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Utilization of Maternal Health Care in Mali: The Role of Traditional Values

By

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Abstract

Background

Every day, nearly 1000 women die worldwide as a result of complication during pregnancy and childbirth. Well over half of these deaths take place in Sub-Saharan Africa. Mali's maternal mortality rate is one of the highest in the world: over 830 maternal deaths per 100,000 births in 2008.The study's aim was to examine the associations between beliefs in traditional values around pregnancy and childbirth and the receipt of maternal healthcare.

Methods

Quantitative data were collected using a cross-sectional survey carried out in 600 households across 60 villages in the health districts of Bankass and Badiangara between June and July 2011. To be eligible to participate in the survey, a household had to contain a woman who gave birth within the last twelve months. In order to assess the relationship of traditional values and socio demographic factors on maternal health care utilization, this study used two levels of analysis, namely bivariate and multivariate analysis.

Results

Multivariate analysis showed that tradition was significantly associated with the receipt of the standard minimum of care for pregnant women (OR=0.21 95% CI, 0.05-0.86). Both bivariate and multivariate analysis confirmed the importance of mother's ethnicity and age at marriage as significantly associated with the use of maternal health care. Peulh women have significantly lower odds of delivering in a medical institution (OR 0.26 95%, CI 0.09-0.78) and of using antenatal care services (OR 0.49 95%, CI 0.26-0.94) when compared to other ethnic groups. Women who got married at age 20+ have significantly lower odds of receiving their first antenatal care check up within the first 6 months (OR 0.28 95%, CI 0.11 - 0.68) compared to women who got married younger (OR 0.39 95%,CI 0.19- 0.83). This finding is likely attributable to the fact that the overwhelming majority of women surveyed had no formal education, hence higher age at marriage is not associated with higher educational level.

Conclusion

Multivariate analysis confirmed that tradition is an important determinant of maternal health care utilization in rural Mali. This study also showed that socio-demographic factors such as ethnicity and age at marriage were also important determinants of health care utilization in rural Mali. However, the study results are inconclusive on other important determinants of maternal health care services such as level of education and number of previous pregnancies.

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CHAPTER ONE

INTRODUCTION

Overview of Maternal Health

The World Health Organization (2010) estimated that 358,000 maternal deaths occur every year worldwide and although between 88-98% of these deaths were preventable (Campbell & Graham, 2006), pregnancy remained the leading cause of death among women of reproductive age in developing countries (Kurjack & Bekavac, 2005). A more thorough vetting of the statistics revealed that of the 1000 pregnancy-related deaths that occurred on a daily basis, 570 (or well over half) took place in Sub- Saharan Africa. Another 300 of those mothers came from South Asia and five from higher-income countries (WHO, 2010). Moreover, there were a number of critical maternal health complications from childbirth in these communities that did not result in death, but compromised the health of the mothers. Walvekar and Virkud (2006) found that for every woman that died as a result of childbirth, at least another 30 women suffered serious illness or debilitating injuries. The causes of maternal death were fairly consistent world-wide. Thaddeus and Maine (1994) stated that 75% of these deaths were due to direct obstetric causes such as obstructed labor (for example, a breech presentation), infection (acquired either from sepsis or immediately following birth), toxemia and unsafe abortion.

Improving maternal health was the fifth Millennium Development Goal (MDG) adopted by the United Nations in the year 2000 (Rogo, Oucho, & Mwalali, 2006). The goal is to reduce the 1990 Maternal Mortality Ratio (MMR) by 75% overall, by the year 2015. In a review of data

on maternal mortality that spanned 181 countries, surveyed between 1980-2008, Hogan et al. (2010) discovered that globally, maternal mortality has declined from 526,300 deaths annually in 1980 to 342,900 in 2008. The same study also showed that during this time, not all countries demonstrated a decline in maternal mortality. Unfortunately most Sub-Saharan African countries were not on track to meet this goal; some countries have shown little or no change in their MMRs and, in a few other countries, maternal mortality ratios have even increased (World Bank, 2004).

In developing countries accessibility to and availability of quality health care are often cited as major roadblocks that contribute to the number of maternal deaths (Glei, Goldman & Rodriguez, 2003). Women succumb at childbirth because they have no access to, or limited access to facilities with skilled staff, or a clinical environment supplied with materials needed for a safe delivery (UNICEF, September 2008). Due to limited access to these resources, there is also less emphasis on prenatal and postnatal care (Khan, Wojdyla, Say, Gülmezoglu & Van, 2006). In developing countries, the majority of maternal deaths could be prevented with quality and timely medical treatment (Thaddeus & Maine, 1994).

Despite being able to provide services for prenatal and postnatal care, some women still do not utilize these services (Griffiths & Stephenson, 2001). There are many other factors that can explain why women elect not to utilize necessary health services during pregnancy (Shaikh & Hatcher, 2005).

Traditional beliefs, attitudes and practices contributed to maternal death rates and whether or not a woman utilized health services (Yousuf, Ayelew and Seid, 2011). In Bangladesh, Nepal and Pakistan, religious and cultural beliefs were found to be extremely important barriers for women in seeking care for themselves and their newborns (Syed, Khadka,

Khan and Wall, 2008). In Pakistani society, women are usually not allowed to visit a health facility or health care provider alone, nor are they permitted to spend money on medical care. Women in Pakistan would need to seek permission from the head of household which is traditionally a male family member (Shaikh & Hatcher, 2004).

Socio- demographic factors such as woman's education, autonomy, and decision making power (whether or not she is able to make decisions about her own health) limit her access to health care. In rural Mali, maternal lack of formal education, a patriarchal society, and a woman's lack of autonomy explain why many women do not use maternal health services for their pregnancies (Gage, 2007). A study performed by Mekonnen and Mekonnen (2002) concerning the use of maternal health care services in Ethiopia supported the fact that a woman with some secondary or higher education is more likely to use maternal health care than a woman without schooling. The age of the mother at birth has also been considered – the younger the mother, the less health care is sought out (Bell, Sian, Curtis and Siliva, 2003). In addition, women from poorer households tended to seek maternal health care at a lower rate (Gage, 2007; Magadi, Madise and Rodrigues, 2000).

Research Objective

This study will focus on understanding the relationship between traditional values around pregnancy and childbirth and the receipt of maternal health care services.

Specific Aim

To examine the associations between beliefs in traditional values around pregnancy and childbirth and the receipt of maternal health care

Significance of Study

It can be stated unequivocally that access to quality health care is the single most important determinant of maternal health and survival. Therefore, interventions to improve reproductive health outcomes need to incorporate the means to ensure that maternal health services are readily accessible while remaining sensitive to the mother's traditional beliefs, culture and socio-economic background. Maternity services were nothing short of 'life-saving' in many cases (Ministry of Health-Kenya, 1997), so access to basic prenatal and postnatal care should be universally accessible and affordable to all expectant mothers twenty-four hours a day – three hundred and sixty five days a year – for the very real reason that complications may arise at any time without warning. Unfortunately, even when these services are available there are many women who do not take advantage of them simply because they lack the knowledge of their existence or the need for access and all that it can provide for them.

Overview of Mali

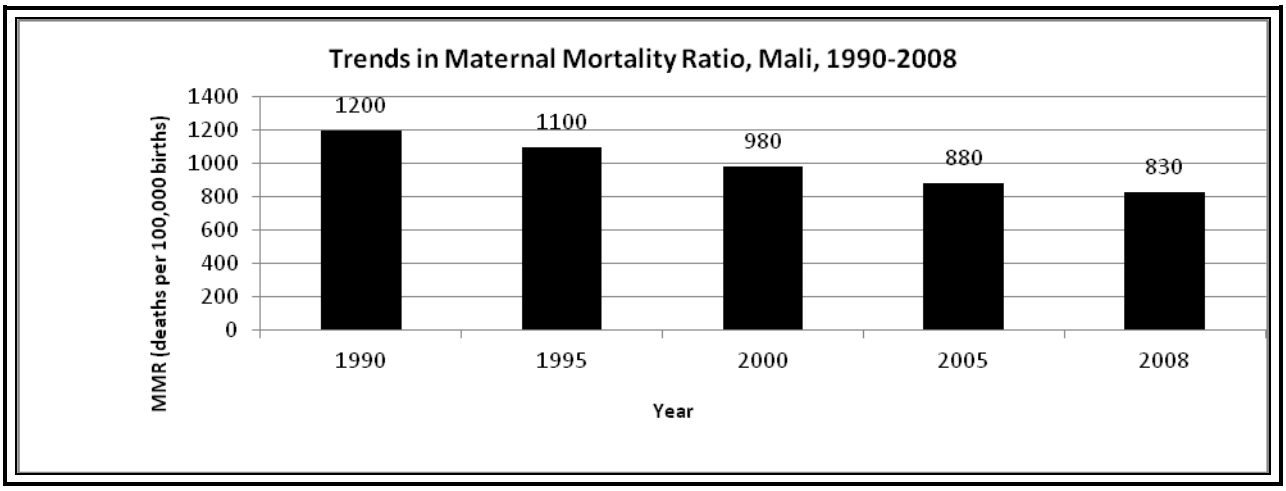
Mali is located in West Africa, and it is a land-locked country about the size of Texas and California combined, with a population of approximately 14 million inhabitants (Bureau of African Affairs, 2012). The majority of Malians live in rural areas, with only 18 percent residing in urban centers (Countries and Culture; 2012: Mali). The principal ethnic groups are Mande (including Bambara, Malinke, and Soninke), Peul, Voltaic, Songhai, Tuareg and Moor. The

official language of Mali is French, which is spoken by the more educated population. Other African languages are spoken as well, the most common of which is Bambara.

Today, women who reside in rural Mali have reduced access to health care which is due to discriminatory practices passed down through generations in the absence of state legislation. The impact of these issues means Mali is plagued by numerous problems not the least of which are poverty, famine and access to potable water. The government and society are inherently Islamic but Christianity and other indigenous beliefs are practiced as well. Perhaps, one of the greatest strengths of the Malian government has been a series of successive and peaceful transfers of power in previous years.

Maternal health in Mali. Mali has undergone more than a decade of health care reform with varying degrees of success. For instance, in 2005, the government of Mali removed user fees for caesarean sections in all public sector facilities (USAID, 2011). This was a direct attempt to increase access to skilled birth attendance and emergency obstetric care for expecting mothers. However, despite ongoing efforts, Mali's maternal mortality ratio remained high, with 830 maternal deaths per 100,000 live births (UNICEF, 2010). Data from 2008 Index Mundi (Estimates Developed by WHO, UNICEF, UNFPA and the World Bank), supported a slight decline of the MMR especially from 1990-2008, whereby Mali reduced its MMR from 1200 to 830. These figures confirm that maternal mortality has been a long-standing problem in this African nation. Certainly, these statistics verified that maternal deaths in 2008 were still high and progress in reducing maternal mortality was not as fast as has been expected – but progress has been made nonetheless.

Figure 1.Trends in Maternal Mortality Ratio, Mali, 1990-2008

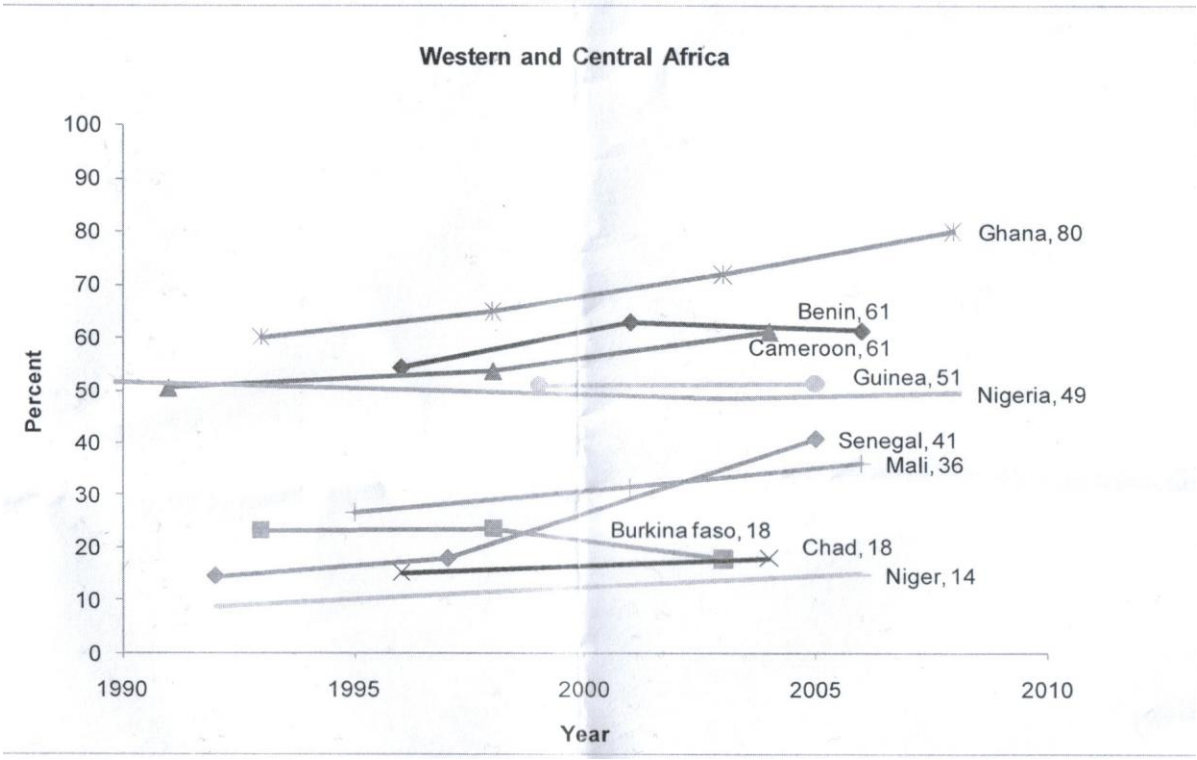


Source: Index Mundi –Country Facts. Estimates Developed by WHO, UNICEF, UNFPA and the World Bank.

According to the DHS Comparative Reports 26 (Figure 2) in 1990 only 25 % of pregnant women in Mali received the "gold standard" of four antenatal care sessions recommended by the World Health Organization. Abouzahhr & Wardlaw (2001) stated that quality antenatal care ensures that pre-birth complications are detected in advance thereby providing the mother-to-be with the necessary and much-needed advice on the management of complications. In 2009 the percentage of women having at least four antenatal care visits slightly increased to 36 %. These figures confirmed the disproportionate level of antenatal care that existed between West - and Central -African countries, with Mali having a higher percentage of women who received four antenatal care visits than pregnant mothers in neighboring Burkina Faso, Chad and Niger. At the same time, however, the number is less than their female counterparts in Ghana, Benin, Cameroon, Guinea, and Nigeria. Although percentages of antenatal care in Mali slightly increased between the years 1990-2009, it continued to remain low compared to other West- and Central -African nations.

Figure 2

Trends in percentage of women having at least four antenatal care visits for the most recent birth in Western and Central Africa, 1990-2009



Source: USAID –Comparative Reports 26. Levels and trends in the use of maternal health services in developing countries. June 2011

Mali is one of the poorest countries in the world with a national poverty rate estimated to span beyond 43% of the population (International Fund for Agricultural Development [IFAD], 2011), and this impacts healthcare infrastructure including obstetric care for women. The rural areas of Mali are especially destitute, the isolation of some villages and the difficulties of transportation exacerbate the problem**.** Most birthing occurred in the home without the oversight

of medical professionals or modern (or sterile) medical equipment to ward off infection for both the mother and child (United Nation, 2008). In addition, Mali suffers from a chronic shortage of well-trained midwives, capable of serving in remote territories. Although nearly 93 % of births in Bamako are attended by Skilled Birth Attendants (SAB), the percentage remains lower in rural area like Mopti (34% of births) (WHO, 2011).

The underlying causes of maternal mortality were social and cultural - including early marriages and pregnancies, pregnancies spaced too closely together, complications of female genital mutilation, and lack of education and empowerment (UNICEF, 2008). Traditional values and norms among populations in rural areas in particular, (and those that prevail in Mali in general) shaped the household structure and decision-making process in the homes. Women's rights are very limited in Mali, where traditions dominate their daily lives (Social Institution and Gender Equality [SIGI]: Mali, 2009). In Mali, 92% of women have experienced female genital mutilation (FGM) (UNICEF, 2011), Violence against women, including wife beating, is tolerated and fairly common and girls marry at a very young age. The legal minimum age for women to marry is 15 years (SIGI: Mali, 2009), 50% of girls between 15 and 19 years of age are married, divorced or widowed. Some married at the very young ages of 9 or 10 (UN, 2004), this leads to adolescent pregnancies causing young girls to discontinue their education. In Mali, polygamy is commonplace. Just under half of married Malian women live in polygamous unions, giving Mali one of the highest rates of polygamy in the world. The percentage is higher in rural areas than in urban society, and illiterate woman are twice as likely to be affected than women who have received secondary education (SIGI: Mali, 2009). In addition, women move to the husband's home, often joining other wives and children. Husbands are the heads of families

and their wives are obliged to obey them. Women need to seek permission of the husbands or mothers - in –law, in the cases where the mothers-in-law live in the same household, regarding major decisions affecting their health (Gazali, Muktar and Gana, 2012). Certain ethnic groups view the wife as part of the inheritance, and insist that she marry a brother of her deceased husband. Improving the use of maternal health care in rural Mali requires recognition of multiple and complex factors.

Every woman is deserving of the absolute right to give birth in a safe and supportive environment. Certainly, improving access to maternal health services will reduce maternal mortality. It must begin with one's ability to understand the beliefs and traditions of community members of Mali, as they have a profound effect on the health of the community.

Outline of Research Study

This research is outlined in five chapters, beginning with the introduction chapter and concluding with chapter five. Chapter one introduces the significant issues relating to maternal health at a global level and Mali in particular. The purpose of the study is also described in chapter one. Chapter two contains the literature review relating to factors associated with the utilization of maternal health care services and the conceptual framework is also included. Chapter three describes the method of the research study and chapter four provides the results of the bivariate and multivariate analysis. Finally, conclusions and implications of the study are presented in chapter five.

CHAPTER TWO

REVIEW OF LITERATURE

Many studies have stressed the importance of antenatal care, adequate and accessible delivery sites, and the efficiency of skilled birth attendants in reducing maternal mortality and morbidity. This literature review highlights some of the frameworks used in explaining the determinants of maternal health care utilization in the developing world in general with emphasis on traditional beliefs.

Maternal Healthcare

Maternal health refers to the health of women during pregnancy, childbirth and the post-partum period (WHO, 2012). Motherhood is usually viewed as a rewarding and fulfilling experience, however, it can breed negative feelings among some women because of the suffering, ill health, and post-partum experiences sometimes associated with it; particularly in environments with less developed healthcare facilities. The main aim of maternal healthcare services is to reduce maternal and infant mortality. Therefore understanding the factors that affect or motivate an at-risk mother's decision to seek antenatal care is crucial (Babalola & Fatusi, 2005). A variety of factors have been identified as the cause of poor utilization of healthcare services. These include but are not limited to the following: availability of affordable yet quality services, cultural beliefs, and socio-demographic status (Chakraborty, Islam, Chowdhury, Bari and Akhter, 2003; Shaikh & Hatcher, 2005). In the present study, maternal healthcare is analyzed under the following three categories: antenatal care practices, delivery practices, and postnatal care practices.

Antenatal care. Antenatal Care (ANC) means "care before birth", and includes education, counseling, screening and treatment to monitor and promote the well-being of the mother and the fetus (WHO, 2005). Antenatal care, especially when performed from the early stages of pregnancy advocates regular check-ups for the health of the pregnant woman and early interventions in case of any complications (Mpembeni, Killewo, Leshabari, Massawe, John, Mushi and Mwakipa, 2007). There are significant disparities in infant and maternal mortality rates between developed and developing countries (WHO, 2010). This can be attributed to the lack of provision and utilization of antenatal services like prenatal and obstetrical care (Faundes, Hardy, Diaz and Pinotti, 1989; Maine and Rosenfield, 2002).

Antenatal care is the cornerstone for healthcare of pregnant women and their unborn children (Quelopana, Champion & Salazar 2007). It also helps to reduce the incidence of perinatal illness and death by providing opportunities for the promotion of health and information about birth preparedness, danger signs, and instances where care should be sought for complications of pregnancy (Gage, 2007). The World Health Organization (WHO) recommends a minimum of four antenatal visits based on a review of the effectiveness of different models of antenatal care. According to the WHO guidelines, antenatal care visits should include blood pressure screening, urine screening, and blood testing. A woman's heart must provide blood flow for both her entire body and for her baby's entire body and can be taxing on the mother's cardiovascular system. The urine screening would test for bacteriuria and proteinuria (bacteria or protein in the urine can be an indication of poor kidney function). Finally the blood test would detect syphilis and/or gonorrhea, which is the leading cause of blindness worldwide.

Several studies demonstrated an association between the use of antenatal care and positive maternal outcomes (Ren, 2011). A research study by Jayaraman, Chandrasekhar and Gebreselassie (2008), found that in Rwanda, a woman who visited services for antenatal care was more likely to deliver in a health facility or deliver at home with professional help than a woman who did not attend antenatal check-up. Utilization of antenatal care represented a unique opportunity to improve the health of women and their infants (Tann, Kizza, Morison, Mabey, Muwanga, Grosskurth and Elliott, 2007). A study in rural northern India found that antenatal care components were effective means to prevent pregnancy complications and to keep mothers safe and alive (Pallikadavath, Foss and Stones, 2004). Non-utilization of antenatal care may result in missed opportunities to identify and manage conditions that may threaten the life of the mother and the baby (Gage, 2007). Antenatal care exposes pregnant women to counselling and education about their own health and the care of their children. Thus, antenatal care is particularly advantageous in resource-poor developing countries, where people generally do not prioritize seeking healthcare. In areas like this, access to health services is limited as a baseline, so the rates of fetal demise are incidentally higher. Most mothers are poor, illiterate, and rural dwellers (Babalola & Fatus, 2009).

Rural women are least likely to use antenatal care. A 2005 study conducted by the WHO, found that urban women were twice as likely as rural women to have had four or more antenatal visits. In a study conducted in rural Kenya, nine out of ten women reported at least one ANC visit during their last pregnancy; however, two-thirds of these women began attending the ANC in the third trimester, and only half of these women made the recommended number of four

visits (Eijk et al., 2006). In rural Mali, according to the 2001 *Demographic and Health Survey* (DHS), 57% of pregnant women had at least one prenatal consultation, but less than one-third of these visits occurred within the first trimester, and only half were followed by an adequate number of repeat visits (Gage, 2007).

Antenatal care alone cannot prevent all obstetric emergencies arising during labor, delivery, and the immediate postpartum period (WHO, 2003), however, the information provided during antenatal visits remain essential to the safety of the mother and baby. Antenatal care serves as an important entry point into the health system and can facilitate women's access to medical care for future needs (Pallikadavath et al. 2004; Gage, 2007). Antenatal care has long been viewed as a screening tool to identify women who may be at risk of developing severe pre-natal complications, but recent debates have questioned its efficacy in the reduction of maternal mortality (Villar & Bergsjo, 1997).

Delivery care. The delivery location has also been found to be associated with the reduction of maternal mortality (UNICEF, 2003). Thaddeus and Maine (1994) and De Bernis, Sherratt, Abouzar, and Van Leberge (2003) found that when places of delivery are adequately equipped and appropriate skilled care is provided, maternal morbidity and mortality are effectively reduced. Conditions necessary for a safe delivery include a skilled attendant at every birth, such as a midwife, nurse trained as midwife, or a doctor. Mpembeni et al. (2007) stated that "The proportion of births attended by skilled health personnel was used as one of the important indicators to monitor progress towards the achievement of the millennium development goal of reducing maternal mortality rate". Skilled attendants are able to identify

early signs of pregnancy complications and can offer immediate emergency obstetric care leading to reduction in maternal and infant mortality (World Bank, 1997; De Bernis, et al., 2003)

In many developing countries a large proportion of births occurred at home or in other non-hospital settings, without the help of skilled health personnel (Eijk et al., 2006). In rural Mali for example, the majority of women gave birth at home with limited assistance (Gage, 2007). Eijk et al. (2006) found that in rural Western Kenya, 83 % of women delivered outside of a health facility, while 80 % of the 83% delivered in their homes. In Tanzania, only 47% of deliveries occurred in the health facilities and more than half delivered at home assisted by unskilled attendants (National Bureau of Statistics: Tanzania, 2005, as cited by Pembeni et al. 2007).

A functional referral system to deal with emergency obstetrics should be available in each facility (Villar & Bergsjo, 1997). Moreover, transportation should be available at anytime for referral of cases to appropriate facilities to ensure access to emergency obstetric care. It is important to have adequate delivery services with necessary equipment and skilled attendants because most obstetric complications are unpredictable, but severe damage can be prevented if adequate emergency obstetric care services are provided in a timely manner (UNICEF, 2003).

Postpartum care. Postpartum care is given to a mother within the six-week period after childbirth and is critical to a mother's health (Cheng, Fowles & Walker, 2006; Dhakal, Chapman, Teijlingen, Stephens & Raja, 2007). In addition, effective postpartum care is essential to maximize the survival of both the mother and newborn (Hishamshah, Ramzan, Rashid, Wan Mustaffa, Harron, Badaruddin, 2011). Strangely enough, about 70% of women in the developing countries do not receive any type of postpartum care (Hishamshah et al.2011). A survey data

conducted in Bla, Mali in 1990 found that only 34 percent of women interviewed sought postnatal care (Smith, Dmytraczenko, Mensah & Sidibe, 2004). In addition, postpartum hemorrhage (PPH) is the leading cause of maternal deaths in sub-Saharan Africa (Khan et al. 2006). In Nepal only 21 percent of new mothers received postpartum care (Dhakal et. al., 2007). Available studies indicate that some of the traditional postpartum practices are actually potentially harmful for the health and longevity of the new mother (McCarthy &Deborah, 1992; Syed et al. 2008).

Traditional Beliefs

"Tradition" in its technical sense means truths or principles of a divine origin revealed or unveiled to mankind (Marty, 2004). Traditional knowledge or belief was defined as knowledge of local people and their everyday life (Agrawal, 1995). Traditional cultural practices reflected values and beliefs held by members of a community for periods often spanning generations (Office of High Commissioner for Human Rights, [OHCHR], 1979). Every social group in the world has specific traditions, cultural practices, and beliefs. Some are based on religious beliefs and probing into religions further will provide an understanding of a particular culture. Traditional culture played a major role in the way a woman perceived and prepared for her birthing experience - this may positively or negatively affect the use of health care in general and maternal health in particular (Greene, 2007).

Religious beliefs within the community may act as a barrier for seeking care (Yousuf et al., 2011). Syed et al. (2008) found that religious beliefs were a barrier for ANC utilization in Bangladesh. Husbands and mothers- in-law were usually the decision makers about ANC and

some women also found the idea of ANC to be shameful, especially if they felt they would be examined by a male worker. A similar study was done among Ethiopian Afar, where women stated during a focus group that only God and their husband could see them naked (Yousuf et al., 2011).

Religious beliefs can also be the main reason for delayed referral to health services and preference for home delivery (Yousuf et al., 2011). Pregnant women may prefer consultation with local religious leaders, traditional healers, and traditional birth attendants (TBAs) over seeking care from qualified health providers. This most often leads to self-treatment (Nyamongo, 2002; Syed, et al., 2008). In rural Gambia, older women in menopause are seen as experts on pregnancy and childbirth. When consulted, they usually decide what should be done and their advice is taken. For example, an older woman may advise a woman in labor to wait until the next Muslim praying time before seeking care. "Labor and child birth takes place at certain times, and these times correspond with the Muslim praying times. It was around midday and the next praying time was 2:00 pm so we thought she will deliver by then. After 2:00pm she still did not deliver, then we decided to look for transportation to take her to the health center" (Cham**,** Sundby & Vangen, 2005). Another example is a study among Uganda women who felt embarrassed to give birth in a health facility because other members of the community would think they were not brave enough to give birth on their own (Ndyomugyenyi, Neema, and Magnussen,1998). In a study among the women of Benin, birth represented a rare opportunity for a woman to demonstrate pride, courage, and bring honor to her and her husband's families by her stoic demeanor. The woman who managed to deliver without indication that she was in labor and without calling for assistance until the child was born was especially esteemed (Sergent, 1990 as cited in Kyomuhendo, 2003).

Many non-Western cultures including (Latin America, Asia, and Africa) believed in the necessity of maintaining a "hot-cold balance" within the body and with the environment after the birth of a baby (Kim-Godwin, 2003). During the post-partum care, the blood is considered hot, therefore, after giving birth, when the mother has lost blood she was considered to be in a cold state. Post-partum care in these cultures was aimed at keeping the new mother warm and it was therefore believed that this would restore her humeral balance (Kim-Godwin, 2003). In China according to the custom "doing the month", the new mother should not subject herself to sunshine, wash her hair or touch cold water. The mother should consume hot or warm food during that month because hot food would enrich the blood and help with the recovery process (Raven et al., 2007). In a most extreme example in rural Cambodia, “roasting” is the most popular and traditional postnatal activity. Women spend a minimum of three days and up to a month, lying beside a fire or on a mat bed over coals where she is “roasted” to revive her strength and replace the heat that is perceived to have been lost during childbirth (Matsuoka, Aiga, Rasmey, Rathavy, and Okitsu , 2010).

Many communities in Africa and Asia observe practices that keep mothers and babies indoors and this can delay care when needed (Warren, Daly, Toure,L.and Mongi, 2006,). In Nepal, during the postpartum period, the mother and the baby are considered polluted and should be left alone (no one should touch them or be in contact with them). This behavior can affect the handling of postnatal emergency (Syed et al, 2008).

Breastfeeding is another important practice of post-partum care. In many cultures, breast feeding is performed later because they perceive colostrum, the early milk, to be bad or spoiled (Greene, 2007). In reality, colostrum is the most nutritious form of food that a baby could possibly eat, and very little of it is produced at all. Colostrum is only produced within 24 hours of delivery, and often times breast feeding a newborn child can be incredibly difficult for some women.

Other harmful traditional practices that impact maternal health include female genital mutilation (FGM), early marriage, early pregnancy, traditional birth practices such as pushing on the abdomen to hasten delivery, and the use of certain surgical procedures (OHCHR,1979). For example in northern Nigeria, traditional healers make an incision in the vagina (Gishiri cuts) on women who are not making progress in labor (McCarty & Maine, 1992). Some ethnic groups in Sierra Leone discourage pregnant women from eating meat and eggs, because it is believed that eating meat during pregnancy will cause her to give birth to a witch (Offor, 2010). There were however, some traditional practices that were beneficial to the mother and baby (Raven et al., 2007). For example, among many cultures in Africa, women were encouraged to breastfeed their infant for over a year, thus encouraging the practice of spacing between pregnancies (Offor, 2010).

Socio-demographic Factors

Women's education has been found to be one of the key determinants of maternal healthcare utilization (Celik & Hotchkiss, 2000; Navaneetham & Dharmalingham, 2002; Pallikadavath et al., 2004). Chakraborty et al. (2003) confirms the importance of women's

education in the utilization of health care services in developing countries. In India for example, women with high school education and above were 11 times more likely to use antenatal care compared to illiterate women (Navaneetham & Dharmalingham, 2002). In Mali, low maternal women's education has also been found to be an obstacle to the improvement of maternal healthcare utilization (Gage, 2007). Education of women likely enhanced autonomy so that women could develop confidence and capabilities to make decisions regarding their own health (Navaneetham & Dharmalingham, 2002). Educated women were more aware of health problems, knew more about the availability of health care services, and used information to achieve good health status (Chakraborty et al., (2003).

A woman's age, number of pregnancies carried, and whether or not she was married, were factors that played an important role in the utilization of maternal health care services (Chakraborty et al., 2003; Pallikadavath et al., 2004). Women carrying their first child were probably more susceptible to difficulties during labor and were more cautious than women who have had several births (Raj, Saggurti, Balaiah & Silverman, 2009). Therefore, women who were pregnant for the first time were more motivated to utilize maternity care because they did not know what to expect from the process (Pallikadavath et al., 2004; Singh, Rai, Alagarajan & Singh, 2012). Subsequently, as a woman endured more pregnancies, she would rely on her experience and drew from that knowledge (Singh et al., 2012). In a study conducted in Karnataka, India, there were no significant differences in the likelihood of receiving antenatal care between first and second order birth, but it was an important predictor for women who had four or more births. In this later group the probability of receiving antenatal care was reduced by 60 % (Navaneetham & Dharmalingham, 2002). Age was highly correlated with parity (number

of pregnancies) and, in some settings, with educational level (Gabrysch & Campbel, 2009). A mother's age may serve as a proxy for the woman's accumulated knowledge of health care services, which would have a positive influence on the use of health services. Older women were more likely to seek maternal healthcare than younger women (Chakraborty et al., 2003). In a study conducted in Jamaica, teenagers were more likely not to attend antenatal care or to attend it later, when compared to woman in their twenties. Babalola & Fatusi (2009) found that in Nigeria, women in the middle child bearing ages were more likely to use maternal health services than women in early and late child bearing.

Being of older age at marriage is positively associated with the use of healthcare services. One study in rural India reported that utilization of antenatal care was higher among women married at 19 or older compared to those married at less than 19 years (Pallikadavath et al., 2004). Early marriage or child marriage is practiced more often in Africa and Southern Asia. In these areas, a higher proportion of teenage girls are married to much older men, sometimes as early as 9 or 10 years of age, based on religious and cultural beliefs (Babalola & Fatusi, 2009; UN,2004) The girls may be restricted from seeking healthcare services because of fear or need for permission from a spouse or in-laws.

Ethnicity and religion are often considered markers of cultural background and are thought to influence beliefs, norms, and values in relation to childbirth, service use, and women's status (Gabrysch & Campbel, 2009). Ethnic identity may also be associated with health beliefs that influence whether care is sought and whether that care is traditional or biomedical (Glei, Goldman and Rodriguez, 2003). In a study conducted in Nigeria, it was determined that ethnicity

seemed to make no significant difference in the use of antenatal care, however, it made a significant difference in the use of skilled assistance and post- natal care. In the same study, it was found that the level of service utilization was significantly higher among the Igbos (in the south) and the minority tribe compared to the Hausas (in the north). This result reflects the influence of the cultural and religious beliefs in the north. The Islamic religion may have had a strong influence on the cultural beliefs and traditions on child birth of the Hausas in the north (Babalola & Fatusi, 2009). Whether or not a woman is employed is one of the most important factors that positively influenced the use of maternal healthcare (Chakraborty et al., 2003). Women who were working and earning money may have been able to save and decided to spend it on a facility delivery (Gabrysch & Campbel , 2009).

Conceptual Framework

Kroeger (1983) developed a conceptual framework for assessing healthcare behaviour. The model answered the question of how people enter the sick role and make choices regarding the use of different health services. Kroeger suggested grouping the models into the following three categories: (a) characteristics of the subject (predisposing factors) including age, sex, marital status, ethnic group, formal education, and occupation; (b), characteristics of the illness including, expected benefit of treatments, and an etiological model, and (c), characteristics of the health care system, including accessibility, acceptability, and quality of care.

Another framework for the use of maternal healthcare is the Attitudes-Social influence model (ASE) (De Vries & Backbier, 1994). The ASE-model includes the Theory of Reasoned Action (Fishbein & Ajzen, 1975) and Social Learning Theory (Bandura, 1986). In the ASE-

model, there are three main psycho-social factors that have been identified to predict behavior intention - attitudes, social influences, and self-efficacy. A person's attitude towards a specific behavior is a result of the consequences that person expects from performing the behavior. For example, attitude may be a deciding factor in whether to breastfeed the baby or use bottle milk. Due to social influence as a result of social norms individuals may sway them because they are perceived to be an expert in the matter at hand. Self-efficacy expectations can be seen as a person's belief whether she can perform the desired behavior and can cope with barriers that may hinder actual performance. The implication of the model is that a person's health behavior can be changed, by changing her attitudes, her perception of social norms, social support, and her self-efficacy expectations (Amooti-Kaguna & Nuwaha, 2000).

This short literature review has shown the importance of variety of characteristics in determining maternal health care behavior. Numerous research studies have been performed on the effect of socio demographic determinants on the use of maternal health care, however there has not been a focus on the role of traditional values in the use of maternal health care. The purpose of this study is to explore the relationship between traditional values around pregnancy and childbirth and the receipt of maternal health care services.

CHAPTER THREE

METHODS

Study Setting

The analysis in this study used data from the 2011 "Project Espoir", which translates to mean "Project Hope." This was a collaboration among CARE USA, CARE Mali and Emory University. The study took place in two health districts in Mali - Bankaas and Bandiagara. The Bankass health district was designated as the intervention group and the Badiangara as the control group. Both sites are located in the Dogon territory of Mali.

The medical system in Mali is comprised of three levels. The central level has five public hospital establishments (EPH) and a maternal-child facility. The second and third levels of the health systems are comprised by the Reference Health Centers (CSREF) and Community Health Centers (CSCOM) respectively. There is an average of 20 CSCOMs per CSREF. The leading authority figure of the individual CSREF operates in a supervisory role over the CSCOM in its jurisdiction.

The health district of Bankass has a population of approximately 263,446 distributed in 281villages. The villages are served by 19 health community centers (CSCOM), and one district hospital (CSREf) located in Bankass. The health district of Badiangara, also known as the land of the Dogon, has a population of approximately 317, 965, and a total of 428 villages served by 22 CSCOMs and one CSREF located in Badiangara.

Sampling and Data Collection

The survey adopted a two-stage sample design. We began by selecting 30 villages from 19 CSCOMs in the Bankass health district and 30 villages from 22 CSCOMs in the Badiangara health district for a total of 60 villages in all. To ensure inclusion of CSCOMs that do not cover many villages we proceeded as follow to select villages in each CSCOM

A /B X 30 (C) = D

A: Number of villages per CSCOM

B: Total number of villages in the district

C: Number of villages to be surveyed in each district

D: Number of villages to be selected in each CSCOM

We applied this procedure to all the CSCOMs in Bankass and Badiagara, rounded up if D was more than 0.5 and rounded down if less than 0.5. We then selected ten households from each village and four family members within each household to participate in the interview. Forty surveys were completed per village for a total of 600 households and 2400 participants in the end. To be eligible to participate in the survey, a household had to contain a woman who gave birth within the last twelve months. In the sampled households, interviews were conducted on women (>14 years) who have gave birth within the previous 12 months, along with her husband, mother-in-law and co-wife in the case of a polygamous household. In Mali the legal

age of marriage is 18 for girls, but they may be married as early as age 15 with parental consent (Population Council, 2004).

The field work was carried out by three teams of eight investigators. Each team consisted of one team leader, and seven interviewers. The main duty of the team leader was to examine the completed questionnaires in the field for completeness, consistency, and legibility of the information collected, and to ensure that all necessary corrections were made. Special attention was paid to missing information and skipped instructions. If major problems were detected, the interviewers were required to revisit the respondent to correct the errors.

An additional duty of the team leader was to observe ongoing interviews and verify the accuracy of the method of asking questions, recording answers, and following up on skipped instructions. The team leader was responsible for the overall operation of the field team. Interviewers were hired taking into considerations their educational background, and experience. They were trained in a workshop organized by CARE Mali. The training lasted three days and it covered different aspects of the survey. The training course consisted of instruction in interviewing techniques, detailed review of each item in the four questionnaires used in the survey, methods of data collection and mock interviews between participants in the classroom. In addition to the main training a ‘pre’ and ‘pilot’ testing of the questionnaire that lasted one day were administered to a neighboring village whose population characteristics mirrored those of the authentic survey sample for trained interviewers. It focused on the methods of detecting errors in field procedures and in the filled-in questionnaires.

Tools for data collection

Four different questionnaires were developed, one for each member of the household interviewed: the husband's questionnaire, the woman's questionnaire, the mother-in-law's questionnaire and the co-wife's questionnaire, each of which contained 9 sections. Section one included socio demographic factors such as age, religion, ethnicity, marital status, education, and employment, section two contained information about traditional practices, section three was on basic knowledge about practices during pregnancy and birth, section four included information on relationships. Section five and six contained information about power, section seven included information about the value of women, section 8 included social norms and self-efficacy and section 9 was about attitudes towards health services. The woman's questionnaire also included three more sections to collect information on (1) her birth history; (2) her use of ANC, delivery, and postpartum care: information on whether women received antenatal and postpartum care, whether they delivered in a medical institution and who attended the delivery ; (3) her knowledge and use of family planning methods. These four questionnaires were developed in the English language and translated into French which is the official language of Mali.

The section about traditional practices consisted of seven main questions and each main question had a sub question for a total of 14 questions (see table 1). To answer the main questions participants were instructed to indicate their answers on a printed 10-point ladder (picture 1) raging from (1)" bottom of the ladder or total disagreement" to (10) "top of the ladder or total agreement". For the sub questions participants were asked whether or not they practiced the specific tradition in their last pregnancy. Instructions were given verbally to the

participants on how to answer question and interviewers explained what each number on the ladder meant. Participants were allowed to ask questions if there was any confusion.

Picture 1: Interview of a Peulh woman in the village of Balaguina in Bankass

Picture by Henriette Bulambo on 07/06/2011.

Informed consents were used to ask participants for their consent to participate in the survey. Finally, only participants who consented were able to participate in the survey and confidentiality was emphasized. No record of names was collected to better ensure open and honest dialogue between participants and the research team**.**

Table 1. Questions on traditional practices in the woman's questionnaire

Traditional Practices / Cultural Practices		
Interview Read: *"Now, I would like to ask you about some things that might happen to a pregnant woman: I am going to show you a ladder; the top of the ladder is total agreement, the bottom is total disagreement: for each one I read to you, please tell point to the ladder to show me how much you agree with it"*		
QUESTION	**ANSWER**	
1. For a week after she has given birth, a woman should be given hot food only [HOTFOOD]	[____]	
2. Did you do this in your last pregnancy? [DIDHOTFOOD]	Yes……..…..…….....1 No…….....0	
3. A woman can use traditional herbs as a enema during pregnancy to relieve constipation [supp]	[____]	
4. Did you do this in your last pregnancy? [didsupp]	Yes……..…..…….....1 No…….....0	
5. The baby should not be breastfed until all of the colostrum has been removed [COLOSTRUM]	[____]	
6. Did you do this in your last pregnancy? [DIDCOLOSTRUM]	Yes……..…..…….....1 No…….....0	
7. A woman must obey her husband during pregnancy to make sure she has an easy delivery [OBEY]	[____]	
8. Did you do this in your last pregnancy? [DIDOBEY]	Yes……..…..…….....1 No…….....0	
9. A pregnant woman should not bathe after sunset [SUNSET]	[____]	
10. Did you do this in your last pregnancy? [DIDSUNSET]	Yes……..…..…….....1 No…….....0	
11. A woman is strong if she is silent during childbirth [SILENT]	[____]	
12. Did you do this in your last pregnancy? [DIDSILENT]	Yes……..…..…….....1 No…….....0	
13. The husband should not be present at the childbirth [HUSPRES]	[____]	
14. Was your husband present at your last birth? [DIDHUSPRES]	Yes……..…..…….....1 No…….....0	

Sources: Woman survey; 'Projet espoir' CARE MALI, CAREUSA, Emory university

Statistical Analysis

Data analysis was completed using STATA 12. The unit of analysis for this study is women who gave birth within the last 12 months. Statistical analysis was performed to estimate the effect of covariates on the maternal health care services utilizing bivariate and multivariate logistical regression models. The results of analyses will be discussed following the descriptive analysis of each variable. The choice of using antenatal, delivery, and postpartum care by the participants was highly dependent on her traditional belief and socio-demographic status. For women who received some level of antenatal care their outcome variable was coded using the number '1'. For women who received no antenatal care the number '0' was used as a descriptor. This numeric system was repeated for all other factors including place of delivery, number of antenatal care visits, time of the first antenatal care visit, and if the women received the minimum four antenatal visits recommended by WHO.

The following dichotomous dependent variables were created:

1. Place of delivery: 0= whether their last born was born at home or any other non-medical places, 1= whether their last born was born at a health care center institution

2. Whether women received some antenatal care visit during their pregnancy: 0= did not received any antenatal care, 1= received any antenatal care

3. Timing of first ANC visit: 0= if a woman received antenatal care, and the first visit was after the second trimester (six months) or later during the pregnancy; 1= if a woman received antenatal care, and the first visit was in the first six months

4. Number of antenatal care visits (frequency): 0= if a woman received antenatal care services, and she had fewer than four checks-ups. 1= if a woman received antenatal care, and she had at least four check –ups.

5. WHO: 0= all other; 1= If a woman received antenatal care, and she had at least four check-ups and the first visit was in the first 6 months (standard minimum of care for pregnant women recommended by WHO).

Traditional beliefs were measured on a 10-point scale that included the categories (1) "totally disagree", (2) "disagree", (3)" partially disagree" , (4) " slightly disagree", (5) "neither agree nor disagree" , (6) "slightly agree", (8) "partially agree", (9) " agree" (10) "totally agree". The mean rating for each question was calculated separately. We measured the practice of tradition with two items: '1' for yes and '0' for no.

Logistic regression was used because the dependent variables were categorical and dichotomous (Alison, 1984; Hosmer & Lemeshow, 2000 cited by Navaneethan & Dharmalingam, 2002). The logistic model employed was designed specifically to speculate as to the relationship that existed between the binary dependent variable and a separate group of independent variables. At the same time, confidence intervals (CI) were utilized to represent the 'odds ratios'. This was done in place of p-values because CI offers more comprehensive information (Cummings and Rivara, 2003). Finally, speaking statistically, a large CI indicates a low level of precision of the odd ratio (OR), whereas a small CI indicates a higher precision of the OR (Szumilas, 2010).

CHAPTER FOUR

RESULTS

Socio-demographic Characteristics

There were 539 women included in the study. The majority of women were 20-34 years old (43%), a little less than half of women (40%) did not know their age and over three –quarters (80 %) of women were Dogon. Half of women reported not knowing their age at marriage, and a small proportion (10%) got married at age 20 or older. Half of the women reported to be in a polygamous marriage and almost similar proportion had more than five children. The overwhelming majority of women (90%) had never been in school. The percentage of women working and earning was about 25% (Table 2).

Table2. Socio-demographic characteristic of the study sample

Characteristics	Frequency	Percentage
Age of respondent		
14- 19	52	9.8
20- 34	227	42.7
35 +	44	8.3
Don't know	209	39.2
Ethnicity		
Dogon	429	80.8
Peulh	65	12.2
other	37	7
Age at marriage		
10 - 16	143	26.7
17- 19	118	22.1
20+	56	10.5
Don't know	218	40.8
Polygamous		
Yes	268	49.9
No	269	50.1
How many co wives		
0	246	46.2
1	244	45.8
2+	43	8
Parity		
1- 2	149	28
3 - 4	163	30.5
5+	222	41.5
Education		
No schooling	478	89.2
Schooling	58	10.8
Work status		
Not working	397	73.9
Working	140	26.1

Traditional beliefs and practices

Findings from traditional beliefs and practices have been presented in table 3.

Women scored the highest (mean =8) when asked if they should be given hot food after giving birth, if they should obey their husband during pregnancy to make sure they have an easy delivery and if they should stay silent while giving birth. For the three mentioned factors, over three-quarters of women in our study practiced the belief. When asked if husbands should not be present at delivery, respondents also score high (mean =7.4), and a small proportion (14.9%) said their husbands were present at their last delivery.

Women scored average (mean=5-6) when asked if the baby should not be breastfed until all the colostrum had been removed, if pregnant women should not bath until sunset, and if women can use traditional herbs, such as an enema, during pregnancy to relieve constipation. For the first two aforementioned factors, over half of women practice the belief and only one third of women in our study use traditional herbs during pregnancy to relieve constipation

Table 3. Traditional beliefs and practices of respondents

Belief	mean score	Practice %
For week after she has given birth, a woman should be given hot food	8.38	Yes - 92.9
A women can use traditional herbs as a enema during pregnancy to relieve constipation	5.71	Yes- 39.6
The baby should not be breastfed until all of the colostrum has been removed	5.47	Yes- 59.3
A woman must obey her husband during pregnancy to make sure she has an easy delivery	8.55	Yes- 96.3
A pregnant woman should not bathe after sunset	5.79	Yes- 54.5
A woman is strong if she is silent during childbirth	8.49	Yes- 76.9
The husband should not be present at the childbirth	7.36	Yes- 14.9

Outcomes

Table 4 shows the pattern of maternal health care utilization in the health district of Bankass and Badiangara. Institutional delivery increases the survival of the mother and her newborn baby. As regards the place of delivery, three-quarters of women deliver at home in both Bankass and Badiangara districts.

It is clear that the majority of mothers in Bankass (79%) and Badiangara (73%) received antenatal care. It is also interesting to note that most of the women (around75%) in both districts had their first antenatal check-up in the first 6 months. However over half of women (67 %) had fewer than four ANC visits during their pregnancy in both districts and only one third of women (32%) received at least four ANC visits during their pregnancy. About one in five women in

both districts of Bankass and Badiangara received the standard minimum of care for pregnant women recommended by WHO.

Table 4. Pattern of Maternal Health Care Utilization in Bankass and Badiangara (per cent**)**

Maternal care Services	Overall	Bankass	Badiangara
Place of delivery			
Home or any other place	78.5	70.1	86.7
Any type of medical institution	21.5	29.9	13.3
Received ANC			
Nothing	23.8	20.5	26.9
Any ANC	76.2	79.5	73.1
ANC timing			
Had first ANC visit after 6 months or no ANC	22.8	21.9	23.9
Had first ANC visit in the first 6 months	77.2	78.1	76.1
ANC Frequency			
Had 0 or fewer than 4 ANC visits	67.9	67.5	68.4
Had at least 4 ANC visit	32.1	32.5	31.6
WHO			
All other	70.1	76.7	78.2
Had at least 4 visits and the first visit was in the first 6 months	29.9	23.3	21.8

Bivariate Analysis

The results for bivariate analysis are given in Table 5.

Bivariate analysis shows no significant association between tradition and the use of health care services. However, socio-demographic factor such as mother's ethnicity and age at marriage showed significant association with the use of health care services.

Mother's ethnicity was significantly associated with the choice of place of delivery and the use of antenatal care. The odds of delivering in a medical institution (OR = 0.28 95 %, CI 0.10- 0. 72) and of using ANC (OR =0. 53 95 % CI 0.30- 0.93) by Peulh women were significantly lower when compared to women of other ethnic group.

Age at marriage was significantly associated with the choice of place of delivery, the use of ANC, the timing of the first ANC visit, the number of ANC visits and the receipt of standard minimum of care of pregnant women recommended by WHO. The odds of delivering in a medical institution (OR= 0.45 95%, CI 0.28-0.76) and of using ANC (OR = 0.56 95%, CI 0.34 -0.76) by women who did not know their age at marriage were significantly lower compared to women who knew their age at marriage. Women who married after the age of 20 had significantly less odds of receiving first antenatal care check up in the first six months (OR = 0.25 95%, 0.11-0.58) compared to women who married young (OR = 0.38 95%, CI 0.18- 0.78). The same group of women (age 20 and older) had significantly less odds (OR = 0.29 95%, CI 0.12-0.66) of making the four recommended ANC visits compared to younger women (OR = 0.52 95%, CI 0.29-0.92) and women who did not know their age (OR= 0.44 95%, CI 0.26-0.77).

The odds of receiving the minimum of care for pregnant women recommended by WHO was also significantly less in women over the age of 20 (OR = 0.28 95%, CI 0.12-0.68).

Table 5. Bivariate analysis

Characteristic	Place of delivery OR (95 % CI)	Received ANC OR (95 % CI)	Time of first of ANC visit OR (95 % CI)	Number of ANC visits OR (95 % CI)	WHO OR (95 % CI)
Age of respondent					
14-19					
20-34	1.14 (0.56 - 2.32)	0.99 (0.46 - 2.12)	0.89 (0.38 - 2.11)	1.70 (0.75 - 3.83)	1.48 (0.68 - 3.25)
35+	0.98 (0.37 - 2.54)	0.51 (0.19 - 1.30)	1.04 (0.31 - 3.46)	0.84 (0.26 - 2.74)	0.72 (0.23 - 2.25)
Don't Know	0.67 (0.31 - 1.40)	0.60 (0.28 - 1.28)	0.96 (0.39 - 2.34)	1.44 (0.62 - 3.34)	1.02 (0.4 - 2.31)
Ethnicity					
Dogon					
Peulh	**0. 28 (0.10, 0. 72)**	**0.53 (0.30 - 0.93)**	0.90 (0.40 - 1.99)	0. 95 (0.45 - 1.95)	0.82 (0.41- 1.61)
Other	1.37 (0.69 - 2.72)	1.35 (0.60 - 2.99)	0.80 (0.35 - 1.80)	0.73 (0.33 - 1.64)	0.77 (0.35 - 2.31)
Age at Marriage					
10 16					
17-19	1.07 (0.62 - 1.85)	1.47 (0.77 - 2.80)	**0.38 (0.18 - 0.78)**	**0.52 (0.29 - 0.92)**	0.62(0.36 - 1.09)
20+	0.65 (0.30 - 1.38)	1.22 (0.55 - 2.70)	**0.25 (0.11 - 0.58)**	**0.29 (0.12 - 0.66)**	**0.28(0.12 - 0.68)**
Don't Know	**0.45 (0.26 - 0.76)**	**0.56 (0.34 - 0.76)**	0.51 (0.25 - 1.03)	**O.44 (0.26 - 0.77)**	**0.37(0.22 - 0.63)**
Polygamous					
No					
Yes	1.13 (0.75 - 1.72)	1.09 (0.73 - 1.62)	0.93 (0.57- 1.51)	0.77 (0.50 - 1.20)	0.77(0.50 - 1.18)
How many cowife					
0					
1	1.26 (0.82 - 1. 95)	1.12 (0.74 - 1.71)	0.90 (0.53 -1.50)	0.72 (0.45 - 1.14)	0.74(0.47 - 1.16)
2+	1. 08 (0.05 - 2.41)	0.96 (0.46 - 2.04)	0.69 (0.29 - 1.63)	0.89 (0.40 - 1.98)	1.92(0.42 - 1.99)
Parity					
1 2					
3 4	0.92 (0.54 - 1.58)	0.78 (0.46,-1.37)	1.81 (0.95 - 3, 45)	2.12 (1.18 - 3.81)	1.60 (0.90 - 2.81)
5+	0.91 (0.55 - 1.50)	0.65 (0.39-1.07)	1.31 (0.74 - 2.31)	1.60 (0.92 - 2.80)	1.23(0.71 - 2.12)
Education					
No schooling					
Schooling	1.17 (0.61 - 2.22)	1.55 (0.76 - 3.17)	1.02(0.48 - 2.17)	0.59 (0.28 - 1.25)	0.68(0.32 - 1.45)
Work Status					
Not working					
Working	1.78 (1.15 - 2.76)	1.11 (0.70 - 1.77)	1.08 (0.62 - 1.87)	1.1 (0.67 - 1.78)	1.24(0.78 - 1.99)
Tradition					
0 -70	0.76 (0.51 - 1.13)	1.33 (0.90 - 1.95)	1.02 (0.64 - 1.61)	1.20 (0.79 - 1.81)	1.32 (0.88 - 1.98)

OR : Odd Ratio
CI: Confidence Interval

Multivariate Analysis

Multivariate analysis results are presented in table 6.

Results from multivariate analysis show that women who followed tradition had significantly lower odds of receiving the standard minimum of care for pregnant women recommended by WHO (OR = 0.21 95 %, CI 0.05-0.86).

The significant bivariate analysis between woman's ethnicity, choice of place of delivery and the use of ANC remained significant in the multivariate analysis. The results of multivariate analysis also reinforce the results of bivariate analysis that age at marriage was significantly associated with the choice of place of delivery, the timing of the first ANC visit, and the number of ANC visits and the receipt of standard minimum of care for pregnant women recommended by WHO.

Table 6. Multivariate analysis

Characteristic	Place of delivery OR (95 % CI)	Received ANC OR (95 % CI)	Time of first of ANC visit OR (95 % CI)	Number of ANC visits OR (95 % CI)	WHO OR (95 % CI)
Age of respondent					
14-19					
20-34	1.95 (0.79,4.82)	1.51 (0.61, 3.76)	0.82 (0.29, 2.28)	1.54 (0.59, 4.01)	1.50 (0.60, 3.73)
35+	1.77 (0.51,6.14)	0.91 (0.27, 3.00)	1.11 (0.26 ,4.68)	0.87 (0.22, 3.42)	0.90 (0.24, 3.35)
Don't Know	1.89 (0.64,5.45)	1.75 (0.60, 5.05)	0.82 (0.24, 2.78)	1.97 (0.65, 5.97)	2.07 (0.71, 6.04)
Ethnicity					
Dogon					
Peulh	**0.26 (0.09,0.78)**	**0.49 (0.26, 0.94)**	0.36 (0.26, 1.52)	0.78 (0.35, 1.74)	0.75 (0. 36, 1.57)
Other	1.60 (0.76,3.36)	1.11 (0.47, 2.60)	0.78 (0.32, 1.87)	0.98 (0.41, 2.33)	0.94 (0.40, 2.20)
Age at Marriage					
10-16					
17-19	1.01 (0.56, 1.83)	1.38 (0.69, 2.73)	**0.39 (0.19, 0.83)**	**0.50 (0.27, 0.92)**	0.60 (0.33, 1.09)
20+	0.54 (0.23 ,1.24)	1.38 (0.55, 3.47)	**0.28 (0.11, 0.68)**	**0.28 (0.11, 0.69)**	**0.29 (0.11, 0.74)**
Don't Know	**0.34 (0.16, 0.72)**	**0.38 (0.19, 0.77)**	0.50 (0.20, 1.23)	**0.32 (0.15, 0.68)**	**0.26 (0.13, 0.55)**
Polygamous					
No					
Yes	1.62 (0.56, 4.69)	1.27 (0.47, 3.41)	1.05 (0.33, 3.34)	1.05 (0.34, 3.17)	0.99 (0.36, 2.72)
How many cowife					
0					
1	0.60 (0.20, 1.74)	0.83 (0.31, 2.24)	0.90 (0.28, 2.86)	0.72 (0.24, 2.15)	0.77 (0.28, 2.11)
2+	0.59 (0.15, 2.23)	0.63 (0.18, 0.77)	0.76 (0.18, 3.21)	0.91 (0.23, 3.56)	1.06 (0.29, 3.80)
Parity					
1-2					
3-4	0.81 (0.42, 1.54)	0.86 (0.45, 1.65)	2.24 (1.08 , 4.66)	1.81 (0.93, 3.54)	1.43 (0.75, 2.73)
5+	0.94 (0.50 , 1.79)	0.86 (0.46, 1.60)	1.40 (0.71, 2.76)	1.78 (0.91, 3.45)	1.39 (0.73, 2.64)
Education					
No schooling					
Schooling	1. 12 (0.54 , 2.28)	1.38 (.62, 3.06)	1.19 (0.53, 2.66)	0.71 (.032, 1.59)	0.71 (0.31, 1.59)
Work Status					
Not working					
Working	2.10 (1.28, 3.43)	1.05 (0.63, 1.74)	1.02 (0.56 , 1.85)	1.21 (0.71, 2.06)	1.34 (0.81, 2.22)
Tradition					
0 - 70	0.70 (0.45, 1.08)	1.21 (0.81, 1.83)	1.02 (0.62, 1.67)	1.11 (0.71, 1.73)	**0.21 (0.05, 0.86)**

OR : Odd ratio
CI : Confidence Interval

CHAPTER FIVE

DISCUSSION

In this study we found that tradition is significantly associated with the receipt of the standard minimum of care for pregnant women recommended by WHO. The lower coverage of the WHO package among women who followed tradition can be attributed to the fact that in rural Mali women do not decide on their own to seek care, the decision belongs to the husbands or senior member of the family like the mother- in- laws. This tradition is popular in most Muslim societies (Syde et al., 2008) where the husband or another senior member of the family made decisions concerning a woman's health (Syde et al.,2008). Gazali, Muktar and Gana (2012) in their study cited an example from Prevention of Maternal Mortality Network (1992) related to the decision- making of women concerning health care utilization, "a woman with obstructed labour, who lived ten minutes walk from hospital but who could not leave the house because her husband was away on a business trip. By the time he returned and gave permission for her to be taken to hospital, she had developed vesico vaginal fistula (VVF) and the baby was dead in the uterus". As shown in the example male dominance can cause a woman to delay or miss her ANC visits because her husband or another senior member of the family like her mother-in-law was not present at home when she needed to go to the health care facility.

This study has identified some beliefs that shaped maternal health practices that could eventually impact the use of health care services. One interesting finding is the high percentage of women (96 %) who believed they must obey their husbands during pregnancy in order to have an easy delivery. In rural Mali husbands and senior family members, such as mother-in-laws,

make all women's maternal health decisions. Male dominance can lead to delay in seeking health care services (Yousuf et al., 2011). Likewise, a higher percentage of women (76%) believed that a woman was strong if she was silent during childbirth. This is consistent with a previous study performed in Benin where researchers found that if a woman managed to give birth without indication that she was in labor and without calling help it was a sign of bravery (Sergent 1990, as cited in Kyomuhendo, 2003).This was another practice that delayed use of health care services.

Some beliefs were found to be extremely important, although not necessarily barriers to women's use of health care services. Postpartum traditions, such as the baby not being breastfed until all of the colostrum has been removed, is still practiced by a great proportion of women in rural Mali - about 59 % of the mothers did not give their infants colostrum. This practice is confirmed in previous studies that have shown mothers were hesitant to feed colostrum to their new born baby due to the misconception that it should not be given to an infant (Ojofeitimi, 1981; Torimiro, Onayade, Olumese & Makanjuola, 2004). Another postpartum practice, whereby a woman should be given "hot food" a week after giving birth, is still highly practiced in many African and South Asian countries.

Another interesting finding that emerged from this analysis is that ethnicity is an important predictor of antenatal care and delivery care in rural Mali. Peulh women were less likely to use both antenatal and delivery care compared to women of other ethnic groups. The low utilization of health services among Peulh women can be attributed to their nomadic, pastoral lifestyle. One of the main factors affecting the use ANC and delivery care with

pastoralist community is the mobility pattern and inaccessibility of existing health facilities (Yousuf et al., 2011). Pastoralist communities live in remote areas where there are no health facilities available, especially in the drought season when there is massive cattle loss. Another possible explanation for the low use of ANC and delivery care services is the fact that Peulh are a minority compared to the Dogon, in line with finding from research done by Scheppers, Dongen, Geertzen & Dekker (2005); being an ethnic minority can act as a barrier and can account for less use of specialized services.

The results from this study also show that the age at marriage exerted significant influence on the utilization of maternal health services. Women who were older in age at marriage have always been positively associated with use of health care services (Pallikadavath et al., 2004); however in this study, women who got married at age 20+ were less likely to get four antenatal visits and to get their first check up within 6 months. The percentage is slightly higher for women who didn't know their age at marriage (40 % of women in our study didn't know their age at marriage). The higher ANC utilization among women who got married younger remains surprising. Although a woman's education was not a significant determinant of maternal healthcare utilization in this study, its impact might be the reason why older age at marriage is negatively associated with the use of care in this study. Older age at marriage has always been associated with education. It is believed that the older the women who get married, the greater the chance that she has an education. Conversely, the younger a woman is when she is married, the lower the chance of her being educated. In our study education did not have an effect on the age at marriage or consequently on the use of health care facilities because almost every women in our study (90%) did not go to school.

Conclusions

The objective of this study was to understand the relationship between traditional values around pregnancy and child birth in Mali and the receipt of maternal health care services. This study indicates that certain cultural and religious beliefs plus negatives roles played by husbands' influences women's use of health care services. Additionally, poor maternal health care utilization can also be attributed to unawareness of women in rural Mali, which is also a direct reflection of Malian culture and tradition. The majority of women in rural Mali don't have a formal education, because they tend to marry at a very young age. These traditional beliefs are deep-rooted and multigenerational. Strong community proponents of these beliefs are resistant to change. As a result, these traditions are not easily dislodged or replaced. Cultural influences often clash with changing policy measures, and there can be resistance from the community if appropriate communication, trust, and respect are not projected by those asking for change.

Recommendations

Strategies could be developed to support practices that are beneficial, and changes could be implemented if unhelpful practices - were identified. Isolating the traditional beliefs and practices that impact the overall health of women and children should be the primary goal. Women would then be convinced to change their behavior- and proactively seek out health care services if they were confident and comfortable with their choices. Facility-based care must be also improved because with access to education, women would be able to make choices for themselves. However public awareness and support from the community is necessary in order to effect any change. Community awareness is a necessary agent of change so members of the community

must understand the negative consequences of ignoring health care so that traditional beliefs could be targeted and possibly reversed. Sometimes people do not seek care because they do not know otherwise; it is possible to heighten awareness about harmful practices such as pregnant women can use traditional herbs as an enema to relieve constipation. Providing a list of culturally appropriate nutritional foods for a menu that provide essential nutrients during pregnancy could be developed. Women should have more access and control over these resources and control over their meals. Pictorial materials could be prepared for use at health facilities as well as for use by traditional practitioners for women that are not completely literate.

Relais (Village health volunteers who are trained in the vital importance of prenatal visits and postnatal care) can be mobilized to promote health services and transmit information to women. These mobile health care providers could serve as agents of change in their own communities which should also include the involvement of religious leaders, whose role would be to disseminate information. Community members - such as husband and senior members of the family that make decision concerning women's health – would need to be involved and supportive in order for this change to be implemented.

Providers in the formal health care delivery system must be able to gain trust from community members. Anthropological or cultural sensitivity training could help create more sympathetic attitudes and improve interpersonal communication skills. Further assessment and data analysis from health care facilities (clinics, etc.) to determine why women do not follow up for appointments would provide clues and insight about patterns and what can be done to encourage patient compliance. In order to promote efficacy, health care workers must be sensitized to the cultural factors that inhibit women from utilizing available health services.

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