ACTUAL AND PREFERED BIRTH INTERVALS OF MOTHERS ATTENDING ANTENATAL CARE AT MBALE REGIONAL HOSPITAL

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2010 – BSCPH – FT - 046

AN UNDERGRADUATE RESEARCH PAPER SUBMITTED TO THE INSTITUTE OF HEALTH POLICY AND MANAGEMENT IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE AWARD OF A BACHELOR OF SCIENCE DEGREE IN PUBLIC HEALTH OF INTERNATIONAL HEALTH SCIENCES UNIVERSITY

SEPTEMBER 2013

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DECLARATION

I Muhenje Sophie Mukoone hereby declare that this is research report is my original work and has never been submitted to any other institution for any publication or any award.

DEDICATION

This report is dedicated to my sweet Mum M/s Nakalembe Fatiha and Mr. Mukoone Twaha Masaba my Dad, my brother Sahad Mukoone, my sisters Joweria Mukoone & Marble Joan Nabachwa and friends Ndugwa Ashraf, Wadumaga Daphine Gimigu, Ssesanga Denis and Kalumba Farouk Mutebi who gave me a remarkable foundation, strong encouragement, endless prayers and support

APPROVAL

This is to certify that this research report was done under my supervision as a university supervisor and has been submitted to International Health Sciences University for Examination under my approval

Signed by

Professor Ndungutse David

……..

Date……..

ACKNOWLEDGEMENT

Glory be to Allah (God) the most Gracious and most Merciful. He who has helped me throughout the whole process of my dissertation.

I am deeply grateful to my supervisor, Professor David Ndungutse for his guidance, patience and support. I consider myself lucky for being able to work with a very considerate and encouraging person like him. Without his offering to accomplish this research, I would not have been able to finish my study at IHSU

In also want to show my sincere gratitude to the registrar, Assistant registrar, Dean of students (IHPM) and the entire IHSU administration for taking their precious time to consider my work

I owe many thanks to my classmates and all of my friends who always supported and gave full attention in solving my problems. They always helped me in exchanging any ideas and giving the enjoyable stud environment. They made my life at IHSU truly memorable experience and their friendships are invaluable to me.

I am most grateful to my parents, brothers and sisters for the endless love, care and support they show me in every choice of life.

LIST OF ACRONYMS

DHS	Demographic Health Survey
EBF	Exclusive Breast Feeding
FAO	Food and Agricultural Organization
MoH	Ministry of Health
SES	Social Economic Status
UBOS	Uganda Bureau Of Statistics
UDHS	Uganda Demographic and Health Survey
UNICEF	United Nations Children's Fund
USAID	United States Aid for International Development
WHO	World Health Organization

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OPERATIONAL DEFINITIONS

Birth Interval

This refers to duration between two successive births by a woman

Socio cultural factors

These are factors related to the arts and culture of a society

Socio demographic factors

Socio demographic factors are those relating to the structure of human populations using statistics relating to births, deaths, wealth, disease, etc

Breastfeeding

Breast feeding is the feeding of an infant or young child with milk from a mother's breast.

Weaning

Weaning refer to the process of gradually introducing a mammal infant to what will be its adult diet and withdrawing the supply of its mother's milk

Amenorrhea

An abnormal absence of menstruation

ABSTRACT

Background; Population growth is a major challenge in most developing countries, and Uganda is no exception to this. In Uganda, the rate of population growth is 3.2% (UBOS, 2012), which can be attributed partly to an imbalance between infant mortality and fertility. Short birth intervals are associated with an increased risk of adverse health outcomes, including infant, child and maternal mortality. Short birth intervals (< 2 years) can lead to maternal depletion syndrome, milk diminution and competition between siblings close in age for food and other resources.

Objective; The objective of this study was to assess the actual and preferred birth intervals of the women in Mbale regional referral hospital

Methods; This study adopted a cross-sectional study design. This design was chosen because it could collect data to make inferences about a population of interest (women attending ANC) at one point in time. The study population included women who were attending both antenatal clinics and post natal clinics in outpatient departments who had had at least two children prior to the current pregnancy or had already two children respectively. Data was collected from the women using a variety of methods including interviews and tools.

Results; Socio economic factors such as education of the mother/husband, occupation of the mother, transport costs to the hospital, paying some extra fee (bribe) to health workers before getting the service, affordability of services offered by the health centers, whose decision to have the current pregnancy, cultural influence to have shorter or long birth intervals, showed a statistical significance with actual and preferred birth intervals with p values 0.000 ($p<0.05$). Socio demographic factors like residence, age of mother, and age at first pregnancy were found to be significantly related to the birth spacing where as for community factors, breast feeding of

the previous last child, duration of breast feeding, whether they exclusively breastfed their children, community perception on the use of family planning methods and community preferences on the gender of children to birth to showed a statistical significance with actual and preferred birth intervals.

Conclusion; Socio economic and demographic factors of the women play a major role in determining birth intervals.

Recommendations; Policy makers need to consider the potential for lengthening birth intervals in Uganda where the median birth interval is close to 3 years (2.88 years). Data from other African countries suggests that even in situations when women wish to increase spacing it is by no more than six months (Rafalimanana and Westoff, 2001).

It has been found that women who are educated tend to have longer birth intervals, therefore girl child education should be further boosted to increase their literacy rates.

CHAPTER ONE

1.0 Introduction

Population growth is a major challenge in most developing countries, and Uganda is no exception to this. In Uganda, the rate of population growth is 3.2% (UBOS, 2012), which can be attributed partly to an imbalance between infant mortality and fertility. Four proximate determinants of this population growth have been identified: marriage, postpartum infecundability, contraception and induced abortion. Social factors such as women's education, employment opportunities and the number and the sex of surviving children also play a role in determining child spacing. Having children too close together is dangerous for both mother and child (Ayanaw, 2008). In 2005, the World Health Organization convened an expert review of the evidence on pregnancy spacing, which recommended that a mother should wait at least two years after having a baby before trying to become pregnant again. To reduce the risk for herself, her existing children and her unborn baby, mothers should leave a gap of at least 33 months, or almost three years, between each birth. However, while the percentage of couples worldwide using modern methods of contraception increased from 41% in 1980 to 56% in 2009, over the last decade progress slowed drastically, with an annual growth rate from 2000–09 of just 0.1%. It means at least 222 million women who would benefit from being able to decide whether to delay their first pregnancy, to allow a longer space between their pregnancies, or to limit the size of their families, do not have the option.

This chapter provides situational issues related to birth intervals and evidence on ground necessitating urgency for confronting the problem, a statement of the Problem, objectives and questions of the study, the theoretical and conceptual background, and the rationale of the study.

1.1 Background

Short birth intervals are associated with an increased risk of adverse health outcomes, including infant, child and maternal mortality. Research has it that inter-pregnancy interval is an independent risk factor for pre-term delivery and neonatal death. Short birth intervals (< 2 years) can lead to maternal depletion syndrome, milk diminution and competition between siblings close in age for food and other resources. Data analysis on about a million pregnancies in Latin America indicated that short birth intervals were autonomously associated with increased risk of perinatal outcomes. Studies have shown that short birth intervals increase maternal risk for toxemia, anemia, malnutrition, third trimester bleeding and maternal mortality (Smith *et al*, 2003). The World Health Organization (WHO) and other international organizations recommend intervals of at least 2–3 years between pregnancies to reduce infant and child mortality, and also to support maternal health, however some studies with support from the United States Agency for International Development (USAID) have suggested that longer birth spacing, 3–5 years, might be more advantageous (Miller, 2009).

Globally, statistics have it that many women have birth intervals shorter than 3 years. Population reports from about 55 countries show that 26% of women gave birth < 2 years after a previous birth and 31% of the birth intervals were 2–3 years. The main proportion of women with birth intervals < 3 years was found to be emerging from developing countries of the Middle East region, such as Jordan and Yemen, as well as from Turkmenistan in Central Asia. It is implicit that birth intervals are shorter in these countries because many women have a preference for births in close succession and use contraceptives for limiting rather than spacing births. According to the World Health Organization, the Latin America and Caribbean region, South and Southeast Asia regions have the longest preferred birth intervals, at 47.3 and 45.8 months,

respectively. These two regions also have the greatest differences between actual and preferred birth intervals, at 17.4 and 12.2 months, respectively. A longitudinal analysis of 3370 births to women living in 70 villages of Bangladesh showed that if women delayed a subsequent birth by about 2 years, child survival improved at all ages up to 5 years. Moreover, from this analysis, It was documented that a child born after a short birth interval (< 2 years) was 3 times more likely to suffer from malnutrition, even at age 3 years, than a child born after 2 years (Polo, 2008). Evidence has consistently shown that a birth interval of 2 years improves the chances of survival of infants and children (WHO, 2008).

More current studies however suggest that a period of 3–5 years is the optimum birth interval, and saves more lives than a 2 years interval. Analysis of data from the Demographic and Health Survey (DHS) of some countries illustrate that compared with an gap of 24–29 months, a birth interval of 36 – 41 months is connected with 26%, 43% and 51% decrease in deaths in neonatal, child and under 5-year-olds respectively, as well as a 28% diminution in stunting and a 29% reduction in underweight. In Bangladesh, Egypt, Indonesia and Peru, perinatal mortality rates for children born at < 24 months interval were 70, 44, 47 and 36 respectively per 1000 births. At 36 months interval, the rates for the same countries were 44, 18, 16 and 19 respectively.

A study on the trends of births spacing by Whelpton (2006) in India concluded that, if mothers were able to delay conceiving again for 24 months after giving birth, deaths of children under-five would fall by 13% – nearly 900,000 deaths averted. If mothers delay conceiving until 36 months after giving birth, 25% of deaths of under-fives – 1.8 million children's deaths a year – can be averted, just through healthier spacing. This is because birth spacing is about encouraging healthy fertility rather than lower fertility. Reliable access to contraception is vital for millions of

women who want to allow a healthy space between their pregnancies in order to protect themselves and their children.

Half of the total unmet need for contraception comes from women who wish to space their births according to the World Health Organization. It means that 112 million women are unable to plan their families in a way that is safest and healthiest for themselves and their children because they cannot get the contraception they need. An interval of about three to five years between births is helpful to the health of both the mother and the baby. The median interval between births in Uganda is near to this suggestion, at almost two and a half years. However, only one in three births occur at least three years after a previous birth (UDHS, 2011). Almost 70 percent of non-first births occur less than three years apart. Postpartum insusceptibility, the period just following a birth when a woman is temporarily infertile, is one of the major factors contributing to the long birth interval in Uganda. There is a paucity of information on birth interval in Uganda and specifically factors influencing actual and preferred birth intervals. Not only is there paucity of data on birth intervals in the country, there is little information about the opinion of Ugandan women regarding most favorable birth spacing or their consciousness of the advantages and drawbacks of long and short birth intervals. Such information if obtained will help in developing strategies to promote sufficient birth spacing among the local populace. Hence, this study was carried out to establish the actual and preferred birth intervals of children born to the women at some point in the 10 years prior to the study and the associated factors.

1.2 Problem statement

Despite the measures put in place by WHO to reduce global fertility rates of mothers, it still remains a great concern that almost everywhere women's birth intervals are shorter than they would prefer. This is a big discrepancy between actual and preferred birth intervals.

A birth interval of 3-5 years between births has been revealed to be valuable to the health of both the mother and the baby. The median birth interval between births in Uganda is near to this suggestion, more or less two and a half years. On the other hand, only one in three births occur at least three years after a previous birth. Almost 70 percent of births other than first births occur less than three years apart (UDHS, 2011). Women in developing countries like Uganda have shorter birth intervals than they would prefer. The main reason for short birth intervals is that many women in developing countries do not use contraception after birth and therefore are likely to become pregnant once fecundity returns (USAID, 2010). Birth spacing is a well-known, underutilized, and admittedly not fully understood health intervention to date despite the various methods put in place by WHO to ensure birth spacing of between 36 – 59 months among women globally (WHO, 2010). Adequate child spacing is considered as a positive factor on the health of mothers and their children

Short birth intervals mostly affect mothers and children and have led to over production, unwanted pregnancies, poor child spacing, malnutrition, poverty, high infant mortality, high maternal mortality, under development and increased criminal abortions some of which later complicate into deaths (Rutstein, 2006). In the past, family planning programs have been put on the mass media to show usefulness of this programme, communication programs have also been put in place to raise awareness on benefits of long births spacing and additionally this

information has also been communicated to mothers attending ANC clinics. Despite all these efforts, there still seems to exist a discrepancy between the preferred and actual birth intervals. Studies should be done to find out the influencers preferred birth intervals of women and discussions on the issues surrounding family size, the pros and cons of spacing, the best mechanisms to achieve desired family formation, and the associated costs, women's roles in society including, childbearing, care-giving, and non-reproductive roles outside the home, and the extent to which longer spacing can have an impact on their reproductive lives carried out.

1.3 Significance of the study

One factor unique to the Republic Uganda is the high frequency of closely spaced pregnancies and a relatively high fertility rate of 6.4 (UDHS, 2011). An analysis of factors that influence birth intervals both actual and preferred among women will provide planners and policymakers with useful information that could lead to reforms that would encourage longer intervals between consecutive births given the advantages of longer intervals for both the mother and child. Such reforms may ultimately decrease the number of children each woman will produce with subsequent beneficial effects on population density and on the health status of mother and child. In terms of academic contribution, the study being among the few done in Uganda analyzing actual and preferred birth intervals. it will go a long way in providing base line information to other researchers who will want to undertake further research in this area.

1.4 Objectives

1.4.1 General objective

To assess the actual and preferred birth intervals of the women in Mbale regional referral hospital

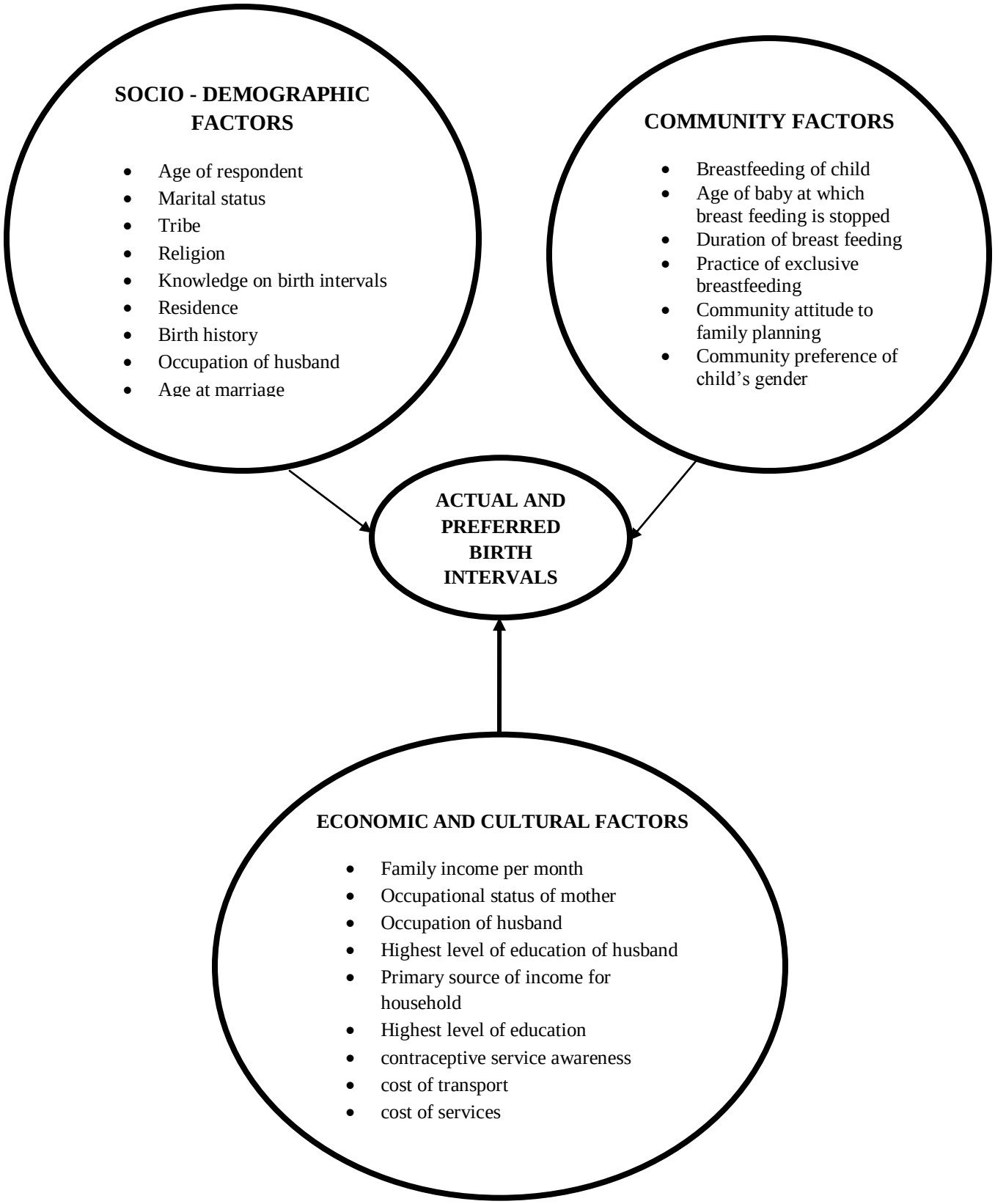
1.4.2 Specific objectives

1. To identify socio economic and cultural factors that influence actual and preferred birth intervals among women in Mbale regional referral hospital
2. To identify the demographic factors that influence actual and preferred birth intervals among women in Mbale regional referral hospital
3. To establish a link between community perceptions on child birth/care and preferred birth intervals among women in Mbale regional referral hospital

1.5 Research questions

1. Which socio economic and cultural factors influence actual and preferred birth intervals among women in Mbale regional referral hospital?
2. Which demographic factors influence actual and preferred birth intervals among women in Mbale regional referral hospital?
3. What is the link between community perceptions on child / care and preferred birth and preferred birth intervals among women in Mbale regional referral hospital?

1.6 Conceptual framework



CHAPTER TWO; REVIEW OF LITERATURE

2.1 Historical perspective

For the past half century, a number of approaches have been developed to explain disparities in fertility (Bongaarts, 1978). These models have undoubtedly broadened the perspectives on differentials in fertility. They mostly focus on total or cumulative fertility as the key dependent variable. It is important, however, to study the disparities in fertility by considering the spacing of births as constraint variable. This is particularly relevant in societies characterized by low levels of contraceptive use where the interval between successive births is a key indicator of total family size like rural part of Ethiopia.

According to Woods, 1994 inter-birth intervals have been found to differ generally across populations**,** even in lack of purposeful spacing endeavors because of differentials in the probability of a woman conceiving with in a given period of time and postpartum amenorrhea. Sexual intercourse frequency and breastfeeding strongly impact on the aforementioned differentials in birth intervals. For that reason, it is not viable to draw conclusions regarding the existence or nonexistence of controlled birth spacing from a simple comparison of mean or median lengths of birth intervals among groups or time periods (David and Mroz, 1989b). This prompted David and Mroz to resort to multivariate hazard analysis as a means to try to manage for natural determinants of birth intervals.

Birth intervals are affected by a multifaceted range of factors. Some of which are entrenched in social and cultural norms, others in the reproductive histories and behaviors of the women themselves, utilization of reproductive health services and other personal factors. Group

differences in reproductive behavior are usually explained from the characteristics and socio-cultural perspectives (United Nations, 1987).

Among socio-cultural factors are ethnic-specific practices, norms, and values that capture both observable and unobservable behavioral and cultural factors affect reproductive behavior (Rafalimanana, 2007).

Studying the dynamics of birth spacing defined as the gap between successive births is imperative because of the fact that in the developing countries like Uganda and Kenya by Gyimah (2001); the gap between successive births are short for couples having large families than couples with smaller families. This suggests that the timing of births is inversely related to total or cumulative fertility. Further, because the space of births has a significant bearing on maternal and child health through the dynamics of sibling competition, maternal depletion and interval effect hypotheses (Samson, 2005).

According to the competition hypothesis as suggested by Conde-Agudelo (2009), the birth of each successive child generates competition for insufficient resources among siblings in the household which subsequently leads to a lower quality of care and attention to each child. Successive births physiologically deplete the mother of energy and nutrition (Rutstein, 2008) which may lead to premature births or pregnancy complications, increasing the risk of infant or maternal death, or impair the mother's ability to care for her children.

Additionally, it has also been argued that women with closely spaced births may still have very young children and, as such, are less likely to attend prenatal care services. Further, the early arrival of a new child necessitates the premature weaning of the previous child, often exposing

the weaned child to malnutrition and increasing their vulnerability to infectious and parasitic diseases.

Invariably, longer duration of the inter-birth interval has been found to increase profoundly the probability of infant survival (Pedersen, 2000).

2.2 Overview of birth intervals

2.2.1 Definition of birth interval

Researchers determining factors that affect fertility and fertility outcomes have used various definitions of birth interval. Definitions range from the interval between two consecutive live births (inter birth interval), to the interval between the outcome of one pregnancy and the conception of the next (birth-to-conception interval), to the interval between two consecutive pregnancies (inter pregnancy interval), and the number of births within a given time frame.

(Average birth interval). Different definitions are used because they are appropriate in different situations. For example, surveys done among populations unsure of conception dates use inter-birth intervals, register-based and cohort studies use either pregnancy or birth-to-conception intervals. Thus, lack of a uniform definition of pregnancy intervals presents a problem in interpreting and comparing studies.

The definition of a short birth interval has varied among studies principally due to the interval definition (birth-to-conception or inter pregnancy interval), and the pregnancy outcomes being studied. An “optimum” birth interval is defined as the interval associated with the greatest probability of giving birth to a normal full term infant and with the lowest risks of adverse

outcomes to the mother and the preceding child.

Short birth-to-conception intervals have ranged from three months 5 to 18 months while studies using Demographic and Health Survey (DHS) data consider an inter birth interval less than 24 months short (Samson, 2005). On the other hand, long intervals, greater than 100 months are also associated with an increased risk of adverse pregnancy outcomes.

To understand the variation and effects of birth spacing, one needs to understand the determinants of human fertility and reproduction. Women will produce a certain number of children by the end of their reproductive lifetimes because of the way in which they time the various reproductive events (Rafalimanana, 2007). Figure 1 depicts the female reproductive life course as a series of time intervals. Menarche signals the beginning of fecundity (the biological capacity to reproduce) while marriage represents all women living in sexual union or are having regular sexual intercourse. Following pregnancy, a woman will remain infecundable until the normal pattern of ovulation and menstruation is restored.

Magnitude of the problem of short birth intervals The overall public health importance of short interpregnancy interval is determined not only by the risks for mortality and morbidity of the preceding child, subsequent child, and the mother, but also by the prevalence of short intervals in the population (Samson, 2005).

2.2.2 Prevalence of short birth intervals

Since most research in developed countries has focused on the association between short birth intervals and adverse perinatal outcomes, different cutoff points for short birth intervals have been used. The prevalence of short birth intervals ranges from 5-30%. World Fertility Survey

and later the Demographic and Health Survey (DHS) are nationally representative cross-sectional surveys, mainly carried out in developing countries, to study fertility and demographic changes. In these surveys, an interval less than 24 months is considered short. However, the prevalence of short inter-birth intervals of less than 18 months, which is comparable to a birth-to-conception interval of 9 months, also ranges from 6-24%.

2.3 Socio-economic factors and birth spacing

Rafalimanana (2007) puts it forward that paid mothers upon their genuine services or goods offered outside the house profoundly have a say on the birth spacing decision though the higher and the more firm the father's take-home pay are, the lower ceteris paribus the drive to space births. Unfortunately, statistics on employment of married women in the Uganda setting are very sparse and not clear. Though, information in this aspect is limited to the husband's occupations.

A study in Netherlands arranged six categories of individuals, in line with increasing motivation towards birth spacing**:** (I) elite occupations (employers in industry, professionals, high civil servants and higher military); (II) farmers (due to the favourable economic situation of (dairy) farming in the Dutch North-west, they had few incentives to space births); (III) white collar middle class (lower level professionals, lower civil servants, foremen and supervisors of various kinds); (IV) self-employed (shopkeepers, small entrepreneurs, merchants and self-employed artisans); (V) skilled workers (craftsmen, skilled labourers in small business and industry) and servants with a labour contract; (VI) casual and unskilled labourers and peddlers. According to Samson, 2005 such assemblage of particular occupational titles is derived from a classification frequently used in Dutch historical demography.

Women with lower status, whether within the household or within society, and those who are not employed tend to have shorter birth intervals than women of higher status or who are employed. For example in Turkey, women with less reproductive and economic decision making power, and who typically do not work outside the home have birth intervals 5.4 months shorter than women with more decision making power and who are usually employed. In support UDHS reports (2001 – 2006) reports that cash employment increases women's decision making power. Also women, who work outside the home particularly urban women, may be more educated and more likely to use contraception to space their births (Viya, 2002).

Furthermore, Africa women and health (2006) reveals that due to low status of women in developing countries such as Uganda, there is little say in reproductive decision – making to the end that they have to give in to their spouses for the next child.

On top of motivation, additional factors may possibly be the reason for social differentiation in birth intervals. To start with, husbands who are seasonal labourers register reduced frequencies of coitus and prolonged average birth spacing intervals.

Secondly, breast-feeding practices vary among socio-economic groups with no substantial correlation to birth spacing motivations thus creating no room for conclusions as par the contrasting contemporary reports as regards the aforementioned issue. Though, according to Van Poppel and Mandemakers (2002) literature has it that the higher classes seem to lead the middle and working classes in taking on new insights as regards hygiene and breastfeeding.

Reference to Verdoorn (1965) reports as well suggested that around 1850, to be specific in industrial towns and big cities, mothers from the inferior class did not bother to breast feed their children most times. They opted to concentrate on work or they took into service themselves as

wet nurses feeding their children on a mixture of water, cow milk and sugar which resulted into prolonged birth intervals.

Lastly, it is also essential to reflect on the likelihood of chronic malnutrition being common among women from the lowest socio-professional groups that may perhaps reduce their probability of conceiving with in a given period. On the other hand though, detailed findings from developing countries pointed out that the effects of persisting malnutrition had less impact on fertility than those of famine (Campbell et al., 2002).

An important risk factor for short birth intervals is the social-economic status of the mother. Social class was measured either as a unitary concept with all indicators measuring the same concept or multidimensional with different social class indicators measuring multiple aspects of social class. Social economic status (SES) has been defined as "a composite measure that typically incorporates economic status, measured by income, social status, measured by education and work status measured by occupation."80 Measures of social class can be grouped according to each of the three single indicators commonly used (occupation, education, and income) or can be used as composite index measures. Reviews on social class, socio-economic status or socio-economic position in epidemiological and public health literature shows that many studies include some measure of social class.

2.4 Socio cultural factors and birth spacing

Culture and norms have a great bearing on birth spacing among women. Couples that face pressure for child bearing have their first child soon after marriage and continue to have children rapidly (Vidya, 2006).

Some cultures promote early and universal marriages such that young girls aged 14 will produce throughout their fertile ages 15-49 years and end up with seven children and having them quickly is a sign of male virility and female fertility (*Ibid*). In traditional Indian society for example, childbearing brings prestige to a new wife and so couples have their first child quickly are also common in Sub – Saharan Africa.

2.5 Influence of socio demographic factors on birth spacing

2.5.1 Religion

As regards Uganda's demographic transition, religion significantly had a role to play concerning birth spacing. Catholicism and orthodox Protestantism had been pointed out as the contributing factors to the slow decline of fertility levels plus regional differentiation within the demographic change as the aforementioned religious groups refused to consider modern forms of birth control and advocated for Malthusian methods of late marriage and abstaining from marriage and sexual relations for religious reasons.

Nevertheless, there are number of reasons to look forward for variations in fertility prior to the demographic transition.

To begin with, religious factions vary in ways of breastfeeding. A case in point, an enquiry done at a personal level among the Dutch in The Hague in 1908 revealed that Catholics did breast feed less than Protestants (and both groups less than Jews). According to Wolleswinkel-Van den Bosch, 1998; Van Poppel, Schellekens and Liefbroer, 2002 the unwillingness of Catholic mothers to breastfeed their infants had been linked with the reasonably high infant mortality among kids as of the second half of the 19th century. This further resulted in shorter birth

intervals among Catholic families as clergies fuelled a campaign in opposition to breastfeeding on the position that exposing the breasts was a shameful act (Meurkens, 1985).

Additionally, religions vary in the amount of individual freedom they tolerate in comparison with the omnipotence to God. Reference to McQuillan (1999) Protestantism deviated from Catholicism in that it promoted persons to acknowledge responsibility for managing the problems of life on a daily basis. On the other hand, Dutch Calvinism showed to have shared a tendency towards the belief that all events are predetermined and therefore inevitable**,** - that is to say, submission to God's will - with Roman Catholics. For example, during the early 19th century, both the orthodox Protestants and Catholics were very hesitant to take up vaccination against smallpox. However, liberal Protestant denominations like the Mennonites were at the forefront (Rutten, 1997). These variations in attitudes could justify why some religious factions had fewer reservations about birth spacing than others. Thirdly, the formation of specific religious populations strengthened the effectiveness of the clergy's message on the holiness of procreation. Moral terms were least partly defined among the Catholic group. This holds true in line for the orthodox Protestants who had withdrawn from the mainstream and increasingly 'modernist' Dutch Reformed Church in two consecutive movements (1834 and 1886).

Kok (1990) put it forward that Catholics and Calvinists secured high levels of agreement with means of social control, for instance public shaming of pregnant brides. Additionally fundamentalist factions had a tendency to create closed networks that were not permeable to 'outside' (scientific) information on individual hygiene and breastfeeding.

To end with, the perception of the role of marriage varied among Catholic and Protestants faith. In this regard Catholicism the principal purpose of marriage was procreation well as

Protestantism stressed mutual support between the partners (Van Poppel, 1985, McQuillan, 1999). Evidently, in marriages in which communication among the partners was appreciated, agreeing on tactics for birth control such as abstinence or coïtus interruptus were possible (Szreter, 1996). Though, there seemed no reliable justification to back up that in Protestant marriages, companions were equal with equal rights and opportunities than Catholic ones.

2.5.2 Maternal age

Younger women are more likely than older women to have their next child within 3 years. Children born to younger women tend to have shorter birth intervals that those born to older women. The proportion of births with intervals less than 24 months declines, slipping from 48% among women aged 15-19 years to 19% among women aged 40 years and above. The median birth interval increases with aged 40 or older (UDHS, 2006)

Also in most countries women with fewer children have short intervals than women with more children have short intervals than women with more children, but few countries the reverse is true.

2.5.3 Maternal education

Women with no education are more likely than women with education to space births less than three years apart. However, in seven surveyed countries by DHS, it was shown that women with secondary or higher education were more likely to have intervals shorter than three years due to the fact that in these countries women who have high education levels spend more years in school and therefore get married at old ages and then have children in quicker sessions (Rutstein, 2008)

2.5.4 Residence

As regards residence, women who live in rural area are more likely than women in Urban areas to have birth intervals shorter than 3 years. Among the surveyed countries by the DHS, the greatest differences were in Latin America, the Caribbean, Eastern Europe and Central Asia where only 3 countries – Chad, Mozambique and Pakistan – were urban women more likely to have births shorter than 3 years, as urban women have better access to employment (Setty, 2004).

2.6 Infant and Young Child Feeding practices and birth spacing

Breastfeeding confers substantial health benefits on both mother and child. For the infant, the principal advantages of breast milk are nutritional, immunological and anti-bacterial. Breast milk is an excellent sole source of nutrition for the first four to six months of a child's life, and can continue to be an important part of a child's diet for many months thereafter. Immunological protection is conferred not only through colostrum, which is produced during the first few days post partum, but through ordinary breast milk thereafter, even after supplementation. Moreover, breast milk is a sterile fluid and contains powerful anti-bacterial agents (Rutstein, 2005).

For the mother, breastfeeding encourages the involution of the uterus and, thus, the rapid return of uterine tone. It promotes an affectionate bond between mother and child. It is economical, an important consideration in the Third World, and it is convenient. Finally, through the prolactin elevating effect of nipple stimulation, breastfeeding delays the return of normal ovarian function and thereby lengthens the interval between births (USAID, 2011). This latter effect also advantages the child by lessening the likelihood of displacement from the breast by a new pregnancy.

Breast feeding practices help to determine how long women will remain without menses and thus less likely to get pregnant after giving birth. Among the 55 countries with DHS data, women in Sub Saharan Africa have the longest median duration of post partum amenorrhea, ranging from about seven months in Comoros to 17 months in Rwanda.

Rural communities with on demand and prolonged breastfeeding, have an average birth interval of 21 – 24 months. For example the Hyderabad community (Rwanda), the average birth interval was 31 months whereas in rural Rwanda it is 23 months showing that 50% of mothers conceived again. On the other hand, in urban Rwanda where feeding takes place as per the clock, the birth interval is 9 months. This means that breastfeeding has an impact on birth intervals.

2.7 Summary of literature review

This chapter provides an overview of previous research on preferred and actual birth intervals and there influencing factors. The main purpose of the literature review work was to survey previous studies on preferred and actual intervals of women of reproductive age and aligns the information according to the objectives of the study. This was in order to scope out the key data collection requirements for the primary research to be conducted, and it formed part of the emergent research design process. The approach adopted was in line with current practice in grounded research work.

An appreciation of previous work in this area also serves three further purposes. First, through providing direction in the construction of data collection tools, and also it guards against the risk of overload at the primary data collection stages of the research study. Secondly, working the findings from existing literature into a formal review has helped to maintain throughout the study a sense of the study topic's perspective. Finally, this activity has raised the opportunities for

articulating a critical analysis of the actual "meaning" of the data collected when the data analysis stages of the research were arrived at.

A range of secondary data sources served as the key bibliographic tools for identifying relevant work for review. The most significant of these were the *Web of Science* databases. Relevant publications were found in the literature of a number of academic domains including artificial intelligence, business studies, information science, information systems, organization science, psychology, science and technology, sociology and strategic management. Most of these publications took the form of research papers.

Although a number of studies have been referred to in the synthesis of this literature review, most of them were by scholars from countries other than Uganda. This implies that the findings in those studies could be generalized to the women populations in those countries but not necessarily Uganda. As a consequence, the link between economic, cultural, socio demographic, and health system factors and preferred and actual birth intervals in Uganda, and particularly Mbale is not well documented. This study was therefore conducted to find out the associations between factors influencing actual and proffered birth intervals thus help fill this existing knowledge gap.

CHAPTER THREE; METHODOLOGY

3.1 Study design

This study adopted a cross-sectional study design. This design was chosen because it could collect data to make inferences about a population of interest (women attending ANC) at one point in time. Cross-sectional surveys have been described as snapshots of the populations about which they gather data. This kind of design was also chosen because it could be conducted using any mode of data collection, including telephone interviews in which landline telephones are called, telephone interviews in which cell phones are called, face-to-face interviews, mailed questionnaires, other self-administered questionnaires, electronic mail etc whichever was deemed necessary and more convenient by the researcher.

3.2 Data sources

The researcher collected data from two sources, primary sources and secondary sources. Primary sources included original material from the field including Maternity manuscripts at each health center, interviews with the respondents, interviews with persons involved in the field birth spacing like midwives. Secondary sources included review of articles published by other researchers in the field of family planning with birth intervals..

3.3 Target population

The target population was women of reproductive age of at least parity 2.

3.4 Study population

The study population included women who were attending both antenatal clinics and post natal clinics in outpatient departments who had had at least two children prior to the current pregnancy or had already two children respectively.

3.4.1 Eligibility criteria

Exclusion

- Women below reproductive age
- Women who were too sick to participate in the interviews

Inclusion criteria

- Women of reproductive age
- Women who consented to take part in the study
- Women of at least parity two

3.5 Study variables

Dependent variable

Actual and preferred birth intervals

Independent variables

Socio demographic factors

Economic and cultural factors

Community factors

3.6 Study area

The study was conducted in Mbale hospital located in Mbale district. Mbale district is bordered by Sironko district to the north, Bududa district to the north east, Manafwa district to the south east, Tororo district to the south, Butaleja district to the south east and Budaka district to the west. Pallisa district and Kumi district lie to the north west of Mbale district.

bale Hospital is a public hospital, funded by the Ugandan Government through the Ministry of Health, and general care in the hospital is free. The hospital is one of the thirteen (13) Regional Referral Hospitals in Uganda. It is also designated as one of the three (3) public clinical paramedical teaching hospitals and as one of the fifteen (15) Internship Hospitals in Uganda, where graduates of Ugandan medical schools can serve a one year of internship under the supervision of qualified specialists and consultants. It is the referral hospital for the districts of Busia, Budaka, Bukwa, Butaleja, Manafwa, Mbale, Pallisa, Sironko and Tororo. Mbale Hospital is located on Pallisa Road, in the City of Mbale, approximately 245 kilometres (152 mi), by road, northeast of Kampala, Uganda's capital and largest metropolitan area.

3.7 Sample size estimation

Sample size estimations refer to the act of choosing the number of observations of replicates to be included in a statistical sample. The sample size is an imperative feature of any empirical study in which the goal is to make inferences about a population from a sample. In practice, the sample size used in a study is determined based on the expense of data collection, and the need to have sufficient statistical power.

Sample size was estimated based on the prevalence of contraception use in the eastern region as reported by the Uganda Demographic and Health Survey (2011).

For this study therefore, the formula as suggested by Kish Leslie (1964) below was used to obtain the required sample size for this study.

$$n = \frac{z * z \{p (1-p)\}}{(d*d)}$$

Where;

P = True proportion of factor in the population, or the expected frequency value in this case the prevalence of contraception (23.9%)

D = Maximum difference between the sample mean and the population mean, Or Expected Frequency Value minus (-) Worst Acceptable Value

Z = Area under normal curve corresponding to the desired confidence level = 95% = 1.96

Therefore P = 23.9% (UDHS, 2011)

D = 5%

Z = 1.96

$$\frac{1.96^2 \text{ x } (0.239 (1-0.239)}{0.05^2}$$

n = 279 mothers

3.8 Sampling Procedures

At the hospital, simple random sampling was used to sample and recruit the mothers into the study. In this sampling procedure, a complete list of all the mothers who were attending ANC on the clinic day designated for them at the hospital was obtained from the in charge of the clinic.

The lottery method was used to draw the simple random sample of women. Here, each woman was assigned a unique number on a piece of paper. The numbers were then thoroughly mixed in a bag and shaken. Then, without looking, the researcher picked the pieces of paper from the bag. The women that were assigned the respective numbers on the pieces of paper were then included in the sample. This was done until the required sample size was reached.

During data collection a mother on the sampled list was approached by the research assistants, notified that she had been randomly selected to take part in the study and if she/he was willing to take part, he/she was requested to respond to the proceeding questions.

3.9 Data collection, management, and analysis

3.9.1 Data Collection methods

Data was collected from the women using a variety of methods including interviews and tools. Completeness was ensured by using interviewer administration of questionnaires by the research and the research assistants such that each question was prompted and responded to accordingly.

3.9.1.1 Interviews

Interviewer administered questionnaires, were used in the study. The questionnaire collected basic information on characteristics of each respondent, including birth history, socio

demographic, cultural and economic factors and breastfeeding practices. The study tools were pre-tested on a group of patients from one of the health centers one week before the actual data collection. A team of research assistants conducted the pretesting.

3.9.2 Data management

Caution was taken to ensure that the questionnaires are filled to completion (all questions are responded to). All the questionnaires from the field were stored, sorted in a safe cabinet, and were later serialized in ascending order of their codes. A data entry interface was created, and data entrants entered the data using SPSS for Windows Version 17. Thereafter, frequencies were run for all the variables and the data cleaned by assessing for inconsistencies in the outputs from the two data sets and resolving them by referring to the respective serialized questionnaires still using SPSS for Windows Version 17. Logic checks were conducted for a few key responses that will be expected to be conditional.

3.9.3 Data analysis

The cleaned data was exported to Microsoft Access and Stata 10 (Standard Edition). Analysis was done mainly using SPSS for Windows Version 17 at three levels, that is Univariate, bivariate and multivariate levels

At univariate level, the analysis was carried out using descriptive statistics. For example, if the variable "age" is the subject of the analysis, the researcher looked at how many subjects fall into given age attribute categories

Univariate data was presented in frequency distribution of the individual cases, which involved presenting the number of cases in the sample that fall into each category of values of the variable.

This was done in a table format or with a bar chart or a similar form of graphical representation.

To establish the associations between the independent variables and the dependent variable, bivariate analysis was done, specifically; chi square tests were used with an alpha level set at 0.05.

3.10 Quality control

3.10.1 Pre testing

The questionnaires for the study were pre-tested among mothers in one a private health facility in Bukonde. This process allowed for the reaction of the subjects to the research procedure to be observed, and showed whether subjects were available and/or willing to collaborate with the study. The pre-testing, also allowed for accurate and uniform interpretation of the questions in the local language of the people.

3.10.2 Validity:

Validity is the degree to which the study results are likely to be true and free from bias. Validity deals with what the researcher's data collection instruments want to measure and in this context, these instruments measured birth spacing intervals (actual and preferred) and the factors influencing them.

3.10.3 Measures to ensure Validity

Data collection instruments were designed in a manner that captured the main constructs in the general and specific objectives. The researcher did a pre visit and pilot the research instruments in order to rectify any identified weaknesses before undertaking the study.

3.10.4 Reliability

Reliability deals more with accuracy and precision of data collection instruments. Data collection instruments were pretested prior to the study in a health center other than Mbale hospital and any identified gaps were worked upon to ensure that the instrument is accurate and precise.

3.11 Plan for dissemination

The finalized report will be presented to IHSU and to the authorities of Mbale hospital. It is expected that the study results will be disseminated through professional publications, hospital annual health publication and Ministry Of Health digital publications. Once the findings have been disseminated, the government, hospitals, non-governmental organizations, and other concerned individuals and groups will be expected to initiate implementation programs of the recommendations aimed at improving birth intervals among women.

3.11 Ethical considerations

Given the fact that this is human research, taken into account was the fact that the pregnant women are a vulnerable group and therefore were interviewed with that in mind. The study was carried out after obtaining approval and permission from the ethical review committee of International Health Sciences University and the research committee of Mbale hospital. There

was no element of deception; interviews took place in a venue and in a setting that provided private, comfortable and a safe place for both the mothers and the researcher.

Additionally, to ensure zero violation of research ethics, the following were done;

- Participants were informed that they were not obliged to answer any question or respond to any statement unless they wished to do so.

- Participants were made aware that they could stop the interview at any time and in addition withdraw from the research without loss of benefits

- They were assured that personal details were kept confidential and separate from the data, and stored in a locked filing cabinet or password protected computer. Participants were informed that their personal details were only kept for the sole purpose of the research and would be destroyed 2 months after the completion of the research

- Participants were advised to see their general medical practitioner if they suffered upset of distress as a result of the interview.

- Participants were told that their participation was voluntary and therefore were free to participate or not. Following all the above information, a request to participate was made to each and every selected respondent.

CHAPTER FOUR: PRESENTATION AND INTERPRETATION OF RESULTS

This chapter presents the views of the respondents on birth intervals and an analysis of the associations between socio economic and demographic factors and actual and preferred birth intervals. The excel spread sheet and the Statistical Package for Social sciences (SPSS) were the instruments used for the analysis and capturing the data. Two hundred and seventy nine (279) participants generated the data.

The analysis was guided by the following research questions

1. Which socio economic and cultural factors influence actual and preferred birth intervals among women in Mbale regional referral hospital?
2. Which demographic factors influence actual and preferred birth intervals among women in Mbale regional referral hospital?
3. What is the link between community perceptions on child birth / care and preferred birth intervals among women in Mbale regional referral hospital

The results were generated from two hundred and seventy nine respondents

4.1 Socio-demographic characteristics of the respondents

From table 1 below on socio-demographic characteristics, lugishu occupied the highest proportion of the primary languages with 167 (59.9%) responses; most of the mothers 178 (63.8%) lived in the rural area with majority of the respondents being in the age bracket of 20-35 years. A greater percentage of the respondents were married with a significant number of singles. Most of the respondents had their first pregnancy while they were 20 to 30 years with noteworthy number of them getting pregnant before the age of 20 years.

In relation to the religion of the respondents Christians outweighed Muslims with the gishu tribe being dominant among the respondents.

Table 1: Socio-demographic characteristics of the respondents

Variables	Frequency (N=279)	Percentage (%=100.0)
Primary language of the mother		
Luganda	39	14.0
Lusoga	27	9.7
Lugisu	167	59.9
Others	46	16.5
Total	**279**	**100.0**
Residence		
Urban	101	36.2
Rural	178	63.8
Total	**279**	**100.0**
Age of the mother (years)		
<20 years	21	7.5
20-35 years	166	59.5
>35 years	92	33.0
Total	**279**	**100.0**
Marital status		
Single	50	17.9
Married	202	72.4

Divorced	19	6.8
Widowed	8	2.9
Total	**279**	**100.0**
At what age did you first get pregnant		
<20 years	93	33.3
20-30 years	175	62.7
>30 years	11	3.9
Total	**279**	**100.0**
Religion of the respondents		
Orthodox	5	1.8
Protestant	77	27.6
Muslim	65	23.3
Catholic	99	35.5
Born again	33	11.8
Total	**279**	**100.0**
Tribe of the respondents		
Muganda	39	14.0
Musoga	27	9.7
Mugisu	167	59.9
Others	46	16.5
Total	**279**	**100.0**
At what age did you get pregnant		
<20 years	175	62.7

20-30 years	93	33.3
>30 years	11	3.9
Total	279	**100**

4.2 Socio economic factors

As regards to results in table 2 below, most of the mothers 139 (49.8%) had attained primary education. Majority of the husbands/boyfriends had attained primary and secondary education with 125 (44.8%) and 122 (43.7%) responses respectively. Farming was the occupation with the most responses 117 (41.9%) among the mothers as well as the husbands with 119 (42.7%) responses. However, a significant number of the respondents 101 (36.2%) acknowledged their husbands were traders. Majority of the respondents 158 (56.6%) admitted the transport costs to the hospital was a problem which impacted on their frequency of honoring visits with a few of the respondents 99 (35.5%) further admitting to pay some extra fee (bribe) to health workers before getting the service. Largely most of the respondents 182 (65.2%) did say having difficulty in affordability of services offered by the health centers

Knowledge on optimal birth interval between two consecutive births was news to most of the respondents 168 (60.2%) and the least 111 (39.8%) respondents that heard about it majority 67 (60.4%) gave 2-3 years birth spacing interval. Regarding on whether adequate/optimum birth spacing had a health advantage, respondents 111 (39.8%) who knew about birth spacing most of them 83 (74.8%) did say it had health merits with reduction on pregnancy related complications/maternal mortality rates, reduction on infant mortality and reduction on malnutrition incidences getting a mention with 32 (38.6%), 21 (25.3%) and 20 (24.1%) responses respectively.

Table 2: Socio economic and cultural factors of the respondents

Variables	Frequency (N=279)	Percentage (%=100.0)
Education of the mother		
Never went to school	23	8.2
Primary level	139	49.8
Secondary level	101	36.2
University /colleges	16	5.7
Total	**279**	**100.0**
Education of the husband/boyfriend		
Never went to school	7	2.5
Primary level	125	44.8
Secondary level	122	43.7
University /colleges	25	9.0
Total	**279**	**100.0**
Occupation of the mother		
Peasant farmer	117	41.9
Trader	99	35.5
In government of other formal employment	21	7.5
Others	42	15.1
Total	**279**	**100.0**
Are the transport costs to the		

hospital a problem to you		
Yes	158	56.6
No	121	43.4
Total	**279**	**100.0**
Do you have to pay some extra fee (bribe) to health workers before getting service		
Yes	99	35.5
No	180	64.5
Total	**279**	**100.0**
Can you afford the services offered by the health centers		
Yes	97	34.8
No	182	65.2
Total	**279**	**100.0**
Occupation of the husband		
Peasant farmer	119	42.7
Trader	101	36.2
In government of other formal employment	25	9.0
Others	34	12.2
Total	**279**	**100.0**
Have you heard about optimal birth interval between two consecutive births		

Yes	111	39.8
No	168	60.2
Total	**279**	**100.0**
If yes to question 10, what is the optimum number of months or years btn		
2-3 years	67	60.4
3-5 years	44	39.6
Total	**111**	**100.0**
Does adequate/optimum birth spacing have a health advantage		
Yes	83	74.8
No	7	6.3
Don't know	21	18.9
Total	**111**	**100.0**
If yes to question above, what are your reasons		
Reduces pregnancy related complications/maternal mortality rates	32	38.6
Reduced infant mortality	21	25.3
Reduced malnutrition incidences	20	24.1
Others	10	12.0
Total	**83**	**100.0**

Table 3 below further describes the socio economic and cultural factors of the respondents with most of them 114 (40.9%) admitting that a short birth interval had health disadvantage(s) though a significant proportion (36.2%) knew nothing about it with the least seeing no problem with such birth spacing. For the most part of the respondents 130 (46.6%), 2-3 years was the preferred birth interval between one and the next pregnancy. However, surprisingly majority of the respondents 134 (48.0%) did say their current pregnancy was 2 years apart from the last birth with notable responses on 1 year and 3 years.

Regarding the timing of the current pregnancy, most respondents said it was their husband decision and a joint choice with 90 (32.2%) and 86 (30.8%) proportions respectively. However, the timing being a personal decision and or accidental had notable responses as well.

For most of the respondents 193 (69.2%) culture had nothing to do with having shorter or long birth intervals with majority of them 248 (88.9%) having no problem with using contraceptives for birth spacing in their communities. Those who had a problem with using it, admitted they feared to uptake them or they secretly used them to avoid reprimand from either the husband or family members with 31 (11.1%). Basically most respondents 152 (54.5%) admitted they had never used contraceptives. On average shillings 100,000 to 250,000 and 250,000 to 500,000 was the most reported monthly income earned with 153 (54.8%) and 104 (37.3%) responses respectively.

Table 3: other socio economic and cultural factors of the respondents

Variables	Frequency (N=279)	Percentage (%=100.0)
Does short birth interval have a health disadvantage(s)		
Yes	114	40.9
No	64	22.9
Don‘t know	101	36.2
Total	**279**	**100.0**
In your case, what is the period of time of birth interval between 1 and next pregnancy		
1 year	65	23.3
2 years	130	46.6
3 years	70	25.1
4 years	14	5.0
Total	**279**	**100.0**
In your current pregnancy, what period of time is it between the last birth and now		
1 year	63	22.6
2 years	134	48.0
3 years	59	21.1
4 years	15	5.4
>4 years	8	2.9

Total	**279**	**100.0**
Was the timing of this pregnancy your choice or that of your husband		
Mine	58	20.8
My husbands	90	32.3
Joint choice	86	30.8
Accidental	45	16.1
Total	**279**	**100.0**
In your culture, are women supposed to have shorter or long birth intervals		
Yes	17	6.1
No	193	69.2
Don’t know	69	24.7
Total	**279**	**100.0**
Are women in your communities allowed to use contraceptives so as to space		
Yes	248	88.9
No	31	11.1
Total	**279**	**100.0**
If no, do women who need contraceptives fear to uptake them or secretly use them		

Fear to uptake them	23	74.2
Secretly use them	8	25.8
In your case, have you ever used contraceptives		
Yes	127	45.5
No	152	54.5
Total	**279**	**100.0**
Average monthly income (shs)		
100,000-250,000	153	54.8
250,000-500,000	104	37.3
>500,000	22	7.9
Total	**279**	**100.0**

4.4 Assessment of community factors

Table 4 describes the community factors among the respondents with all of them admitting the community had a positive attitude towards breast feeding of children. Majority of the mothers 273 (97.8%) confirmed breast feeding their previous children with 6-12 months duration of breast feeding registering the most responses 145 (52.0%). A greater proportion of the respondents 167 (59.9%) did not exclusively breast feed their children for 6 months.

On community perception as regards the use of family planning methods 47% respondents reported it was okay with it. However, minority respondents 70 (25.1%) did say the community

they lived in had preferences on the gender of the children given birth to, with girls slightly more preferred than boys (14.3% Vs 10.8%) respectively.

Table 4: Distribution of community factors among the respondents

Variables	Frequency (N=279)	Percentage (%=100.0)
What attitude does the community have towards breast feeding of children		
Positive	279	100.0
Did you breast feed previous last child		
Yes	273	97.8
Never breast fed	6	2.2
Total	**279**	**100.0**
For how long did you breast feed your child		
1-3 months	18	6.5
3-6 months	37	13.3
6-12months	145	52.0
>12months	79	28.3
Total	**273**	**100.0**
Did you exclusively breastfeed your child		
Yes	112	40.1
No	161	59.9
Total	**273**	**100.0**
How does the community perceive the use of family planning methods		
it does not recommend it	85	30.5
it is okay with it	131	47.0
No opinion	63	22.6

Total	**279**	**100.0**
Does the community you live in have any preferences on the gender of children that you have to give birth to		
Yes	70	25.1
No	209	74.9
Total	**279**	**100.0**
If yes, what gender does the community prefer		
Boys	30	10.8
Girls	40	14.3
Total	70	**100.0**

4.4 Actual birth intervals and preferred birth intervals cross tabulation

Table 5: Relationship between Actual birth intervals and preferred birth intervals

Preferred interval		**Actual interval**		
Interval	**n**	**Interval**	**n**	**%**
1 year	49	1 year	49	(100%)
2 years	93	1 year	71	(76.3%)
3 years	87	2 years	87	(100%)
4 years	29	2 years	22	(75.9%)
>4 years	21	3 years	12	(57.1%)

All the 49 (100%) women who preferred a spacing interval of 1 year had actual birth interval of 1 year, while for the 93 women who preferred a spacing interval of 2 years, only 22 (23.7%)

achieved it with the majority (76.3%) achieved 1 year. For the women who preferred spacing intervals of 3 and 4 years, they actually had intervals of 2 years (87, 100%) and 4 years (22, 75.9%) respectively, while for the 21 women who preferred a spacing interval of > 4 years, most of them (57.1%) achieved 3 years.

4.5 Socio economic and cultural factors influencing actual and preferred birth intervals among women in Mbale regional referral hospital

Table 6 shows a descriptive Chi square test of significance between socio economic and cultural factors actual and preferred birth intervals. Factors such as education of the mother/husband, occupation of the mother, transport costs to the hospital, paying some extra fee (bribe) to health workers before getting the service, affordability of services offered by the health centers, whose decision to have the current pregnancy, cultural influence to have shorter or long birth intervals, showed a statistical significance with actual and preferred birth intervals with p values 0.000 ($p<0.05$). A p – value less than 0.05 indicates that there was a significant relationship between the variable under study (independent variable) and the dependent variable.

The fear to uptake contraceptives or secretly use them to avoid reprimand from either the husband or family members did not show any significant relationship with actual and preferred birth intervals as evidenced with p-value greater than 0.05 ($p=0.087$)**.** The cultural factors which were significant were the preference of sons and cultural dictation on the use of contraceptives

Highest achievements of preferred birth intervals was seen among women who were educated to secondary and tertiary levels, traders and those in government jobs, those who could afford transport costs to the health facilities and did not have to pay any extra costs (bribes to health

workers, those who could afford the services offered by the health workers, and those whose cultures did not stop them from using contraceptives and actually used them.

Table 6: Association between socio economic and cultural factors actual and preferred birth intervals

Variables	Achieved preferred interval (Preferred)	Did not achieve preferred interval (Actual)	X^2	Df	P - value
Education of the mother					
Never went to school	54 (65.1)	71 (36.2%)			
Primary level	17 (20.5)	81 (41.3%)	4.962	12	0.000*
Secondary level	9 (10.8%)	41 (21%)			
University /colleges	3 (3.6%)	3 (1.5%)			
Total	**83**	**196**			
Occupation of the mother					
Peasant farmer	127 (82.5%)	71 (56.8%)			
Trader	24 (15.6%)	53 (42.4%)	2.200	8	0.000*
In government of other formal employment	3 (1.9%)	1 (0.8%)			
Total	**154**	**125**			
Are the transport costs to the hospital a problem to you			1.562	3	0.000*
Yes	82 (90.1%)	149 (79.3%)	2.659	4	0.000*
No	9 (9.9%)	39 (20.7%)			
Total	**91**	**188**			
Do you have to pay some extra fee (bribe)			1.404	3	0.000*

to health workers before getting service					
Yes	37 (21.8%)	0 (0%)	56.521	4	0.000*
No	133 (78.2%)	109 (100%)			
Total	**170**	**109**			
Can you afford the services offered by the health centers			2.120	3	0.000*
Yes	140 (83.3%)	71 (64%)	2.016	4	0.000*
No	28 (16.7%)	40 (36%)			
Total	**168**	**111**			
Preference of sons in your culture					
Yes	81 (57%)	99 (72.3%)			
No	61 (43%)	38 (27.7%)	3.694	4	0.000*
Total	**142**	**137**			
Was the timing of this pregnancy your choice or that of your husband			4.123	2	0.078
Mine	49 (50.5%)	2 (1.1%)			
My husbands	39 (40.2%)	69 (38%)	3.515	12	0.000*
Joint choice	0 (0%)	81 (44.5%)			
Accidental	9 (9.3)	30 (16.5%)			
Total	**97**	**182**			
Are women in your culture allowed to use contraceptives so as to space					
Yes	142 (94%)	106 (82.8%)			

No	9 (6%)	22 (17.2%)	1.487	6	0.000*
Total	**151**	**128**			
In your case, have you ever used contraceptives					
Yes	82 (74%)	71 (42.3%)	9.551	3	0.000*
No	29 (26%)	97 (57.7%)			
Total	**111**	**168**			

4.6 Demographic factors influencing actual and preferred birth intervals among women in Mbale regional referral hospital

Highest achievement of preferred birth intervals was seen among women who were from the rural areas, those aged between 20-35 years, and the married. Residence, age of mother, and age at first pregnancy were significantly related to the birth spacing.

Table 7: Associations between demographic factors influencing actual and preferred birth intervals

Variables	Achieved preferred interval (Preferred)	Did not achieve preferred interval (Actual)	X^2	df	P - values
Residence					
Urban	49 (25.1%)	31 (37%)	1.780	4	0.000*
Rural	146 (78.9%)	53 (63%)			
Total	**195**	**84**			
Age of the mother (years)				6	

<20 years	19 (12.4%)	2 (1.6%)			
20-35 years	124 (81%)	106 (84.1%)	2.974	8	0.000*
>35 years	10 (6.53%)	18 (14.3%)			
Total	**153**	**126**			
Marital status					
Married	120 (91%)	71 (48.3%)			
Single	0 (0%)	32 (21.8%)	3.954		0.000*
Divorced	7 (5.3%)	41 (27.8%)			
Widowed	5 (3.7)	3 (2.1%)			
Total	**132**	**147**			
At what age did you first get pregnant					
<20 years	36 (23.8%)	0 (0%)			
20-30 years	106 (70.2%)	108 (84.4%)	10.254	2	0.062
>30 years	9 (6%)	20 (15.6%)			
Total	**151**	**128**			
Religion of the respondents					
Protestant	49 (49%)	10 (5.6%)			
Muslim	0 (0%)	47 (26.2%)	4.185	12	0.057
Catholic	48 (48%)	109 (61%)			
Born again	3 (3%)	13 (7.3%)			
Total	**100**	**179**			

4.7 The link between community perceptions on child birth / care and preferred birth intervals among women in Mbale regional referral hospital

Table 8 below shows a descriptive link between community perceptions on child birth / care and preferred birth intervals. Factors such as whether they breast fed the previous last child, duration of breast feeding, whether they exclusively breastfed their children, community perception on the use of family planning methods and community preferences on the gender of children to birth to showed a statistical significance with actual and preferred birth intervals as evidenced with p values less than 0.05 (p=0.000), the obtained p – value being less than 0.05 implies a significant association between the above stated variables and preferred birth intervals.

Highest achievement of preferred birth intervals was seen among respondents who had breastfed their children and particularly for 6 – 12 months, and women for which their communities were okay with family planning methods,

Table 8: The link between community perceptions on child birth / care and preferred birth intervals among women in Mbale regional referral hospital

Variables	Achieved preferred interval (Preferred)	Did not achieve preferred interval (Actual)	X^2	Df	P -value
Did you breast feed previous last child			1.161	3	0.000*
Yes	164 (98.2%)	109 (97.3%)			
Never breastfed	3 (1.8%)	3 (2.7%)			
Total	**167**	**112**			
For how long did you breast feed			4.735	9	0.000

your child					
1-3 months	18 (11.5%)	0 (0%)			
3-6 months	31 (19.7%)	6 (5%)			
6-12months	80 (51%)	65 (53.2%)	4.160	12	0.000*
>12months	28 (17.8%)	51 (41.8%)			
Total	**157**	**122**			
Did you exclusive breastfeed your child			12.454	4	0.000*
Yes	49 (39.8%)	46 (29.5%)	1.939		0.000*
No	74 (60.2%)	110 (70.5%)			
Total	**123**	**156**			
How does the community perceive the use of family planning methods			3.652	3	0.000*
it does not recommend it	46 (28%)	0 (0%)			
it is okay with it	96 (58.8%)	74 (64.3%)	4.692	8	0.000*
No opinion	22 (13.4%)	41 (35.7%)			
Total	**164**	**115**			
Does the community you live in have any preferences on the gender of children that you have to give birth to			4.788	2	0.000*
Yes	49 (33.8%)	24 (18%)	1.310	4	0.000*
No	96 (66.2%)	110 (82%)			
Total	**145**	**134**			

4.8 Relationship between some variables and actual birth intervals

As shown by the table below, the respondents who are more likely to have long birth intervals were the highly educated women (University), older women (> 39 years), and women in formal employment,

Table 9: Relationship between some variables and actual birth intervals

		Actual birth interval					Total
		1 year	2 years	3 years	4 years	>4 years	
education of the mother	never went to school	120 (100%)	5 (3.8%)	0(.0%)	0 (.0%)	0 (.0%)	125 (44.8)%
	primary level	0 (.0%)	98(74.8%)	0 (.0%)	0 (.0%)	0(.0%)	98 (35.1%)
	secondary level	0 (.0%)	28 (21.4%)	19 (100%)	3 (50%	0(.0%)	50 (17.9%)
	university/colleges	0(.0%)	0(.0%)	0(.0%)	3 (50%)	3(100%)	6 (2.2%)
Total		120 100.0%	131(100%)	19 (100%)	6 (100%)	3 (100%)	279(100%)
age of the mother in years	<18 years	19 (15.8%)	2 (1.5%)	0 (.0%)	0 (.0%)	0 (.0%)	21 (7.5%)
	18-39 years	99 (82.5%)	128 (97.7%)	3 (15.8%)	0 (.0%)	0 (.0%)	230 (82.4%)
	>39 years	2 (1.7%)	1 (.8%)	16 (84.2%)	6 (100.0%)	3(100%)	28 (10.0%)

Total		120 100.0%	13 (100%)	19 100.0%	6 (100.0%)	3 (100%)	279 (100.0%)
occupation of the mother	peasant farmer/house wife	120 (100%)	78 (59.5%)	0 (.0%)	0 .0%	0 .0%	198(71.0%)
	Trader	0 (.0%)	53 (40.5%)	19 100.0%	5 83.3%	0(.0%)	77(27.6%)
	in government of other formal employment	0 (.0%)	0 (.0%)	0 (.0%)	1 16.7%	3(100%)	(41.4%)
Total		120(100%)	131(100%)	19(100%)	6(100%)	3(100%)	279(100%)

CHAPTER FIVE: DISCUSSION OF RESULTS

5.1 Actual and preferred birth intervals of the women

Over the years, evidence has consistently shown that a birth interval of 2 years gives infants and children through 5 years a better chance of survival. This health message has been present for decades, and most mothers in this study have reported that a birth interval of 2 years is best. Not only is this concept valid in industrialized societies but it is also prevalent in traditional communities in many African countries Uganda inclusive. A survey investigating family planning practices/ beliefs among traditional healers in Ibadan (Nigeria) reported that their preferred child spacing period was 2–3 years. A similar finding has been found in this study, a birth interval of 2 years was preferred by a big proportion of the women 93 (33.3%).

However, almost the same number of the women had preferred a 1 year birth interval 87(31.2%). As regards the actual birth intervals that the women had, most of them actually had a birth interval of 2 years, 131 (47%) of whom only 22(23.7%), had preferred it. However a discrepancy was observed between the preferred birth intervals and actual birth intervals, majority of the women did not have their preferred birth intervals except for the mothers who had preferred an interval of one year. This might have arisen due to a number of factors ranging from demographic, socio economic and community factors.

5.2 Socio economic and cultural factors that influence actual and preferred birth intervals among women in Mbale regional referral hospital

Factors such as education of the mother/husband, occupation of the mother, transport costs to the hospital, paying some extra fee (bribe) to health workers before getting the service, affordability

of services offered by the health centers, whose decision to have the current pregnancy and if women had ever used contraceptives showed a statistical significance with actual and preferred birth intervals with p values 0.000 ($p<0.05$). Women who said they used contraceptives were more likely to achieve preferred birth intervals (Table 7).

Education levels of both the mother and the husband have a great bearing on the actual and preferred birth intervals. The study results show that the mothers who had never attended school, or had primary level education had short birth intervals of 1 year while those who had secondary and university education had longer birth intervals. The reason behind this might be educated mothers may be using contraceptive and other available methods to exhibit voluntary fertility control through child spacing.

It is known that, relatively educated mothers have high level of knowledge about family planning than those who have not been educated (CDC, 2010). Besides better knowledge and use of contraceptives, education also affects reproductive decisions through its influence on a wide spectrum of social psychological orientations in women, including freedom from tradition, heightened aspirations for themselves and their children, and attitudes and response toward smaller families (Gyimah, 2001). Maternal education can influence birth spacing through a number of other pathways. Mothers space births more widely because they may have better knowledge of contraception and are more likely to use more efficient methods.

As demonstrated in the Ethiopian 2005 DHS published report, about 52.6% and 23.4 per cent of women with secondary and primary education respectively were current users of contraception compared with only 10.0 percent of those with no education. Education is considered to be one of the most important socio economic factors having an indirect influence on birth interval length

through its impact on one or more of the bio-behavioral variables. For example, in 38 of 51 countries with DHS data, it was shown that women with no education were more likely to have shorter birth intervals compared with their educated counterparts. In this study, mothers with no education (2.5%) and primary education (44.8%) practice birth interval length less than 3 years when compared to those with secondary and above education (52.7%).

However, noticed still in this study was the fact that some secondary level educated women had short birth intervals of 2 years, this could be because sometimes better educated women compress child bearing into fewer years to participate in non child bearing activities and hence could often have shorter birth intervals than less educated. This might have brought the observed relation between birth interval and education among women with non education and primary education.

Occupation status of the mother was also linked to the birth intervals had by the mothers. Descriptive cross tabulations showed that mothers who were peasants or house wives had short birth intervals (1year) whereas traders and government officials and /or mothers in formal employment had longer birth intervals. This could be because, mothers who are formally employed in most cases are preoccupied with work issues and therefore seldom indulge in frequent child birth. Additionally the stress of work outside the home usually motivate employed women to postpone pregnancy and adopt a longer birth interval, a finding which was observed in this study as well as reported from other countries of the world. The short birth intervals observed among peasant farmer women might be because of the fact that in tradition, more children are seen as more labor force in the home and the faster the mother has children, the more household labor force they will have to carry on the farming.

Transport costs to the health facility and the fact that some women had to part with bribes to tip off health workers before they could get a service was also a significant predictor of birth intervals. This could be because when a woman has a perception that every time they get ill they have to not only part with the medical bill but also with a bribe to the health worker, which is an additional cost they may opt for longer birth intervals so as to save hospital cost. The same is true for transport costs, a woman may decide to space her children by more years so as to save on transport costs that may be involved during each progressive pregnancy.

Among the cultural factors, the preference for daughters and also hindrances to contraceptive use by culture were significant. Similar findings have been shown in other African countries like Mozambique where bride price is usually given to the parents of the girls in give away ceremonies. A study by Rao (2009) carried out in Mozambique showed that many women wanted to produce more girls than boys so that their families could have bride price in return when the girls have grown up. This means that in a bid to have the girls, a woman ends up having more trials at child birth until the number of girls she and her husband wants is reached, and this usually happens shortly after the previous births (Rao, 2009). Some studies have however shown preference for sons as a cause for short birth intervals. Whelpton (2006) in his study on "Trends and Differentials in the Spacing of Births" in India found that some communities preferred boys to girls for security, labor and cultural reasons as boys are seen as individuals who have the potential of enlarging their families, and it was also shown that women ended up producing more children in short periods of time so they could have boys.

On the contrary though previous studies (Rutstein, 2008) indicated that son preference put an upward pressure on fertility as couples continued to have children until they reached their desired number of sons. This implies that in both cases of preferring a particular sex of child, short birth

intervals are realized. The preference for sons among couples has been reported to affect child spacing especially in some societies where preference for sons dominates like the Bagisu culture due to the Imbalu (Traditional circumcision) practice. A lack of sons reduced the birth interval by an average of 4 months. Many women reported not using contraceptives due to cultural restrictions and this was found to be linked to reduced birth intervals. Contraceptive use has world over been proclaimed to be effective in prolonging birth intervals. This therefore means that without the use of contraceptive methods a woman is bound to have pregnancies even when not planned for.

5.3 Demographic factors that influence actual and preferred birth intervals among women in Mbale regional referral hospital

Birth interval showed difference by the age of the mother in which generally younger women had shorter birth interval more than older women. This could be due to younger women being more likely to have children for a variety of reasons such the acts of showing fertility after marriage which makes them produce children more frequently.

On the other hand, older women are later in their childbearing process and are likely to have achieved their desired family size and hence likely to have long subsequent spacing; they are also likely to be less fertile leading to longer spacing (Bloom, 2008). Optimum birth intervals (more than 1 year) were significantly more frequent among the older women of this study. Reports from Asia by Whelpton (2006), have also reported longer birth intervals among older women. This could be because of the breast feeding practices of older women, who usually have prolonged breastfeeding and attainment of preferred family size by many of them. Couples who

marry late have got short effective reproductive period. So they try to compensate their lost reproductive period by producing the desire number of children quickly.

The survival status of the previous child has been found to be important in determining child-spacing patterns for both social and biological reasons. The social reason is that, couples who have experienced the loss of a child at infancy avoid contraception with the motivation to have another child as a replacement. Biologically, the death of an infant interrupts breastfeeding, culminating to an early return to ovulation and, in the nonappearance of contraception, increases likelihood of early subsequent conception. The present study also provides strong evidence of the negative impact of child lost on child spacing.

5.4 The link between community perceptions on child birth / care and preferred birth intervals among women in Mbale regional referral hospital

Among the community factors that could affect actual and preferred birth intervals among the women, breastfeeding in all its aspects including duration and exclusiveness were found to be significant. This might be because of the contraceptive properties of breastfeeding. It was found that majority of the mothers had breast fed their babies (97.8%), however the duration of breastfeeding was found to be more significant than just having breastfed. In societies where contraception prevalence is low, fertility control could be achieved through breastfeeding. The significant fertility-inhibiting effect of breastfeeding has been documented and its superiority over contraception has been proven in societies where the practice predominates. In this study in almost all intervals of breastfeeding was practiced and in half of these intervals it continued for 1 year or more. Breastfeeding increased the birth interval by an average of 4 months. Independent of other proximate determinants of fertility, breastfeeding for 12 months reduces fertility by

more than half by increasing the period of postpartum non susceptibility to conceive (Setty Venugopal, 2009).

Breastfeeding is related with a delay in the return of ovulation after birth and hence it is a significant factor in increasing birth intervals. However, the effect of breastfeeding on fertility is particularly great in populations that have enormously long periods of exclusive breastfeeding and little contraceptive use. The findings of this study cannot be generalized to all women in Mbale since the study was not community based, but conducted among users of the referral hospital of an urban area. The duration of breastfeeding shows a consistent positive relationship with birth spacing. This may be due to lactational amenorrhea arising from breastfeeding

CHAPTER SIX: CONCLUSIONS RECOMMENDATIONS

6.1 Conclusion

Actual birth intervals of women in most developing countries are shorter than the intervals they would prefer. In this study, the average preferred birth interval was 3 years and actual interval was 2 years. Many women not only are unable to achieve their own reproductive goals but also are falling far short of the 3 to 5 (>4years) intervals that new evidence suggests are healthiest. In many sub-Saharan African countries, women are the furthest from achieving their preferred birth interval (CDC, 2010). This was evident in this study as only a few women achieved their preferred birth intervals. It was found that the socio economic and cultural factors that influenced actual and preferred birth intervals among women included ability to pay for the maternity services, payment of extra fees to the health workers, transport cost to the hospitals, education of the mother, education of the father and the occupation of the mother. Cultural factors did not play a significant role in influencing the birth intervals; however, preference for sons was a significant cultural predictor. Statistically significant socio economic variables that influenced achievement of preferred birth intervals were transportation costs to the health facility, affordability of the health facility services, occupation of the mothers, and education level. The demographic factors that influence actual and preferred birth intervals among women included, age of the mother, loss of child and residence whereas for the community factors the practice of breastfeeding with the community perception towards it were significant. Therefore it can be concluded that socio economic and demographic factors of the women play a major role in determining birth intervals.

6.2 Recommendations:

To the health facilities

1. The administrators should strengthen existing hospital services and community programs with birth spacing messages and improved quality of ANC and PNC service.

3. Health education sessions to the mothers should also focus on educating individuals/communities on the benefits of birth spacing.

4. Hospital management should discourage the habit of extorting extra money from patients by health workers

To the policy makers

Policy makers need to consider the potential for lengthening birth intervals in Uganda where the median birth interval is close to 3 years (2.88 years). Data from other African countries suggests that even in situations when women wish to increase spacing it is by no more than six months (Rafalimanana and Westoff, 2001).

It has been found that women who are educated tend to have longer birth intervals, therefore girl child education should be further boosted to increase their literacy rates.

Promoting at least two years between births among very young mothers is another potential intervention. While little can be done to reduce the risk of a first time pregnancy, the risk of repeated childbearing in young ages can be reduced.

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APPENDIX 1; CONSENT FORM

Value of Research

This research study is intended to assess actual and preferred birth intervals and the associated factors among women attending ANC in Mbale hospital. The purpose of the questionnaire, interviews that will be conducted late on is to collect information on the mentioned topic so as to understand the factors influencing actual and preferred birth intervals. The knowledge obtained a better understanding of the most significant factors that hinder acquisition of preferred birth intervals and thus help formulate policy to alleviate the hindrances.

Anticipated Harm

No harm, risks are expected to arise from participating in this study

Confidentiality

All information given at an interview will be on the face of it confidential. Your identity will be kept with utmost confidentiality. The information, tape or transcript will be anonymised.

PLEASE TICK YOUR RESPONSE IN THE APPROPRIATE BOX

I have read and understood the attached Participant information leaflet Yes □ No □

I have had the opportunity to ask questions and discuss the study Yes □ No □

I have received satisfactory answers to all my questions Yes □ No □

I understand that I am free to withdraw from the study at any time without giving a reason and without this affecting my future medical care Yes □ No □

I agree to take part in this study without prejudice to my legal or ethical rights Yes □ No □

Participant's Signature…… Date:…….

Witness' Name in Print: ……..

Investigator's Signature: ……. Date:……..

APPENDIX 2: QUESTIONNAIRE

Part I: Socio-demographic Characteristics of the respondents

S.N	Questions	Response and Coding
1	Primary language of mother	_____
2	Residence	1. Urban 2. Rural
3	Age of the mother in years	_____
4	Marital status	1. Married 2. Single 3. Divorced 4. Widowed
5	At what age did you first get pregnant	_____
6	Religion	1. Orthodox 2. Protestant 3. Muslim 4. Catholic 5. Others (specify)_____
7	Tribe	1. Muganda 2. Musoga 3. Mugisu 4. Others (specify)_____
	ECONOMIC AND CULTURAL FACTORS	

8	Education of the mother	1. Never went to school 2. Primary level 3. Secondary level 4. University / colleges
9	Education of the husband / boyfriend	1. Never went to school 2. Primary level 3. Secondary level 4. University / colleges
8	Occupation of the mother	1. Peasant farmer 2. Trader 3. In government of other formal employment 4. Others (Specify)
9	Are the transport costs to the hospital a problem to you?	1. Yes 2. No
10	Do you have to pay some extra fee (Bribe) to the health workers before getting service	1. Yes 2. No

11.	Can you afford the services offered by the health centers	1. Yes 2. No
12	Occupation of the husband	1. Peasant farmer 2. Trader 3. In government of other formal employment 4. Others (Specify)
10	Have you heard about optimal birth interval between two consecutive births?	1. Yes → 2. No
11	If yes to question no 201, what is the optimum number of months or years between two successive births?	…….. …….. …….. ……..
12	Does adequate/optimum birth spacing have a health advantages?	1. Yes 2. No 3. Don't Know →
13	If yes to question above, what are your reasons?	…….. …….. …….. ……..

14	Does short birth interval have a health disadvantages?	1. Yes 2. No 3. Don't Know
15	In your case, what period of time of birth interval between 1 and next pregnancy do you prefer in years	1. 1 year 2. 2 years 3. 3 years 4. 4 years 5. > 4years
16	In your current pregnancy, what period of time is it between the last birth and now?	1. 1 year 2. 2 years 3. 3 years 4. 4 years 5. > 4years
17.	Was the timing of this pregnancy your choice or that of your husband?	1. Mine 2. My husbands 3. Joint choice 4. Accidental
18.	For this pregnancy and the interval between it and last birth, what period of interval of time in months / years would you have preferred?	…… …… …… ……
19.	In your culture, are women supposed	1. Yes

	to have shorter or long birth intervals between pregnancies?	2. No 3. Don't know
20.	Are women in your communities allowed to use contraceptives so as to space births?	1. Yes 2. No
21.	If no, do women who need contraceptives fear to uptake them or secretly use them to avoid reprimand from either the husband or family members?	1. Yes 2. No
22.	In your case, have you ever used contraceptives?	1. Yes 2. No
23	How many children have you ever born alive?	Males ____ Females_____
24.	What is your average monthly income	1. 100,000 – 250,000 2. 250,000 – 500,000 3. >500,000

Part II: Community factors

S.N	Questions	Response
24	What attitude does the community have towards breast feeding of children	1. Negative 2. Positive
25	Did you breast feed previous to last child (name)?	1. Yes 2. Never breast fed
26	For how long did you breast feed your child	1. 1- 3 months 2. 3 – 6 months 3. 6 – 12 months 4. 4 >12 months
27	Did you exclusive breastfeed your child	1. Yes 2. No
28	How does the community perceive the use of family planning methods?	1. It does not recommend it 2. It is okay with it 3. No opinion
29	Does the community you leave have any preferences on the gender of children that you have to give birth to	1. Yes 2. No
30	I f yes, what gender does the community prefer	1. Boys 2. Girls

APPENDIX 3: MAP OF STUDY AREA

APPENDIX 4: LETTER OF AUTHORISATION (IHSU)

IHSU INTERNATIONAL HEALTH SCIENCES UNIVERSITY
PART OF INTERNATIONAL MEDICAL GROUP

Office of the Dean, Institute of Health Policy & Management

Kampala, 5th August 2013

TO WHOM IT MAY CONCERN

Dear Sir/Madam,

Re: Assistance for Research

Greetings from International Health Sciences University.

This is to introduce to you **Ms. Muhenje Sophie Mukoone, Reg. No. 2010-BSCPH-FT-046** who is a student of our University. As part of the requirements for the award of a Bachelors Degree of Public Health of our University, the student is required to carry out field research for the submission of a Research dissertation.

Ms. Muhenje would like to carry out research on issues related to: **Factual and preferred intervals of mothers attending ANC at Mbale Regional Hospital**

I therefore request you to render the student such assistance as may be necessary for her research.

I, and indeed the entire University are thanking you in anticipation for the assistance you will render to the student.

Sincerely Yours,

INSTITUTE OF HEALTH POLICY AND MANAGEMENT
IHSU

Prof. David Ndungutse Majwejwe

Director, Institute of Health Policy & Management

MAKING A DIFFERENCE IN HEALTH CARE
International Health Sciences University
P.O. Box 7782 Kampala | Uganda | East Africa
Tel: (+256) 0312 307 400 | E-mail: info@ihsu.ac.ug | web: www.ihsu.ac.ug

APPENDIX 4: LETTER OF AUTHORISATION (MBALE HOSPITAL)

MBALE REGIONAL REFERRAL HOSPITAL

P.O. Box 921, Pallisa Road, Mbale

Tel: 256 256454433193

Our Ref **Your Ref**

August – 23 – 2013

Sophie Muhenje Mukoone

International Health Sciences University

Kampala, Uganda

Dear Madam,

RE: APPROVAL OF YOUR RESEARCH PROPOSAL

TITLE: ACTUAL AND PREFERED BIRTH INTERVALS OF MOTHERS ATTENDING ANTENATAL CARE AT MBALE REGIONAL HOSPITAL

I am glad to inform you that the above protocol, was reviewed by the vice chair person of Mbale Hospital Research Review Committee who found it to be satisfactory. Approval is hereby granted to you to conduct the research study for a period of one year. If it is necessary to continue with the study after the expiry date, a request should be made in writing to the MHRRC office.

Any problems related to the execution of the research study, should be brought to the attention of the MHRRC and any changes in the research protocol should not be implemented without MHRRC's approval

You are reminded to provide this committee with timely progress reports and final report on completion of the project.

Yours Sincerely

MBALE REGIONAL REFERRAL HOSPITAL Date 28/8/2013 P.O. Box 921, Pallisa Road, Mbale

Robert Masaba

Vice chair person (MHRRC)