

## INFLUENCE OF BACKGROUND FACTORS ON HEALTH OUTCOME AND MAIN SOURCES OF MATERNAL HEALTH INFORMATION AMONG RURAL WOMEN OF REPRODUCTIVE AGE: A CASE OF BAR B SUB-LOCATION IN KENYA

**Denis Ochieng Owino**

Lecturer, Great Lakes University of Kisumu, Kenya

**Prof. Richard Otieno Muga**

Senior Lecturer, Great Lakes University of Kisumu, Kenya

**Nzanzu Jeremie**

Lecturer, Great Lakes University of Kisumu, Kenya

**CITATION:** Owino, D. O., Muga, R. O. & Nzanzu, J. (2014). Influence of background factors on health outcome and main sources of maternal health information among rural women of reproductive age: A case of Bar B Sub-location in Kenya. *International Journal of Social Sciences and Entrepreneurship*, 1 (12), 757-780.

### ABSTRACT

Maternal Health information is fundamental to reduce maternal mortality of a given community. Accessing maternal health information by the women can easily make community members make their own informed decisions that can lead to improving their health. Women are usually disadvantaged as far as accessing health information is concerned. It is against this background that this study is therefore concerned with studying the sources of maternal health information amongst the rural women of reproductive age in. Descriptive study design using both quantitative and qualitative methods of data collection was used. Structured interview method was used to obtain quantitative data while unstructured interview method was used in the qualitative study through focus group discussions and key informant interviews. Cluster sampling method was used to identify study participants who were women with children under one year. A sample size of 210 women of reproductive age 15-49 years were taken. Simple random sampling was used to ensure that the sample taken was representative of the whole population. Analysis was done according to the study objectives and the defined variables. Cross tabulation and Chi-square tests were used to determine association between variables. The study found out that health professionals 46.2% and CHW 32.9% were the main sources of maternal health information among women reproductive age. In conclusion health professionals are the most used source of maternal health information but they are said to be not easily accessible compared to other sources. The researcher recommended the need to promote CHW through capacity building as one of the most used source of maternal health information locally available. The study has therefore provided useful information that will guide the efforts of policy makers and other stakeholders who provide maternal health services to women of reproductive age.

**Key Words:** Health Information, Maternal Health

## Introduction

Losce, (1990) describes information as the knowledge communicated or received concerning particular circumstances. Information plays a big role in lives of people. In the opinion of (Okwilagwe 2000) information is an input, which reduces the level of uncertainty in any decision process. Health information is published and unpublished knowledge on all aspects of health and healthcare. Individuals seek healthcare information for reasons ranging from curiosity to self-diagnosis and treatment (WHO, 2008). This is particularly true for rural women of reproductive age who are disadvantaged in accessing health information. Getting right health information is essential for antenatal care and safe delivery.

While information may help all patients feel empowered and more in control (Linder 1992; Department of Health, 1995; WHO 2004), information and support during pregnancy may also address the psychological needs of women at this time (Clement et al 1997). It has also been shown that access to health care information leads to real improvements in patients' understanding and compliance with treatment (Ley, 1988). Information is considered important in helping women make an informed choice (Churchill 1995; WHO, 2004), in influencing women's perception of childbirth (Hallgren et al 1995) and in increasing satisfaction with care (Brown & Lumley 1994, Churchill 1995).

Maternal health refers to the health of women during pregnancy, childbirth and the postpartum period. Maternal health information according to (WHO 2004) is therefore knowledge on women's health during pregnancy, childbirth and the postpartum period. Many deaths are experienced in this stage of women's life hence there is need to exploit the means of reducing maternal mortality rate in the world. This can be achieved by utilizing maternal health care services that are available to save unnecessary complications that come along with the pregnancies, delivery and after delivery. Various factors such as sources of maternal health information, level of accessing the sources of maternal health information by demographic and individual factors, characteristics of illness and cost contribute directly to the utilization of maternal health care services.

The tragedy of not preventing these avoidable or treatable deaths resulted in 536,000 maternal deaths worldwide in 2005 (WHO 2007). Developing regions accounted for 99 percent (533,000) of these deaths, with Sub-Saharan Africa and Southern Asia accounting for 86 percent of them (UN, 2008). In another way, every minute of each year a woman dies from complications of pregnancy, abortion attempts and childbirth (UNFPA, 2004). Many more women survive but suffer from illness and sometimes disability related to pregnancy.

It is important to recognize that while there is an abundance of sources of maternal health information used by women today especially in the rural areas that leads to utilization of maternal health services in most Kenyan rural settings, it is important to work towards

improving this by identifying the best sources. The rural woman is considered to be the most disadvantaged as far as accessing health information is concerned despite the fact that for improvement of any society socially and economically, a woman must be in the forefront. According to (Ealine Wolfson, 2006), investing in women's health will ultimately provide a win-win situation for development, empowerment, human rights equity and equality.

Wolfson stresses that when a woman's health is advanced and promoted it will definitely benefit families, children, husbands, elders and in-laws because women are the primary care givers in the home and indeed the primary caregivers in most societies. It is imperative therefore that they be adequately empowered with information to make the right decisions pertaining to their health. According to Warner and Procaccino, 1993, in rural settings in addition to taking care of nutrition for the family, a house wife is also expected to know basic health care to ensure that first aid to all family members is done, so if a family member gets sick she needs to act as a nurse if not as a doctor. This explains why world has much to gain by investing in women's health. Women are the primary seekers of health information for their children and other family members as well as themselves. Illiteracy and access to knowledge are two of the key problems that inhibit socio-economic development in developing countries. Rural women of reproductive age lack the vital or basic maternal health information they need to improve their health, and because most are illiterate, they cannot benefit from many educational methods. Furthermore, lack of electricity and poor roads isolate them in accessing various sources of maternal health information.

In Ghana according to a Non Governmental Organization which did pilot test on the use of talk book in accessing health information in rural area in northern Ghana' observed that most of these Organizations travel to villages where they share knowledge about health but fail to consider the population reached (Literacy Bridge 2008). This method of delivering information is expensive costing US\$20-\$40 per trip. It is also inefficient because each visit occurs infrequently and covers various topics causing many community members to forget information that is not immediately applicable to them. This scenario calls for improvement to access to health knowledge to the rural woman, due to the fact that the rural woman of reproductive age has low or no education hence higher percentage in poor health status compared to urban women. In Nigeria one in 10 women read newspaper weekly compared with three in ten men (Nigeria demographic and health survey, 2009). This implies that most women of reproductive age have limited sources of maternal health information.

In Kenya Data reveals that proportion of illiterate women is double that of men (KDHS, 2008-2009), considering that more than half of the illiterate women are in rural areas. In mass media for example urban women have more access to all forms of mass media compared with their rural counterparts; For example only 16% of women in rural areas reads a newspaper at least once a week, compared with 49% of women in urban areas. 69 percent of women in urban watch TV at least once a week while only (22% ) do so in rural (KDHS, 2008- 2009). This implies that

any maternal health information that leads to utilization of health services by the mothers will not reach to majority of the women in rural who are in dire need of it. Most men access to information compared to women at 46% and 24% respectively (KDHS, 2008-2009).

A report by Afriafya (2007) who did a research in 7 districts in Kenya on 'accessing health information in rural area on HIV/AIDS'. Found out from their study that these rural communities had no electricity or telephone lines as it is the case in many areas in Kenya. Solar powered equipment was used to allow health video shows and WorldSpace receivers used to relay information even under a tree. The impact was that there has been increase in discussion of Prevention of mother to child transmission (PMCT) among women of reproductive age of which it was previously very difficult to break the silence in these matters, after testing this system in one area. They have begun to understand the importance of PMCT hence started to show willingness to attend clinic and dialogue about the risk of not attending clinic during pregnancy. There is also an increase in condom uptake in some of the field centers, and increased demand for voluntary counseling and testing services among these women who were previously very averse to the very mention of PMCT.

Women participation in health issues has increased in these areas with bigger turnouts reported at community health meetings and health action days. While it is still too early to demonstrate improvement in health through the project activities, with these changes that are beginning to take place it is clear that if these continue there will be a definite impact on PMCT intake in these communities with the attendant improvement in health. It is important to note therefore that health information provided to women of reproductive age should be what they want, and to avoid dumping information on them. The main aim of this study is therefore to determine the influence of the sources of maternal health information on health practices specifically among rural women.

### Problem Statement

Of all the Millennium Development Goals (MDGs), the least progress has been made on goal Number Five: Reducing maternal mortality by three-quarters by the year 2015. Every day, about 1,500 women across the globe die because of complications during pregnancy or childbirth, and 98 percent of these deaths, half a million annually, occur in developing countries. Another 10 to 20 million women develop physical or mental disabilities every year as a result of complicated pregnancies and deliveries, (World Bank 2009). Information and support during pregnancy may address the psychological needs of women at this time (Clement et al 1997). Information is considered important in helping women make an informed choice (WHO 2004), It is also important in influencing women's perception of childbirth.

Various studies have shown that women have undergone a number of maternal health education which has improved their knowledge. Despite studies done on information of maternal health the

maternal mortality is still in the increase. Currently, 60 countries have maternal mortality rate levels high in the world, Kenya being among these countries. This ignites the need to find out the influence of sources of maternal health information on utilization of health services among the rural women.

Bar B Sub location has had persistent maternal mortality despite the area being engaged by various activities aimed at reducing morbidity and mortality rate. This is due to limited access to formal and informal sources of maternal health information (Denis, 2009). Community health workers, family members and neighbors are the only sources of maternal health information found locally. Sometimes these people (neighbors, friends and CHW) have no relevant skills on maternal health services since had not been empowered. These are also associated with socio cultural, economic and demographic factors which determine sources of maternal health information. Despite vast researches done about access to maternal health information among rural women, there has been relatively very little empirical research done on access to maternal health information sources by rural women of reproductive age in this region. It is in this context that this study therefore tries to establish the influence of maternal health information sources on health practices among women of reproductive age in Bar B Sub location with an aim of improving their health.

### Research Question

What are the influences of background factors on health practices and sources of maternal health information among rural women of reproductive age in Bar B Sub location?

### Broad Objective

To determine the influence of background factors on health practices and identify sources of maternal health information among rural women of reproductive age in Bar B Sub location.

### Specific Objectives

1. To identify the available sources of maternal health information among rural women of reproductive age in Bar B sub-location.
2. To determine the influence of background factors on health practices among rural women of reproductive age in Bar B sub location, Kenya.

## Literature Review

According to UNICEF, 2008 high maternal mortality is defined as any maternal mortality ratio (MMR) of 300 or more maternal deaths per 100,000 lives. Most of maternal deaths do occur in poor countries (Lerberghe & De Brouwere, 2007). Maternal health has emerged as global priority because of a great gap in the status of mother's well being between the rich and the poor countries. According to WHO (2008), in rich nations, where reproductive women have access to basic health care, giving birth is a positive and fulfilling experience. On the other hand, for many women in poor countries it is associated with suffering, ill health and even death. Internationally, increasing attention given to maternal health has been concentrated in reducing maternal mortality.

In Kenya (47%) of pregnant women make four or more antenatal visits. This is a decline since 2003. On place of delivery data indicate that 43% of births delivered in a facility while (56%) of births take place at home, similarly mothers in rural areas are more than twice as likely to deliver at home compared with those in urban areas (KDHS 2008-2009). A study by Abongo et al... (2010), on status of MDGs 4 and 5 in five Districts in Nyanza Province, Kenya, revealed that ANC attendance (4 + times) was below (50%) in all the districts. In the study health facility delivery was (53%). In Kenya data reveals that most men access to information compared to women at (46%) and (24%) respectively (KDHS 2008-2009).

Samuel Muthinji, of (nation newspaper 2011, Sept 5th) reporting on 'alarm over number of women relying on untrained midwives' reported that over (50%) of births in Central province delivery occur without assistance from qualified helper reasons being lack of proper information and shortage of staff. A study by Okeyo (2009) in Kanyawegi sub location which borders Bar B Sub location, found out that only (31.5%) woman attended ANC more than three times meaning more than 65% never attended ANC more than three times. The study also revealed that only 26.3% births were supervised by health professionals this was due to lack of knowledge among women on how best to utilize maternal health services.

## Sources of Maternal health Information

Health information source refers to a human or a non-human party designed to assist consumers in information acquisition and processing pertaining to health-related matters, examples of health information sources include, but are not limited to, traditional sources such as healthcare providers, family and friends, television, radio, newspapers, and magazines and advanced sources such as search engines on the internet, company web sites, agents, and government that are engaged in health issues (Cline and Haynes, 2001).

Maternal health information source in this contest is concerned with place where the maternal health information is retrieved by reproductive aged women (15-49 years) who are the end users

of the information in maternal health practices. Different groups in a community may approach their health care needs in distinct ways for instance women tend to be the information seekers of their children and another family members as well as for themselves (Stoller, 1993). Sources of maternal health information play a big role in maternal health practices hence reducing maternal mortality. Some women listen more to their religion, peer and family members and act on the information they get from these sources from different issues including health matters.

There are also notable different in the way urban and rural dwellers seek and use health information sources. Some survey findings indicate that people living in rural areas may be less likely to use certain types of health information sources including 'advice nurses' (Hibbard et al, 1999). A morbidity and mortality of data in Australia suggests that rural women are more vulnerable in a number of respects than their urban neighbors. For example rural women die or are hospitalized as a result of ischemic heart diseases, traffic accidents poisons, diabetes pneumonia/influenza, asthma and cervical cancer (Weiner,1998).According to Weiner, factors that have adverse effect on women's health includes lack of access to health services, transport cost and experiences with lack of confidentiality and privacy, lack of counseling and education on health issues, lack of consultation by the government and lack of access to female doctors.

Interestingly Weiner, (1998) found out that rural and urban women may also define health differently, with rural women placing emphasis on self reliance and self help in dealing with health matters. Weiner goes on to suggest that some of the components of best practice with respect to health of rural women are participation of rural women in the allocation of resources in their communities, access to female health care providers, provision of high quality health information, accessible services and well- being as well as illness management.

Women are active information seekers, particularly in the context of managing health for themselves and their families. Rural living may present particular challenges and opportunities for women in their health information seeking (Wathen & Harris, 2006). Davies and Bath, (2002) in a study of 'Interpersonal sources of health and maternity information for Somali women living in the UK' found out that some pregnant women sought health information from community sources, such as health fairs, presentations, lectures, classes, or health promotion activities organized by health, civic, or charity organizations, to a lesser degree than family networks and health professionals.

The current health situation was shown to affect the choice of information sources among Finnish pregnant women, and a control group consisting of healthy people (Eriksson-Backa 2003). Health professionals are preferred in particular when medical information is required (Goransson 1999). However, sometimes informal sources, such as friends, family, and relatives, are the ones people turn to when they need health information (Barone *et al.* 2002). In a study by Davies & Bath, (2002), many women depend on general practitioners and health visitors for maternity information, although participants favoured community health forums addressed by

health professionals, the author continues to report that women also sought maternity information from friends and neighbours. Interpersonal sources as a whole were viewed as having a number of advantages. Informal sources in particular were perceived as being approachable and providing a means through which further information could be sought.

### Mass Media as source of maternal health information

Researches done on outcome of health in developing countries have proved the importance of media in disseminating health information. Most of the information sources used includes radio, newspaper and television. Media sources are often the most important ones, and television especially plays a significant role in providing health information (O'Keefe *et al.*, 1998). The internet is also becoming a more commonly used source. Surveys indicate that eight in ten adult Americans going online had searched for information about health, (Fox, 2005). In Finland, (59%) of the users said that they had sought health-related information on the Internet in the spring of 2007 (Statistics Finland 2007). A corresponding percentage was found among rural residents in Canada (Harris *et al.*, 2006).

A study by Grason, Weisman, & Silver, (2002) on state strategies for improving data on women's health, response was sort from women to identify the source of information most preferred, only television news programs were reported by a majority of all women. Midlife women were significantly more likely than younger women to report reading health magazines and newspapers and younger women were significantly more likely to report using computer-based sources. But study did not look at the influence of sources of maternal health information among rural women of reproductive age especially on ANC and delivery.

A study that was done in a village in Malaysia by Bakar et al, (2005) showed that the housewives take the issue on health information seriously. Bakar adds that when seeking information on health the housewives use popular magazines as the main source, followed by consultations with family and friends and also the mass media. When seeking information on health through the internet most of the housewives use the relevant websites or homepages to get the needed information. In addition they also use the online periodicals as well for electronic health information.

A study by Marshal (2008) on determinants of timely antenatal visits a case study of Mitundu Hospital in Lilongwe District, found out that media was most (44.4%) used source of information for antenatal visit followed by health services assistants (36.8%) while the least (5.6%) got information from the churches and Non Governmental Organizations (NGOs). However the study only studied population of those who attend the health facility but not the rest in the community to find out source of information for women who don't attend ANC visit.

Women's exposure to information through the radio, television and newspaper significantly increases the utilization rates for all services in India, (Shariff & Singh 2002). There is a 5 percent increase in the probability of the use of antenatal care for a woman who frequently listens to the radio compared to a woman who does not. In a research done by AudienceScape (2011), in Tanzania on family planning (FP) and maternal health (MH), women's health information demand, found out that women who reside in rural areas rely heavily on radio as their main source of news and entertainment because they often lack home access to television, if not a consistent source of electricity.

According to Ngimwa, Ochola & Ojiambo (1997) who researched on Kenyan women, reported that mass media was the least used source of information with mass media counting for only 10% of the answers, with friends, professionals and relatives being more prevalent sources. A study by Obermeyer (1993) in Morocco and Tunisia indicated that watching television weekly is associated with an increase in the likelihood of both prenatal care and hospital delivery. In Kenya data reveals that urban women have more access to all forms of mass media compared with their rural counterparts; For example only (16%) of women in rural areas reads a newspaper at least once a week, compared with (49%) of women in urban areas. 69 percent of women in urban watch TV at least once a week while only (22%) do so in rural (KDHS, 2008- 2009). This explains why maternal deaths in rural are higher than that in urban centers.

In a Survey that was carried out by Wafula and Ocholla (2007) in Kenya namely Trans-Nzoia District and Umlalazi District in South Africa on sources of health information amongst rural women, results showed that family (53.2%) acting as the main source of health information, followed by friends at (43.3%) and neighbours (38.0%) forming the bulk of alternative sources of information amongst the respondents in Trans Nzoia (Kenya). This is closely followed by community leaders (38.6%), books (30.9%), exhibitions/trade fairs (20.8%), area leaders (15.8%), educators (10.8%) and social/extension workers. Other sources such as traditional healers (7.8%), information centres (4.9%), newspapers (2.4%), magazines (2.4%), farmer's cooperatives (1.5%) and nurses/midwives (1.5%) are less used as sources of information.

Similarly, friends (54.2%), neighbours (48.4%) and family (46.2%) are highly favoured as alternative sources of information amongst the respondents from Kuwa Zulu Natal (KZN) South Africa (SA). Other sources include books (29.7%), community leaders (21.1%), educators (16.3%), social/extension workers (10.8%) and nurses/midwives (11.5%). Information centres (5.5%), magazines (3.3%) and newspapers (3.3%) are not popular sources of information amongst the rural women in South Africa.

In a research done by Olayo et al (2006) on "characteristics of information sources that influence sexual behaviour among in-school adolescents: A case study of a Peri-urban setting", found out that peer 33% and media 29% are the main sources of sexuality information. Library has also been mentioned as a vital source of health information. Librarians play a big role in

repackaging health information to address specific needs of rural women. As reported by (Iwhiwhu 2008), "repackaging" describes how an information service selects appropriate materials, reprocessing and packaging the information and arranging the materials in a way that is appropriate to the user. Boadi (1987) mentions that abstracting and indexing, and translation services, bibliographies, special bulletins and other current awareness services, are all forms of information repackaging.

A study in Nigeria by Adewor and Nelson (2010) recognises that advances in ICT also assist in facilitating this kind of repackaging. The study emphasises that information professionals must have the requisite professional qualifications and the subject knowledge to repackage information to meet the information needs of people living with HIV/AIDS in Nigeria. The study adds that workshops and seminars in this regard should be encouraged by libraries and Library and information service professionals should collaborate with NGOs and other agencies to disseminate information.

Researchers Harris and Dewdney (1994) observed that people commonly look first for advice and information from interpersonal sources, especially those similar to them and rely on institutional sources only as a last resort and that they prefer that their information be accompanied by emotional support. A study by Savoleinen (1995), agree that people acquire information not only through deliberate acts of searching, but also incidentally, through the passive monitoring of everyday life in their environments. When considering the health information needs of people living in rural settings, then, informal networks including peers and lay experts may be particularly important, especially in the absence of easy access to formal health-care providers. These sources may play a vital intermediary role for example, librarians (Harris and Wathen, 2005).

The potential for responding to the need for consumer health information series in the public library has been recognised since the late 1970s (Baker and Manbeck, 2002). Though seeking information by direct health information consumers from the library is a challenge to the illiterate and less educated who are the majority in the community (Chobot, 2002). To be active and equal participants of the health care team, patients need convenient access to current, high quality consumer health information, (Allesandro, 2008) Patients also need this information to maintain health, promote wellness, treat disease, and promote healing. Today, there is a wealth of current, high quality consumer health information created by non-profit public health organizations that exists imprint form and most patients are not even aware such information exists. Unfortunately, due to financial constraints on these organizations, this information does not receive wide distribution directly to patients, being distributed mainly to large health care facilities such as hospitals, health centres, and medical libraries. This explains why maternal mothers in rural areas sometimes do not seek health from the health facility since they have the notion that they are poor and cannot afford to pay for the services in the facility even when the

facilities have waived the fee and review treatment to patients. This is because of lack of health information on the same.

Experts have faulted Kenya's roadmap towards achieving safe motherhood indicating that the East African country may not achieve the 2015 millennium development goals (MDGs) target on maternal health. According to the Centre for Study of Adolescent (2007), lack of information and access to contraceptive could explain the population surge among poor households in Kenya, a trend that was also captured by the latest national census (2009). In some cases women fear that their husbands may reject them if they find out that they are using contraceptives this is because of lack of awareness on the need for family planning among couples (Akinrinola, Bankole & Shawn Malarcher, 2010). However none of these studies identified the most used sources of maternal health information among women of reproductive age.

A theme that emerged in the health information landscape in Canada and elsewhere is the increasing emphasis, at the government policy level, on the provision of health services, broadly defined as the use of information and communications technologies to produce and deliver health-related content, to address gaps in locally-available health-care services,(Wuest, 2000).Wuest argues that changes in the Canadian health-care system have resulted in women being increasingly called on to assume additional responsibility for caring for family members. The research on which health policy is based has failed to consider the contextual realities of women.

Information needs arise from the situations in which help-seekers find themselves; that is, any need for help or information is situationally-based and dependent on a particular context, (Nathen, 2006).People also tend to look for information that is most accessible. When seeking information, individuals select the type, amount, and sources of information they need. Within the context of a cancer diagnosis for example, Health Information Seeking Behaviour (HISB) has been documented as a key coping strategy to manage stressful illness-related events such as the shock of diagnosis, the burden of treatment-related decisions, daunting side effects, and the uncertainty about cure. Most HISB studies in the cancer literature are grounded in the coping paradigm, (Miller, et al.. 1994). These authors emphasized that some individuals cope with health threats by actively seeking information, whereas others avoid information and prefer distraction. Although active information seeking is associated with increased certainty and control over a situation, it has also been linked to intrusive ideation and psychological distress. When considering the health information needs of people living in rural settings, then, informal networks including peers and lay experts may be particularly important, especially in the absence of easy access to formal health-care providers. These sources may play a vital intermediary role.

### Health Facility as source of maternal health information

Access to quality healthcare information and knowledge by the sick or any other individual is very essential. In a survey carried out by (Erica 2008) on barriers to equitable access to health information, major barriers were lack of political support, information infrastructure and workforce capacity, and the high cost of accessing up to date, timely, and relevant information. Women living in rural areas may face specific barriers to finding useful health-related information, and their use of information may differ from their urban counterparts. Rural women of reproductive age lack the vital or basic health information they need to improve their lives, and because most are illiterate, they cannot benefit from many educational methods. Furthermore, lack of electricity and poor roads isolate these regions and further complicate development efforts e.g difficulty in accessing health facility.

### Background Characteristics by health outcome

Many cultural, religious, or social factors may impede the demand for health care. In communities where women are not expected to mix freely, particularly with men, utilization of health services from static facilities may be impeded (HNP, 2004). World Health Organization (2007) reported that law status of girls and women deny them the power to make decisions that affect their lives and this is a big barrier to improving maternal health outcome among the poor. According to Audience Scape (2011) a research done on family planning and maternal health women demand health information in Tanzania, found out that young women living in rural areas, (27%) of the respondents said that their fathers have the final decision over the healthcare for the family.

Research done in Nigeria on rural women's use of cell phones to meet their communication needs, found out that, low literacy capacities and culture discourages rural women from using the device. Women in rural areas are disadvantaged in the digital world facing multiple barriers relating to both gender and location. The challenges of managing a rural household create a heavy daily workload for women leaving them with hardly any spare time to become familiar with new technologies, (Comfort, 2009).

In a study that was carried out in Mumias by Mbagaya, (2005) found out that families are more likely to seek health information when a child experiences fever, diarrhea and vomiting as compared to colds, coughs and skin infections. This may be due to these illnesses being considered severe, as the effects of dehydration are immediate and detectable. Additionally, the illnesses are major causes of mortality and morbidity among children in developing countries. This explains the fact that some women only seek health information when their children are already sick.

### Socio economic factors by health outcome

According to Sari Kistiana (2009), women's working status and husband's occupation do not have a significant impact on the probability of women obtaining antenatal care and modern delivery care, although these variable, particularly husband's occupation is positively and strongly associated with the dependent variables. Ahmed (2007) in a survey with a sample of 413, non-elderly poor adults in Ohio America, revealed that lack of information about reduced or free cost healthcare and anticipated cost are the most frequent barriers to healthcare services. However the study did not focus on rural women of reproductive age, to find out the main sources of maternal health information.

Magadi et. al, (2000) found out that women who are employed tend to start antenatal care earlier. The authors argue that employed women are more knowledgeable on pregnancy and childbirth issues than the unemployed due to freedom of movement outside household. They also tend to get information on services available for pregnancy care during work from workmates. A study by Garner et al... (2003) on 'differences in exposure to health information', income women reported that their information needs for infant care and self-care were not met when compared to the reports of high-income women. Women's special responsibilities for children and the elderly mean that women typically cannot migrate to towns and cities as easily as men; this is where opportunities to learn about new technologies are more readily available.

Educated mothers are considered to have a greater awareness of the existence of maternal health care services and benefited in using such services. Educated mothers are likely to have better knowledge and information on modern medical treatment and have greater capacity to recognize specific illnesses. A study done in Pakistan by Sherwin, (1996) on access to health information for community health workers found out that health information is primarily provided through trainings and workshops by employing a variety of written materials. However, these trainings are impeded by a number of barriers such as; Non-availability of trainers as they are frequently transferred or moved to better opportunities, non-availability of training material for all participants, addition of new technical content does not easily filter down to trainings at the community-level and low literacy skills.

According to Mbagaya (2005) the parent's schooling particularly that of the mothers is likely to influence their behavior in seeking health information for their children. The author further argued that the mother's health seeking behavior was influenced by the number of years of schooling. In a number of studies, the education of the mother is associated with a greater commitment to the care of the family. Educated women tend to provide better healthcare, hygiene and are more likely to seek help when a child is ill.

A study done by Abongo et al, (2010) on status of MDGs 4 and 5 in five districts in Nyanza Province, Kenya, found that the knowledge of mothers on the importance of ANC attendance

and eventual health facility based delivery is pivotal in the attainment of the MDGs 4 and 5. But the study did not find out the main sources of maternal health information used by the women to get the knowledge.

## Research Methodology

### Study Design

The study adopted a cross-sectional study design which applied both quantitative and qualitative methods of data collection. The quantitative and qualitative data were collected to provide information on sources of maternal health information and health practices.

### Study Population

The study population consisted of rural women of reproductive age between 15-49 years who had lived in Bar B sub location for at least for the last six months and have children who are below one year in age.

### Sample size determination

Sample size was calculated using this formula for case control studies to take into account both type 1 and type 2 errors

$$\frac{(Z_{\alpha/2} + Z_{\beta})^2 (pq)}{d^2}$$

Where:

$$d = 0.1$$

$$Z_{\alpha/2} = 1.96$$

$$Z_{\beta} = 0.84$$

$$p = 60\%$$

$$q = 1-p = 40\%$$

Therefore:

$$\frac{(1.96 + 0.84)^2 (0.6 \times 0.4)}{(0.1)^2} = 188.16$$

188.16 + 18 = 206 by considering by adding 10 % of the sample the sample size rounded of to 210.

### Sampling Design and sample size

Cluster sampling, was used to identify study participants who were women of reproductive age with children under one year in age. The sub location had a total of 5 villages, comprising Bonde, Gul, Wachara, Ndede and Geta with a total of 210 study participants. A register of women under reproductive age was used. This method ensured equal representation of participants in each cluster. This procedure was convenient since each cluster registered had equal chance of being included in the study.

### Selection of Study Units

Community health workers were used as reference points to identify targeted households around it and selecting the first household with a child below one year while enumerators carried out data collection in the households identified by CHWs. The first household for enumeration was selected randomly. Selection of the second household from the first household was done systematically depending on the number of households identified with women with children below one year in a cluster (catchment area). Only one subject was enumerated per household. Where one or more study subjects meeting the inclusion criteria were encountered the household with the youngest child was enumerated.

### Inclusion/Exclusion Criteria

The primary target for the study was women of reproductive age with children aged below one year at the time of the study. In order to be eligible for this research, the women had to be residents of Bar B sub location, had full pregnancy with a child below 1 year, have lived in the area for at least 6 months, and most importantly they had to voluntarily accept participation in the research after being taken through the terms and conditions of the research.

### Data Collection methods and instruments

Focus group discussion was used to collect qualitative data from the CHWs while Key Informant interview was used to collect qualitative data from the in charge of maternity ward in health facility, an NGO officer working in the area, CHEW of Bar B sub location and assistant chief in Bar B sub location area. FGD and KII were held validate the quantitative data and answer questions why and how. Quantitative data was obtained from women with children aged below 1 year and was collected using questionnaire. The questionnaire was designed to collect information on demographic factors, socio economic, cultural factors and sources of maternal health information. Three focus group discussion moderators and note takers were selected from professionals and 15 enumerators who were form four leavers and some are doing community health course in college were selected from the area to participate in household survey. The

research team were people with experience in research procedures and knowledgeable of the local language, English and the study area. A pretest and amendment was done just before going to the field. Training included briefing on research process principles and ethics and data collection tools.

### Data Collection

Pilot test was administered on the questionnaire to ascertain the flow the flow of the questionnaire, understanding of the tool and administer the questionnaire test capability of enumerators and determine time taken to administer the tool. Quantitative data was collected for 3 days. The data collection team comprising of 12 enumerators met for briefing before the exercise on serializing the questionnaire and supervision of data collection was undertaken and cleaned at the end of each day. Closed ended structured questionnaire was used.

### Data processing and analysis

Data was entered and electronically analyzed with the use of statistical package for Social Scientist (SPSS) package version 16. Frequencies were used to determine the occurrences and distribution of the variables under study. Cross tabulations was used to determine the level of relationship of the variables that would correlate with each other. In order to ensure correct entry and analysis, cleaning was done from right immediately in the field and during running frequencies to identify wrong data entries and possible omissions. Prompt correction was done immediately such errors were detected. Descriptive analysis was used to examine variables according to the study objectives using Bars, charts, tables, frequencies, percentages and graphs. First cross tabulations was used to find out the patterns in data, this was followed by determining significance of the relationship using chi square test (95% confidence interval). Statistical tests of significance and validity were used to determine the level at which the study techniques and findings are within the expected standards. A report was then finally written to give detailed and complete account of the whole process. Feedback will be given to all relevant authorities and those who will be interested with the study findings.

### Research Findings and Discussion

This study on influence of sources of maternal health information was based on broad objective which stated that sources of maternal health information influence health practices among rural women of reproductive age in Bar B Sub location. In this section the study presents the significance and validity of the study findings by objectives comparing them with what has been done by other researchers and identifying what has been done less by these researchers.

### Locally available sources of maternal health information

The findings from this study indicate that health professionals and CHWs were the most widely used sources of maternal health information. The main reason given was that health professionals were free and open (69.2%) While CHW were preferred by most respondents because they were the only available (52.8%), while mobile was not used because it was costly. These findings are supported by those of Ngimwa, (1997) who researched on Kenyan women, reported that health professionals was most prevalent source of health information.

In a focus group discussion with the CHWs one discussant said that these days it is easy in the village because as CHW we have our household that we take care of and we know the status of all of them so the pregnant ones we advice, so getting information is easy so life of today we can say CHW have helped people. We have support groups so we give them brochures through support group to read. These days are not like old days like our generation. The community health workers act as source of information on health practices to households (CHW, 2003).

However this is in contrast with findings of O'Keefe *et al.* (1998), which reported that media source is often the most important source of information, especially television plays a significant role in providing health information. A study by Obermeyer (1993) in Morocco and Tunisia also indicated that watching television weekly is associated with an increase in the likelihood of both prenatal care and hospital delivery. Findings in a study by Olayo et al (2006) found out that peer and media are the main sources of sexuality information, though her study was on sources that influence sexual behaviour among in-school adolescents: A case study of a Peri-urban setting.

Interestingly in a survey that was carried out by Wafula and Ocholla (2007) in Kenya namely Trans-Nzoia District and Umlalazi District in South Africa on sources of health information amongst rural women, results showed that family and friends were the main sources of maternal health information in Kenya which is a contrast to findings of this study which found out that family and friends were the least sources of maternal health information. The preference of use of CHWs as sources of maternal health information indicates that CHWs play a big role in determining the health status of a community. This is in contrast with the usual assumption that health professionals are the usual source of maternal health information.

### Demographic factors by health practices

Over 40 percent of the women interviewed were between the ages 20-24 with median age of 23 years. Age was significant influence as most of the women at this age attended ANC 4+ and delivered in hospital, these findings are supported by a study by (Kristiane and Adelaide, 2009) on socio-economic and demographic determinants of maternal health care utilization in Indonesia which found out that women's age, had a significant relationship with the utilization of antenatal care and modern delivery care. This could be due to the fact that since the younger are

experiencing their first pregnancy so they are curious to know more about what they are going through compared to the older women who have experienced more than one birth and feel that they have enough experience.

These findings are supported by Kristiane and Adelaide, (2009) in her study, socio-economic and demographic determinants of maternal health care utilization in Indonesia, which found out that women's age, had a significant relationship with the utilization of antenatal care and modern delivery care.

### **Socio economic factors by health practices**

The educated women were likely to seek maternal health compared to uneducated. This is in agreement with study by Mbagaya, (2005) who found out that the parent's schooling particularly that of the mothers is likely to influence their behavior in seeking health care. Educated mothers are likely to have better knowledge and information on modern medical treatment and have greater capacity to recognize specific illnesses; Sari Kristiana (2009). This is also supported by KDHS which reported that women with more education are likely to receive most components of antenatal care than the less educated.

This study is also in agreement with study by Jat (2011) who reported that use of maternal health services increased sharply with increased levels of education of mother. This could be explained by the fact that the majority of those who have source of income are better economically and can easily afford transport and other health charges if required, compared with those without stable income. It emerged that the distance from the health facility is not a major factor in utilization of maternal health care among women. Most women who came from far were not able to seek maternal health services compared to the respondents who live closer to the health facility this was influenced by lack of transport and time. This study is in agreement with another study by Nitai et al, (2009) who reported that there was no substantial difference in utilization of health care services for complications according to how far respondents lived from health facilities. This result is quite surprising because the respondents residing in close proximity to health care services presumed to be more likely to use them, the author argued.

### **Socio cultural factors on health practices**

According to study findings religion has a role to play in determining the actions of church members concerning ANC visit and facility delivery as this is binding as per the believes of the members of the church.

One discussant said;

*“The churches are difficult to work with there is a church here that one man died due to the fact that she believed in the church information concerning ANC and hospital delivery. The church advised the members that once you stepped in the hospital gate then you die”... (CHW, Bar B).*

Another discussant said ‘

*“Ka bishop onyise gima otim anto an n’ga mondo anyise ber dhi eclinic to kata ok alem kodgi”.*  
*(If the bishop has told her what to do who am i as CHW to tell her what to do yet i don’t even pray in same church with them) (CHW Bar B)*

The data from the focus group discussion suggest that some women get their maternal health information from the church.

Some families also have rules that guide the family. According to audienceScape,(2011) a research done on family planning and maternal health women demand health information in Tanzania, found out that young women living in rural areas, said that their fathers have the final decision over the healthcare of the family.

Most respondents who are members of social group and those who are not members of any social group attended ANC 4+ times and delivered in hospital, there was no relationship with membership to social group.

## Conclusions

The study concluded that apart from the health professionals (doctors and nurses) community health workers play a big role in determining the health of the community since they are regularly consulted by community on ANC attendance and facility delivery. The major sources of maternal health information are health professionals and community health workers. Despite visits by various organizations in the area most women do also get most of the maternal health information during these community dialogue days. It was noted that health talk in the facility during ANC visit has significance relation to ANC visit four or more compared to IEC materials.

## Recommendations

The following recommendations are important for developing effective strategies for promoting and adopting proper and effective sources of maternal health information for eventual improvement of antenatal care and facility delivery and even other maternal health services to reduce maternal mortality in our society.

In order to reduce maternal mortality the government should consider relaying of maternal health information through community health workers and media as locally available sources in order to equip the women of reproductive age with enough knowledge to enable them make proper independent decisions as far as ANC visit and place of delivery is concerned.

The government who are the policy makers, NGOs running maternal health programmes and academic institutions should mount up innovative programmes to promote and encourage women's access to recommended maternal health information sources including;

Scaling up of community health workers through regular training should be initiated in order to equip them with maternal health issues since it is an easily accessible source of maternal health information among the community.

It is important to strengthen the community dialogue as a source of maternal health information considering it is a key recommendation in Health Sector Strategic Plan II in reducing maternal mortality.

Other sources that should be strengthened are village chief meetings (Barazas), IEC materials distributed to women and regular community dialogue days. This will enable the community members to make right decisions when it comes to antenatal attendance and facility delivery.

## References

- Abongo, B.O., Owaga,E.,Ochieng B.,Ochieng' E.O., Ongala, J., Okeyo S.O.,Muga,R.O' and Kaseje,C.O.D'.(2010) Status of MDGs 4 and 5 in five Districts in Nyanza Province Kenya, survey, Great Lakes University of Kisumu.
- Ahmad B. A. Bakar and Abul Yasr A. L. Alhadri, (2009) Seeking access to health Information: the Dilemma of Woman Community in Rural Malaysia paper presented at World Library and Information Congress: 75th Ifla General Conference and Council Millan Italy August.
- Akinrinola, Bankole and Shawn Malarcher (2010) Removing Barriers to Adolescents' Access to Contraceptive Information and Services. *Studies for Family Planning* 41,204-208.
- Baker L.M and Manbeck V. (2002). *Consumer Health Information for Public Librarians*. Lanham: Mary Land.
- Chakraborty, Nitai; Islam Ataharul, M.; Chowdhury Islam, Rafiqul; Bari, Wasimul; Akhter Hanum, Halida (2003): Determinants of the use of maternal health services in rural Bangladesh. IN: *Health Promotion International*, 18, p. 327-337.
- Chobot, Mary C. (2002). The challenge of providing health information services In public libraries. American Association for the Advancement of Science.

- Clement S, Sikorski J, Wilson J, Das S, Smeeton N. (1997) Women's satisfaction with traditional and reduced antenatal visit schedules. *Midwifery*; 12,128.
- Cline, R. J. and Haynes, K. M. (2001) Consumer health information seeking on the Internet: the state of the art. *Health Education Research*, 16, 671–692.
- Davies, M.M. & Bath, P.A. (2002). Interpersonal sources of health and maternity information for Somali women living in the UK. *Information seeking and evaluation. Journal of Documentation*, 58, 302-318.
- Elaine Wolfson, (2006). Global Alliance for Women's Health. Paper presented at Successes and Challenges of Public/Private Partnerships in Scaling-up Treatment for HIV/AIDS in Sub-Saharan Africa, Addis Ababa, Ethiopia.
- Erica, C. (2008). Barriers to equitable access to quality health information. *Journal of Medicine* (5): 117-123.
- Eriksson-Backa, K. (2003). *In sickness and in health: how information and knowledge are related to health behaviour*. Finland University Press.
- Fox, S. (2005). *Health information online*. Washington, DC: Health topics
- Fox, S. (2004). *Older Americans and the Internet*. Washington, DC: Health topics.
- Göransson, A. (1999). *Vision in sight. The relationships between knowledge, health beliefs and treatment outcomes. The case of amblyopic*. Linköping: Linköping University.
- Grace M Mbagaya, Mark O Odhiambo, and Ruth K Oniang'o (2005) Mother's health Seeking Behaviour during Child Illness in a Rural Western Kenya Community. *African Health Science*, 5, 322–327.
- Grason, H., Weisman, C., & Silver, G. (2002). *State strategies for improving data on women's health*. Baltimore, MD: Women's and Children's Health Policy Centre, Johns Hopkins University.
- Harris, R.M. & Dewdney, P. (1994). *Barriers to information: how formal help systems fail battered women*. Westport, CT: Greenwood Press.
- Harris, R.M., Wathen, C.N., & Fear, J.M. (2006). Searching for health information in rural Canada. Where do residents look for health information and what do they do when they find it? *Information Research*, 12, 274.
- Hibbard, J. H., Greenlick, M., Jimison, H., Kunkel, L. & Tusler, M. (1999). Prevalence and predictors of the use of self-care resources. *Evaluation and the Health Professions*.10, 34-42.

- Iwhiwhu, B.E. (2008). Information repackaging and Library Services: A Challenge to Information Professionals in Nigeria. Library Philosophy and Practice. Braga, Nigeria.
- Kenya National Bureau of Statistics (2009) Kenya, Ministry of Planning and National Development 2008-2009. Kenya Demographic Health Survey 2008-2009, Nairobi: KNBS.
- Kristof Bostoen and Zaid Chalabi, (2006) Optimization of household survey sampling without sample frames. *International Journal of Epidemiology*, 35:751–757.
- Lemarani, Marshal Msanyama (2008). Determinants of Timely Antenatal Visits A case study of Mitundu Hospital in Lilongwe District, Malawi. Unpublished masters thesis, Great Lakes University of Kisumu, Kenya.
- Losce, R.M. (1990). Society development and libraries. Center for External Studies; University of Ibadan.
- Magadi, M.A., Madise, N.J., & Rodrigues, R.N (2000), frequency and timing of antenatal care in Kenya: explaining the variations between women of different Communities', *Social Science & Medicine*, 51, 551-561.
- Michael Trucano , (2009). A Talking Book for Africa: *Education Technology* 17:55.
- Ministry of Planning (2008), Kisumu West District Development Plan (2008-2012).
- Momodu, M.O. (2002). Information Needs and Information Seeking Behaviour of Rural Dwellers in Nigeria: a case study of Ekpoma in Esan West local government area of Edo State, Nigeria. *Library Review*, 51.236-240
- Nadine, Wathen and Harris, M. Roma (2006). An examination of the health information seeking experiences of women in rural Ontario, Canada. *Information Research*, 11.
- Nelson Edewor, (2010), Access to Health Information by People Living with HIV/AIDS in Nigeria, Ozoro, Nigeria *Library Philosophy and Practice*.5, 28-31
- Nigeria National Bureau of Statistics (NNBS), Ministry of Planning and National Development 2008-2009. Nigeria Demographic Health Survey.
- Noll, S., Spitz, L., & Pierro, A. (2001). Additional medical information. Prevalence, source, and benefit to parents. *Journal of Pediatric Surgery*, 36, 791-794.
- O'Keefe, G.J., Boyd, H.H., & Brown, M.R. (1998). Who learns preventive health care information from where: cross-channel and repertoire comparisons? *Health Communication*. London: Oxford University Press.
- Obermeyer, CM (1993), Culture, maternal health care and women's status: a

Comparison of Morocco and Tunisia', *Studies in Family Planning*, 24, 354-365.

Okeyo Nicky O. (2009), Influence of TICH partnership program on Caregiver's knowledge, attitude and practices in feeding of infant and young children under-five years of age: A comparative study of Nyahera and Kanyawegi sub-sub locations, Kisumu District, Unpublished Masters thesis, Great Lakes University of Kisumu.

Okwilagwe, A.O. (2000). Information capacity theory. *Mimeograph*: University of Ibadan.

Olayo R.N and Kaseje C.O, (2009) characteristics of information sources that influence sexual behavior among in school adolescents: A case study of Peri- Urban setting, Nairobi: *African Journal for Community Health and Development*, 1, 57.

Pettigrew, K. E. (2000). Lay information provision in community health settings: how community health nurses disseminate human services information to the elderly. *Library Quarterly*, 70, 47-85.

Saracevic, T., & Woods, J. B. (2007). Consolidation of information: A handbook on evaluation, restructuring, and repackaging of scientific and technical Statistics Finland: Turku.

Stoller E.P (1993), Gender and organization of lay health care. A socialist Feminist Perspective, *Journal of Aging Studies*, 7.101-105.

Tej Ram Jat, Nawi Ng and Miguel San Sebastian, (2011), Factors affecting the use of maternal health services in Madhya Pradesh state of India: a multilevel analysis. India: Umea University.

United Nations Children's Fund, (2008). Countdown to 2015: Tracking Progress in Maternal, Newborn & Child Survival, the 2008 Report.

Wafula-Kwake and Dennis Ocholla, (2007). The feasibility of ICT diffusion amongst African rural women: a case study of South Africa and Kenya. *International Review of Information Ethics* Vol.7. 8.

Wathen Nadine C and Roma Harrismm, (2006) Rural Women's' Health Information needs: Are Technology Based the Answer. London University: Western Ontario.

Weiner J. (1998). Rural Women's Health, *Australian Journal of Primary Health*, 4.