify factors that affect postpartum care attendance among women in a rural setting and an urban area.
3. To establish the range and the extent of the disorders associated with postpartum period among mothers in the study population.

## CHAPTER TWO

### 2.0: MATERIALS AND METHODS

#### 2.1: Study areas

Nairobi, an urban center, and Machakos District a rural area (Appendix 5) were selected as study areas to allow comparison. Nairobi the largest urban center in Kenya accounts for more than 1/3 of the urban population in this country and one of the fastest growing was selected to represent urban set-up. Machakos District, a largely semi-arid region where little is known about postpartum problems was selected to represent a rural area and to afford comparison. Also, its accessibility with little financial constraints further made attractive for inclusion. A total of eight health facilities were selected from the two study areas (Appendices 6 and 7)

##### 2.1.1: Nairobi

Nairobi is the largest urban center and one of the eight provinces in Kenya. It has an area of 693 Km<sup>2</sup> stretching from latitude 1°25'S to 1°10'S and longitudes 36°40'E and 37°15'E. It borders Kiambu District, Thika District, Machakos District and Kajiado District (Appendix 6).

Nairobi has a fluctuating rainfall pattern, with the month of March marking the beginning of long rains and the month of November marking the beginning of short rains. It receives an average mean annual rainfall of 866 mm. The annual rainfall ranges from 487 to 1526mm. Apart from the months of March and November which experience rains, the other months are fairly warm with temperatures averaging 25° C

Nairobi, the largest urban centre in Kenya accounting for more than 1/3 of the urban population exemplifies rapid urbanization and remains one of the fastest growing cities in Kenya. It has a population of 2.137 million with a growth rate of 4.8% and women of reproductive age (15-49 years) are 202,876 (CBS, 2000). It has 8 divisions namely Central,

Makadara, Kasarani, Embakasi, Pumwani, Westlands, Dagoreti and Kibera.

Nairobi has 24 hospitals; five of them public Hospitals, and 19 private hospitals. There are 17 nursing homes, 2 maternity homes, 22 health centres, and nine dispensaries. The government and the City Council man the health centres in Nairobi, the city council having the biggest share. The city council's health facilities are divided into two divisions for administrative purposes. The hospitals utilized for this study were the Pumwani and Mater Misericordiae of Pumwani and Makadara divisions respectively. The two health centres utilized were Lang'ata and Dandora II of Lang'ata and Embakasi Divisions respectively (Appendix 6).

### **2.1.2: Machakos District**

Machakos District was recruited to represent rural Kenya. The district stretches from latitude 0°45'S to 1°31'S and longitudes 36°45'E and 37°45'E. It borders Kitui and Mwingi Districts to the east, Makueni District to the south, Kajiado to the west, Nairobi and Thika Districts to the North-west, Murang'a and Kirinyaga Districts to the north and Mbeere District to the north-east.

Machakos District is generally hot and dry with two rains' seasons. The long rains' season starts at the end of March and ends in May while the short rains' season starts late October and ends in December. It receives an average annual rainfall of 500mm to 1,300mm. The mean monthly temperature varies between 18°C and 25°C, July being the coldest month while the hottest months are October and March (Republic of Kenya, 1997).

It has a total area of 6,051 km<sup>2</sup> and is divided into 11 Divisions, namely Athi-River, Central, Kalama, Kangundo, Kathiani, Masinga, Matungulu, Mwala, Ndithini, Yathui and Yatta. It has seven hospitals, five of them found in central division one being a Government General hospital. The other two are government sub-district hospitals in Kathiani and Kangundo

divisions. It has 11 health centres, 11 sub-health centres and 47 dispensaries (Republic of Kenya, 1997).

Machakos District has a population of 915,000 with a growth rate of 3.09%, 51.3% being females and 48.7% being males (CBS, 2000). Women of reproductive age (15-49 years) constituted 41.7% (165,049) of the total population. The health facilities utilized for data collection in this study were; Machakos General hospital in central Division, Kangundo Sub-district Hospital in Kangundo Division, Mitaboni health Centre in Kathiani Division and Masii Health Centre in Mwala Division (Appendix 7).

## **2.2: Study Design and Study population**

The study was a comparative descriptive cross-sectional survey. The study population consisted of mothers in the reproductive age 15-49 years. This age was chosen because demographic studies indicate that on average, menarche occurs at 15 years while menopause is estimated at 50 years. These were mothers who attended Maternal Child Health and Family Planning (MCH/FP) clinics who had delivered within the previous two years of the study period who gave informed consent to participate in the study. Health care providers were included if they were providing MCH/FP services and had participated in provision of care for more than 3 months. In the focus group discussions, mothers who were willing to participate who gave informed consent were considered.

## **2.3: Inclusion and exclusion criteria**

All mothers of reproductive age (15-49 years) who were attending MCH/FP Clinic who had delivered or had abortion within two previous years of study period who delivered in the districts under study who gave their informed consent were included in the study. Those Mothers who did not meet the inclusion criteria and those who declined to participate in the

study were excluded and mothers who had participated in filling the questionnaire were excluded in the Focus group discussions.

#### **2.4: Ethical considerations**

Informed consent was obtained in writing from the Ministry of Education, Science and Technology, Ministry of Health, Provincial Medical Officers of Health Eastern and Nairobi Provinces, Medical officer of Health Nairobi City Council, District commissioner Machakos District, Medical Officer of Health Machakos District Hospital and the health care providers (Appendices 8, 9, 10, 11,12 and 13). Confidentiality was assured by use of numbers instead of names on the questionnaires and keeping interviews and information obtained strictly confidential. Each prospective respondent was approached and the purpose of the interview fully explained and assured that the study has no ill motives or health risks and their right to refuse to answer questions or terminate interview discussed. When eligible respondent so approached voluntarily consented to participate she was requested to sign a consent form (Appendix 4), then interviewed in a private place. The respondents were informed that the study findings and recommendations will be made available to the ministry of health for consideration for formulation of policies and also assured that the data will be kept safely in a computer. The participants of the focus group discussions were notified in advance that the discussion would be tape-recorded and that their answers will be treated as group responses and use of names discouraged.

#### **2.5: Sampling Procedures**

Nairobi the largest urban center in Kenya accounting for more than 1/3 of the urban population and one of the fastest growing cities in Kenya was selected to represent urban set-up for comparison. Machakos District, a largely semi-arid zone where very few studies but none related to the topic in this study have been don and also due to its proximity

for easy accessibility and due to researcher's financial constraints was selected to represent a rural set-up for comparison.

### **2.5.1: Nairobi**

In Nairobi, the 24 hospitals, 17 nursing homes and 2 maternity homes were stratified into those that were offering MCH/FP services and those that were not offering MCH/FP services. The 33 facilities that were offering MCH/FP services were further stratified into Public (2) and private (31) facilities. Each of the 31 Private facilities offering MCH/FP services was given a number and each number written on individual piece of paper of equal size, weight and texture to ensure fairness. Each paper was then carefully folded and rolled into balls of same shape and size then placed in a basket and shaken together thoroughly. A paper was then picked at random. This way the Mater Misericordiae Hospital was selected. Out of the five Public Hospitals in Nairobi, only two offer MCH/FP services namely the Kenyatta National referral Hospital and the Pumwani maternity Hospital. Out of these two, the Pumwani Maternity Hospital that offers maternal services exclusively and is not a national referral hospital was selected.

From a list of the 22 Health centres offering MCH/FP services (all of them public health centres), a sample frame was made and numbers given in sequence to each health center and each number written on separate piece of paper. The papers bearing each number were carefully folded and rolled into balls of same size then placed in a basket and shaken together. Two papers were then picked at random in succession. This way the Lang'ata Health Centre and the Dandora II health centre of Lang'ata and Embakasi Divisions respectively were selected.

### **2.5.2: Machakos District**

In Machakos District, multistage cluster sampling was done to cluster health facilities into those offering maternal and child health / family planning (MCH/FP) services and those that do not offer these services. Out of seven hospitals, only three offered MCH/FP services all of them were government Hospitals. To select two out of the three hospitals for the study, random sampling was done. Each Hospital was given a number and each of the three numbers written on papers. The papers were then carefully folded, rolled then placed in a bowl and mixed thoroughly. Two papers were picked at random from the bowl in succession. This way the Kangundo Hospital and the Machakos General Hospital were selected for the study. All the 11 health centres were manned by the government and offered MCH/FP services. Out of the 11 health centres, Systematic random sampling with a random start was done to select two health centres. A sample frame was drawn. The health centres were given numbers in sequence and each number written down on a small piece of paper. The papers were folded, rolled and put in a bowl then mixed thoroughly and then a paper picked from the bowl. This way the Mitaboni Health Centre was randomly selected. The researcher then picked on the sixth facility after Mitaboni Health Centre from the sample frame. This way the Masii Health center was selected.

In each selected health care facility, mothers were sequentially selected for interviews as they walked out of MCH/FP clinic both in the morning and afternoon sessions. In Nairobi, 69 subjects from Mater Misericordiae Hospital and 74 subjects from Pumwani hospital were interviewed. In Machakos, 72 and 71 mothers from Machakos and Kangundo hospitals respectively were interviewed. From each health center in both Nairobi and Machakos, 75 mothers were interviewed.

For Focus Group Discussions, ten mothers who met the inclusion criteria and did not

participate in filling the questionnaires in each health care facility were purposively recruited to reflect population variations that were of particular relevance to the study objectives (Krueger, 1988). A total of eight Focus Group Discussions, one in each of the eight health care facilities were conducted.

## 2.6: Determination of Sample size

The study sample size was calculated according to Fisher *et al.*, (1998) for a population exceeding 10,000. Thus  $n = Z^2 P q D / d^2$

Where:

$n$  = Required minimum sample size for a population greater than 10,000;

$P$  = Age was used to determine the proportion of the study subjects, hence the proportion of women 15-49 years to the total population (Population census 1999) = 0.22

$q$  =  $1.0 - P$ ;

$D$  = Sampling/Design effect equaling to 2.

$d$  = Degree of precision set at  $\pm 5\%$  (0.05)

$Z$  = Critical value corresponding to 95% confidence level obtained from the table of standard normal distribution = 1.96.

Substituting for the equation yielded,  $n = \frac{(1.96^2 \times 0.22 \times 0.78 \times 2)}{(0.05)^2} = 527.37$

Therefore minimum required sample size ( $n$ ) from calculation = 528. Due to the sensitive nature of the study, refusal to participate and dropouts were anticipated. Therefore the minimum sample size was further calculated using a non-response rate of 10% ( $528 \times 10/100 = 52.8$ ) giving a minimum sample size of 581 ( $528 + 52.8$ ). A total of 586 respondents were interviewed to the end.

## **2.7: Data collection**

Data was collected within a six months period using pre-tested structured questionnaire (Appendix 1), and in this way, socio-economic demographic information, health seeking behaviour and puerperal morbidity was collected. Further, Health care providers' interviews that primarily sought information on the postpartum care practice, attitudes and knowledge on factors affecting postpartum care attendance and the ability of the facility to offer postpartum care services were contacted in accordance with appendix 2.

Additionally, Focus Group Discussions of ten mothers in each health care facility were done to compliment the research information collected using the structured questionnaire and also to assist in giving clues and greater insight into why certain opinions were held. These were held in private rooms to enable participants to feel relaxed and free to express their views and took 45 to 60 minutes. A pre-set guideline (Appendix 3) that was fairly flexible to allow modification or pursuit of the anticipated discussion pertinent to the theme of the study was used to guide the discussions in the Focus group Discussions for the sake of uniformity during analysis. The groups were able to discuss fully the factors that affected postpartum care attendance and the conditions that affect mothers during puerperium. At the end of each focus group discussion, a summary of key points was read to the group and the group thanked. The discussions were tape-recorded and notes taken as a back up. The audio tape recorders were later transcribed.

## **2.8: Data Handling**

The quantitative data collected using Appendix 1 was entered into SPSS (statistical package for social sciences). To test for significant differences between postpartum care attendance and non-attendance, Chi-square was used to determine significance of relationships between dependent variable and independent variables. Fisher's Exact test was used in cross tabulation

cells where expected value was less than one or where more than 20% of the cells had expected values less than five. Logistic regression was used to ascertain the degree to which the independent variables were related to the dependent variable and to determine which of the independent variables are most strongly related to the dependent variable. Information obtained from Health care providers (appendix 2) and themes that emerged from data collected from the Focus Group Discussions (appendix 3) were written down according to the objectives of the study.

The results have been presented in chapter three using tables and charts as appropriate.

## CHAPTER THREE

### 3.0: RESULTS

#### 3.1: Socio-demographic characteristics of the respondents

A total of 586 mothers, 293 from each district were interviewed. Their ages ranged from 15-40 years. Majority of the respondents were below 31 years, Machakos having 88.1% while Nairobi had 83.3%. More than half of the study population were Protestants; Machakos having 59.7% and Nairobi 56.7%. The Catholics formed 39.6% in Machakos and 35.8% in Nairobi while the Muslims and the rest formed 7.5% in Nairobi and 0.7% in Machakos (Table 1). Although different religious affiliations may have different opinions on service utilization, today most African communities practice religious faiths such as Christianity, Islam, which were brought to them by people from outside Africa. These may have no effect on postpartum care attendance perceptions among them

As for their educational backgrounds, in Machakos more than half (57.6%), had primary education while in Nairobi, half (50.9%) of the population had secondary school education. Regarding marital status the majority consisted the married category Nairobi having 85.3% and Machakos 76.4%. The never-married (Singles) category had the minority, Machakos having 23.5% while Nairobi had 14.7% (Table 1).

Concerning employment status, 73.3% from Machakos and 55.6% from Nairobi were unemployed. Among those employed, 26.3% and 22.5% from Nairobi and Machakos respectively were in self-employment, most of them running small businesses. Those in salaried employment formed the minority, 18.1% and 6.1% from Nairobi and Machakos respectively (Table 1). The number of children per respondent ranged from 1-7 in both districts. Those respondents who had 1-3 children formed the majority, those from Nairobi having 88.5% and Machakos having 84% (Table 1).

**Table 1: Distribution of respondents by socio-demographic characteristics among respondents in Nairobi and Machakos District**

| Characteristic.                | Nairobi (n=293) |      | Machakos (n=293) |      |
|--------------------------------|-----------------|------|------------------|------|
|                                | No.             | %    | No.              | %    |
| <b>Marital status.</b>         |                 |      |                  |      |
| Married                        | 250             | 85.3 | 224              | 76.4 |
| Single (Never married)         | 43              | 14.7 | 69               | 23.5 |
| <b>Religious denominations</b> |                 |      |                  |      |
| Protestants                    | 166             | 56.7 | 175              | 59.7 |
| Catholics                      | 105             | 35.8 | 116              | 39.6 |
| Others                         | 32              | 7.5  | 2                | 0.7  |
| <b>Age of respondents</b>      |                 |      |                  |      |
| 15-19                          | 40              | 13.7 | 34               | 11.6 |
| 20-25                          | 139             | 47.4 | 167              | 57   |
| 26-30                          | 65              | 22.2 | 57               | 19.5 |
| 31-35                          | 39              | 13.3 | 25               | 8.5  |
| 36-40                          | 10              | 3.4  | 10               | 3.4  |
| <b>Level of Education</b>      |                 |      |                  |      |
| Primary                        | 127             | 43.3 | 169              | 57.7 |
| Secondary                      | 149             | 50.9 | 119              | 40.6 |
| Post-secondary                 | 17              | 16.3 | 5                | 1.7  |
| <b>Employment status</b>       |                 |      |                  |      |
| Salaried Employment            | 53              | 18.1 | 18               | 6.1  |
| Self employment                | 77              | 26.3 | 66               | 22.5 |
| Unemployed                     | 163             | 55.6 | 209              | 73.3 |
| <b>Parity of respondents</b>   |                 |      |                  |      |
| One                            | 117             | 39.9 | 130              | 44.4 |
| Two                            | 90              | 30.7 | 71               | 24.2 |
| Three                          | 52              | 17.7 | 41               | 14   |
| Four                           | 22              | 7.5  | 23               | 7.8  |
| Five                           | 9               | 3.1  | 14               | 4.8  |
| Six-Seven                      | 3               | 1    | 10               | 3.4  |

### 3.2: Postpartum Care Attendance

Out of the 586 respondents interviewed, 311 (53.1%) from both districts attended postpartum care services while 275 (46.9%) did not. Of the 311 attendees, Nairobi had 65.9% (193) while Machakos had 40.3% (118), and this difference between attendees in Nairobi and Machakos was statistically significant ( $\chi^2_1 = 38.54136$ ,  $P < 0.01$ ). Of the 275 non-attendees, 59.7% (175) were from Machakos while 34.1% (100) were from Nairobi. In Nairobi, those who attended postpartum care services were more than those who did not, a difference that was statistically significant ( $\chi^2_1 = 29.5188$ ,  $P < 0.01$ ). In Machakos, the respondents who attended postpartum care were fewer than those who did not, and this difference was statistically significant ( $\chi^2_1 = 11.0887$ ,  $P < 0.01$ ) (Figure 1).

Generally age 20 – 25 years attended most Machakos leading while Nairobi followed and there was difference that was statistically significant ( $\chi^2_1 = 8.72739$ ,  $P < 0.01$ ). The second in order of attendance was 26 – 30 years Nairobi leading then Machakos and the difference was statistically significant ( $\chi^2_1 = 7.91485$ ,  $P < 0.01$ ), then 31 – 35 years Nairobi leading while Machakos followed and this difference was statistically significant ( $\chi^2_1 = 13.75518$ ,  $P < 0.01$ ). Age 15 – 19 years attended postpartum care least Nairobi mothers being more than those of Machakos, a difference that was statistically significant ( $\chi^2_1 = 7.20972$ ,  $P < 0.01$ ). (Table 2.)

Regarding educational backgrounds, the respondents who had secondary education attended postpartum care most Nairobi leading followed by Machakos and this difference was significant ( $\chi^2_1 = 24.74003$ ,  $P < 0.01$ ). Contrary, the respondents who had primary education attended postpartum care least and Machakos lead while Nairobi followed. There was a statistically significant difference ( $\chi^2_1 = 8.56531$ ,  $P < 0.01$ ). Concerning employment status, respondents who were unemployed attended most followed by those who were self-employed and those who were in salaried (formal) employment and Nairobi having more than Machakos in each of

the categories of employment status. Regarding respondents parity, postpartum care attendance increased with decrease in parity. Respondents who had one child attended more than those who had two children and Nairobi had more attendance than Machakos for each parity

(Table 2).

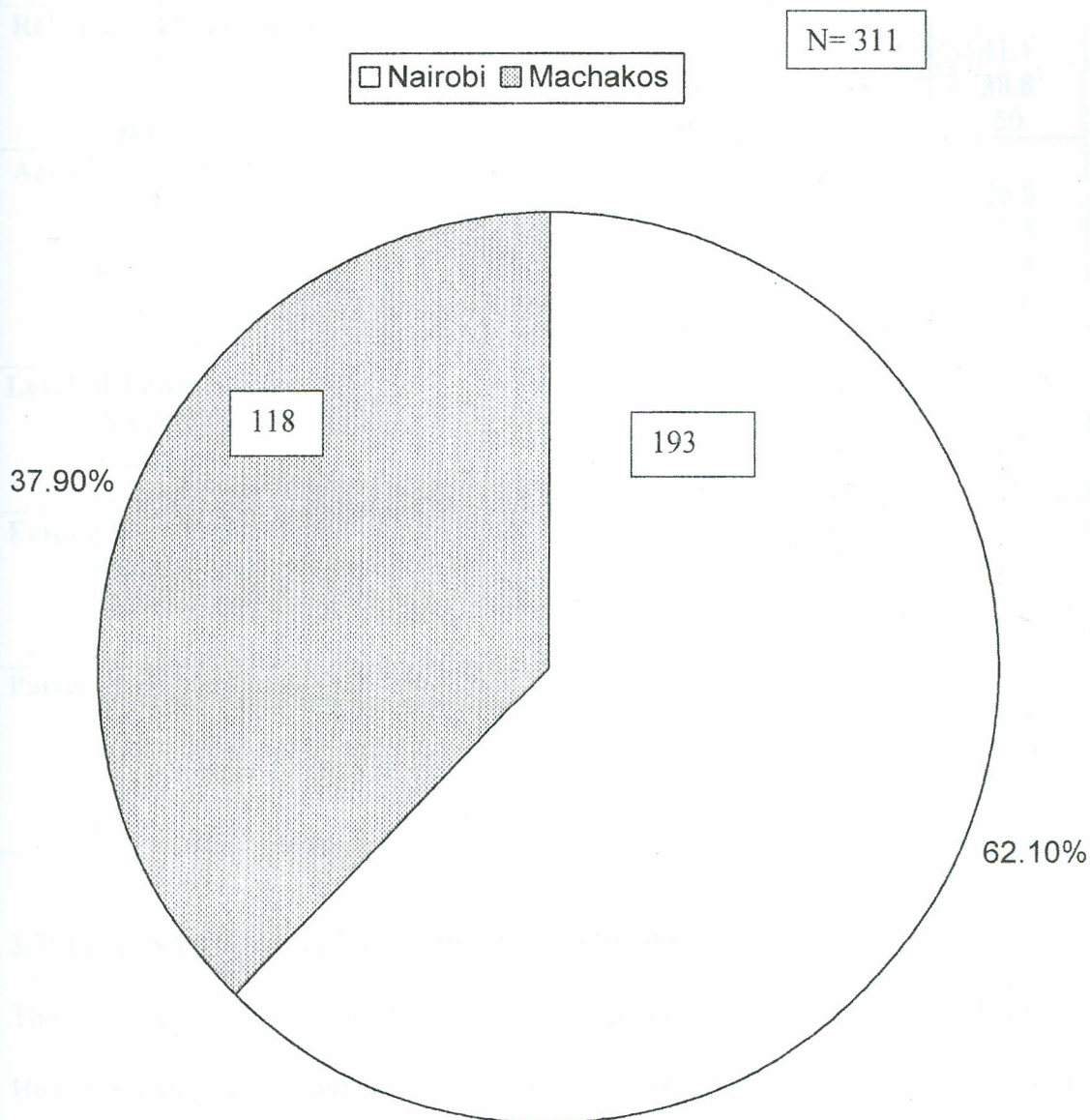


Figure 1: Postpartum care attendance among mothers in Nairobi and Machakos District.

**Table 2: Postpartum Care Attendance By Socio-demographic Characteristics**

| Characteristic.                | Postpartum care attendance per Socio-demographic characteristics |      |                  |      |
|--------------------------------|--|------|------------------|------|
|                                | Nairobi (n=293)  |      | Machakos (n=293) |      |
|                                | No.  | %    | No.              | %    |
| <b>Marital status.</b>         |  |      |                  |      |
| Married                        | 169  | 67.6 | 98               | 43.8 |
| Single (Never married)         | 24   | 55.8 | 20               | 29   |
| <b>Religious denominations</b> |  |      |                  |      |
| Protestants                    | 112  | 67.5 | 72               | 41.1 |
| Catholics                      | 68   | 64.8 | 45               | 38.8 |
| Others                         | 13   | 40.6 | 1                | 50   |
| <b>Age of respondents</b>      |  |      |                  |      |
| 15-19                          | 23   | 57.5 | 9                | 26.5 |
| 20-25                          | 81   | 58.3 | 69               | 41.3 |
| 26-30                          | 47   | 72.3 | 27               | 47.4 |
| 31-35                          | 33   | 84.6 | 10               | 40   |
| 36-40                          | 9  | 90   | 3                | 30   |
| <b>Level of Education</b>      |  |      |                  |      |
| Primary                        | 64   | 50.4 | 58               | 34.3 |
| Secondary                      | 114  | 76.5 | 56               | 47   |
| Post-secondary                 | 15   | 88.2 | 4                | 80   |
| <b>Employment status</b>       |  |      |                  |      |
| Salaried Employment            | 47   | 88.7 | 12               | 66.7 |
| Self employment                | 56   | 72.7 | 25               | 37.9 |
| Unemployed                     | 86   | 52.8 | 77               | 36.8 |
| <b>Parity of respondents</b>   |  |      |                  |      |
| One                            | 76   | 65   | 41               | 31.5 |
| Two                            | 56   | 62.2 | 35               | 49.3 |
| Three                          | 28   | 53.8 | 14               | 34.1 |
| Four - Seven                   | 33   | 97   | 28               | 59.6 |

### 3.3: Factors Influencing Postpartum Care Attendance

The socio demographic characteristics of the respondents, health systems' characteristics, Health seeking behaviour and accessibility to health care characteristics constituted the variables that were entered into logistic regression model for analysis. Of the variables that were entered into the Logistic Regression Model, five were retained while the others were discarded as they had little contribution. The variables that were found to have significant influence were place of delivery, mode of delivery, knowledge of postpartum care services, family planning care attendance and presence of puerperal disorder or puerperal complication.

### 3.3.1: Place of last delivery

The interview results of 293 mothers showed that majority (82.9%) of Nairobi women delivered in Health care facilities, while the minority (17.1%) delivered at home. In contrast, out of 293 mothers interviewed in Machakos, more than half (57%) delivered at home, and 43% delivered in health care facilities (Figure 2).

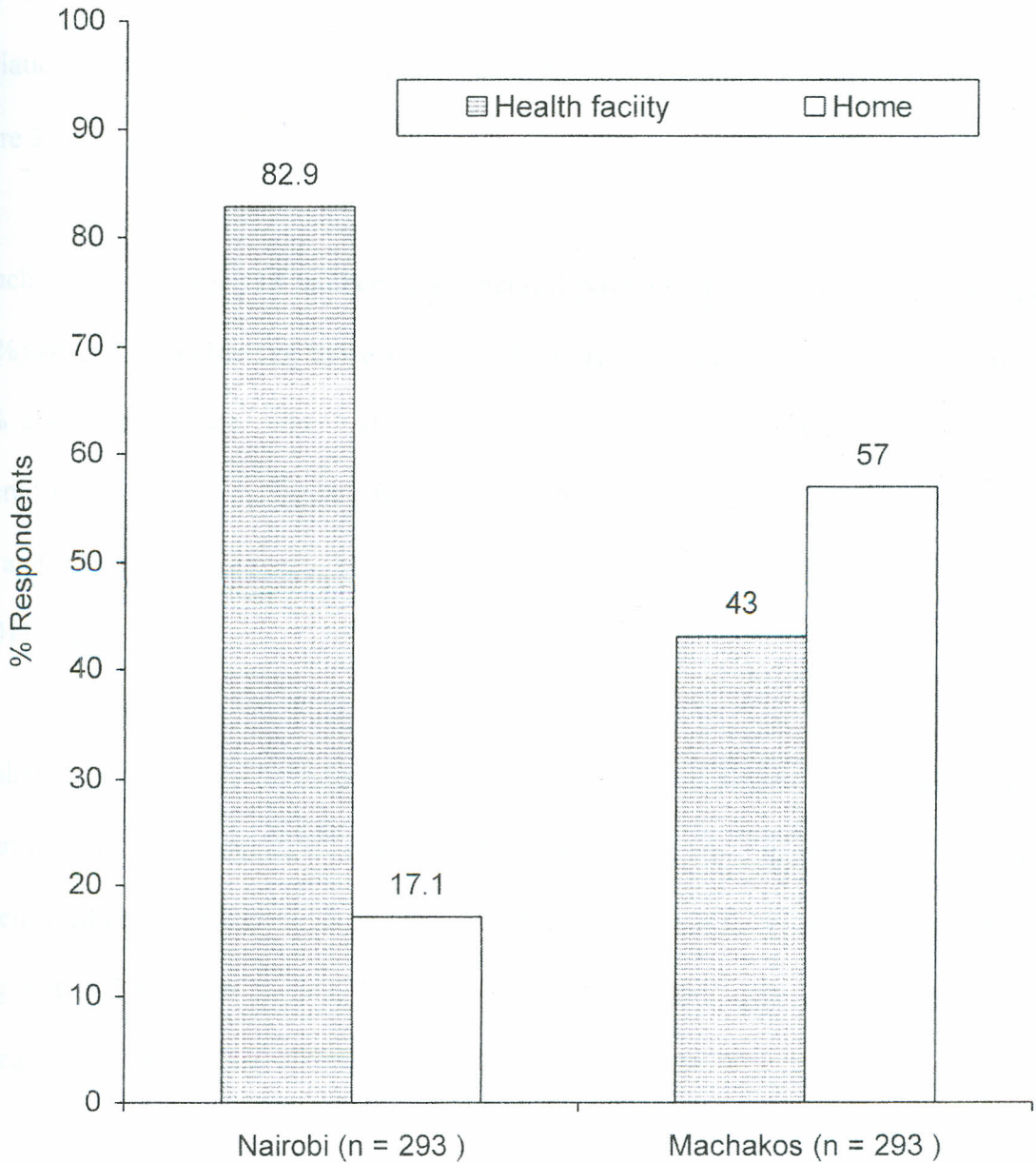


Figure 2: Place of respondents' last delivery

Out of the 311 who attended postpartum care services, 21.5% had delivered at home while 78.5% delivered in health care facilities. There was a significant association between postpartum care attendance and place of delivery ( $\chi^2_{,1} = 18.77709$ ;  $P < 0.001$ )

In Nairobi, out of the 193 mothers who attended postpartum care services, majority (94.3%) consisted those who had delivered in health care facilities while those who had delivered at home constituted the minority (5.7%) of attendees, and this was a significant positive association between health facility delivery and attendance ( $\chi^2_{,1} = 31.44458$ ;  $P < 0.01$ )

(Figure 3).

In Machakos, out of the 118 mothers who attended postpartum care services, more than a half (52.5%) of them consisted of those who had their last delivery in health care facilities while 47.5% consisted of those who had their last delivery at home, showing that mothers who delivered in health care facilities attended postpartum care more than those who delivered at home and this was a statistical significant difference (Fishers exact probability = 0.00847;  $P < 0.01$ ) (Figure 3).

This shows that in both districts mothers who delivered in health care facilities attended postpartum care more than those who delivered at home and more than a third of the mothers who delivered at home in both Nairobi and Machakos did not seek postpartum care, Machakos leading with 63.4% then Nairobi followed with 39% and this difference was shown to be significant ( $\chi^2_{,1} = 15.31672$ ;  $P < 0.0001$ ).

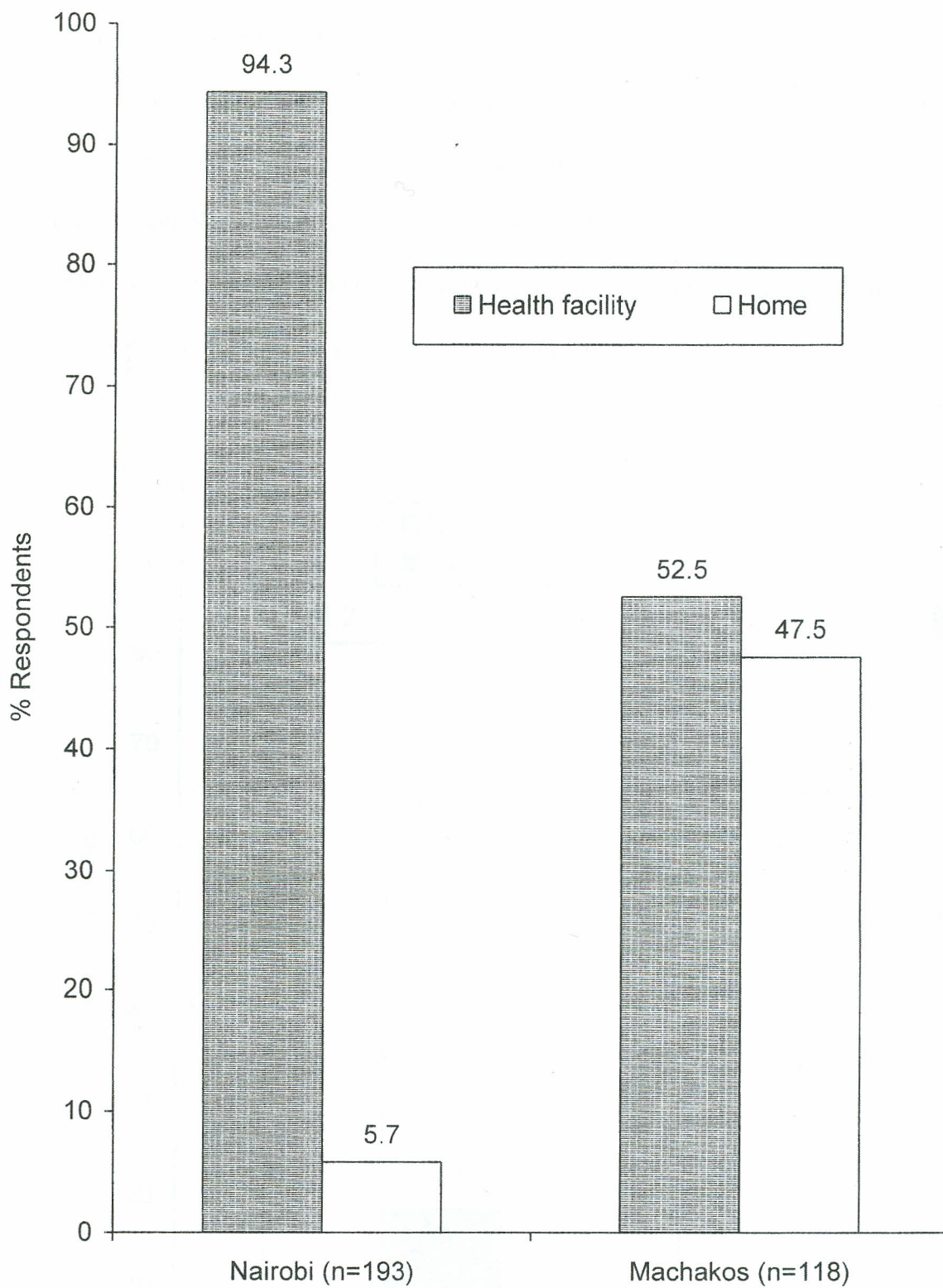


Figure 3: Influence of place of last delivery on postpartum care attendance

### 3.3.2: Mode of last delivery

Out of 586 respondents, majority (88.7%) had normal deliveries while those who had caesarian section formed the minority (11.3%). Machakos had a higher number (96.5%) of normal deliveries than Nairobi (81.2%). For those who delivered through caesarian section, Nairobi had 18.8% while Machakos had 3.5% showing that the number that delivered through caesarian section in Nairobi was 6 times that of Machakos (Figure 4).

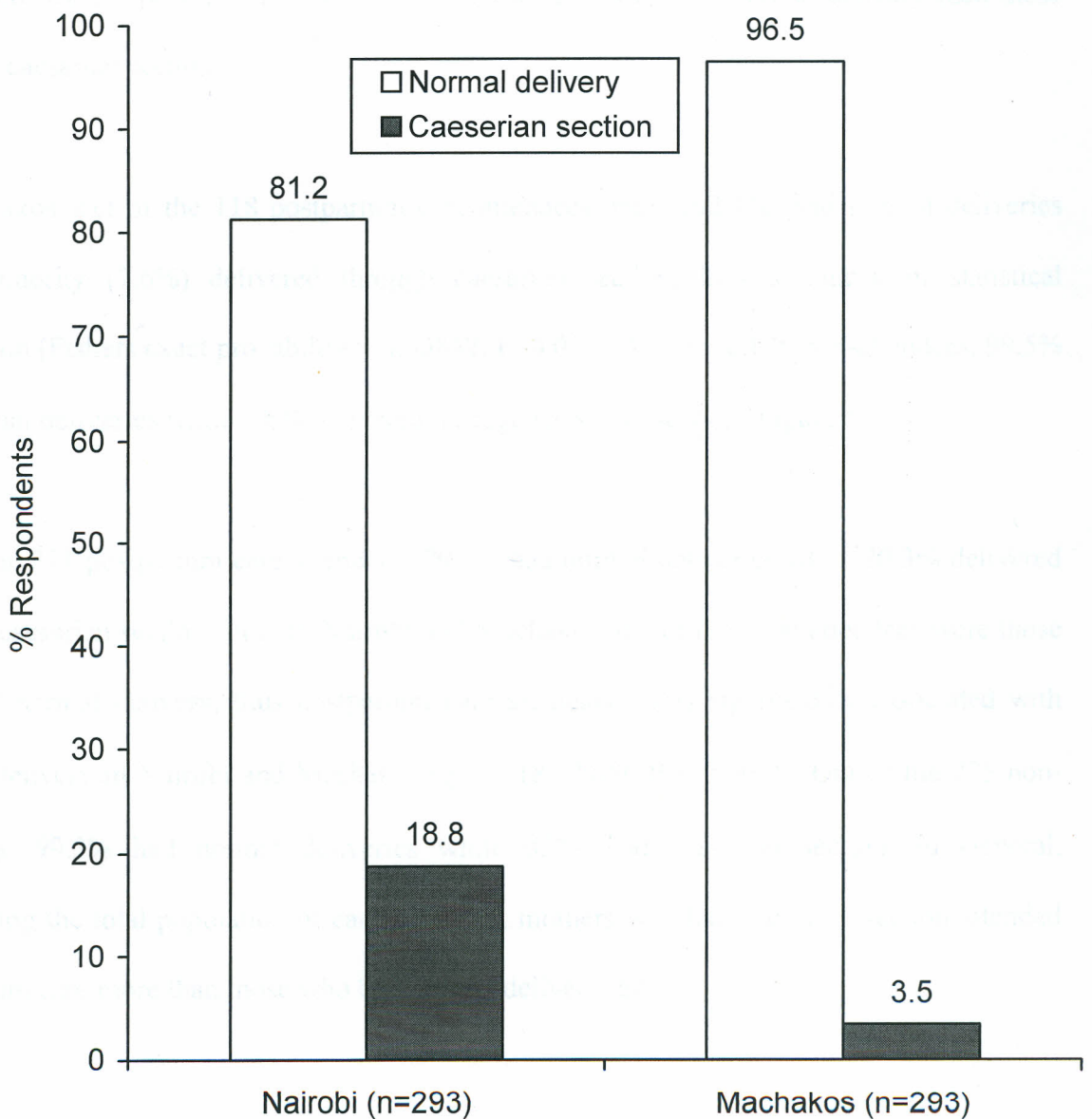


Figure 4: Mode of delivery of the last delivery

In Nairobi, out of the 193 postpartum care attendees, close to three quarters (72%) had normal delivery while minority (28%) delivered through caesarian section, a finding that shows a significant association between type of delivery and postpartum care attendance ( $\chi^2_1 = 31.44458$ ;  $P < 0.001$ ). Although postpartum care attendance appeared to be higher among those who had normal delivery, looking at the overall proportions of the two categories, mothers who had caesarian section attended more than those who had normal deliveries. Out of the 100 non-attendees, 99.0% (99) had normal deliveries while 1% (1) had caesarian section, showing that non-attendance for postpartum care was higher for those who had normal delivery than those who had caesarian section.

In Machakos, out of the 118 postpartum care attendees, most (92.4%) had normal deliveries while minority (7.6%) delivered through caesarian section, thus a significant statistical association (Fishers exact probability = 0.00847;  $P < 0.01$ ). Out of the 175 non-attendees, 99.5% had normal deliveries while 0.6% delivered through caesarian section (Figure 5).

Out of the 311 postpartum care attendees, 79.7% had normal deliveries while 20.3% delivered through caesarian section. In both Nairobi and Machakos, majority of the attendees were those who had normal delivery, thus postpartum care attendance was significantly associated with type of delivery in Nairobi and Machakos ( $\chi^2_1 = 18.77709$ ;  $P < 0.001$ ). Out of the 275 non-attendees, 99.3% had normal deliveries while 0.7% had caesarian section. In General, considering the total population of each category, mothers who had caesarian section attended postpartum care more than those who had normal delivery did.

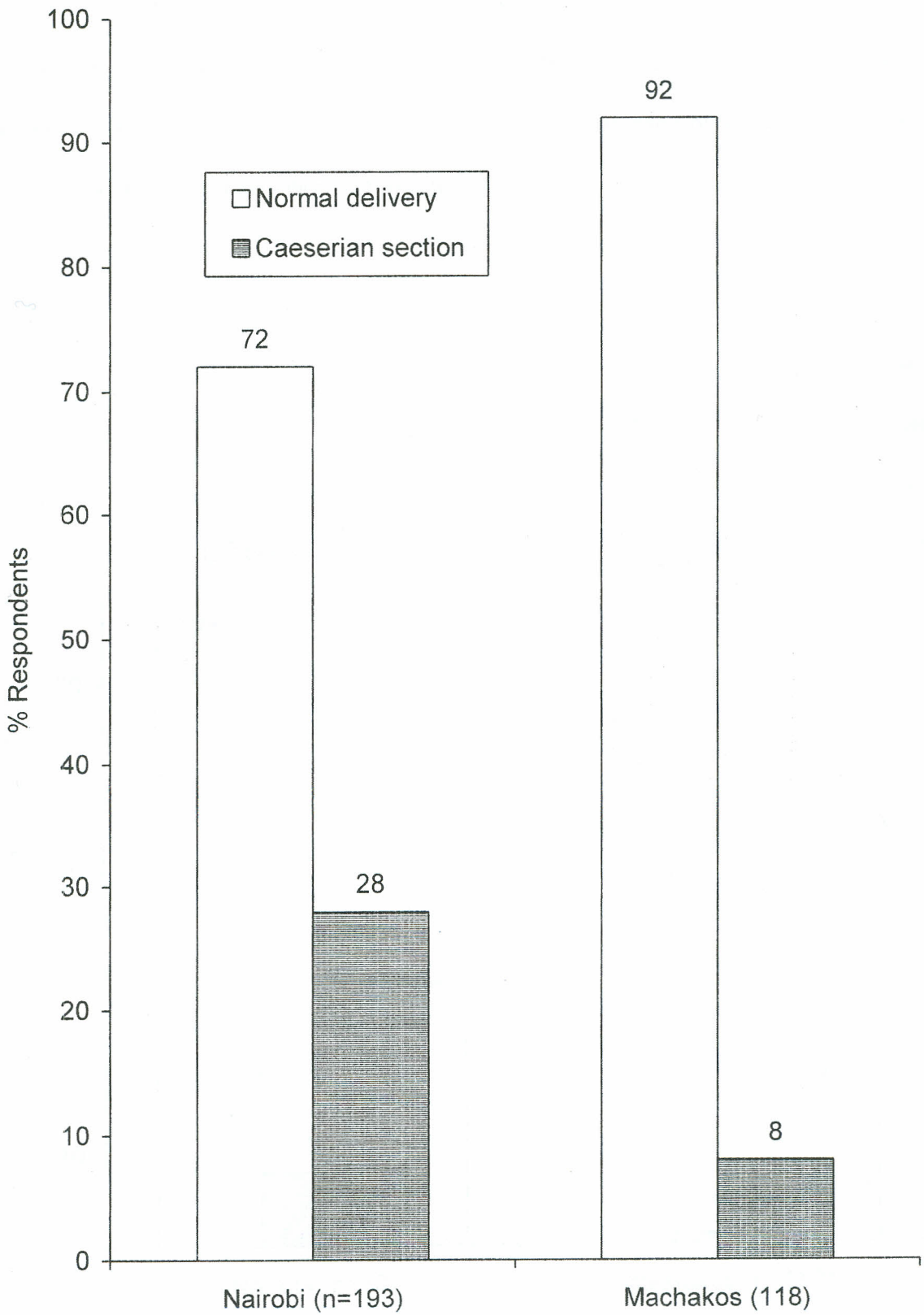


figure 5: Influence of mode of delivery on postpartum care attendance

### 3.3.3. Birth assistant for home deliveries

In Nairobi, out of the 50 respondents who delivered at home, 64% (33) were assisted by traditional birth attendants while in Machakos, out of the 167 home deliveries, majority (84.4%) were conducted by traditional birth attendants. The rest were assisted by the clients' mothers, husband, neighbours while others were not assisted (Figure 6).

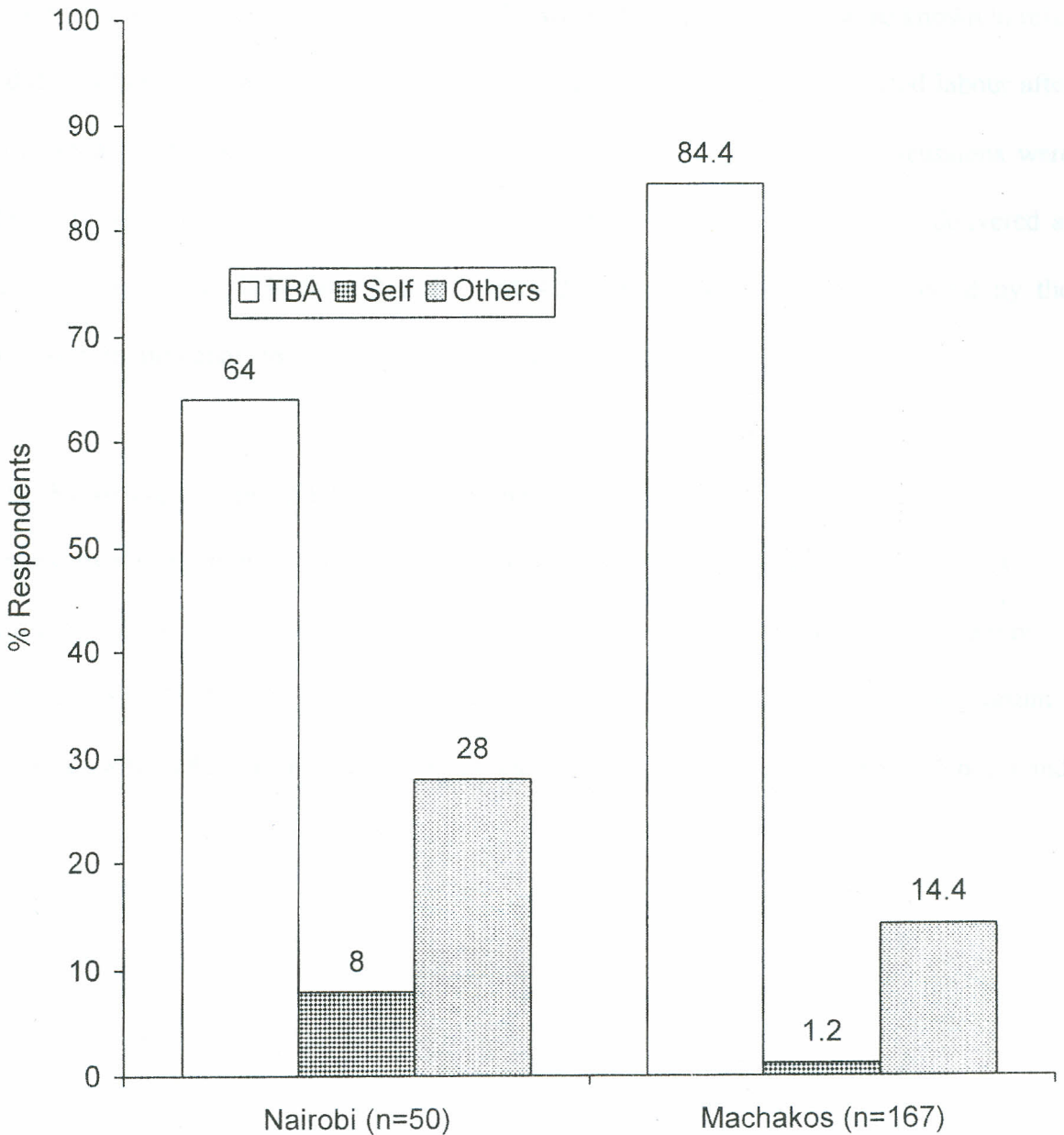


Figure 6: Birth attendant for home deliveries

From focus group discussions in Nairobi, traditional birth attendants were not referring their clients for postpartum care at health care facilities. This was attributed to fear that their clients would lack confidence in TBAs' skills and services (because referral may mean that their clients could as well have sought care in the same health care facility they have been referred to after all). Among Machakos women, 90% women reported that traditional birth attendants were known not to refer patients to health care facilities for postpartum care after delivery irrespective of whether one sustains a tear or otherwise. The very few who were known to refer only did so when there was very serious complicated delivery such as obstructed labour after trial of labour or for baby's immunization. The results from focus group discussions were similar to those of the qualitative data that showed that out of the mothers who delivered at home, only as few as 12% from Nairobi and 4.2% from Machakos were referred by the traditional birth attendants to health facilities for care.

### **3.3.3.0: Knowledge on postpartum care services**

The interview results showed that 44.4% (260) had knowledge on postpartum care services while more than a half (55.6%) did not. In Nairobi, 57%(167) had knowledge on postpartum care services while 43% (126) did not. In Machakos, 31.7%(93) had knowledge on postpartum care services while 68.3% (200) did not. The major sources of information included schools and colleges, churches, health care providers and the media (Figure 7).

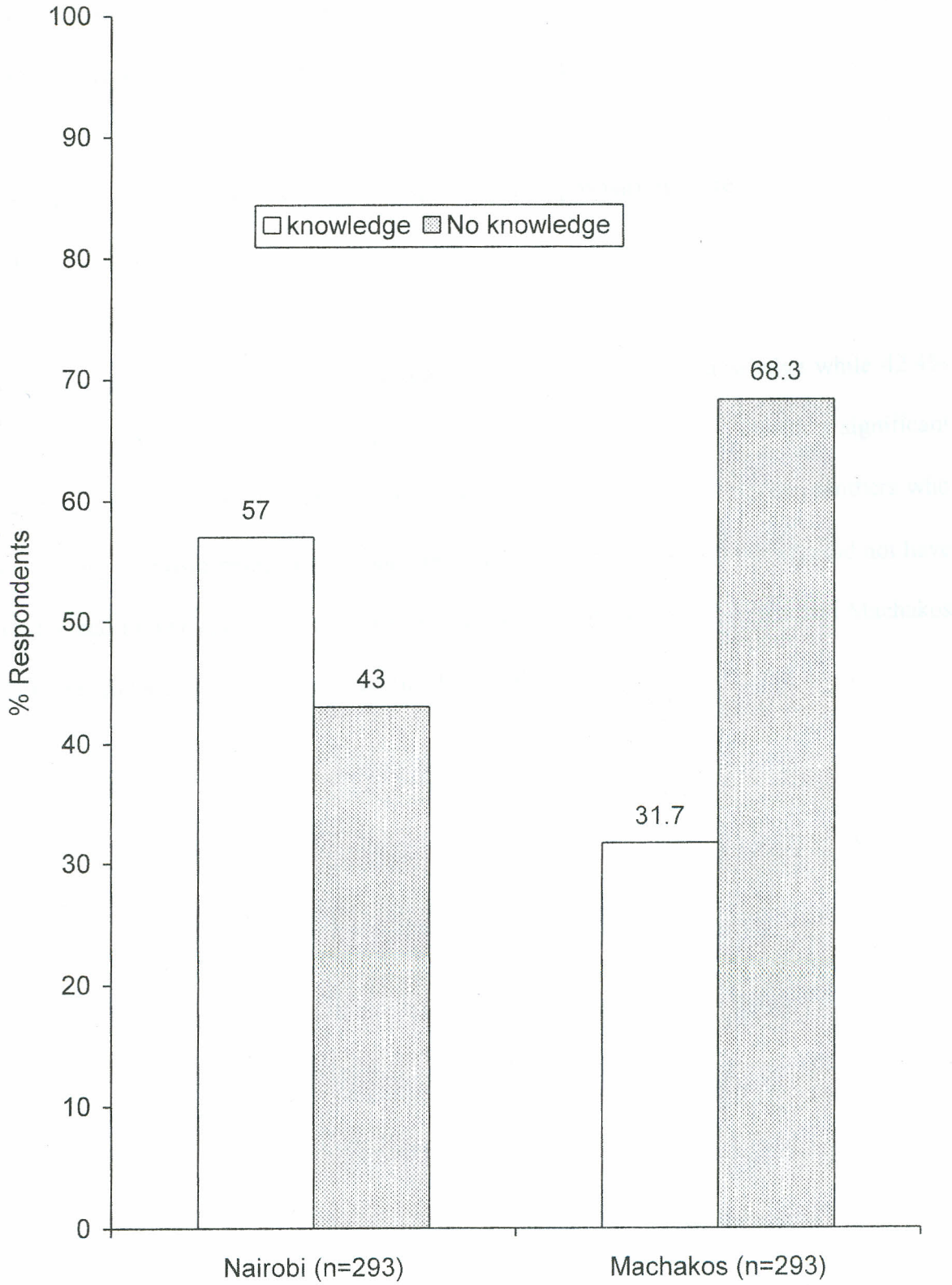


Figure 7: Knowledge of postpartum care services

### 3.3.1: Influence of knowledge on postpartum care services on postpartum care attendance

In Nairobi, out of the 193 postpartum care attendees, 79.8% (154) had knowledge on postpartum care services while 20.2% (39) did not have, and of the 100 non-attendees, 86% of them did not have knowledge on postpartum care services. This shows a significant association between knowledge on postpartum care services and postpartum care attendance ( $\chi^2_1 = 114.50554$ ;  $P < 0.001$ ).

In Machakos, of the 118 postpartum care attendees, 57.6% (68) had knowledge while 42.4% (50) did not. Further 85% of non-attendees had no knowledge on the service, a significant difference ( $\chi^2_1 = 57.17016$ ;  $P < 0.001$ ) (Figure 8). Generally from these results, mothers who had knowledge on postpartum care attended postpartum care more than those who did not have knowledge and knowledge on postpartum care services for attendees in Nairobi and Machakos was different and the difference was statistically significant ( $\chi^2_1 = 17.90217$ ;  $P < 0.001$ ).

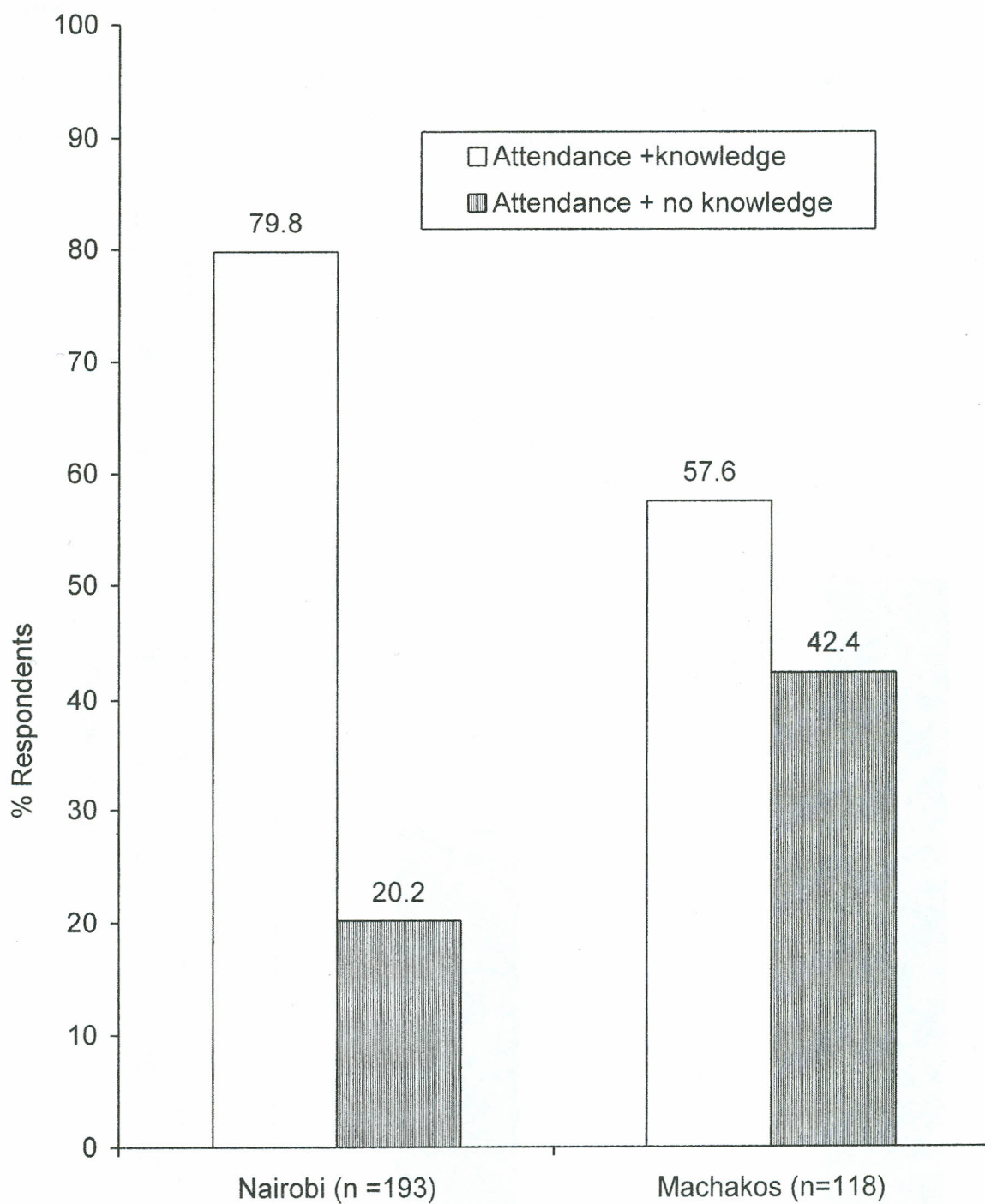


Figure 8: Influence of knowledge on postpartum care services on postpartum care attendance

### 3.3.3.2: Advice on postpartum care as a source of knowledge on postpartum care services

The interview results showed that 44.4% (260) had been advised on postpartum care services after delivery while 55.6% (326) were not. In Nairobi, 57% (167) were advised on postpartum care and 43% (126) were not. In Machakos, 31.7% (93) women were advised on postpartum care services and 68.3% (200) were not (Figure 9).

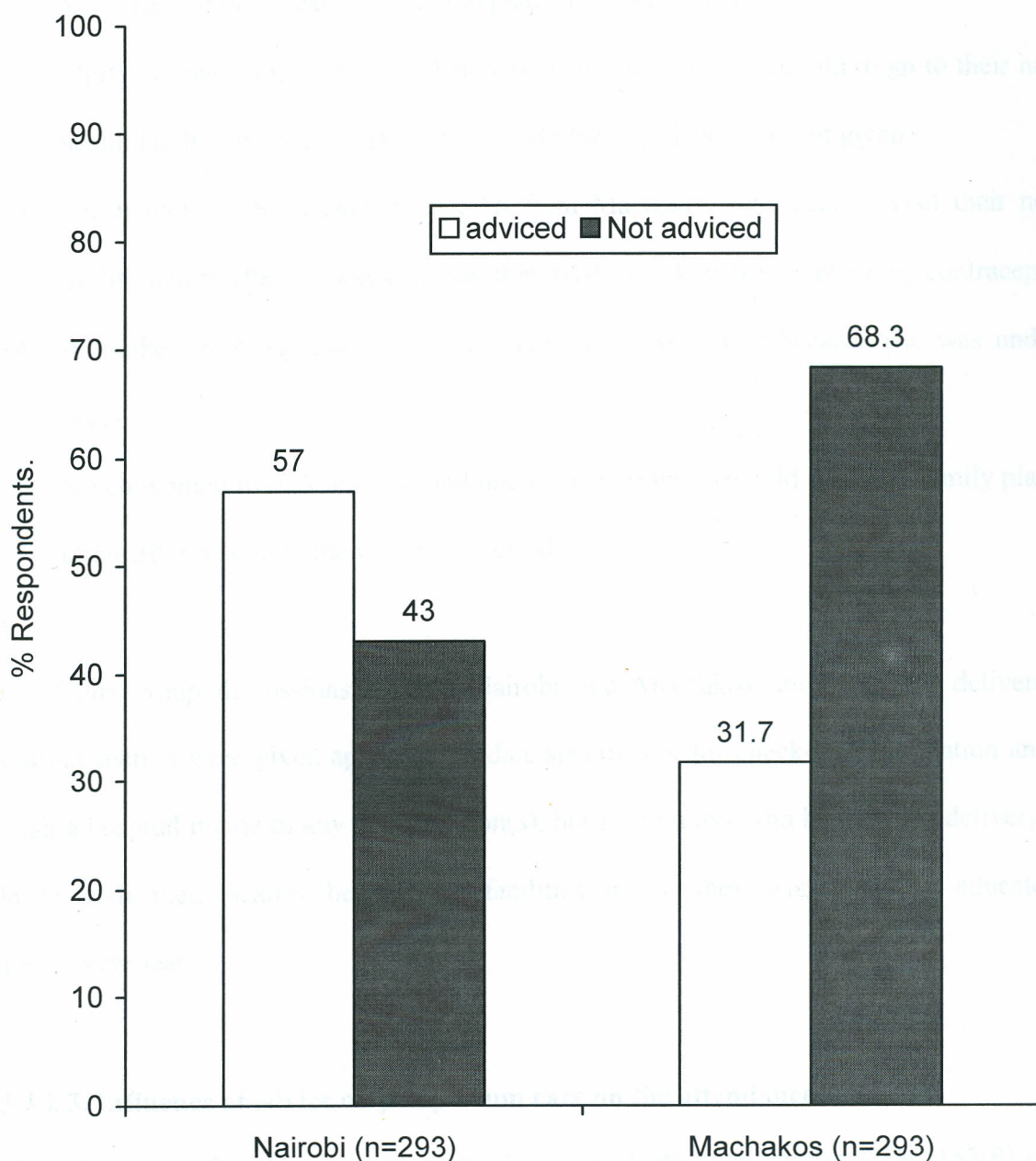


Figure 9: Advice on postpartum care attendance

Among the 326 mothers that were not advised on postpartum care, 45 and 46 respondents from Nairobi and Machakos respectively delivered in health care facilities and hence had the opportunity to receive the information but did not while others received either inadequate or unclear information as stated in the following:-

1. Seven mothers from Nairobi and 2 from Machakos had return date written on their discharge summary cards without explanation for the visit.
2. Thirty women from Nairobi and sixteen from Machakos were told to go to their nearest health facility after six weeks but rationale for attendance was not given.
3. Seven mothers from Nairobi and 16 from Machakos were told to visit their nearest health facility after six weeks incase they wished to start family planning contraceptives.
4. A mother from Machakos was not given an appointment because she was under 18 years.
5. Seven women from Machakos and one from Nairobi were told to attend family planning clinic after resuming their monthly periods.

From focus group discussions in both Nairobi and Machakos, mothers who delivered by caesarian section were given appointment date specifically for check-up examination and told to visit a hospital incase of any complication(s), but for mothers who had normal delivery were told to visit their nearest health care facilities incase they wished to be educated on contraceptive use.

### **3.3.3.2.3. Influence of advice on postpartum care on the attendance**

In Nairobi, out of the 167 who had been advised on postpartum care services, 153(91.6%) of them attended postpartum care services while a few 14 (8.4%) did not. Of the 126 who were not given advice on postpartum care, 40(31.7%) of them attended postpartum care services while 86(68.3%) did not (Figure 10).

In Machakos, out of the 93 who had been advised on postpartum care services, 67(72%) of them attended postpartum care services and 26(28%) did not, while for the 200 who were not given advice on postpartum care, 51(25.5%) of them attended postpartum care services but 149(74.5%) of them did not (Figure 10).

These results show that most of the respondents who were advised on postpartum care attended postpartum care services. There was a significant relationship between advice on the importance of postpartum care attendance and postpartum care attendance in Nairobi and Machakos (Cramer's  $V = 0.31931$ ;  $P < 0.05$ ).

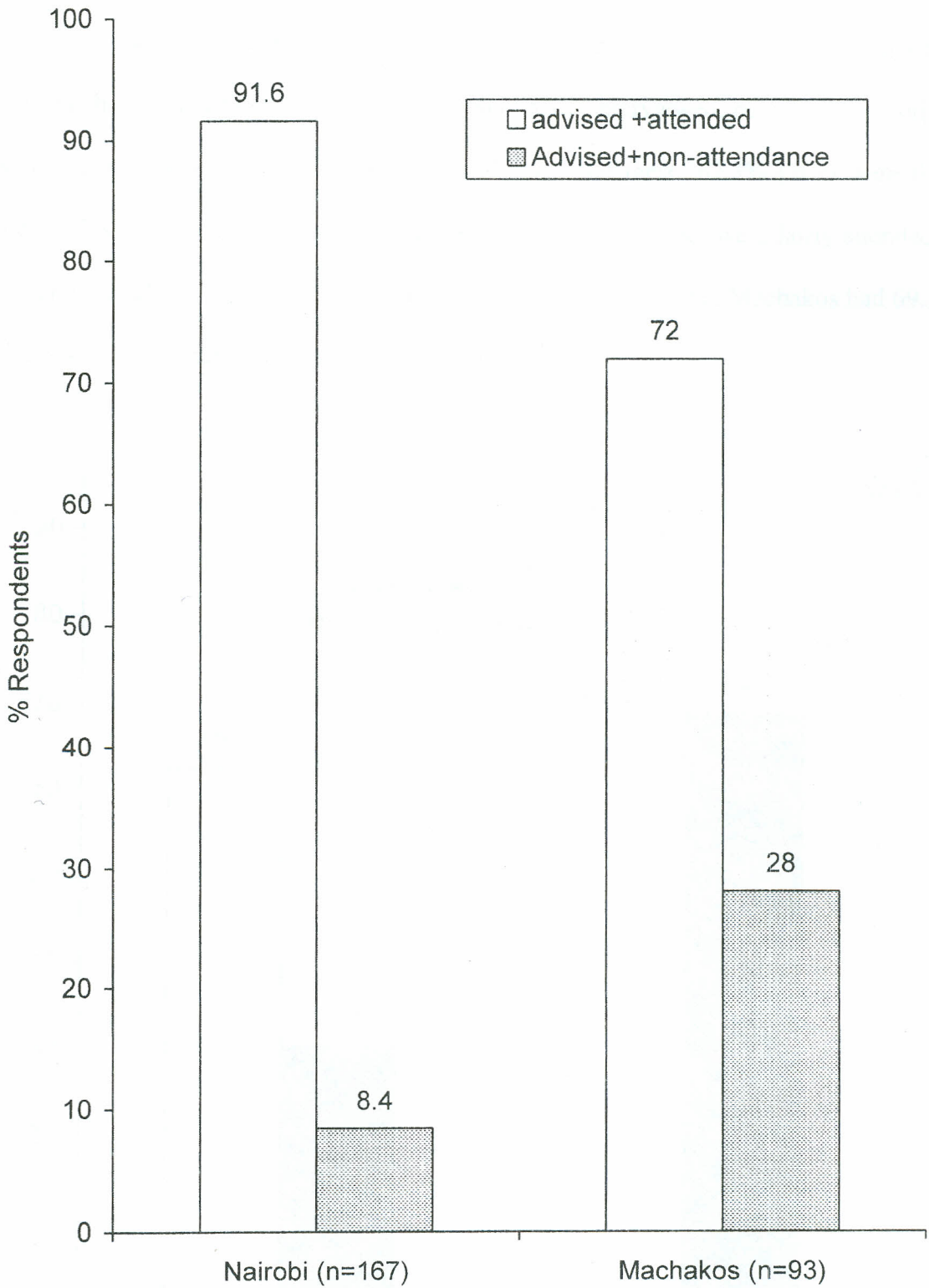


Figure 10: Influence of advice on postpartum care services on its attendance

### 3.3.4.0: Family Planning care attendance as a factor influencing postpartum care service attendance

Family planning services were the most widely known and purchased of the postpartum services in the health care facilities. Out of the respondents interviewed, 67.6% (396) mothers attended for family planning while 32.4% (190) did not. Of these, 62.3% (267) were from Nairobi and 37.8% (129) from Machakos, thus family planning services were fairly attended in Nairobi than in Machakos. Of the 228 who did not visit family planning, Machakos had 69.3% (158) while Nairobi women were 30.7% (70) (Figure 11).

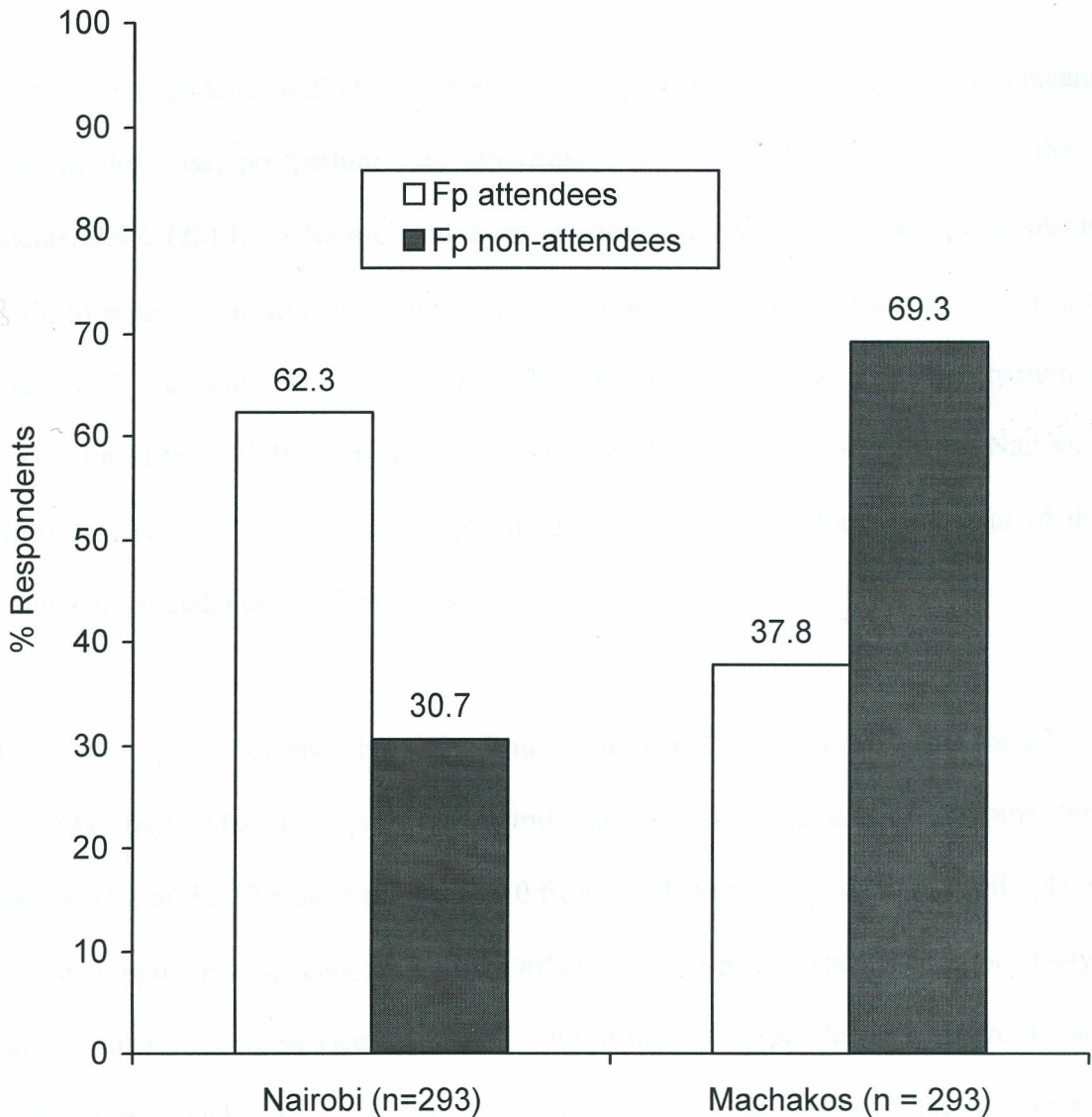


Figure 11: Family planning care attendance

### 3.3.4.1: Respondents' perceived benefits of attending family planning service.

A total of 396 mothers visited health care facilities for family planning services. These included the 311 mothers who visited during puerperium. The respondent's perception of family planning services influenced both its attendance and postpartum care attendance. A total of 323 women; 213 from Nairobi and 110 from Machakos perceived family planning as a means of spacing children. In Nairobi, out of the 213 who perceived family planning as a means of spacing children, 72.8% attended postpartum care services, while in Machakos, out of the 110 who perceived family planning as a means of spacing children, 65.5% attended postpartum care services (Table 3).

Out of the 396 respondents, 0.2% (2) all from Nairobi, perceived family planning as a means to check-up. In this case, postpartum care attendance was 100% (Table 3). Out of the 396 respondents, 9.4% (25) from Nairobi and 2.3% (3) from Machakos perceived family planning as a means to accessing health education. Out of those who perceived the service as a means to accessing health education, 84% in Nairobi and 33.3% in Machakos attended postpartum care (Table 3). Out of the 396 Women who attended for family planning, 0.7%, from Nairobi and 0.8% from Machakos perceived family planning as a means to mothers care. Out of these, postpartum care attendance was 100% (Table 3).

Out of the 396 respondents who visited for family planning, 27 women; 17(6.4%) from Nairobi and 10(7.8%) from Machakos perceived family planning as a means of stopping further pregnancies. Out of the 17 from Nairobi and 10 from Machakos who perceived family planning as means of stopping pregnancies, 88.2% and 90% from Nairobi and Machakos respectively did not attend postpartum care services (Table 3). Out of the 396 respondents, 0.7% from Nairobi and 2.3% from Machakos said that the contraceptives' side effects they experienced outweighed the benefits. These two respondents all from Machakos did not attend postpartum

care services. Respondents' who perceived family planning as means to mothers' care, Check-up, spacing of children or means of preventing pregnancy, most of them attended postpartum care services (Table 3).

**Table 3: Influence of respondents' perceived benefits of attending family planning care services on postpartum care attendance.**

| Respondents' perceived benefits on family planning services.   | Postpartum (Family planning) care attendance and non-attendance |                |                  |                |
|--|---|----------------|------------------|----------------|
|  | Nairobi (n=267)   |                | Machakos (n=129) |                |
|  | Attendance  | Non attendance | Attendance       | Non attendance |
| Spacing of children  | 155 (83.8%)   | 58 (70.7%)     | 74 (94.8%)       | 36 (70.5%)     |
| Check-up examination   | 2 (1.1%)  | 0              | 0                | 0              |
| Health education   | 21 (11.4%)  | 4 (4.9%)       | 1 (1.3%)         | 2 (3.9%)       |
| Mothers care   | 2 (1.1%)  | 0.0            | 3 (33.3%)        | 0.0            |
| Stopping further pregnancies                                   | 2 (1.1%)  | 15 (18.3%)     | 1 (1.3%)         | 9 (17.6%)      |
| Family planning contraceptives' side effects outweigh benefits | 1 (0.5%)  | 7 (87.5%)      | 1 (1.3%)         | 2 (3.9%)       |

#### 3.3.4.2. Reasons for not purchasing family planning care services

Although family planning was widely used, 190 respondents did not attend for family planning services. The reasons given have been grouped into five categories namely client factors, spousal factors, religious factors, health facility factors and use of alternative sources of accessing care.

The client's factors formed 78% and 74% of the reasons in Nairobi and Machakos respectively. These included ignorance of the existence of services, failure to purchase services because one was unmarried hence no need for family planning contraceptives, long ammenorrhoea period

after delivery, inability to make decision on family planning methods, wish to have enough babies before commencing family planning contraceptives and bad previous experiences with contraceptives' side effects.

The spousal factors contributed to 12% and 8% of the reasons in Nairobi and Machakos respectively. These included spouses' desire to have male babies before allowing their wives to use contraceptives, absence of spouses for those whose spouses worked or were staying far from home, and fear and dislike for modern family planning contraceptives. The health care facility factors contributed to 6% of the reasons in each district and mostly touched on health care providers' negative attitude towards their clients causing them to fear and dislike the facilities.

The religious factors contributed to 13% and 7% of the reasons in Machakos and Nairobi respectively. These had to do with disapproval of artificial contraceptive methods of family planning due to one's religious convictions leading to preference for natural methods of family planning.

Lastly, 4% in Machakos and 2% in Nairobi of the reasons had to do with the use of alternative sources of obtaining contraceptives. These sources included Chemists, Supermarkets, Community Health workers and shops, family planning distributors (FPD) and some churches such as the Roman Catholic and the Salvation Army were reported to offer family planning counseling for natural family planning methods.

From the focus group discussions in Nairobi, the reasons given for obtaining family planning services from other sources other than health facilities included husbands refusal, fear linked to myths about contraceptives especially the hormonal contraceptives

and the Intra Uterine Contraceptive Devices, long queues at the health care facilities, fear of being chased away or rebuked by staff especially after missing an earlier appointment, and convenience of accessibility to these sources. In Machakos, the reasons given for using other sources were fear of being seen queuing at the health care facilities for family planning by their spouses hence easier to obtain them secretly from the community health worker in the neighbourhood, competition between work and queuing for services at the health care facilities, and fear of being inserted an intra uterine contraceptive device.

### **3.3.4.3: Postpartum Care Services that were offered to women.**

#### **3.3.4.3.1: Postpartum check-up services**

Postpartum check-up examination forms an important component of postpartum care services. These were the least purchased of the postpartum care services. Out of the 586 respondents interviewed, 247 (42.2%) attended postnatal check up services while 339 (57.8%) did not. Of the 247 who attended, 68% were from Nairobi while 32% were from Machakos. Of the 339 non-attendees, 214 (63.1%) were from Machakos while 125 (36.9%) were from Nairobi. Among the 247 respondents who attended postnatal check-up, 24 of them showed up for the service but could not access it. This category consisted of 62.5% (15) mothers from Nairobi and 37.5% (9) from Machakos (Figure 12).

##### **3.3.4.3.1.1: Reasons for not accessing postnatal check-up services upon attending.**

Seven clients were not examined because they were using natural family planning methods, two mothers from Nairobi and 1 from Machakos were told to come back after resuming their monthly periods and two mothers from Machakos and one from Nairobi were told to come back when they have decided on a family planning contraceptive method, and the rest were counseled for family planning and supplied with oral contraceptives.

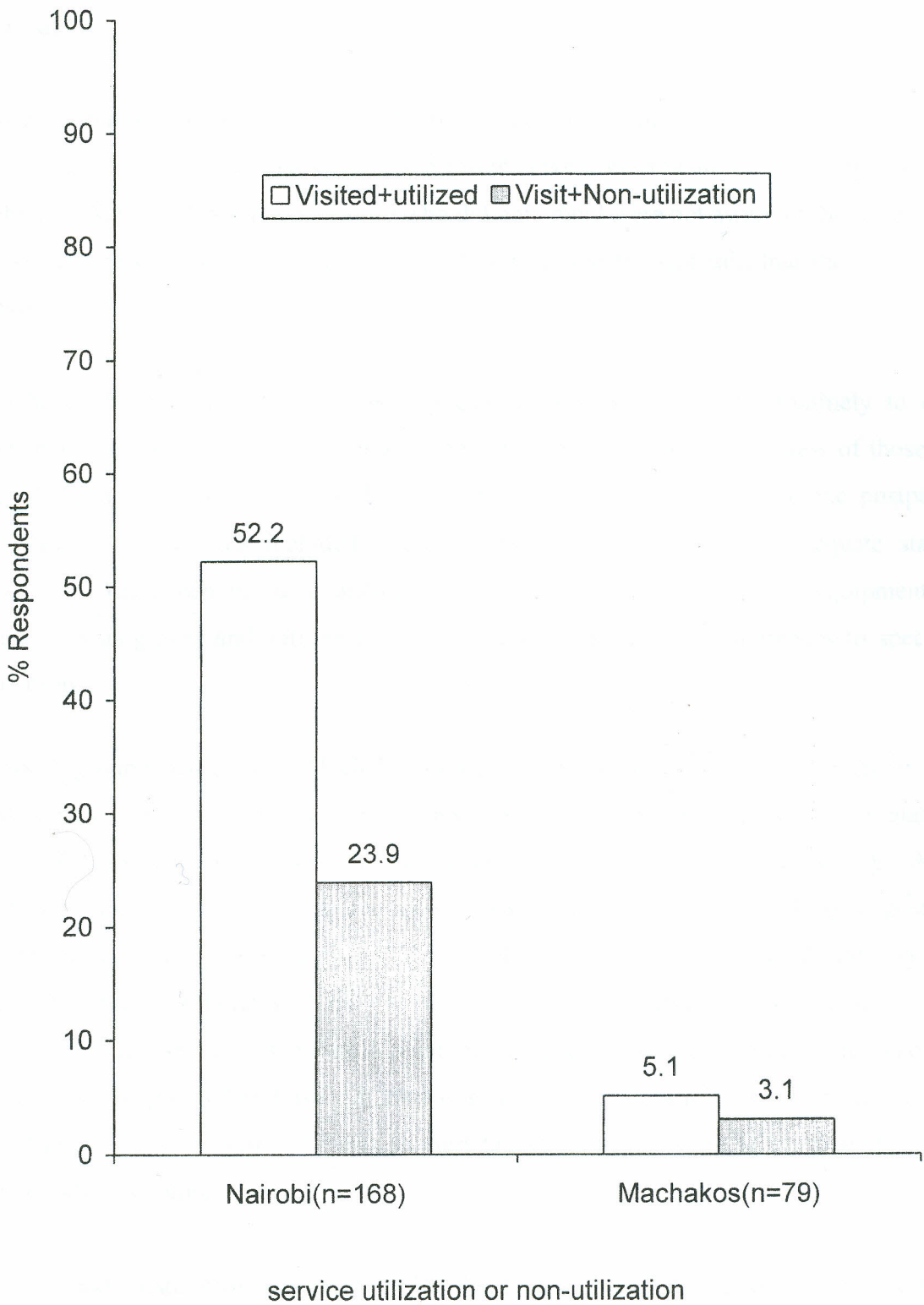


Figure 12: Health facility visitation for care and utilization of postpartum check-up services

### **3.3.4.3.2: Reasons for non-attendance and non-utilization of postpartum check-up services in general**

Out of the 586 mothers interviewed, 339 did not attend postpartum check-up services. Of these, 214 (63.1%) were from Machakos while 125 (36.9%) were from Nairobi. Majority (83.2% in Nairobi and 84.1% in Machakos) of those who did not attend were not aware of the existence of this service, knew about it but were too busy to attend and the rest said that the service was expensive.

In Machakos District, postpartum check-up examination was not done routinely to every mother, but to those wishing to use intrauterine contraceptive devices and a few of those who delivered through caesarian section. The reasons given for not offering routine postpartum examinations in Machakos included frequent water supply shortages, inadequate staffing especially in health centers, unavailability of instruments such as specula, equipment and supplies such as gloves and antiseptic lotions. These shortages were hindrances to speculum examination.

From focus group discussions in Machakos District, majority of the mothers were not aware of the existence of postnatal check-up services and instead they equated them to family planning services. Among those who knew the service, knowledge on the timing was scanty. A few mothers especially those who delivered through caesarian section had heard about postnatal check-up services and some who presented themselves for the service reported that very little was done for them and therefore there was no need of attending while others were turned away to come back after deciding on a family planning method. Others who equated this service to family planning said that their husbands were opposed to family planning and that their religion does not allow. Others were not ready to start family planning while others feared the side effects of family planning contraceptives.

From the health care providers in Nairobi, the factors hindering mothers from attending included lack of confidence in health care workers as a result of negative influence by wrong advisors in the community, myths associated with modern family planning methods, poverty or financial problems, ignorance on importance of postnatal check-up, inadequate health education and knowledge, long waiting time in health care facilities due to staff shortages and fear to approach health care staff. From Focus group discussions in Nairobi, some respondents had no knowledge on postnatal check-up services while others said that the service was very expensive

and was not worth it. Thirty percent of the mothers reported that their Doctors did not give feedback hence they did not see why they should attend.

### **3.3.4.4: Other Postpartum care services offered to the mothers in the health care facilities**

#### **3.3.4.4.1: Health education**

Out of 223 respondents who utilized postnatal check-up services, 87.4% had health education discussions on family planning while 5.8% had family planning mentioned only and 6.7% did not discuss family planning. For those who had health education discussions, Nairobi were 87% and Machakos 88.6%. The ones who had family planning mentioned were all from Nairobi. Of the women who did not have discussions on family planning, Nairobi had 4.6% and Machakos 11.4%.

#### **3.3.4.4.2: Examinations**

The examinations considered included breast, abdominal and vaginal examinations. Nairobi had higher percentage of the respondents who received breast, abdominal and vaginal examinations than Machakos.

#### **3.3.4.4.3: Breast care and examination**

The practice of breast examination was not being practiced as expected as only 38.6% and 21.5% of mothers from Nairobi and Machakos respectively had this service. Worse still, of these few, only 27.5% and 18.6% of these had thorough breast examination involving palpation and inspection in Nairobi and Machakos respectively. A small (24%) percentage had inspection only which may not help in diagnosing much of breast complications. Further, of those who had breast examination done, only 17% and 11% got a return demonstration on self-breast examination in Nairobi and Machakos respectively. This shows that the practice of breast care and examination is low and poorly done in Machakos compared to Nairobi.

#### **3.3.4.4.4: Abdominal Examinations**

Out of the 223 respondents, 116(52%) had abdominal examination while 107 (48%) did not. Of the 116 who had abdominal examination, 33(28.4%) had inspection and 83(71.6%) had inspection and palpation done. The practice of abdominal examination was low with only 44.4% and 21.4% of the attendees having thorough abdominal examination involving inspection and palpation. Those who had inspection only were 18.3% in Nairobi and 7.1% in Machakos. Majority (71.4%) from Machakos and 37.3% from Nairobi did not undergo this examination although they attended.

#### **3.3.4.4.5: Vaginal examination**

Out of the 223 respondents, 79(35.3%) had vaginal examination while 144(64.6%) did not. Of the 79 who underwent vaginal examination, 3.9% and 1.4% from Nairobi and Machakos respectively had inspection; 39.2% and 11.4% of Nairobi and Machakos respectively had inspection and digital examination; as few as 2.9% and 1.3% of Machakos and Nairobi respectively had thorough vaginal examination involving inspection, digital and speculum examinations done.

##### **3.3.4.4.5.1: Constraints to performing vaginal examination**

From the health care providers, a number of constraints to vaginal examinations were reported. In Nairobi, all health care facilities were equipped to offer this examination. In Machakos, shortages of supplies, water supply and equipment affected the ability to perform this examination. Although there were a few speculums in the health centres, there were no autoclaving machines and the steam sterilizers were broken down in Masii and Mitaboni Health centers of Machakos District.

#### **3.3.4.4.6: General investigations**

Out of the 223 who utilized postnatal check-up, 91.9% had their blood pressure taken and 85.2% had their body weight observed. These investigations were done more in Nairobi than in Machakos. In Nairobi 87% and 95.4% had their blood pressure and body weight observed

respectively while 81.4% and 84.3% of respondents' had their Blood pressure and weight measurements observed respectively in Machakos. Data from health care providers showed that all the health care facilities were equipped with blood pressure machines and adult weighing machines. However, in Mitaboni health center the adult weighing machine was broken down.

#### **3.3.4.4.7: Laboratory investigations**

Laboratory investigations considered here involved blood, Urine and cervical smears. These investigations were least done. Out of the 223 respondents who utilized postnatal check-up services, 2.2%(5), 5.8%(13) and 7.6%(17) had blood investigations, urine and Cytological (Pap smear) investigations done respectively. In Nairobi, out of the 153 respondents who utilized postnatal check-up, 2(1.3%), 13(8.5%) and 12(7.8%) had blood, Urine and Cervical smears investigations done respectively while 151(98.6%), 140(91.5%) and 141(92.2%) did not have any blood, urine and Cytological investigations done respectively. In Machakos, out of the 70 respondents who utilized postnatal check-up, 3(4.3%) and 5(7.1%) had blood and Cervical smears investigations done respectively, while 67(95.7%) and 70(100%) did not have blood and Cytological investigations done respectively. None of the respondents had urine testing in Machakos.

From health care providers, Mitaboni Health Center did not have both a laboratory and the personnel hence no laboratory investigations were done and so was Dandora Health Centre that did not have a laboratory. None of the health care facilities in Machakos was equipped enough to offer Cytological smears. In Nairobi, only the Mater hospital was equipped to offer cytological smear tests but this was not done as a routine to every postpartum care clients.

### 3.3.5.0: Puerperal complications/disorders experienced as a factor influencing postpartum care attendance.

A total of 236 (40.3%) had experienced a puerperal disorder. In Nairobi 132 (45.1%) and 104 (35.5%) of Machakos women experienced such disorders Nairobi having more victims than Machakos (Table 5). More than three-quarters of the attendees had puerperal disorders in both Nairobi and Machakos (Figure 13)

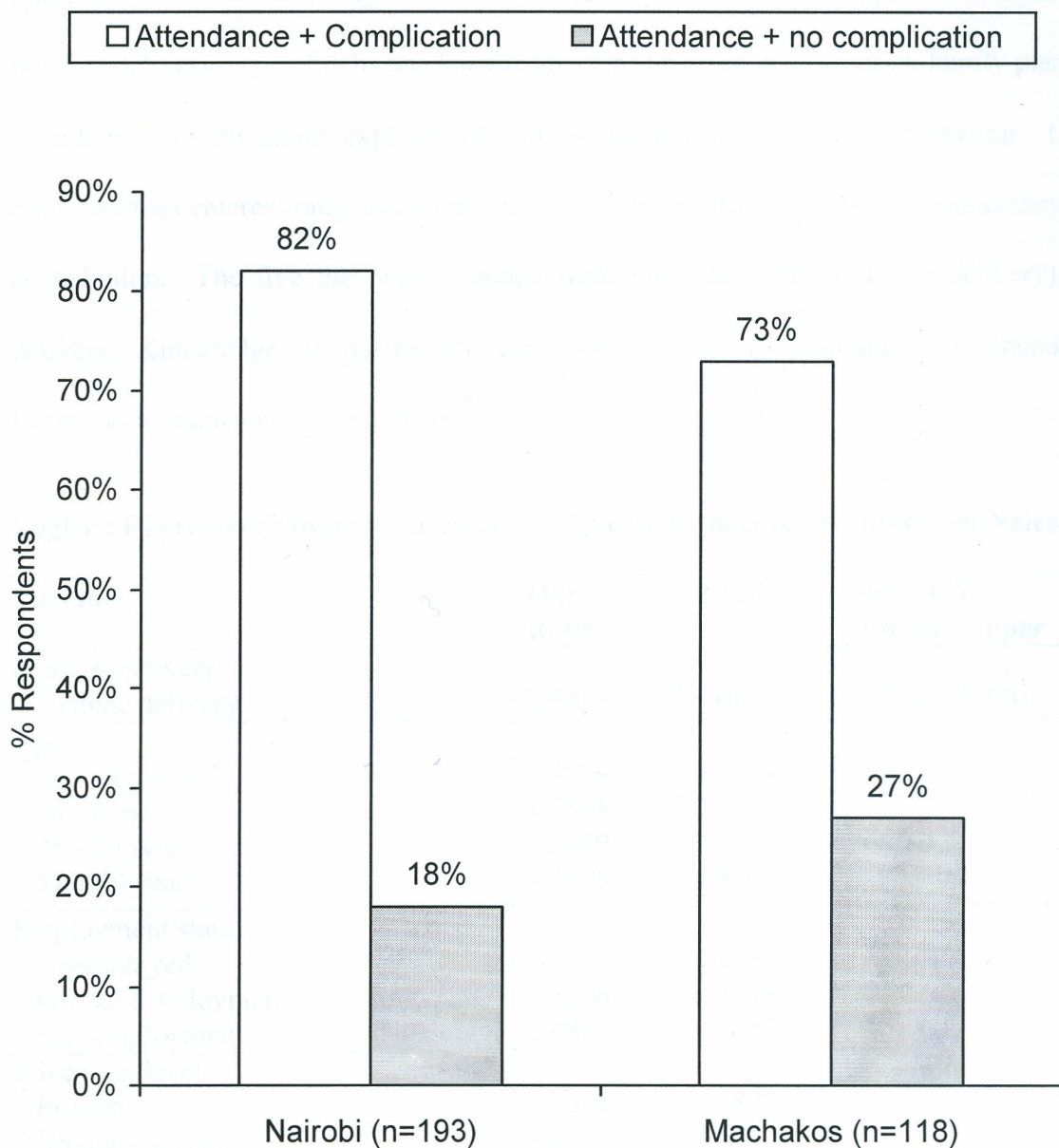


Figure 13: Influence of a puerperal condition/complication on postpartum care attendance among respondents

## Multivariate Analysis

### Logistic regression Results

#### Nairobi

In Nairobi, nine variables that showed significant association with Chi- Square were entered into logistic regression model in order to find out which of the independent variables can be used to predict postpartum care attendance (dependent variable). The nine variable entered into regression model were age of the responded, level of education, type of employment status, point of delivery, type of delivery, knowledge of postpartum care services, family planning care attendance, complications experienced and complaints raised during puerperium. Out of the nine variables entered, only five were retained while the others were discarded as they had little contribution. The five that were retained were Point of delivery (home delivery), Type of delivery, Knowledge of postpartum care services, family planning care attendance and Puerperal complications experienced.

#### Logistic Regression Model for predictors of postpartum care attendance in Nairobi

| Variable                              | Odds Ratio | P Value | 95% C.I<br>Lower -Upper |
|---------------------------------------|------------|---------|-------------------------|
| Point of delivery<br>Home delivery    | 2.9450     | 0.0174  | 1.210 – 7.170           |
| Age                                   |            |         |                         |
| 15 - 19 years                         | 1.4989     | 0.7769  |                         |
| 20 - 25 years                         | 1.7805     | 0.6712  |                         |
| 26 - 30 years                         | 1.6049     | 0.7309  |                         |
| 31 – 40 years                         | 1.3608     | 0.8301  |                         |
| Employment status                     |            |         |                         |
| Unemployed                            | -----      | 0.898   |                         |
| Formal Employment                     | 1.1686     | 0.7248  |                         |
| Self employment                       | 1.0834     | 0.9037  |                         |
| Education level                       |            |         |                         |
| Primary                               | 0.5538     | 0.1873  |                         |
| Secondary plus                        | -----      | -----   |                         |
| Type of delivery                      |            |         |                         |
| Normal delivery                       | 11.4886    | 0.0203  | 1.462 – 90.252          |
| Knowledge of postpartum care services | 13.5935    | 0.0000  | 6.479 – 28.528          |
| Puerperal complication/disorders      | 2.4736     | 0.0397  | 1.043 – 5.864           |
| Family planning care attendance       | 3.6902     | 0.0026  | 1.528 – 7.464           |

(Odds Ratio = 2.9450). This shows that place of delivery can be a predictor of postpartum care attendance in Nairobi. In Nairobi, logistic regression analysis showed that a mother who delivered at home was 2.9 times likely not to attend postpartum care services compared to those who delivered in health care facilities (Odds Ratio =2.9450).

Knowledge of postpartum care services had positive influence on postpartum care attendance in general and was found to be a significant predictor of postpartum care attendance among mothers in both districts. In Nairobi, a mother who had knowledge on postpartum care services was 13.6 times more likely to attend than one who did not have knowledge (Odds Ratio=13.5935). Similarly, in Machakos Logistic regression showed knowledge on postpartum Care to be a significant predictor of postpartum care attendance and that a mother who had knowledge on postpartum care services was about 6 times more likely to attend postpartum care than one who was not knowledgeable (Odds Ratio = 5.9769).

Results of logistic regression showed family planning care attendance to be a significant predictor of postpartum care attendance in both districts. In Nairobi, a woman who attended family planning was 3.4 times likely to attend postpartum care than her counter part who did not attend (Odds Ratio =3.3772), while in Machakos, a woman who attended family planning care services was 4.4 times likely to show up for postpartum care than her counter part who did not attend (Odds Ratio = 4.4457).

The presence of a puerperal disorder was found to be a significant predictor of postpartum care attendance in both Nairobi and Machakos Districts. More than four fifths of the attendees had puerperal disorders in Nairobi and Machakos; Machakos having more than Nairobi. In Nairobi, a mother who had puerperal disorder was 2.4 times more likely to attend postpartum care than a mother who had no puerperal disorder (Odds ratio=2.4736). In Machakos, a mother who had

puerperal disorder was 4 times more likely to attend postpartum care than a mother who had no puerperal disorder (Odds ratio=3.9915).

**Table 4: Focus Group Discussions Emerging Themes**

| Topic  | Responses per District  |   |
|--|---|---|
|  | Machakos (n = 40)   | Nairobi (n = 40)  |
| Delivery points  | Home  | Health facility   |
| TBAs' Referral practice                                  | TBAs do not refer mothers to health care facilities for postpartum care after delivery except for immunization of baby                    | TBAs do not refer mothers to health care facilities for postpartum care except for immunization of baby   |
| Health care providers' referral practice.                | Only Mothers who delivered by Caesarean section were given appointment. Mothers with Normal delivery to visit if they wished to start FP. | Both mothers who delivered by Caesarean section were given appointment and those who had normal delivery given an option to if they wished to start FP. |
| Source of information for postpartum care                | Health facility providers, Posters, neighbours and relatives and schools  | Health care facilities, Neighbours, print and electronic media and schools/colleges.  |
| Sources of family planning methods                       | Health care facilities, Chemist, Shops, Church, Community health workers and shops  | Health care facilities, Chemist, shops, Community health workers  |
| Reasons for obtaining FP contraceptives in these sources | Fear of uncooperative spouses, Convenient and cheaper services, Avoidance of wasting time at health care facilities                       | Fear of uncooperative spouses, Cheaper and Convenient services, Avoidance of long quos at health facility   |
| Puerperal conditions                                     | Puerperal sepsis, Breast conditions, Postpartum haemorrhage, anaemia Puerperal blue, Perineal tears and infections.                       | Puerperal sepsis, Breast conditions, Anaemia, puerperal psychosis,  |

From the Focus Group Discussions, a number of factors were found to encourage home deliveries thereby discouraging health facility deliveries.

In Nairobi, inaccessibility to health care services due to high cost of Health care facility deliveries who charge from Ksh. 3,000 compared to Traditional Birth Attendants whose charges were between Ksh. 800 to 1,500 per delivery; tense and unfriendly health facility environment, religious convictions, bad timing of labour pains (especially if labour starts at night), lack of

roads especially in Nairobi slums and fear as a result of negative influence about health care facilities by friends and neighbors leading to lack of trust in health care providers are the mitigating factors against delivery at health care facilities. The convenience of accessing the Traditional Birth Attendants in the neighbourhood especially during odd hours and; dislike for tedious obstetric procedures and examinations during delivery such as frequent vaginal examinations and enema administration at the health care facilities also contributed to discouraging mothers from delivering at health care facilities.

In Machakos, the factors that contributed to home deliveries according to the focus group discussions included inaccessibility to health care facilities due to lack of means of transport especially when labour pains start at night, fear of unfriendly environment created by health care providers and, expensive health facility deliveries in terms of spending many hours at the health care facility away from home, higher facility charges (Ksh. 1,000) compared to Ksh. 200 – Ksh 500 charged by TBAs, and, a long list of items namely surgical gloves, intravenous fluids and infusion sets, baby layette, needles, syringes and antiseptic lotions the respondents were expected to buy. Other factors included fear of undergoing Caesarian Section, suturing of tears and episiotomies compared to TBAs who were found not to repair tears or cuts.

### **3.4: Puerperal disorders experienced by the Respondents**

Out of the 586 women interviewed, 236 (40.3%) had experienced a puerperal disorder. In Nairobi 132 (45.1%) and 104 (35.5%) of Machakos women experienced such disorders. There were 11 puerperal disorders experienced. From the highest to the lowest these included breast disorders (21.3%), puerperal pyrexia (19.3%), infected caesarian scar and/ or burst abdomen (16.9%), postpartum haemorrhage (9.9%), genito-urinary tract disorders (9.6%), infected episiotomy or tears (2.1%), high blood pressure (1.5%), anaemia (0.9%), retained placenta (0.7%), uterine prolapse (0.2%) and eclampsia (0.2%)(Table 5).

### 3.4.1: Breast disorders

Breast disorders included breast engorgement (17.5%), Sore nipples (8.2%), cracked nipples (7.8%), breast-abscess (2.1%), bleeding nipples (1.2%), Mastitis (0.8%) and inverted nipples (0.8%) (Table 3). In total, there were 125 (21.3%) mothers who suffered from breast disorders and Nairobi had almost twice as many mothers who suffered from these disorders compared to those from Machakos, a statistically significant association ( $\chi^2_1 = 9.77260$ ;  $P < 0.01$ ).

**Table 5: Puerperal Disorders experienced by the respondents in Nairobi and Machakos.**

| Puerperal disorders             | Respondents        |                      |                    |
|---------------------------------|--------------------|----------------------|--------------------|
|                                 | Nairobi<br>(n=293) | Machakos<br>(n= 293) | Total<br>(n = 586) |
| Breast disorders                | 78 (26.6%)         | 47 (16%)             | 125 (21.3%)        |
| Genito-urinary tract disorders. | 42 (14.3%)         | 14 (4.9%)            | 56 (9.6%)          |
| Anaemia                         | 2 (0.7%)           | 3 (1%)               | 5 (0.9%)           |
| Eclampsia                       | 1 (0.3%)           | -                    | 1 (0.2%)           |
| Puerperal Pyrexia               | 47 (16%)           | 66 (22.5%)           | 113 (19.3%)        |
| Postpartum haemorrhage          | 16 (6.6%)          | 31 (13.3%)           | 47 (9.9%)          |
| High blood pressure             | 7 (2.4%)           | 2 (0.7%)             | 9 (1.5%)           |
| Infected episiotomy and tears   | 4 (1.7%)           | 6 (2.6%)             | 10 (2.1%)          |
| Kidney problems                 | 1 (0.3%)           | -                    | 1 (0.2%)           |
| Retained placenta               | 1 (0.3%)           | 3 (1%)               | 4 (0.7%)           |
| Uterine prolapse                | 1 (0.3%)           | -                    | 1 (0.2%)           |

### 3.4.2: Puerperal pyrexia

There were 113 (19.3%) mothers who suffered from Puerperal Pyrexia and more mothers from Machakos (22.5%) suffered from this condition than those from Nairobi (16%), and there was a

significant association between Machakos women and puerperal pyrexia ( $\chi^2_1 = 3.95790$ ;  $P < 0.05$ ). The age group 20-25 years had the most cases and the pattern was similar in each district for this age group. The cases from Machakos were more for each age group compared to those from Nairobi (Table 5).

Out of the 113 cases of puerperal pyrexia, 82.3% (92) and 17.7% (20) had normal delivery and caesarian section respectively. In Machakos 67.8% (62) and 6.1% (4) of the cases had normal delivery and operation respectively; while in Nairobi 33.7% (31) and 34% (16) of the cases had normal delivery and caesarian section respectively. In Machakos, cases of puerperal pyrexia among those who had normal delivery were twice as much in Nairobi while the cases of puerperal pyrexia among those who had caesarian section in Nairobi were four times those from Machakos. Puerperal pyrexia was significantly associated with normal delivery in Machakos district ( $\chi^2_1 = 15.2186$ ;  $P < 0.01$ ).

### **3.4.3: Infected caesarian section scar.**

Out of the 65 (11.1%) caesarian section deliveries, 55 and 10 were from Nairobi and Machakos District respectively. Of the 65 caesarian section cases, 16.9% (11) had infected caesarian section scar, out of which 18.2% (2) and 81.8% (9) were from Machakos and Nairobi respectively. This shows that a higher percentage of mothers from Nairobi sustained infected scars than those from Machakos and this association was significant ( $\chi^2_1 = 4.53976$ ;  $P < 0.05$ ) (Table 5).

### **3.4.4: Postpartum Haemorrhage**

In total, 47 (9.9%) women suffered from postpartum haemorrhage. Women from Machakos (13.3%) were more susceptible to this condition than those from Nairobi (6.6%), and this association was significant ( $\chi^2_1 = 5.20467$ ;  $P < 0.05$ ). The Age group affected most was 20-25

years and Machakos lead with 19(82.6%) while Nairobi followed with 4(17.4%) cases. Of the 47 cases, 60% (28) of them delivered at home while 40% (19) delivered in health care facilities. Of these, 16 (84.2%) from Machakos constituted those who delivered at home 3 (15.8%) from Nairobi who delivered at home. Postpartum haemorrhage was significantly associated with home deliveries in Machakos district ( $\chi^2_1 = 4.73238$ ;  $P < 0.05$ ). Further, the highest proportion of those who had this condition consisted of those who had their latest baby as the seventh born and, results showed that the proportion of mothers who suffered from this condition increased with increase in parity. Out of the respondents who had postpartum haemorrhage only minority {25% (4)} cases out of 16 sought medical attention while 75% did not seek medical attention in Nairobi, while in Machakos 58.1% (18) cases out of 31 sought medical attention and 41.9% did not seek medical attention (Table 5).

#### **3.4.5: Genito-urinary tract disorders**

Genito-urinary tract disorders accounted for 9.6% of the 586 mothers interviewed.

These included painful micturition, painful sexual intercourse and foul smelling vaginal discharge. Nairobi women (14.3%) were more affected than Machakos women (4.9%). Genito-urinary tract disorders were significantly associated with the Nairobi respondents and the association was statistically significant ( $\chi^2_1 = 13.42313$ ;  $P < 0.001$ ).

#### **3.4.6: Infected episiotomies or perineal tears**

A total of 10 respondents had infected episiotomies or perineal tears during puerperium. Machakos women had 6 (60%) of these while Nairobi had 4 (40%) of the cases but this association was not significant ( $\chi^2_1 = 0.64961$ ;  $P > 0.05$ ).

### 3.4.7: Hypertension

This disorder was not very common, only 9 women suffered from this condition and Nairobi had three times (7) the number of cases that of Machakos District (2) but this association was not significant statistically ( $\chi^2_1 = 2.821111$ ;  $P > 0.05$ ).

### 3.4.8: Anaemia

This disorder was rare; only 5 (0.9%) women were diagnosed to have this disorder, 3 of them from Machakos and 2 from Nairobi.

### 3.4.9: Other puerperal disorders

The other puerperal disorders included retained placenta 4 (0.7), uterine prolapse 1 (0.3%) and eclampsia 1 (0.3%). There were 4 cases of retained placenta, three from Machakos and one from Nairobi. The rest included one case each of eclampsia, kidney problems and uterine prolapse all from Nairobi. (Table 5)

## 3.5: Complaints Experienced by respondents during puerperium

In addition to the Puerperal disorders, 153 (26.1%) experienced various health complaints. These were severe lower abdominal pains (46.4%), severe anxiety (11.6%), severe backache (42.2%), constipation (24.4%), severe frequent headaches (20.3%), swelling of legs (1.9%), severe loss of appetite (0.7%), perineal pains (3.9%), urinary incontinency (2.7%), urine retention (0.2%) and severe pelvic pains with difficulties in walking (13%) (Table 6).

Machakos was leading with 221 (75.4%) followed by Nairobi with 220 (75.1%) mothers who had experienced various puerperal complaints. In Machakos, more than half (50.9%) of the mothers complained of severe lower abdominal pains while 42% mothers from Nairobi complained of lower abdominal pains and this complaint was significantly associated with mothers from Machakos District ( $\chi^2_1 = 4.63816$ ;  $P < 0.05$ ).

Regarding severe anxiety, a total of 68(11.6%) mothers experienced severe anxiety. Nairobi was leading with 14.7%(43) cases while Machakos followed with 8.5%(25) cases, thus severe anxiety was significantly associated with mothers from Nairobi District ( $\chi^2_1 = 5.3901$ ;  $P < 0.05$ ).

A total of 16 women suffered urinary incontinence, 13 (81.3%) of these were from Nairobi and 3 (18.8%) were from Machakos, showing a significant statistical association between this complaint and cases from Nairobi ( $\chi^2_1 = 6.42544$ ;  $P < 0.01$ ).

**Table 6: Puerperal health complaints experienced by the respondents in Nairobi and Machakos**

| Puerperal complaints experienced.         | Respondents        |                       |                    |
|---|--------------------|-----------------------|--------------------|
|   | Nairobi<br>(n=293) | Machakos<br>(n = 293) | Total<br>(n = 586) |
| Severe lower abdominal pains              | 123 (42%)          | 149 (50.9%)           | 272 (46.4%)        |
| Severe backache                           | 31 (10.6%)         | 116 (39.6%)           | 247 (42.2%)        |
| Constipation                              | 81 (27.6%)         | 62 (21.2%)            | 143 (24.4%)        |
| Severe frequent headaches                 | 52 (7.7%)          | 67 (22.9%)            | 119 (20.3%)        |
| Pelvic pains with difficulties in walking | 8 (2.7%)           | 38 (13%)              | 76 (13%)           |
| Severe anxiety                            | 43 (14.7%)         | 25 (8.5%)             | 68 (11.6%)         |
| Perineal pains                            | 10 (3.4%)          | 12 (4.1%)             | 23 (3.9%)          |
| Urinary incontinence                      | 13 (4.4%)          | 3 (1%)                | 16 (2.7%)          |
| Swelling of legs or feet                  | 4 (1.4%)           | 5 (1.7%)              | 9 (1.9%)           |
| Urine retention                           | -                  | 1 (0.3%)              | 1 (0.2%)           |
| Severe loss of appetite                   | 2 (0.7%)           | 2 (0.7%)              | 4 (0.7%)           |

## CHAPTER FOUR

### 4.0: DISCUSSION

#### 4.1: INTRODUCTION

This chapter deals with the discussion of the findings of this study on postpartum care attendance; the factors that affected postpartum care attendance and the associated disorders.

#### 4.2: Postpartum care attendance

The results of this study show that postpartum care attendance was average in general. Although the general picture is that more than half of the respondents attended postpartum care services, regionwise, there was a significant statistical difference ( $\chi^2_1 = 38.54136$ ,  $P < 0.01$ ) as the number that attended postpartum care services in Nairobi was 1.6 times that of Machakos. In addition, a mother from Nairobi District was 0.4 times more likely to seek postpartum care than her counterpart in Machakos. Hence urban residence can be a good predictor of postpartum care. This finding is in agreement with a study done in Ghana that showed residence as an important predictor of recipient of postnatal care, that is, mothers from urban area receive care more than rural mothers (Tawiah, 1998). The observation that the number that attended postpartum care services in Nairobi was one and a half that of Machakos could be attributed to several factors that include, the mode of delivery, place of delivery, puerperal complications experienced by the mothers, knowledge on postpartum care services and family planning care attendance.

The findings of this study showed that age group 20 – 25 years attended postpartum care most Machakos having more attendees in this age than Nairobi while age 26 – 30 years followed Nairobi having more attendees than Machakos. Further, 31 plus years attended postpartum care least while those aged 15 – 19 years attended least and above Nairobi mothers being more than

least yet these are the age groups at risk of developing puerperal complications. This finding could be due to the fact that these age groups constituted the minority. Therefore, intervention measures should target age 15 – 19 years and those above 31 years since these are the groups known to be at risk of developing puerperal complications. Regarding educational backgrounds, the respondents who had secondary education attended postpartum care more than those who had primary education. Concerning employment status, respondents who were unemployed attended most followed by those who were self-employed and those who were in salaried (formal) employment and Nairobi having more than Machakos in each of the categories of employment status. Regarding respondents parity, postpartum care attendance increased with decrease in parity. Respondents who had one child attended more than those who had two children and Nairobi had more attendance than Machakos for each parity. There is therefore need to design a health education program targeting age groups 15 – 19 years and 31 years and mothers with high parity and those who have got primary school education.

### **4.3: Factors affecting postpartum care attendance**

#### **4.3.1 Mode of delivery**

This study shows that a mother who had a normal delivery is 11.5 times more likely not to attend compared to those who had Caesarian section in Nairobi. Mothers who delivered by caesarian section attended more than those who had normal delivery.

In Machakos, although the highest percentage of attendees was among the mothers who had normal deliveries compared to those who had Caesarian section, looking at the proportions, it is clear that those who delivered via Caesarian section attended more.

This low attendance among normal deliveries could be attributed to a number of factors. These could be due to the way health education was delivered. Mothers who had normal deliveries in

planning contraceptives, while mothers who delivered via an operation were given appointment dates after four weeks or in the event that they developed any problems. This is in agreement with focus groups discussions where mothers reported that those who had normal delivery were given appointments for baby's immunization and mother told to go for clinic incase she wished to start family planning contraceptives. This gives the impression that only mothers who underwent operative delivery were the only ones who needed postpartum care or check-up while those who had normal deliveries needed family planning only. This method of passing health messages is wrong as it gives an impression that all is well for a postpartum client who had a normal delivery, yet puerperium is a volatile period where the health of a mother is at risk of developing puerperal complications. Further, this shows a big difference in terms of the health education shared between the two types of clients. A mother who is told to come after 6 weeks incase she needed to start family planning contraceptives may not show up incase she had not decided on contraceptives or if she is using a natural family planning method. On the other hand, a mother who is given health education on importance of postpartum check-up and an appointment for check-up is likely to attend, as she knows the rationale for her visiting health facilities.

Secondly, this study established that 64.2% and 22.1% of mothers from Machakos and Nairobi respectively who had normal delivery were discharged from maternity within 4 to 12 hours after delivery; and 82.1% and 56.6% of Machakos and Nairobi mothers were discharged within 24 to 48 hours after delivery. In the health facilities, the researcher observed that health education was mostly delivered in the morning hours in the health care facilities as a routine. This means that mothers who were discharged early may not access health education. Although some may access it, obviously it is unrealistic to expect such a mother who had delivered within three hours to take in instructions as she is in most cases exhausted. All these in turn may deny a client an opportunity to access health education unlike a mother who delivered through an

least six days. Further, the fact that more than three quarters of mothers from Machakos compared to approximately a half of Nairobi women who delivered in health care facilities were discharged by 48 hours may account for the regional differences in this case.

Thirdly, due to ignorance and the common traditional belief that after a normal delivery, puerperium is a “time to rest and regain health” may make a client imagine that because she is not feeling bad, there is no need of going for postpartum care. Therefore there is need to create demand for postpartum care services through health education.

Lastly, this study established that out of 586 respondents, 217 mothers delivered at home, and that 84% and 64% of the deliveries in Machakos and Nairobi respectively were assisted by traditional birth attendants. Obviously, these 217 had normal deliveries and missed an opportunity to access health education on importance of postpartum care attendance since the TBAs were reported not to refer their clients for care. This shows that there is need for Traditional Birth Attendants’ Trainers to update TBAs on the need for timely referral of mothers for postpartum care.

#### **4.3.2: Influence of place of last delivery on postpartum care attendance**

Results of this study established that more mothers delivered in health care facilities in Nairobi than in Machakos. These results are in agreement with a study done in Ghana that showed that mothers from urban residence were more likely to deliver in a health care facility than mothers in rural areas (Tawiah, 1998). Regionwise, a higher number of women delivered in health care facilities than at home in Nairobi while in Machakos more mothers delivered at home than those who delivered in health care facilities.

In general, women who delivered in health care facilities sought postpartum care more than those who delivered at home in both Nairobi and Machakos. Of those who delivered in health

those of Machakos showing a statistically significant difference ( $\chi^2_1=18,77709$ ;  $P<0.0001$ ). In Nairobi a mother who delivered at home was 2.9 times likely not to attend postpartum care services compared to those who delivered in health care facilities. The finding that mothers who delivered in health care facilities attended postpartum care more than those who delivered at home could be attributed to exposure to health education in the health care facilities for those who delivered in health care facilities.

Secondly, this study established that in Nairobi a 3/5 of home deliveries were contacted by TBAs' yet very few of their clients sought postpartum care services later on and that more mothers delivered at home than in health care facilities in Machakos and 4/5 of these deliveries were contacted by TBAs' but only 1/3 of these sought postpartum care services. These observations show that there is a heavy participation of Traditional Birth Attendants during home deliveries but very few of their clients attend postpartum care services. The finding that very few of the home deliveries attended postpartum care clinic can be explained by the fact that most traditional birth attendants were not referring their patients to health care facilities during deliveries except when complications set in after mismanaging the victim and even after sustaining perineal tears especially in Machakos District. The aftermath of these can lead to puerperal complications. Further, some of the traditional birth attendants were reported to give "episiotomies" with long nails, a practice that could result in puerperal infection. Therefore, mothers should be encouraged to deliver in health care facilities for safety. Alternatively, for the sake of those mothers who still wish to deliver at home, there is need to emphasize the importance of referral by traditional birth attendants, use of clean home delivery kits by Traditional Birth Attendants during delivery in order to prevent puerperal infections. There is also need for a policy on supplies of sterile/clean disposable home delivery kits to the traditional birth attendants to facilitate safe delivery and TBAs should be supervised to ensure that standards are maintained.

In Nairobi, some health facilities were reported to have tense and hostile environment where some patients were ignored by health care staff. Some respondents feared using health facility for delivery because of negative influence from friends. Some religious sects such as *Wakorinos* were reported to forbid their members from delivering in health care facilities. Exorbitant hospital charges scared the poor who then preferred cheap services of traditional birth attendants.

In Machakos, the cost of care was said to be expensive in terms of spending many hours away from home. This cost was in terms of money, a long list of items to buy such as intravenous infusions and sets, baby Layette, and needles and syringes. Fear of operation (Caesarian sections were reported to be common) and repair of perineal tears or episiotomies unlike at home where traditional birth attendants do not repair tears. Other respondents reported lack of means of transport at night to access health care facilities. Therefore, in order to improve postpartum care attendance, intervention measures should aim at eliminating factors that discourage health facility deliveries.

Therefore, there is need to intensify health education and to equip public health care facilities in order to improve accessibility to quality care by the poor in order to minimize home deliveries. Further, the postpartum care component in the traditional birth attendants' curriculum need to be strengthened. In addition, all the untrained traditional birth attendants need to be trained and those who have been trained need continuous updates to update their skills. There is also need to equip the traditional birth attendants with clean or sterile disposable home delivery kits and ensure their constant supply. Since health facility delivery has influence on postpartum care attendance, the factors that discourage health facility delivery should be targeted in order to improve postpartum care attendance.

### 4.3.3: Knowledge on postpartum care services

The results of this study showed that knowledge of postpartum care services was low in general, but better in Nairobi than in Machakos. Knowledge of postpartum care services had positive influence on postpartum care attendance in general and was found to be a significant predictor of postpartum care attendance among mothers in both districts. In Nairobi, a mother who had knowledge on postpartum care services was 13.6 times more likely to attend than one who did not have knowledge. Similarly, in Machakos a mother who had knowledge on postpartum care services was 6 times more likely to attend postpartum care than one who had no knowledge on the service. The major source of information was health care providers after delivery. The other sources included schools and colleges, churches and the media.

The health care providers formed the major source of information on postpartum care. It is a normal expectation that one who has knowledge is empowered and hence likely to attend. Therefore, it is the recommendation of this study that awareness campaigns on importance of postpartum care be intensified to increase postpartum care attendance. These campaigns should include sharing health messages in health care facilities, use of mass media, social organizations such as the churches and women groups and even through existing child-to-child programs in schools.

Although the results of this study show that majority of attendees consisted of those who received health education on the importance of postpartum care, other findings reveal that less than two percent made their first visit to a health care facility for mothers care while the rest visited for the purposes of baby's care. This finding shows that most mothers seek health care for their babies more than their own care and hence imbalance of care where most attention is focused on the baby and neglecting mother's care. This finding shows the lack of attaching importance to postpartum care yet no matter how well a mother may feel, there are always

when to start utilizing postpartum care. This could be explained by the nature of the health education given. From focus group discussions, mothers reported that on discharge from health care facilities, they were advised to take their babies for immunization after six weeks, while others were told to visit their nearest health care facilities in case if they needed or wished to begin family planning. This way, a mother may not be certain when to actually go for her care. Therefore, there is need to specify when, why and what. In addition, there is need to stress on mothers care too as it is only a healthy mother who can best take care of her baby. In order to capture the missed opportunities, every mother who brings her baby for immunization should be explained the importance of postpartum care attendance and be briefed about the appropriate postpartum care services in order to make informed choices.

#### **4.3.4: Family planning care services attendance**

Family planning is one of the components of postpartum care services. Results of this study showed that majority of women attended family planning in general. Further, a significant number of respondents attended family planning care services in Nairobi more than in Machakos. Family planning care attendance was shown to be a significant predictor of postpartum care attendance in both districts. In Nairobi, a woman who attended family planning was 3.4 times likely to attend postpartum care than her counter part who did not attend, while in Machakos, a woman who attended family planning care services was 4.4 times likely to show up for postpartum care than her counter part who did not attend.

Although family planning services were the most purchased of the postpartum care services, a certain proportion did not utilize these services. The reasons given for these included lack of awareness of the existence of some of the family planning services, religious convictions inhibiting use of services, preference for use of alternative sources of family planning methods other than health care facilities, state of being single, lack of empowerment to make decision on

family planning due to cultural barriers, uncooperative spouses and previous bad experiences due to family planning contraceptive's side effects.

Health education at health care facility was reported to emphasize the artificial methods of family planning at the expense of natural methods of family planning hence some mothers were not aware that they could purchase natural family planning services in health care facilities. Therefore some did not attend but instead used their local churches or even friends. It is no doubt that improving family planning attendance in turn will improve turn up for postpartum care service attendance and any effort to improve this would result in improvement in postpartum care attendance. Therefore, the factors inhibiting use of family planning should be looked into. Awareness creation should therefore involve the spouses and churches in order to eradicate ignorance and reduce resistance from the two parties. Health education needs to stress that natural family planning is one among many of the family planning services methods offered in the health care facilities. In addition, there is need to create awareness that family planning is just one of the postpartum care services among others and hence even the singles, divorced and the widowed should visit for other postpartum care services such as check-up examination and health education among others.

Although the use of alternative sources of family planning such as chemists, shops or even community health workers may seem convenient and cheap, in the long run this may prove to be expensive health wise since some of the conditions contraindicated to family planning hormonal contraceptives may go unnoticed. Therefore, mothers should be encouraged to obtain these services from recognized health care facilities that are well equipped with trained health care professionals. This can facilitate early detection and correction (through proper examination and investigations) of contraindications to contraceptives and some of the complications or side effects resulting from the use of the very contraceptives.

#### **4.3.4.1: Postpartum care services offered**

##### **4.3.4.1.1: Postpartum check-up**

Postpartum check-up is a major component of postpartum care services. It constitutes an important examination that ensures early detection and enables taking corrective or preventive measures of any puerperal conditions to prevent complication, disability or even death. The various aspects covered in postpartum check-up are head to toe examination, breast examination, pelvic examination and investigations. This study found that this service was the least utilized or attended in general. In Nairobi, results showed that slightly more than half attended while only close to a quarter attended in Machakos. Out of the many who did not attend, there was a group of respondents who showed up for the service but could not access it due to health care providers' connected reasons as discussed below.

Some Mothers showed up but were turned down and told to come back when they have decided on a family planning method while others were told to come back after resuming their monthly periods. Other clients attended but because they were using natural family planning methods were not examined.

Among the group that did not attend consisted of those that were not aware that the service existed. Others said that they were not given feedback during previous appointments hence no need to attend, some clients said that postnatal check-up services were expensive, others said that they were unwell during puerperium while others were too busy to attend. This shows gray areas in the practice and calls for staff update on importance of this examination in order to improve the practice. Health education should also be promoted to create awareness on importance of postnatal check-up that in turn would improve postpartum care.

#### **4.3.4.1.2: Health education services**

A good number had discussion with the health care providers on family planning while others did not and others had a mention only. The observation that some respondents had family planning only mentioned could be explained by the finding that some facilities do not offer artificial family planning methods hence they refer their clients to other facilities. This situation could lead to a missed opportunity since some of these clients may not show up to the facilities they have been referred to hence the need to give comprehensive health education to any client who shows up in a health care facility before referral.

#### **4.3.4.1.3: Breast Examination.**

Breast examination is key to diagnosing breast tumours early in order to take corrective measures to arrest cancer before it progresses. This should be done by inspection and palpation and every mother should be taught self-breast examination to equip her with the skill of detecting tumours on herself to enable her to seek professional health care in time. The results of this study show that the practice of breast care and examination is very low in both Nairobi and Machakos. Worse still, only a small proportion had a thorough breast examination involving inspection and palpation, while others had inspection only. Carrying out breast inspection without palpation beats the purpose for breast examination since it cannot diagnose breast tumours. Further, only very few got a return demonstration on self-breast examination in Nairobi and Machakos respectively. This shows that in general the practice of breast care and examination is low and that the practice is poor in Machakos than in Nairobi. From focus group discussion, it was reported that some respondents did not attend postpartum care services because nothing much was done on a previous appointment. Therefore there is need to give refresher courses to health care providers on postpartum care in order to improve the practice of breast examination.

#### **4.3.4.1.4: Abdominal examination**

The practice of abdominal examination was low. Of those who had abdominal examination, some had inspection, while others had inspection and palpation. Of those who had thorough abdominal examination involving inspection and palpation, Nairobi women were more than those of Machakos. Since improving on the practice leads to improvement in attendance, there is need to improve on the practice.

#### **4.3.4.1.5: Vaginal examination**

Vaginal examination is key to diagnosing vaginal tumours, cancer of cervix, sexually transmitted infections, other infections and prolapse of uterus among other disorders. This should be done by inspection, palpation (digital examination) and speculum examination. Results of this study show that only a third had vaginal examination done. Of these, less than 4% had thorough vaginal examination involving inspection, digital and speculum examinations. In Machakos, some of the constraints reported to influence service provision negatively were shortages of supplies and equipment, and water shortage that affected the ability to perform this examination. In Masii and Mitaboni Health centers, although there were speculums, there were no autoclaving machines and the steam sterilizers were broken down. In Nairobi all the health facilities were capable of offering this examination although the practice was low and poor. There is need to improve on the services. In Machakos, there is need to equip the facilities with necessary equipment and other supplies and repair of the broken ones to facilitate vaginal examination. In Nairobi, there is need to improve the practice of vaginal examination.

#### **4.3.4.1.6: General Investigations**

Investigation of blood pressure is necessary to facilitate detection of changes in blood pressure hence key in diagnosing hypertension. Although it was fairly done, it is one of the easiest examinations that only require a sphygmomanometer machine and a stethoscope, hence should

improve to cover 100% of attendees. The body weight measurements were also fairly done in Nairobi than in Machakos.

Data from health care providers showed that all the health care facilities were equipped with blood pressure machines and weighing machines except in Mitaboni health center of Machakos District where the adult weighing machine had broken down. This study recommends that there is need to repair broken down equipment and improve on the practice to enable early detection and correction of puerperal conditions.

#### **4.3.4.1.7. Laboratory investigations**

The investigations considered here involved blood, Urine and cervical smears. These investigations were the least done.

#### **4.3.4.1.8. Cytological (Papanicolou) smear test**

While postnatal check-up presents an opportunity to do early diagnosis and treatment to prevent cervical cancer since it is preventable, in this study, less than 10% had cytological (Pap) smear investigations done, Nairobi having slightly more than Machakos. Report from the health care providers in the health facilities utilized in this study indicated that none of the health care facilities in Machakos was equipped enough to offer cytological smear test. In Nairobi, only the Mater Hospital was equipped to offer cytological smear tests but this was not done routinely to every postpartum care client. Results of not doing Pap smear indicate poor reproductive health. There is need to strengthen service by training health care providers especially nurses and clinical officers on cervical smear tests and to equip at least a few Health care facilities with equipment for carrying out cytological pap smears. There exists a need to make it a policy that all mothers should undergo Pap smear investigations after puerperium.

#### **4.3.4.1.9. Urine testing**

In Nairobi, only a very small proportion of respondents had their urine tested while none was done among Machakos respondents. Although some facilities did not have laboratory, urine testing does not necessarily require a laboratory facility but it can be done even at home by use of home kits. Therefore urine testing should be made routine for postpartum clients in Kenya.

#### **4.3.4.20. Blood investigations**

Results of this study show that very few had blood investigations done among mothers both in Nairobi and Machakos. From health care providers report, Mitaboni Health centre did not have both a laboratory and the personnel hence no laboratory investigations were done and so was Dandora II health centre that did not have laboratory. The need to carry out blood investigations cannot be ignored and hence the need for reviving this practice in health care facilities and to strengthen laboratory services.

#### **4.3.5: Puerperal complications as a factor influencing postpartum care attendance**

The presence of a puerperal disorder was found to be a significant predictor of postpartum care attendance. More than four fifths of the attendees had puerperal disorders in both Nairobi and Machakos; Machakos having more than Nairobi. In Nairobi, a mother who had puerperal disorder was 2.4 times more likely to attend postpartum care than a mother who had no puerperal disorder. In Machakos, a mother who had puerperal disorder was 4 times more likely to attend postpartum care than a mother who had no puerperal disorder. Although a good number of mothers who experienced puerperal complications sought care a few did not seek care. Further although women who experienced puerperal complications sought medical attention, a great number of women had other complaints but did not seek medical opinion. Some attempted some actions such as consulting traditional herbalists, purchasing drugs over counter, while others thought that it was normal to go through pains after delivery hence they persevered. These findings indicate that there is need for mass education on signs and

symptoms of puerperal disorders and where to seek help in order to empower women to make appropriate and timely informed decisions during puerperium and to facilitate prompt and timely referral for the victims to facilitate early diagnosis and intervention. This will help reduce puerperal morbidity and in turn improve postpartum care attendance. These traditional herbalists should also refer clients to professionals.

#### **4.4: Puerperal health problems experienced by the respondents.**

More than half of the respondents had experienced a puerperal disorder, Machakos leading in this followed by Nairobi respondents. Results show that a total of 11 puerperal disorders were experienced that included breast disorders, puerperal pyrexia, infected caesarian scar, Genito-Urinary tract disorders, postpartum haemorrhage, infected episiotomy or tears, high blood pressure, Anaemia, retained placenta, Uterine prolapse and Eclampsia.

##### **4.4.1: Breast disorders**

Breast disorders experienced included breast engorgement, Sore nipples, cracked nipples, breast-abscess, bleeding nipples, Mastitis and inverted nipples. Results indicated that Nairobi had almost twice as many mothers who suffered from these disorders compared to those from Machakos. Most of the breast conditions are preventable through proper professional care and proper utilization of health care facilities. This care should start during antenatal and continue through puerperium. Therefore to curb this, intervention strategies should aim at specific health education on breast care during antenatal period and proceed through puerperium. Mothers should be encouraged to seek professional care for early diagnosis and treatment to prevent further complications.

##### **4.4.2: Puerperal pyrexia**

Results of this study established that More Machakos women suffered from puerperal pyrexia than Nairobi women and that age group 20-25 years was most affected group in both districts.

The cases of puerperal pyrexia among those who had normal delivery in Machakos were twice as many in Nairobi. The finding that Machakos had more mothers with puerperal pyrexia could be due to the high rate of home deliveries that are mostly conducted by traditional birth attendants. Further this may be due to unhygienic nature of conducting these home deliveries resulting to infection leading to puerperal pyrexia. The importance of Health facility delivery to ensure safe and hygienic delivery cannot be over emphasized and there is therefore need to stress the importance of health facility delivery. The intervention strategies on prevention should target age 20-25 years and the unsuspecting mothers who had normal delivery.

Further results showed that cases of puerperal pyrexia among those who had caesarian section in Nairobi were four times those from Machakos. This could be due to the high numbers of caesarian sections done in the busy Nairobi hospitals unlike in Machakos health facilities may not be as busy. However there is need to carry out a study to find out why puerperal pyrexia is four times higher in Nairobi than in Machakos and the factors influencing it.

#### **4.4.3: Infected caesarian section scar.**

This study established that incidences of infected cesarean section scars were few, Nairobi having 5.5 times those of Machakos. Nairobi mothers were more affected with infected scars compared to Mothers from Machakos. This shows that a higher percentage of mothers from Nairobi suffered from infected cesarean scars than those from Machakos. Because of advancing medical technology in this country, this is unjustifiable and hence the need to carry out a research on factors contributing to higher incidences of caesarian section scar infections in Nairobi.

#### **4.4.4: Genito-urinary tract disorders**

Genito-urinary tract disorders accounted included painful micturition, painful sexual intercourse and foul smelling vaginal discharge. Results shows that a few mothers were

affected and that, among those affected Nairobi women were more than Machakos ones. Health education should stress on signs and symptoms of genito-urinary tract infection to empower mothers with knowledge in order to seek care in time. Further, there is need to stress on the importance of both health facility delivery and importance of good hygiene, proper nutrition and postpartum care services in order to enable early diagnosis and treatment of genito-urinary tract infections to prevent further complications.

#### **4.4.5: Postpartum Haemorrhage**

Postpartum haemorrhage refers to the loss of 500mls or more of blood from the genital tract after delivery of a baby. This has been identified as a risk factor for puerperal sepsis (WHO, 1995). Results of this study showed that close to 10% of respondents suffered from postpartum haemorrhage and that more women suffered from this condition in Machakos than those from Nairobi. The Age group affected most was 20-25 years. Further results indicated that the biggest number affected were those who delivered at home. The finding that the group affected most are those who delivered at home may be explained by other findings that mothers who sustain tears under the care of TBA's are neither repaired nor referred for repair in health facility. This is one of the known causes of postpartum haemorrhage. Further, the highest proportion of those who had this condition consisted of those who had their latest baby as the seventh born and, the proportion of mothers who suffered from this condition increased with increase in parity. This finding is in agreement with documented literature, as it is known that high parity is one of the risk factors to postpartum haemorrhage (Myles, 1999). Out of the respondents who had postpartum haemorrhage very few sought medical attention. Here the importance of health care facility delivery especially for multiparous women cannot be overemphasized and traditional birth attendants should refer all women immediately to health care facilities for delivery and management of postpartum haemorrhage. There is need for health education on the risks associated with high parity and the importance of seeking care

from professional health care providers in order to reduce morbidity and mortality associated with postpartum haemorrhage.

#### **4.4.6: Infected episiotomies and perineal tears**

The study established that more women suffered from Infected episiotomies or perineal tears during puerperium in Machakos than in Nairobi. This can be explained by the finding that some traditional birth attendants especially in Machakos were giving “traditional cuts” using nails and the unsterile environment under which the deliveries were conducted leading to infection. There is need for traditional birth attendants to refer their patients to health care facilities for repair of tears in order to reduce the risk of postpartum haemorrhage and infections. Further there is need to discourage the practice of performing traditional cuts using nails in order to prevent infections. The use of surgical gloves during delivery should be a rule rather than an option. For those infected, health education on importance of seeking proper medical attention early to prevent infection need to be stressed.

#### **4.4.7: Hypertension**

This disorder was not very common, very few suffered from this condition and Nairobi had three times (7) the number of cases that of Machakos District. Although this disorder was not very common, this could have been missed opportunity since the researcher took into consideration those cases that had been diagnosed to have the condition.

#### **4.4.8: Anaemia**

This disorder was rare; very few women were diagnosed to have this disorder. Although the results give an impression that anaemia was uncommon in both districts, this may not be a true picture as these cases consisted of only those who sought medical attention and a diagnosis of anaemia was made. Otherwise it was not easy for the researcher to classify some of the complaints reported by the respondents under anaemia.

#### **4.4.9: Other puerperal disorders**

The other puerperal disorders included retained placenta, uterine prolapse and eclampsia and only very few respondents suffered from these conditions.

#### **4.4.10: Complaints Experienced by respondents During Puerperium**

In addition to the puerperal disorders, a certain proportion experienced various health complaints. These were: severe lower abdominal pains, severe anxiety, severe backache, constipation, severe frequent headaches, swelling of legs, severe loss of appetite, perineal pains, urinary incontinence, urine retention and severe pelvic pains with difficulties in walking. Machakos was leading with these complaints followed by Nairobi.

Severe lower abdominal pains were the leading complaint and more than half of Machakos mothers suffered from this complaint compared to two fifths of Nairobi respondents. Regarding severe anxiety, more than a tenth of Nairobi respondents suffered from this complaint while less than a tenth of respondents from Machakos had this complaint. Severe anxiety could signify puerperal depression but it was difficult to classify this as a puerperal psychosis or depression. Adjusting to motherhood and coping with a new baby puts strain on most women, hence some degree of anxiety about the total care of a small, helpless vulnerable, dependent human being is inevitable. The fact that Nairobi had higher incidences of severe anxiety than Machakos could be explained by the fact that after delivery (especially once a mother comes home from hospital) the visitors trail off, granny goes home and the husband goes back to work, the magnitude of child rearing becomes apparent in addition to other responsibilities unlike in rural set up where there is constant support from extended family. The first reality for most mothers is that the responsibility for the baby's care is for 24 hours a day, 7 days a week. This 24-hour-a-day responsibility has physical consequences such as disrupted routines, sleepless nights, exhaustion; and psychological ones- a sense of being unequal to the task, a degree of inadequacy and worries about the baby's well being. So the new mother is

likely to feel rather tired, irritable, unsure of herself, and somewhat anxious. Therefore health care providers should be sensitive to such mothers and prepare mothers for this added responsibility during antenatal period to ensure good mental health.

A few mothers suffered from urinary incontinence, Nairobi having the lion's share as compared to Machakos. Urinary incontinence could indicate presence of vaginal fistulae as a result of trauma from prolonged labour. This can be corrected through surgery and although there were few cases, the social impact of such a condition cannot be underestimated hence there is need for creating awareness on availability of such services in the health care facilities to such like mothers as some of them do not disclose their status due to fear of being ridiculed.

## CHAPTER FIVE

### 5.0: CONCLUSIONS AND RECOMMENDATIONS

#### 5.1: Conclusions

1. The results of this study showed that Postpartum care services attendance was significantly different in both study areas with Machakos showing about 40.3% attendance compared to approximately 65.9% attendance in Nairobi ( $\chi^2_1 = 38.54$ ,  $p < 0.01$ ).
2. Similar factors were found to affect postpartum care services attendance in both Nairobi and Machakos. These factors were rural - urban residence, knowledge of postpartum care services, lack of family planning attendance and puerperal disorders experienced by the mothers. Region wise, more mothers attended family planning in Nairobi than in Machakos and the difference was significant ( $\chi^2_1 = 18.55808$ ,  $p < 0.01$ ), and more mothers from Nairobi attended postpartum care more than those from Machakos and the difference was significant ( $\chi^2_1 = 38.54$ ,  $p < 0.01$ ). In addition to these, in Nairobi, home deliveries and normal deliveries were found to influence postpartum care attendance.
3. Regarding postpartum care disorders the results showed that eleven conditions were experienced and puerperal morbidity was higher in Machakos than in Nairobi. Breast disorders, genito-urinary tract disorders (gut), anaemia, eclampsia, puerperal pyrexia, postpartum haemorrhage and high blood pressure were found among women attending maternal and child health and family planning (MCH/FP) services in the two districts studied. Overall, breast disorders (21%) were the commonest ailments found followed by puerperal pyrexia (19%) while high blood pressure problems (10%) were the least common. Regionwise, there were more mothers with breast disorders in Nairobi than

in Machakos while in terms of puerperal pyrexia, the converse was true. Similarly, high blood pressure and genito-urinary tract disorders were approximately 3 times higher in Nairobi mothers than they were in Machakos. But postpartum haemorrhage was approximately two times higher in Machakos than it was in Nairobi although eclampsia was low (0.3%) in Nairobi and absent in Machakos women.

4. In addition to these disorders, there were other health complaints experienced. These complaints included severe lower abdominal pains, severe anxiety, severe headaches, constipation, severe frequent headaches, severe loss of appetite, urinary incontinence, urine retention, perineal pains, swelling of legs or feet and pelvic pains with difficulties in walking.
5. The study concludes that there is need for intervention measures to be designed that will help to popularize postpartum care in order to reduce puerperal morbidity. Therefore, it is worthwhile to make the following recommendations.

## **5.2: Recommendations**

1. There is need to design a health education programme to popularize postpartum care attendance in order to reduce the puerperal disorders experienced by the mothers in puerperium. This should raise awareness on signs and symptoms of puerperal complications and the importance of seeking prompt, appropriate and timely professional care in time to enable early detection of complications and referral to appropriate care for correction in order to prevent further complications and disability.
2. The approach to health education should change from giving health education to sharing health messages in order to promote clients' active participation and involvement.
3. The health care facilities should be equipped in order to cut down extra expenses in order to promote accessibility to postpartum care. Similarly, the broken equipment in the health

facilities should be repaired to enable detection and correction of any puerperal complications.

4. The Traditional Birth Attendants' curriculum should be reviewed to strengthen the postpartum care component, and the traditional birth attendants' trainers should give updates to traditional birth attendants on postpartum care and train the untrained TBAs.
5. There should be a policy to ensure constant supply of sterile disposable home delivery kits to the Traditional Birth Attendants to help curb infection.
6. The health care providers should be updated on postpartum care in order to improve the practice.
7. There should be a program in place within the community such as outreach services run by the nearest MCH/FP service delivery points at specific points in the community specifically targeting postpartum clients' to take care of mothers especially those who deliver at home.

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8. What is your current employment status?

1. Formal employment. 2. Unemployed. 3. Self employed. 5. Housewife.

6. Other (specify) \_\_\_\_\_.

9. What is your current marital status?

1. Never married (Single). 2. Married. 3. Divorced.

4. Widowed. 5. Separated. 6. Other (Specify)\_\_\_\_\_.

10. If married what is your husband's occupation/Profession? \_\_\_\_\_

11. If not married and not employed what is your major source of income? \_\_\_\_\_

12. How many times have you been pregnant before \_\_\_\_\_

13. How many children do you have? \_\_\_\_\_

14. Have you ever had any miscarriage?

1. Yes.

2. No.

15. If your answer to question 14 was yes, how many miscarriages have you had?

\_\_\_\_\_

### PART 3: HEALTH SYSTEMS CHARACTERISTICS

16. Have you ever attended antenatal clinic?

1. YES.

2. NO.

17. If your answer to question 1 was yes, did you attend antenatal clinic during your last pregnancy? 1. YES. 2. NO.

18. If your answer to question 16 was yes,

1. Indicate when you started antenatal clinic \_\_\_\_\_

2. Indicate the number of times you attended antenatal care during your last Pregnancy \_\_\_\_\_

19.a. If you did not attend antenatal clinic give reasons for not attending \_\_\_\_\_

19. b If you attended less than twice give reasons for attending fewer \_\_\_\_\_

19.c. If you did not attend antenatal clinic or attended less than twice or you started after

You were seven months pregnant give reasons for not attending/starting late/attending fewer \_\_\_\_\_

20. Indicate where you delivered your babies and the sex of baby.

| Pace of delivery      | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|-----------------------|---|---|---|---|---|---|---|
| Government Hospital   |   |   |   |   |   |   |   |
| Private Hospital      |   |   |   |   |   |   |   |
| Mission Hospital.     |   |   |   |   |   |   |   |
| Health Centre.        |   |   |   |   |   |   |   |
| In my home.           |   |   |   |   |   |   |   |
| Other (specify) _____ |   |   |   |   |   |   |   |
| Baby's sex            |   |   |   |   |   |   |   |

2121. What was the type of delivery for your latest baby?

1. Normal.                      2. Vacuum extraction.                      3. Forceps.  
4. Breech delivery              5. Abdominal delivery (Surgery).

22. If you delivered your latest baby through operation specify the reason(s) for the operation \_\_\_\_\_

23. What is the age of your latest baby today? \_\_\_\_\_

**Questions 24 to 26 to be answered by those who delivered at home.**

24. Where did you deliver your baby? \_\_\_\_\_

24 b. If you delivered at home, who assisted you during delivery?  
\_\_\_\_\_

25. If you delivered at home, did you take the baby to a health facility? 1. Yes 2. No
26. Who advised you to take the baby to a health facility? \_\_\_\_\_
27. If you brought your baby to a health facility did the health staff give you advice on postpartum care attendance? 1. Yes. 2. No.
28. If your answer to question 25 was yes, indicate after how long  
\_\_\_\_\_
29. If you delivered in a health facility, were you advised to go for postpartum clinic later before your discharge from maternity? 1. Yes. 2. NO.
30. How long did you stay at the health facility from the time you delivered to the time you were discharged home? \_\_\_\_\_
31. Did a health worker visit you at home after delivery to give advice on your care or the care of your baby? 1. Yes. 2. No.
32. If yes to question 3.12, how old was your baby when the health worker visited your home? \_\_\_\_\_

**For questions 33 and 34, If you were advised to go for postpartum clinic (clinic for the mother after delivery), please indicate;**

33. After how long. \_\_\_\_\_
34. Who advised you to go to the health facility then?
1. A Nurse. 3. Traditional birth attendant (TBA).  
2. A Doctor. 4. Other (specify) \_\_\_\_\_
35. Have you ever heard about postpartum clinic (Clinic for a Mother after delivery)?  
1. Yes. 2. No.
36. If you have heard about postpartum clinic indicate the source(s) of your information? \_\_\_\_\_

37. Have you ever attended postpartum care clinic (Clinic for the Mother's care) after delivery?                      1. Yes.                      2. No.

38. If yes to question 37, during which of the following children did you go to the health facility for your own care during the first six to eight weeks after delivery?

**Please indicate the sex of the baby.**

| Birth order     | Response |      | Sex of the baby |          |
|-----------------|----------|------|-----------------|----------|
|                 | Yes=1    | NO=2 | Male=1          | Female=2 |
| 1 <sup>st</sup> |          |      |                 |          |
| 2 <sup>nd</sup> |          |      |                 |          |
| 3 <sup>rd</sup> |          |      |                 |          |
| 4 <sup>th</sup> |          |      |                 |          |
| 5 <sup>th</sup> |          |      |                 |          |
| 6 <sup>th</sup> |          |      |                 |          |
| 7 <sup>th</sup> |          |      |                 |          |

39. If your answer for question 37 was yes, at which week Or weeks after the delivery of the baby did you attend? \_\_\_\_\_

40. If you attended mention briefly the benefits for attending postnatal/postpartum clinic. -----  
-----

41. If you have never attended postpartum care, what were your reasons for not attending? -----  
-----

On the day you came back to the health facility after delivery, did the health staff:

42. Take your body weight measurements? 1. Yes. 2. No
43. Measure your blood pressure? 1. Yes. 2. No.
44. Perform breast examination on you? 1. Yes. 2. No. 3. Only did inspection.
45. Teach you self-breast examination? 1. Yes. 2. No.
46. Perform an abdominal examination on you?
1. Yes. 2. No. 3. Only did inspection.
47. Perform a vaginal examination on you?
1. Yes.
- a. Only inspection was done
- b. Inspection and speculum Examinations done
- c. Inspection and digital examination done
- d. Inspection, speculum and digital examinations done
2. No.
48. Ask you if you have had any abnormal discharge or bleeding?
1. Yes. 2. No.
49. Discuss with you about family planning?
1. Yes. 2. Subject mentioned only. 3. No.
50. Take a Pap/cervical smear from you? 1. Yes. 2. No.
51. Discuss with you about breast care? 1. Yes. 2. No.
52. Did you pay charges in order to receive the services when you came to the clinic after delivery for your own care?
1. Yes (Specify for which services)\_\_\_\_\_. 2. No.

**Part 4: Access to Health Care.**

53. How much money do you use on transport to and from your home to this health facility? \_\_\_\_\_

54. How much time do you use travelling to and from this health facility? (Those who boarded a vehicle) \_\_\_\_\_

55. How much time do you use walking to and from this health facility?

(For those who came walking) \_\_\_\_\_

56. How much time did you spent at the health facility today? \_\_\_\_\_.

**Part 5: Complications or Disorders of Puerperium.**

During the first six to eight weeks after delivery did you experience any of the following health problems and did you seek any medical attention?

Please indicate by writing Yes or No in the table provided. Table for complications or health problems experienced.

| Problem experienced.                                | Response |    | Medical attention sought |    |
|---|----------|----|--------------------------|----|
|   | yes      | No | Yes                      | No |
| Severe lower abdominal pains (Severe after pains)   |          |    |                          |    |
| High fever  |          |    |                          |    |
| Foul smelling vaginal discharge                     |          |    |                          |    |
| Urinary incontinence (inability to control urine)   |          |    |                          |    |
| Severe backache                                     |          |    |                          |    |
| Frequent headaches                                  |          |    |                          |    |
| Severe pelvic pains with difficulties in walking    |          |    |                          |    |
| Constipation Difficulty in passing stool)           |          |    |                          |    |
| Anxiety with extreme tiredness                      |          |    |                          |    |
| Severe pains in the Perineum                        |          |    |                          |    |
| Haemorrhoids (Swollen veins around the anal region) |          |    |                          |    |
| Inverted nipples                                    |          |    |                          |    |
| Sore nipples  |          |    |                          |    |
| Cracked nipples                                     |          |    |                          |    |
| Bleeding nipples                                    |          |    |                          |    |
| Breast engorgement                                  |          |    |                          |    |
| Breast Abscess                                      |          |    |                          |    |
| Mastitis (Inflammation of Breast(s))                |          |    |                          |    |
| Heavy Bleeding (Bleeding > 500mls)                  |          |    |                          |    |
| Loss of interest in the baby                        |          |    |                          |    |
| Swollen painful leg (s)                             |          |    |                          |    |
| Broken Episiotomy or tear                           |          |    |                          |    |
| Others (Specify) _____                              |          |    |                          |    |

## Appendix 2: Questionnaire for health care providers

Questionnaire Number \_\_\_\_\_

### Part 1 (Official use)

Name of health facility \_\_\_\_\_

Type of health facility

1. Hospital.                      2. Health Centre.

The Health staff filling the questionnaire

1. Doctor.      2. Nurse.                      3. Clinical officer.  
4. Laboratory Technician/Technologist.      5. Other (Specify) \_\_\_\_\_

### Instructions.

Please answer the questions provided by circling your response or by filling in the spaces provided. For the purpose of this Interview the word postpartum care means the care, skilled attention and supervision given to a Mother after the birth of a baby and up to eight weeks.

1. Is this facility capable of offering postpartum care services adequately?

1. Yes.                      2. No.

2. If yes to question 1, List the services that you offer specifically to a postpartum

Mother. -----

-----

3. If No to question 1; what are some of your limitations/constraints? \_\_\_\_\_

-----

4. How many days in a week do you offer postpartum care services? -----

5. How many hours per day do you offer postpartum care services? -----.

6. On average how many clients do you handle in your family planning clinic per week?

.....

7. How many mothers for postnatal check-ups do you handle per day? -----

8. Is your facility equipped to offer the following laboratory investigations?

| Laboratory investigation |   | If no, do you refer clients |       |       |       |
|--------------------------|---|-----------------------------|-------|-------|-------|
|                          |   | Yes                         | No    | Yes   | No    |
| 1.                       | Pap smear or Cytological test               |                             |       |       |       |
| 2.                       | Urinalysis                                  |                             |       |       |       |
| 3.                       | VDRL investigation                          |                             |       |       |       |
| 4.                       | Blood for Haemoglobin level?                |                             |       |       |       |
| 5.                       | HIV testing                                 |                             |       |       |       |
| 6.                       | Other STI investigations.<br>(Specify)----- | -----                       | ----- | ----- | ----- |

9. If you do refer your clients to other health facilities how do you get feedback on

whether the clients attended or not? -----

-----

10. Does your facility have a room set aside for examination of postpartum

clients? \_\_\_\_\_

11. Is your facility equipped with means of sterilizing equipment?

1. Yes.

2. No

12. If yes list the means you use to sterilize your equipment-----

-----

13. Indicate the number of functional and broken down equipment/instruments in the following list.

| Equipment/Instrument              | Functional | Broken down. | Non existence |
|-----------------------------------|------------|--------------|---------------|
| Autoclaves.                       |            |              |               |
| Steam sterilizers.                |            |              |               |
| Sphygmomanometers. (BP Machines)  |            |              |               |
| Speculums.                        |            |              |               |
| Adult weighing Machines/scales    |            |              |               |
| Stethoscopes.                     |            |              |               |
| Tape measure                      |            |              |               |
| Thermometer(s).                   |            |              |               |
| Lights.                           |            |              |               |
| Instrument measuring haemoglobin. |            |              |               |
| Examination couch                 |            |              |               |
| Lotion bowls                      |            |              |               |
| Microscope(s)                     |            |              |               |
| Urine glasses                     |            |              |               |
| Uristix                           |            |              |               |
| Suturing tray(s)                  |            |              |               |
| Glass slides.                     |            |              |               |
| Instrument Trays                  |            |              |               |

14. Does your health facility offer home visiting services for postpartum clients?

1. Yes.                      2. No.

15. If your answer was no to question 14 what are the constraints? -----

-----  
-----

16. If your answer to question 14 was yes what are some of the problems/constraints that you face in providing this service? -----

-----  
-----

17. If your response to question 14 was yes how many times do you offer home visiting services per month? -----

18. What services do you offer mothers who delivered at home when they come to your MCH/FP clinic for the first visit? -----

-----

19. What are the ten commonest Puerperal disorders/conditions in your facility? (Please list them in order of their prevalence)-----

-----  
-----  
-----

20. In your opinion do you think that most mothers come for postnatal check-up after delivery?    1. Yes.                      2. No.

19. If your answer to question 20 was yes, what are the factors that promote the attendance?-----

-----  
-----

22. If your answer to question 20 was no what are the factors inhibiting attendance? \_\_\_\_\_

### Appendix 3: Focus Group Discussion guidelines

Hallo every one!

My name is Alice Mwangangi. I am undertaking a Masters degree in Public Health and Epidemiology at the Kenyatta University, Department of Zoology. Thank you for coming and welcome to this discussion. The topic for discussion is Factors affecting postpartum care attendance and the associated disorders among mothers.

You are free to give your views freely and all the information will be valuable and may help in improving our understanding of care needs as well as contributing towards designing the most appropriate source of care.

With me is:

\_\_\_\_\_

Who will help me to record the proceedings. We also have a radio cassette recorder to record the discussion so that we do not miss any of your views during the analysis and writing of the report. All the information you provide will be held in strict confidence.

Date of FGD \_\_\_\_\_ Time FGD started \_\_\_\_\_

Venue \_\_\_\_\_ Time FGD ended \_\_\_\_\_

Number of participants \_\_\_\_\_

**For the purpose of this focus group discussion the word postpartum care means the care, skilled attention and supervision given to a mother after the birth of a baby and up to two months.**

1. What are the preferred places for delivery by mothers and why do mothers prefer these places?
2. Are there community health workers in this area and what is their role towards mothers' care in your opinion?
3. What postpartum care services are known in this area and which ones are utilized?
4. Where and when do mothers obtain postpartum care services?
5. How and where do mothers obtain information on postpartum care services?
6. What are the postpartum care services offered in this facility?
7. What would you say about the postpartum care services offered in this health care facility or other health care facilities within your area?
8. In your opinion, what are the conditions that affect mothers from the time of delivery up to two months after delivery?
9. What happens to the mothers who suffer from conditions during and after delivery?
10. In your opinion what other issues in our topic have we left out in our discussion today

## Appendix 4: Informed Consent Form

In Kenya factors affecting postpartum care attendance and the associated puerperal disorders are largely unknown. This questionnaire is aimed at determining the factors that affect postpartum care attendance and the associated disorders among women. The information given by respondents will be treated confidentially and will be used for study purposes only. The study has no ill motives and there are no health risks involved. No name will be indicated on the questionnaire. Participation is voluntary and you have a right to refuse to answer questions or terminate the interview.

**Please fill the following consent form as a written record of your consent to participate.**

This is to certify that, I \_\_\_\_\_ of:  
 \_\_\_\_\_ Health facility/estate/village Division:  
 \_\_\_\_\_ of Nairobi/Machakos District, having been  
 fully explained and understood the purpose of this interview do hereby voluntarily give consent  
 to participate in the study.

Signature of the respondent \_\_\_\_\_

Date of interview \_\_\_\_\_

Name of interviewer \_\_\_\_\_

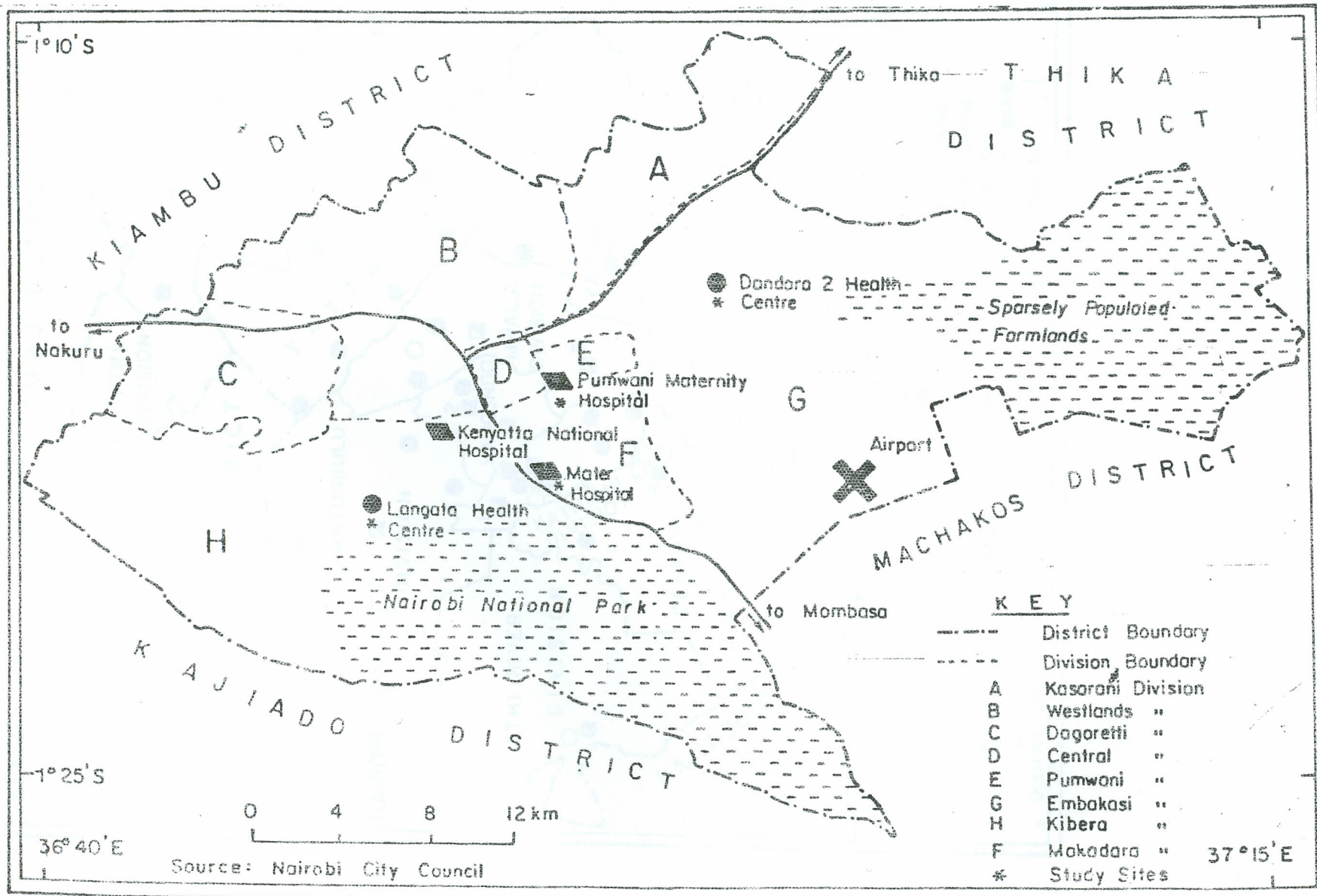
Signature of the interviewer \_\_\_\_\_

Date of the interview \_\_\_\_\_

**THANK YOU!**



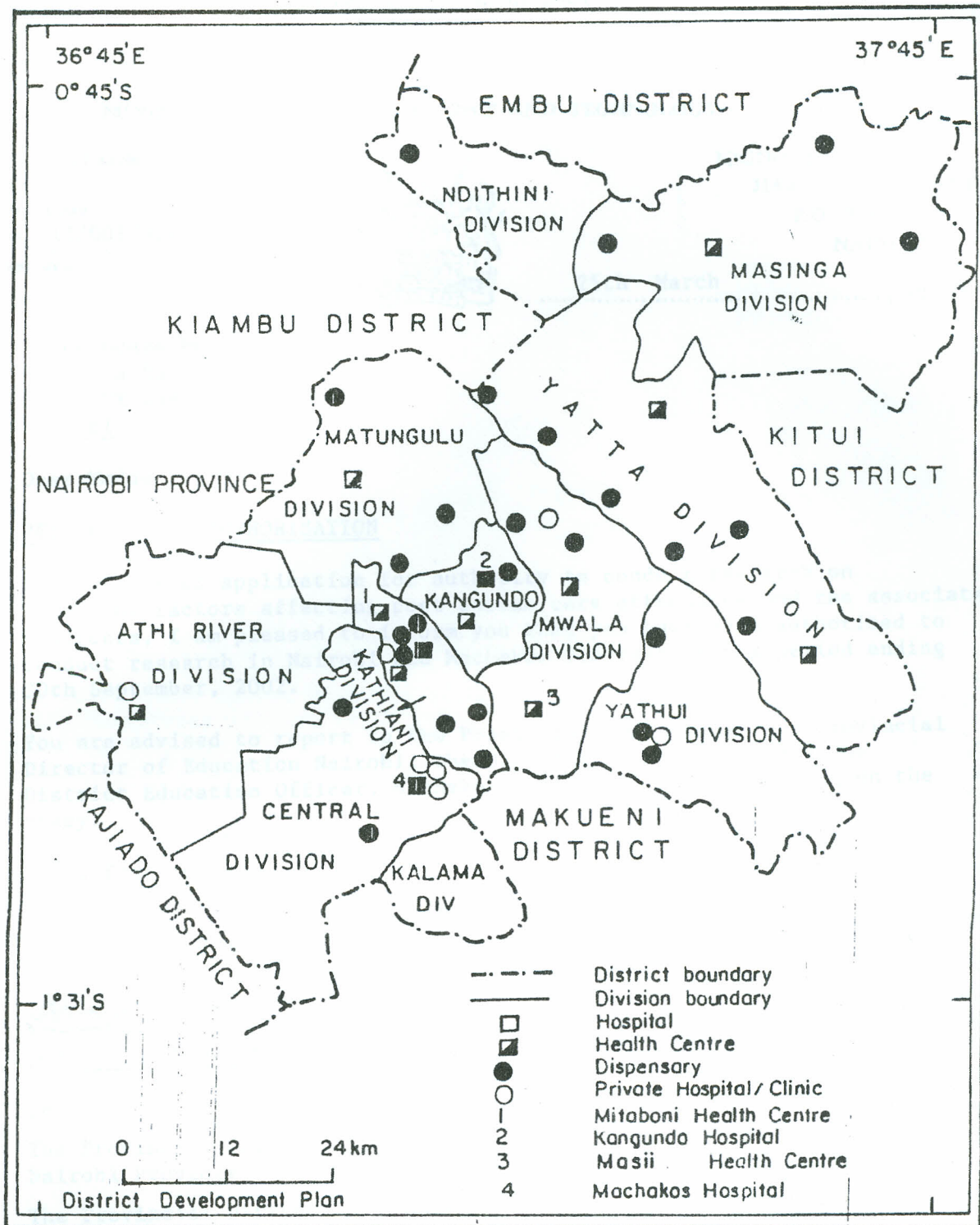
APPENDIX 6: HEALTH FACILITIES UTILIZED IN NAIROBI DISTRICT



Source: Nairobi City Council

37°15'E

APPENDIX 7: HEALTH CARE FACILITIES UTILIZED IN MACHAKOS DISTRICT



APPENDIX 8: LETTER OF RESEARCH APPROVAL BY MINISTRY OF EDUCATION,  
SCIENCE AND TECHNOLOGY

MINISTRY OF EDUCATION, SCIENCE AND TECHNOLOGY

Telegrams: "EDUCATION", Nairobi

Telephone: Nairobi 334411

When replying please quote

Ref. No. HOEST 13/001/32C 48/2

and date



JOGOO HOUSE "B"  
HARAMBEE AVENUE  
P.O. Box 30040  
NAIROBI

25th March

2002

Alice Ndave Mwangangi  
Kenyatta University  
P.O. BOX 43844  
NAIROBI

Dear Madam

RE: RESEARCH AUTHORISATION

Following your application for authority to conduct research on 'study of factors affecting post partum care attendance and the associated Disorders, I am pleased to inform you that you have been authorised to conduct research in Nairobi and Machakos Districts for a period ending 30th September, 2002.

You are advised to report to the Provincial Commissioner the Provincial Director of Education Nairobi, the District Commissioner and the District Education Officer, Machakos District before embarking on the study.

Yours faithfully

  
A. G. KAARIA

FOR: PERMANENT SECRETARY/EDUCATION

cc

The Provincial Commissioner  
Nairobi Province

The Provincial Director of Education  
Nairobi Province

The District Commissioner  
Machakos District

The District Education Officer  
Machakos District

APPENDIX 9: LETTER OF RESEARCH APPROVAL BY MINISTRY OF HEALTH

MINISTRY OF HEALTH

Telegrams: "MINHEALTH, Nairobi  
Telephone: Nairobi 717077



AFYA HOUSE  
Cathedral Road  
P.O. Box 30016  
NAIROBI

When replying please quote

ST/5/3/3

11th September, 2000

The Provincial Medical Officer,  
NAIROBI

*noted* Provincial Medical Officer  
NAIROBI

15.9.2000

RE: AUTHORITY TO CARRY OUT RESEARCH - ALICE N. MWANGANGI

The above named nurse in the Division of Nursing while on further studies at Kenyatta University intends to carry out a REsearch on "Safe motherhood: factors influencing post natal care attendance among mothers in Nairobi and Machakos Districts", from September 2000 to December 2000.

Please accord her the necessary assistance.

DR. I.B. AMIRA  
for: DIRECTOR OF MEDICAL SERVICES

C.C

MOHs concerned

Medical Superintendent concerned.

APPENDIX 10: LETTER OF RESEARCH APPROVAL BY PMO NAIROBI PROVINCE

MINISTRY OF HEALTH

Telegrams: "MINHEALTH, Nairobi  
Telephone: Nairobi 717077



AFYA HOUSE  
Cathedral Road  
P.O. Box 30016  
NAIROBI

When replying please quote

ST/5/3/3

11th September, 2000

The Provincial Medical Officer,  
Eastern Province  
EMBU

*Recommended*  
*W. Amira*  
*13/9/2000*

FOR PROVINCIAL MEDICAL OFFICER  
EASTERN PROVINCE

RE: AUTHORITY TO CARRY OUT RESEARCH - ALICE N. MWANGANGI

The above named nurse in the Division of Nursing while on further studies at Kenyatta University intends to carry out a REsearch on "Safe motherhood: factors influencing post natal care attendance among mothers in Nairobi and Machakos Districts", from September 2000 to December 2000.

Please accord her the necessary assistance.

DR. I.B. AMIRA  
for: DIRECTOR OF MEDICAL SERVICES

*15/9/00*  
Medical Superintendent  
Machakos G. Hospital

C.C

*Born Am*  
*Med Sup.*

MOHs concerned

*Hosp. Matron to assist*

Medical Superintendent concerned.

# CITY COUNCIL OF NAIROBI



MEDICAL OFFICER OF HEALTH  
TELEGRAM "MUNICIPALITY" NAIROBI  
TELEPHONE 224281 EXT. ....

CITY HALL  
P.O. Box 30108  
NAIROBI

## PUBLIC HEALTH DEPARTMENT

PHD/MOH/R.2 VOL.V (103)

DATE 15th September, 2000

Alice N. Mwangangi  
P.O.Box 20056  
NAIROBI

*Forwarded*  
*MD AMOH*  
*9/10/00*  
LADY NORTHEY HOME  
NAIROBI CITY COUNCIL  
P. O. Box 30108,  
NAIROBI.

RE: AUTHORITY TO CARRY OUT RESEARCH

I refer to your letter dated 29th August, 2000 requesting for authority to conduct a research in some of our health facilities.

Authority is granted for you to carry out research on "Safe Motherhood: Factors Influencing Postnatal Care Attendance Among Women Health" at Pumwani M.Hospital, Langata Health Centre and Dandora II Health Centre from October, 2000 to December, 2000. However, you will be required to confine your research only to the mentioned health facilities and provide a final copy of your research to the Medical Officer of Health for perusal and retention. Your research should not disrupt the running of the facilities.

By a copy of this letter the Asst. Medical Officer of Health, Division I & II and the Deputy Medical Officer of Health, Pumwani M. Hospital are requested to accord you the necessary assistance.

DR. EDWIN NYAURA  
FOR: MEDICAL OFFICER OF HEALTH

ASSISTANT MEDICAL OFFICER OF HEALTH  
DIVISION I

*Forwarded*  
*Pse assist. SAO*  
*div. I*  
*[Signature]*

- c.c. Deputy Medical Officer of Health --- Pumwani M.Hospital
- Asst. Medical Officer of Health --- Division I & II

NAIROBI CITY COUNCIL  
PUBLIC HEALTH DEPARTMENT  
KARIOKOR OFFICE  
DIV I

APPENDIX 12: LETTER OF RESEARCH APPROVAL BY MOH MACHAKOS DISTRICT

ALICE N. MWANGANGI  
P.O. BOX 20056,  
NAIROBI  
29<sup>TH</sup> AUGUST 2000

Medical Officer of Health  
Machakos District  
P.O. Box 19  
Machakos

THE MEDICAL OFFICER OF HEALTH  
MACHAKOS DISTRICT  
P.O. BOX 19  
MACHAKOS

*noted  
14.9.00  
The T. Kamau  
M.O.H Machakos  
No objection*

Dear Sir/Madam,

RE: AUTHORITY TO CARRY OUT RESEARCH

I am a nurse employed by the ministry of health and currently undertaking a post-graduate course leading to a degree of master of public health and epidemiology (MPHE) at Kenyatta University.

In partial fulfillment of the requirement for this degree, I intend to undertake a study on Safe motherhood: Factors influencing postnatal care attendance among women in selected health facilities in Nairobi and Machakos districts in Kenya. This study will also utilize health records in the particular health facilities and will be done from October to December 2000. The following health institutions will be utilized. Mater Misericordiae hospital, Pumwani hospital, Langata health centre and Dandora 2 health centre in Nairobi. Machakos General hospital, Bishop Kioko hospital in Machakos. Mitaboni health centre of Kathiani division and Masii health centre of Mwala division of Machakos district will be utilized. I also intend to utilize Athi River health centre for pre-testing of research Questionnaire in September 2000.

The purpose of writing is to therefore seek your permission to carry out the above said study. Awaiting your response

Yours Faithfully,

*[Signature]*  
Alice N. Mwangangi  
Personal Number. 93039894  
Registration Number 156/8693/99

*Kapungu Hospital  
to be included in  
the study*

*[Signature]*  
8.12.00  
Medical Officer of Health  
Machakos District  
P. O. Box 19  
MACHAKOS

C.C.

*nurse  
kindly Assist the  
complete her*

*because of this note  
Research*

MEDICAL OFFICER OF HEALTH  
MACHAKOS DISTRICT  
KANGUMBI  
*[Signature]*  
DR Kibini

APPENDIX 13: RESEARCH APPROVAL LETTER BY DC MACHAKOS DISTRICT



KENYATTA UNIVERSITY  
DEPARTMENT OF ZOOLOGY

P.O. Box 43844  
Nairobi, Kenya  
Tel: 810901/811622/812722

Our Ref.

Your Ref.

August 30, 2000

The District Officer  
Machakos District  
P.O. Box 1  
Machakos

Dear Sir,

Re: Introductory letter for Alice N. Mwangangi (156/8693/99)

Above named is a student in our Masters in Public Health and Epidemiology programme. Alice wishes to pursue a study on "Safe motherhood: factors influencing post natal care attendance among mothers in Nairobi and Machakos Districts".

Ms Mwangangi will be commencing her pilot studies in September 2000.

Kindly accord her best possible assistance.

Sincerely,

Dr. Nicholas O. Oguge  
Chair

Do Kalama.  
Do Athi River  
Do Central  
Do Mualala.  
The District Officer  
No objection to  
the research.

} The research  
will be done  
in the 3 districts  
A  
Do

KENYATTA UNIVERSITY LIBRARY

DISTRICT OFFICER  
MACHAKOS  
8/9