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BIRTH PREPAREDNESS AMONG EXPECTANT TEENAGERS IN LEDZORKUKU KROWOR MUNICIPAL ASSEMBLY (LEKMA)

BY

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DECLARATION

I, Susan Ruby Efua Kumadi, the author of this dissertation, do hereby declare that with the exception of references to the literature and work of other researchers, which have been duly cited, the work in this dissertation is the result of my original work. I also declare that, this work has not been accepted in full or part for any other degree nor is it currently being submitted in candidature for another degree.

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SUSAN R. E. KUMADI DATE

Student

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DR. AMOS K. LAAR DATE

Supervisor

DEDICATION

This piece of work is dedicated to all the expectant teenage mothers within the Ledzorkuku Krowor Municipal Assembly (LEKMA). My mum, Florence Akua Takyibea Attah, for the immeasurable support and sacrifices you made for me to become who I am today, and to the entire Kumadi family.

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ABSTRACT

Introduction

One of the strategies aimed at enhancing the utilization of skilled care in low-income countries is improving knowledge of obstetric danger signs and birth preparedness. Sub-Saharan Africa has the highest number of teenage women who are pregnant (20-40%). In Ghana, teenage pregnancy and early marriage contribute to high maternal and child mortality. This study sought to determine the level of birth preparedness and knowledge of obstetric danger signs among expectant teenagers in Ledzorkuku Krowor Municipal Assembly (LEKMA).

Methodology

The study was a hospital and community based cross sectional study involving 305 expectant teenage mothers. Following informed consent, structured questionnaire was used to obtain information on socio-demographic and background characteristics, indicators of birth preparedness and obstetric danger signs. Data was analyzed using STATA (version 12.0). Univariate analysis presented proportions of indicators of birth preparedness and obstetric danger signs. Bivariate analysis presented associations between explanatory variables (age, educational level, marital status and number of ANC visits) and outcome variables (birth preparedness and knowledge on obstetric danger signs). Binary logistic regression was used to identify the determinants of outcome variables.

Results

Approximately half (49.2%) of the respondents were prepared for delivery. On the contrary, about (73%) respondents in this study were knowledgeable in obstetric danger

signs. Respondent's employment status (OR=2.38; 95% C.I. 1.50-3.77), length of pregnancy (OR=0.05; 95% C.I. 0.01-0.35) and number of ANC visits (OR=2.83; 95% C.I. 1.68-4.78) were associated with level of birth preparedness. Age (OR=2.42; 95% C.I. 1.20-4.87), employment status (OR=0.51; 95% C.I. 0.31-0.86), educational level (OR=4.13; 95% C.I. 1.22-14.03) and length of pregnancy (OR=0.57; 95% C.I. 0.31-1.02) were associated with level of knowledge on obstetric danger signs.

Conclusion

In this study, (49.2%) of the respondents were prepared for delivery while (73%) respondents were knowledgeable in obstetric danger signs. Respondent's employment status, length of pregnancy and number of ANC visits were significant determinants of level of birth preparedness. Age, employment status, educational level and length of pregnancy were significant determinants of level of knowledge on obstetric danger signs.

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LIST OF ABBREVIATIONS

BP	Birth Preparedness
CR	Complication Readiness
JHPIEGO	John Hopkins Program for International Education in Gynecology and Obstetrics
ICPD	International Conference on Population and Development
LEKMA	Ledzorkuku Krowor Municipal Assembly
MDGs	Millennium Development Goals
GHS	Ghana Health Service
MMR	Maternal Mortality Rate
MMEIG	Maternal Mortality Estimation Inter-Agency Group
TBAs	Traditional Birth Attendants
STIs	Sexually Transmitted Infections
ANC	Antenatal Clinic
MNH	Maternal and Neonatal Health
BPP	Birth Preparedness Package
EOC	Emergency Obstetric Care
HIV	Human Immunodeficiency Virus
WHO	World Health Organization
UNICEF	United Nations International Children's Emergency Fund
SBA	Skilled Birth Attendant
NDHS	Nepal Demographic and Health Survey
O & G	Obstetric and Gynecology
OPD	Out Patient Department
PCA	Principle Component Analyses

DEFINITION OF TERMS

1. **Birth preparedness and obstetric danger signs or complication readiness (BP/CR)** is the process of planning for normal birth and anticipating actions needed in case of emergency (JHPIEGO, 2001).
2. **BP/CR matrix** outlines or describes the roles (plans/actions) of policymakers, facility managers, care providers, communities, families and women and newborns receive timely, appropriate and effective care.
3. **Skilled care provider/attendant** is a professional caregiver who has the knowledge and skills to manage labor, childbirth, and postpartum period, recognize complications, diagnosis, manage or refer the woman or the newborn to a higher level of care if complications occur that requires interventions beyond current caregiver's competence.
4. **A teenager** is a person between the ages of 13 and 19.
5. **Teenage pregnancy** is generally defined as a pregnancy in a woman who is between the ages of 13-19 years of age or under.
6. **Postpartum period** is defined, as the beginning after delivery of the placenta to six (6) weeks or it is the first six (6) weeks after birth that is critical to the health and survival of the mother and her new born.
7. **Newborn/neonatal period** refers to the first twenty-eight (28) days of life and is the period when the child is at highest risk of dying.
8. **Risk factor** is defined as one link in a chain of associations leading to an illness or an indicator of link; and is identifiable prior to the event it predicts.
9. **Community emergency response mechanism** is defined as having an emergency response mechanism if all of the following systems are in place: identification of pregnant women, finance, transportation, blood donation, and at least one contact person responsible for linking these systems to the women in need.

CHAPTER ONE

1.0 INTRODUCTION

1.1 Background

Birth preparedness and obstetric danger signs or complication readiness (BP/CR) is the process of planning for normal birth and anticipating actions needed in case of emergency. It is a comprehensive strategy to improve the use of skilled providers at birth and the key intervention to decrease maternal mortality. It involves the making of arrangements such as place of delivery – whether a health facility or a home, if home, whether a skilled birth attendant will be present at the time of delivery, identifying or establishing available transport to the health facility, setting aside money to pay for service fees and identifying blood donors in order to facilitate swift decision-making and reduce delays in reaching care during complications (JHPIEGO, 2001).

In 1994, The International Conference on Population and Development (ICPD) held in Cairo endorsed the need to promote and protect the rights of adolescents to reproductive health information and care (Rice, 2000). Strategies aimed at enhancing the utilization of skilled care during low-risk births and emergency obstetric care in complicated cares in low-income countries are knowledge of obstetric danger signs and birth preparedness (JHPIEGO, 2004, Starrs, 2006). These strategies show that, the health seeking behavior of mothers irrespective of their age have potential role in efficient reproductive health.

According to Stephenson et al (2006), and United Nations Children's Fund (2008), over half a million women die each year from complications of pregnancy or childbirth. Sub-Saharan Africa and Southern Asia accounted for 85% of the global burden. Most of these

deaths are attributed to pregnancy complications such as hemorrhage, infection, obstructed labor, abortion and eclampsia in mothers, while in the newborns; the deaths were attributed to asphyxia, infection and low-birth weight (Koblinsky et al, 1999).

Sub-Saharan Africa has the highest number of teenage women who are pregnant (20-40%) (Westoff, 2003). In most low income countries such as Ghana where fertility rate is high, teenage pregnancy and early marriage are common and account for most maternal and child mortality (Mayor, 2004). The leading cause of death among teenagers in such countries is pregnancy and childbirth (Reynolds, Wong, Tucker, 2006).

Adolescent mothers are at increased risk of maternal death and infant death compared to adult mothers (LeGrand and Mbacke, 1993). Peltzer and Ajegboogun (2005) showed that expectant teenagers in most low-income countries are frequently subjected to stigmatization through unpleasant questions and humiliation, as well as lack of respect, privacy and confidentiality within the health care system. Assessing the level of knowledge of expectant teenagers on birth preparedness and obstetric danger signs, and acting on the findings will help the health provider influence their health seeking behavior and improve the quality of health services provided. This study aimed to determine the level of birth preparedness of expectant teenagers at Ledzorkuku Krowor Municipal Assembly (LEKMA).

1.2 Problem Statement

Maternal morbidity and mortality have been attributed to three delays; delay to make a decision to seek care, delay to reach the place of care, and delay to receive appropriate care which are preventable (Thaddeus and Maine 1994). Majority of the maternal morbidity and mortality occurring globally is attributed to Sub-Saharan Africa (Koblinsky

et al, 1999). Maternal death and child death are highest in these areas. These deaths are mostly attributed to lack of knowledge of mothers on antenatal services, birth preparedness and obstetric danger signs (JHPIEGO, 2001). The low-income levels of mothers in such poorly resourced countries and low educational levels aggravate these challenges. Expectant teenagers have been shown to form majority of mothers who experience pregnancy and birth complications leading to their death or that of the child (JHPIEGO, 2001). Ghana has missed her target for Millennium Development Goals (MDGs) 4 and 5. Although Ghana's maternal mortality rate (MMR) has reduced from 760 in 1990 to 380 in 2013, this was not enough to reach the Millennium Development Goal 5 target of 185 deaths per 100,000 live births (Maternal Mortality Estimation Inter-Agency Group (MMEIG) of the United Nations, 2014). Most recent literatures have shown lack of adequate birth preparedness as critical factors behind the sluggish progress towards the maternal target in countries which have failed to meet set goals on reducing maternal morbidity and mortality (Whitworth, Sewankombo, Snewin, 2010; Fullerton, Killian, Gass, 2005; Khadka, Moore, Sharma, 2006). According to VandenBroek, White, Ntonya, Ngwale, Cullinan, et al. (2003), "utilization of birth preparedness kits, community involvement in counseling and physiological support to child bearing, save women from maternal deaths occurred during labour pain, delivery and within the 24 hours of the post-partum and other inter-correlated sign of danger.

According to Soubeigaet et al. (2014), Adanu (2013), Mills and Bertrand (2005), there is scanty documented information on birth preparedness and knowledge of obstetric danger signs of expectant teenagers in Ghana. LEKMA has high prevalence of teenage pregnancy, maternal and child mortality as well as challenges with family planning and ANC attendance. However, to the best of my knowledge, no study has been conducted to

assess the level of birth preparedness among these teenagers and their level of knowledge on obstetric danger signs.

More than half of the total population of Ledzorkuku (51%) is female. Close to a third (29.9%) of the population are women in fertility age. More than ten percent (11.7%) are children under five years. The people of LEKMA have varying types of occupation with a mix of low, moderate and high-income earners. However, a higher proportion of them are low-income earner. In terms of health accessibility, some areas in the municipality are poorly planned and crowded and become muddy during the rainy season due to poor drainage. As a result patients needing health services find it difficult to physically access such services. With regards to antenatal clients, some are forced to seek the services of traditional birth attendants (TBAs).

The Municipality is generally poor and confronted with institutional challenges such as continuous attrition of staff, especially nurses; inadequate capacity and capability of the various health facilities; and inadequate health infrastructure. These challenges have been attributed to poverty, poor environmental sanitation, apathy and ignorance. These factors negatively impact on the lifestyle and health seeking behavior of teenagers in the municipality. The cultural beliefs such as early child bearing irrespective of being married or not and the respect with which society treat such ones have resulted in most teenagers giving birth. Also, there is the myth that all family planning methods cause permanent sterilization, making patronage low. There is also the perception of reduction in sexual pleasure when condom is used. These have resulted in the high prevalence of unwanted pregnancies, abortions and Sexually Transmitted Infections, (STIs). Most primips who report at Teshie Community Clinic are aged between 15 and 16 years old. In view of the

above, there is the need to understand the current levels of birth preparedness and knowledge on danger signs among these teenagers to ensure safe delivery.

1.3 Justification

The findings of this study will provide baseline information on the level of birth preparedness and level of knowledge on obstetric danger signs among expectant teenagers in the municipality. This information can then be used to identify ways of improving on their delivery and ANC services. Findings will also serve as reference for other researchers to use to further research into this area to help reduce maternal and child mortality. This work will contribute to the limited corpus of knowledge on the subject under investigation and provide baseline data to improve on maternal and child health in the municipality.

1.4 Conceptual Framework

The key concepts of birth preparedness include knowledge of danger signs, plan for where to give birth, plan for a birth attendant to be present at time of delivery, transportation to the place of delivery during the day or night, saving money to pay for service fees, identifying blood donor and plan for decision maker.

For the purpose of this study, the concept will be linkage of the various factors that determine the level of birth preparedness to its realization. The factors that will be used in the framework are Socio-demographic factors (age, employment, income, educational level, marital status), Knowledge on birth preparedness (transport, place of delivery, blood donor arrangement, awareness of expected date of delivery), Knowledge on Obstetric Danger Signs (Severe headache, blurred vision, severe vomiting, and swelling

of face, entire body, fever, convulsion), Health seeking behavior (Early antenatal, adherence to guidelines) and Traditional beliefs (Report late, dietary change, fasting, plan for decision maker).

Socio-demographic factors: The age, employment, income, marital status and educational level are explanatory or independent variables that can determine the pregnant teenager's level of birth preparedness. For instance, an individual who is educated, employed, has a regular flow of income or is married will be better prepared for birth than an individual who is not educated, employed or married. Nystrom (2012), showed that, women with primary education and above are twice more likely be prepared for birth and its complications compared with those who lacked formal education. Agarwal (2010) reported that individuals who are employed are more prepared compared with those unemployed. Also, married women tend to be more prepared compared with single women. Iliyasu (2010)

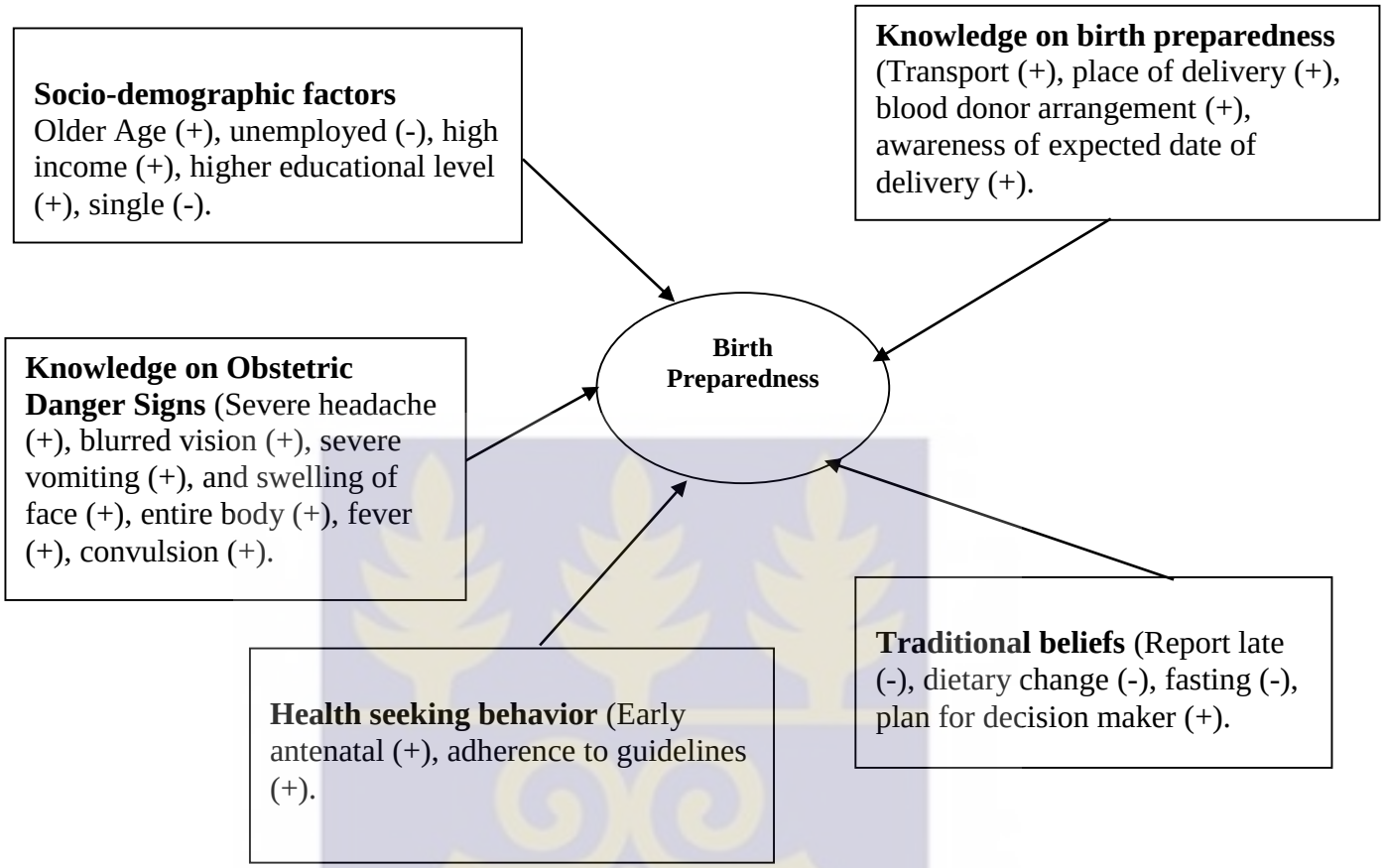
Knowledge on birth preparedness: Having prior knowledge on place of delivery-whether in the hospital or at home, if home, whether a skilled birth attendant will be present at the time of delivery, identifying or establishing available transport to the health facility during the day or night, setting aside money to pay for service fees and identifying blood donors in order to facilitate swift decision-making and reduce delays in reaching care during complications (JHPIEGO, 2001), as well as awareness of expected date of delivery positively influences her preparedness towards safe delivery

Knowledge on obstetric danger signs: Severe headache, blurred vision, severe vomiting, and swelling of face, entire body, fever, convulsion, difficulty in breathing are some danger signs that will alert the expectant mother on an impending condition that will need expect advice and care and therefore must seek help on time.

Health seeking behavior: Early and regular visits to antenatal, adherence to guidelines (like screening –HIV test, medication), importance of exclusive breastfeeding and how to position the newly born to the breast, importance of family planning, importance of postnatal care are all information given by the healthcare provider to help the pregnant teenage mother be prepared to take on her new role as a mother (Kc et al., 2011).

Traditional beliefs: Yousef et al (2011), have reported that religious beliefs can be primary reasons for delayed health services and preference for home delivery. Sergent (1990) reports that women who managed to deliver without indication that they were in labor and without calling for assistance until the child was born were especially esteemed (Sergent, 1990).

Figure 1 Conceptual Framework for birth preparedness



Adopted from: Gurmesa, .T et al. (2014).

(+) Positive impact on outcome variable (birth preparedness)

(-) Negative impact on outcome variable (birth preparedness)

1.5 Objectives

1.5.1 General Objective

This study sought to determine the level of knowledge of obstetric danger signs and birth preparedness among expectant teens in LEKMA.

1.5.2 Specific Objectives

1. To assess the level of birth preparedness among expectant teens.
2. To determine the level of knowledge of expectant adolescent on obstetric danger signs.
3. To identify factors associated with birth preparedness and knowledge on obstetric danger signs of expectant teenage mothers.

1.6 Research Questions

1. How prepared are expectant teenage mothers towards birth?
2. What is their level of knowledge on obstetric danger signs?
3. What are the factors associated with their level of birth preparedness and obstetric danger signs?

CHAPTER TWO

2.0 LITERATURE REVIEW

2.1 The Concept of Birth Preparedness and Complication readiness

Birth Preparedness and Complication Readiness (BP/CR) is the process of planning for normal birth and anticipating the actions needed in case of an emergency. Responsibility for BP/CR must be shared among all safe motherhood stakeholders, policymakers, facility managers, providers, communities, families, and women (Thaddeus and Maine, 1994). Birth-preparedness and complication readiness is a comprehensive strategy to improve the use of skilled providers at birth, the key intervention to decrease maternal mortality. Birth-preparedness and complication readiness include many elements: (a) knowledge of danger signs; (b) plan for where to give birth; (c) plan for a birth attendant; (d) plan for transportation; and (e) plan for saving money (Starr, 1997). Birth preparedness and knowledge of obstetric danger signs are strategies aimed at enhancing the utilization of skilled care during low-risk births and emergency obstetric care in complicated cases in low-income countries (Starrs, 2006). Three delays represent barriers that often result in preventable maternal deaths (Jahn and De Brouwere, 2001). Birth- preparedness programs generally address these 'three delays,' to care-seeking for obstetric emergencies; delay in recognition of problem, delay in seeking care, and delay in receiving care at a facility.

Improved knowledge on birth preparedness practices and obstetric danger signs, or readiness for emergency complications are among strategies aimed at both enhancing utilization of maternal health services and increasing access to skilled care during childbirth, particularly for women with obstetric complications (Husein et al, 2012). Thaddeus and Maine outlined three delays that influence the provision and use of obstetric services to prevent maternal deaths: (a) delay in deciding to seek care if

complication occurs; (b) delay in reaching care; and (c) delay in receiving care (Thaddeus and Maine, 1994). The Maternal and Neonatal Health (MNH) Program of JHPIEGO developed the birth-preparedness and complication readiness matrix to address these three delays at various levels, including the pregnant woman, her family, her community, health providers, health facilities, and policy-makers during pregnancy, childbirth, and the postpartum period. The concept of birth-preparedness and complication readiness includes knowing danger signs, planning for a birth attendant and birth-location, arranging transportation, identifying a blood donor, and saving money in case of an obstetric complication (MNH, 2001).

According to JHPIEGO (2004), the term birth preparedness comprises the following concepts; preparation for normal birth by selecting a skilled birth attendant (SBA) and place of delivery; preparation of essential items for delivery, such as a clean delivery-kit; knowledge of danger signs for mother and newborn and when to seek help; knowledge of where and to whom to go to for help; arranging access to funds and means for emergency transportation and medical care; and prior identification of blood donors. The Birth Preparedness and Complication Readiness Matrix delineates the roles of policymakers, facility managers, providers, communities, families, and women in ensuring that women and newborns receive appropriate, effective, and timely care (MNH, 2001). It outlines plans and actions that can be implemented by each group of stakeholders to build an enabling environment for normal and emergency care. The BP/CR Matrix can be used in a variety of ways to introduce and reinforce the concept of BP/CR, to demonstrate and support shared responsibility and accountability for safe motherhood, and to plan appropriate safe motherhood interventions and activities. Using the matrix, advocacy groups can facilitate a process that helps stakeholders see how they influence barriers and

solutions to seeking, reaching, and receiving care. Program planners can use the matrix to mobilize the necessary human and fiscal resources to adequately respond to stated needs and priorities. And healthcare providers can use the matrix as a reference to reinforce facility preparedness and to more fully understand their role and the skills required to deliver care throughout pregnancy, labor and childbirth, and the postpartum/newborn period (JHPIEGO, 2004).

The causes of these high maternal mortality ratios are numerous and interrelated in terms of sociocultural factors which delay care seeking and contribute to these deaths. The delay is primarily due to (a) identifying the complication, (b) deciding to seek care, (c) identifying and reaching a health facility, and (d) receiving adequate and appropriate treatment at the health facility (Thaddeus and Maine, 1994). There are evidences from several studies involving rural Nepal (McPherson et al., 2006) using a target populations of the Birth preparedness package (BPP) programme where thirty-cluster baseline and end line household surveys of mothers of infants aged less than one year were used for estimating the change in key outcome indicators. Fifty-four percent of respondents (n=162) were directly exposed to BPP materials while pregnant. A composite index of seven indicators that measure knowledge of respondents, use of health services, and preparation for emergencies increased from 33% at baseline to 54% at end line (p=0.001). Five key newborn practices increased by 19 to 29 percentage points from baseline to end line (p values ranged from 0.000 to 0.06). In Burkina Faso, of the 180 women who had given birth within 12 months of the survey, 46.1% had a plan for transportation, and 83.3% had a plan to save money. Women with these plans were more likely to give birth with the assistance of a skilled provider (Moran et al., 2006). In Ethiopia, mothers and their home birth attendants residing in rural Uttar Pradesh (UP), India, were taught to

recognize and take action to resolve selected maternal and neonatal life-threatening problems. Community mobilization efforts were designed to reduce delays in transport to Emergency Obstetric Care (EOC) referral units and to increase use of family planning. Retention of knowledge and skills for recognition and intervention for maternal bleeding and newborn sepsis was enhanced when pictorial depictions of the problem or take action message or both were used as memory aids (Fullerton, Killian, Gass, 2005). In India, ccommunity health workers did 2 prenatal home visits to deliver a preventive package of interventions for essential newborn care (birth preparedness, clean delivery and cord care, thermal care [including skin-to-skin care], breastfeeding promotion, and danger sign recognition); women received the package of essential newborn care provided to group 1, plus use of a liquid crystal hypothermia indicator (ThermoSpot) which led to promoting birth preparedness leads to an improvement in preventive behaviors, knowledge of mothers about danger-signs, and leads to an enhancement in care-seeking during obstetric emergency (Kumar et al., 2008).

2.2 Level of Birth Preparedness

The attitude of expectant mothers is one of cheerful anticipation, optimism, and pride in their changing bodies. In every part of the world, babies are received with great joy by couples, families and friends, not only for the joy of it, but with the full assurance of their family lines not becoming extinct. A well-prepared pregnant mother reflects positive spirit of pregnancy by knowing what's normal or abnormal about her pregnancy. Many are they who do not experience such joys due to their unpreparedness or having absolutely no knowledge about the danger signs in pregnancy.

According to WHO (2005), globally, 40% or more of pregnant women may experience acute obstetric problems. The WHO estimates that 300 million women in the developing world suffer from short-term or long-term illness brought about by pregnancy and childbirth. Most of maternal deaths occur in the developing world. In 2008, out of 342,900 maternal deaths 52% occurred in sub Saharan Africa (International Institute for Population Sciences, 2007). Klein (2005)`, reported that births to teens (15-17 years) are of particular concern as they are at greatest risk for poor medical, social and economic outcomes. Such teenagers have not completed high school and are subject to state-based limitations on driving and obtaining employment (U.S. Department of Labor, 2014), and were less likely to earn a high school diploma or general equivalency degree compared with older women who gave birth (Perper, Peterson, Manlove, 2010). According to the World Bank report (2008), teenage mothers (percentage of women aged 15-19 who have had children or are currently pregnant) in Ghana were reported to be (13.3%). The Ghana Health Services also estimated about 750,000 teenagers between the ages of 15 and 19 became pregnant in 2007 (GHS, 2008). Recent literatures have pointed out the lack of adequate birth preparedness, as a critical factor behind the sluggish progress towards the maternal target in the laggard countries (Whitworth, Sewankombo, Snewin, 2010; Fullerton, Killian, Gass, 2005). Other studies have indicated that women who are birth prepared, are more likely to be assisted by skilled birth attendants (Furuta and Salway, 2006; Tweheyo, Konde-Lule, Tumwesigye, 2010). A birth-preparedness intervention in Dinajpur, Bangladesh, substantially increased the use-rate of emergency obstetric services; 45% of families in the project area reported that they had access to community-support systems (Islam, 2003; CARE, 2002).

According to Pembe et al. (2009) the knowledge of expectant women on birth preparedness will ultimately empower them and their families to make prompt decisions to seek care from skilled birth attendants. Similarly, studies have also indicated low rates of birth preparedness among women in Kenya (Mutiso 2008), Ethiopia (Hailu et al, 2011) and Burkina Faso (Moran et al. 2006). Only 47.8% women who have already given birth in Indore city in India (Agarwal et al, 2010) and 35% of pregnant women in Uganda were prepared for birth and its complication (Kyenga et al. 2011). Additionally, another research carried out in some part of Ethiopia indicated, only 22% of pregnant women in Adigrat town (Hiluf and Fantahun, 2007) and 17% of pregnant women in Aleta Wondo of the southern region (Hailu et al, 2011) were prepared for birth and its complication.

Studies in Nepal have identified that the mother's consciousness and active participation in neonatal and child health is imperative (Kc, Kc, Sharma, Malla, Thapa, et al., 2011; Pradhan, Upreti, Kc, Thapa, Shrestha, et al., 2011). In a study by Nawal and Goli (2013) using Nepal Demographic and Health Survey (NDHS-4, 2011). Their survey sample was designed to yield representative information for most indicators of the country as a whole, for urban and rural areas, for the three ecological zones (mountain, hill, and terrain). The survey was designed to target a sample of 11,095 households and it was expected to interview a total of 13,200 women of age 15–49 in the sample households and all men of age 15–49 in a sub-sample of one in every two households selected for the woman's interview. They found out that proportion of women with no birth preparation in rural areas is 40 percent higher compared to urban areas. They also reported poor birth preparedness among the women under 20 years and those above 40 years. In terms of educational level, the proportions of women who do not have any birth preparedness among no education category (77%) was nearly three times greater compared to women

in educated category (28 %). In a community based cross sectional study by Hailu et al. (2011) on a sample of 812 pregnant women. Data were collected using pre-tested and structured questionnaire. They reported a low level of birth preparedness among the 812 women surveyed. Only 17% of pregnant women in this study were considered as well prepared for birth and complications. Less-prepared pregnant women, compared to the well prepared pregnant women tended to be illiterate, live in rural area and did not avail themselves for antenatal services during the current pregnancy.

2.3 Knowledge on Obstetric danger signs

Danger signs are mainly classified into three; the commonest/key danger signs during pregnancy include severe vaginal bleeding, swollen hands/face and blurred vision. Major danger signs during labor and childbirth include severe vaginal bleeding, prolonged labor (>12 hours), convulsions and retained placenta. The danger signs are not the actual obstetric complications, but symptoms that are easily identified by non-clinical personnel. Major danger signs during the postpartum period include severe vaginal bleeding, foul-smelling vaginal discharge, and fever (JHPIEGO, 2004). According to UNICEF (2010), raising awareness of women about obstetric danger signs would improve early detection of problems and reduces the delay in deciding to seek obstetric care.

With the assumption that "every pregnancy faces risks" (Graham 1998), women should be made aware of danger signs or obstetric complications during pregnancy, delivery and the postpartum (WHO, 1994). The knowledge will ultimately empower them and their families to make prompt decisions to seek care from skilled birth attendants. Studies conducted among women in Tanzania (Pembe et al., 2009), Ethiopia (Hiluf M, Fantahun, 2007) and Burkina Faso (Moran et al, 2006) indicated low levels of awareness of obstetric

danger signs during pregnancy, delivery and postpartum. Agarwal et al. (2010) in their cross-sectional study involving 11 slums in India, mothers' awareness of dangers signs was investigated. They reported high awareness of mothers on at least one danger-sign of pregnancy, delivery and newborn-related complications of 79.2%, 78.5%, and 82.1% respectively. Women who knew 3 or more key danger signs during labor were more likely to use skilled care as compared to those who didn't know any key danger signs and were more prepared as reported in a prospective follow-up study by Tura et al. (2014). In cross-sectional study by Ekabua et al. (2011) using 776 participants it was revealed that the commonest danger signs experienced were; in last pregnancy, prolonged labor (22.4%); in the baby, stillbirth (5.2%); after delivery, severe vaginal bleeding (19.1%). Studies conducted among women in Tanzania (Pembe et al. 2009), Ethiopia (Hiluf et al. 2007) and Burkina Faso (Moran et al. 2006) indicated low levels of awareness of obstetric danger signs during pregnancy, delivery and postpartum.

2.4 Factors influencing birth preparedness and knowledge on danger signs

Several studies have shown direct relationship between health seeking behavior of expectant mothers and utilization of health services available to them (Nystrom, 2012; Chakraborty, Islam, Chowdhury, Bari & Akhter, 2003). According to Nystrom (2012) women with primary education and above are twice more likely be prepared for birth and its complications compared with those who lacked formal education. In another study in Kenya, Pembe et al., (2009), have also reported direct relationship between high education and awareness of danger signs. Chakraborty et al. (2003) also reported that mother's age might sometimes serve as proxy for the accumulated knowledge of health care services that may have a positive influence on the use of health services. They also

reported family size as one of the factors influencing utilization of health care among expectant mothers.

In addition to that, Kabakyenga et al. (2012) in their study involving community survey methods, which were used to identify 759, recently delivered women from 120 villages in rural Mbarara district. It was revealed that women who were residing at a distance of more than one hour travel time from a health facility offering childbirth services were less likely to choose assistance by skilled birth attendance. In cases where the women made the final decision in consultation with their husbands, the likelihood of choosing assistance by skilled birth attendants (SBAs) was significantly higher than cases in which women made the decision on location of birth alone. The time taken to reach a health facility also appeared to influence the use of SBAs (Kabakyenga et al., 2012). In a study by Nawal and Goli (2013), it was reported that greater proportion of women 75% prefer to deliver in public health facility irrespective of whether they saved money or not. Majority of women (84%) who arranged for transportation were heavily inclined towards institutional delivery. However, results of type of health facility (Private/Public) for delivery indicate that irrespective of whether they saved money or not, greater proportion of women delivered in public health facility (75%) compared to private health facility (25%). Among those women, who arranged for transportation are heavily inclined towards institutional delivery (84%), whereas among those women who have not arranged transportation only 37 percent of them went for institutional delivery (Nawal and Goli, 2013).

In a related study by Hailu et al. (2011), a small 20.5% proportion of 812 women used in a cross-sectional study identified a skilled provider. In relation to identification of health

facility, only 8.1% identified government health facility for delivery. A low level of transportation preparedness was reported in this study (7.7%). Majority of 653(87.9%) of respondents reported that they intended to deliver at home, and only 60(8%) planned to deliver at health facilities. In a prospective follow-up study by Tura et al. (2014) involving 3472 respondents, 75.9% had at least one ANC visit during pregnancy and 52.7% had used either from hospital or health center attended by skilled attendant. Only 35.4% had four or more visits. Of the respondents 30.6% used skilled care during delivery with majority 74.1% coming from the urban areas.

Traditional belief or knowledge is defined as local knowledge of a group of people and their everyday life. All social groups worldwide have specific traditions, cultural practices, and beliefs. These may be based on religious or cultural practices, which are accepted by these people. Tradition is defined as truths or principles of a divine origin revealed to mankind (Breene, 2007). These beliefs have been shown in a number of studies to influence health-seeking behavior of expectant mothers. Yousef et al (2011), have reported that religious beliefs can be primary reasons for delayed health services and preference for home delivery. Chan, Sundby & Vangen (2005) reported in their study that pregnant women preferred consultation with local religious leaders, traditional healers and traditional birth attendants to seeking care from qualified health providers. They also reported that when labor coincided with prayer periods among the Muslim community, the women may be asked to wait until prayer is over.

Also, a study conducted in Benin, brought to bear that women who managed to deliver without indication that they were in labor and without calling for assistance until the child was born were especially esteemed (Sergent, 1990). According to Offor (2010), in Ghana early marriage, early pregnancy and traditional birth practices such as pushing on the

abdomen to hasten delivery and the use of certain surgical procedures emanate from traditional beliefs. However, some traditional beliefs have been shown to be beneficial to both the pregnant mother and the unborn child. According to Brown et al. (2013) relative to other life stages, pregnancy presents a major opportunity for selective processes 10 to operate on both genes and culture in humans. Mckerracher et al., (2012) reporting on aversions and craving during pregnancy revealed that 71% of the sample developed at least one novel aversion during past pregnancies while 4% of these women said they disliked all foods during the early phase of a past pregnancy. Atkinson et al. (2008), reported that 398 foods most likely to promote the development of gestational diabetes such as white flour 399 products, white rice, and breadfruit as being aversive more frequently than other plant foods such as bananas, coconuts, mangos, and 401 papayas by Yasawa women. In this same studies few women from Yasawa Island reported aversions to fruits or to mild-tasting vegetables 441 but many women reported cravings for foods from these food categories. With respect to 442 spicy/sour/bitter plant foods, five women (~11% of women with any specific aversions) 443 identified chili, curry, lime, and/or tea as aversive. In a related study by Demissie, Muroki, and Kogi-Makau (1986) involving a cross-sectional study of the nutritional significance of food aversions and cravings during pregnancy using 295 women in southern Ethiopia. The study reported that slightly fewer than three-quarters (71%) of the women craved one or more foods, whereas about two-thirds (65%) avoided at least one food. Cereal foods, despite being staple foods in the area, were avoided by more women (41%) than any other foods.

CHAPTER THREE

3.0 METHODOLOGY

3.1 Research Setting

The study was conducted at the Ledzorkuku Krowor Municipality. According to the Annual Report of LEKMA, the municipality has a total land area of 50 square kilometers. The Southern boundary of the Municipality is the Gulf of Guinea from the Kpeshie Lagoon to the Mukwe Lagoon near the Regional Maritime Academy. The boundary continues along the Maritime Road to join the Accra-Tema road to Nungua Police Station Barrier. It turns right to the Ashiaman road and continues to Lashibi Junction, branches left on the Spintex Road and moves all the way through the Coca Cola Roundabout to the Kwame Nkrumah Motorway. From there, it continues left along the motorway and branches south near the East Legon tunnel and moves south towards the starting point at the Kpeshie Lagoon.

The Municipal Health Directorate oversees the services provided at the various health facilities. The Municipality currently has five key types of health facilities, namely Hospital, Health Centers, Community clinics, CHPS compounds and Maternity Homes. These facilities are government-owned, quasi-government, mission or private. There are hospitals such as the Family Health, Manna Mission and Lister Hospitals, which provide obstetric and gynecological services among other services. There are fifteen (15) Doctors, Two-Hundred and Thirty One (231) General Nurses, eight (8) Medical Assistants, Forty-Five (45) Midwives, One Hundred and fourteen (114) Community Health Nurses and Thirteen (13) Community Health Officers working in public health facilities in the municipality. The private health facilities also have staff strength of eleven (11) Doctors, Thirty-Three (33) General Nurses, five (5) Medical Assistants and Twenty-one (21) Midwives (GHS Annual Report, 2010).

3.2 Research Design

A quantitative cross-sectional research design was used in this study. In this study, respondents were asked to provide information on their level of birth preparedness and their knowledge on obstetric danger signs. This information was obtained only once from each respondent during the study period. A questionnaire comprising five sections was used to obtain this information. The main outcome variables targeted were the level of birth preparedness and danger signs.

3.3 Study Population

The study population was all expectant teenagers in the municipality during the period of study. These people were surveyed as the target group because they possessed characteristics that the researcher was looking for and would provide answers to the research questions.

3.4 Inclusion and Exclusion Criteria

3.4.1 Inclusion Criteria

Expectant teenage mothers attending ANC at LEKMA hospital, Teshie Community Clinic and LEKMA Polyclinic or live within the municipality. These mothers must have had either or not 1 ANC visit to be part of the study, and are able to speak English, Ewe, Ga, or Twi.

3.4.2 Exclusion Criteria

The exclusion criteria were all pregnant women who fall outside the age group (13-19), but reside in the municipality and attend antenatal clinics. Also, all expectant teenagers who were unable to speak English, Ewe, Ga, Twi were excluded. Furthermore,

respondents who did not give consent as well as teenagers whose mothers or guardians refused to give consent were also excluded from the study.

3.5 Variables

The variables in the study were categorized into outcome/dependent variables and explanatory/ independent variables. The two main outcome/dependent variables were birth preparedness and knowledge on obstetric danger signs.

While the explanatory/independent variables included socio-demographic factors (age, employment, income, educational level, marital status), knowledge on birth preparedness (transport, place of delivery, blood donor arrangement, awareness of expected date of delivery), knowledge on obstetric danger signs (severe headache, blurred vision, severe vomiting, and swelling of face, entire body, fever, convulsion), health seeking behavior (early antenatal, adherence to guidelines) and traditional beliefs (report late, dietary change, fasting, plan for decision maker).

3.6 Sample size and sampling method

A sample is a representative subgroup of the population that meets the researchers' criteria. A minimum sample size was obtained using sample size calculation for proportion (formula as shown below). The level of birth preparedness as reported in Hailu et al. (2011) to be 17%. This was used in this study.

Thus;

$n= Z^2 (p*q)/e^2$

$n= 1.96^2 (0.17*0.83)/0.05^2$ where:

n= sample size

Z = percentile for 95% significance level for normal distribution (1.96)

P= Prevalence of what is being studied (birth preparedness= 17%=.17)

Q= 1-P

e= margin of allowable error (0.05)

With an alpha of 0.05 and a statistical power of 80%, 217 clients were targeted as minimum sample size. This sample size was upwardly adjusted to 300 to compensate for contingencies such as non-response, recording errors and to allow for generalization of results.

The sampling method that was used to sample participants for the study was purposive sampling method. This is because of the rareness of the study population as well as pregnant teenagers hiding from society because of stigmatization. In this study, the researcher first interviews each respondent to ascertain whether they had the characteristics required to be part of the study. They were asked if they could also speak English, Ewe, Twi or Ga before they were made to be part of the study. Characteristics such as their age were also verified from their folders as well as whether they have had at least one ANC visit. Finally, the researcher to see if they understood the study adequately explained the purpose of the study to them. All those who met these criteria were then recruited to be part of the study after they have duly consented. After data collection in the hospitals, the researcher further entered the community, where house-to-house information was also collected on each available expectant teenager who is unable to go to the facility for her ANC visits.

3.7 Training of research assistants

In this study, six (6) Research Assistants– two (2) with midwifery skills, two (2) registered nurses and two (2) healthcare assistants were employed and trained by the

researcher. They were trained on how to administer the questionnaire, translate technical terms into local language, how to ensure that the dignity and human rights of the participants are respected, how to obtain verbal consent from all participants before questionnaires were administered. The training lasted for three days. The first two days was for actual training and the third day was used to answer any questions and challenges that the research assistants had.

3.8 Pretesting

Pretesting of the questionnaire was done a week before the commencement of the actual study. The questionnaire was pretested on fifteen (15) expectant mothers in the Ablekuma South district. This ensured that ambiguities and inconsistencies were corrected before commencement of the study.

3.9 Data collection procedure

The participants under study were recruited from the Obstetric and Gynecology (O & G) units at various times throughout the study period through the nurses in charge who introduced the researcher to the expectant mothers. The researcher then introduced herself to prospective participants. The whole study and its importance and implications were explained to the participant per Participant Information Form. They were made to understand that participation was voluntary and they were free to withdraw at any time. Those who were able to read were allowed to do so while those who were unable, were read and explained to by the researcher and research assistants. Because the researcher does not understand the native language, an interpreter was sought for translation to help explain to those who cannot read. After the explanation or reading as well as addressing some concerns, those who agreed to take part in the study were made to give their consent

by signing a consent form. They were then sent to a comfortable empty office at the outpatient department (OPD) to complete the questionnaire. Some of the participants were also recruited from the community using the same procedure above. The researcher then collected the completed questionnaires and sealed them in an envelope, following which the participants were shown gratitude.

3.10 Data gathering tool

Structured questionnaire was used to collect data from respondents. The questionnaire comprised five (5) sections; socio-demographic characteristics, knowledge on birth preparedness, knowledge of obstetric danger signs and information provided by health workers on birth preparedness, and traditional beliefs.

3.11 Quality Control

To ensure the quality and confidence of data, reliability and validity of the measuring instrument was ensured. The data obtained was entered into Epi-Info. The data were cleaned and checked for double entries and entry errors before running descriptive frequencies of all the variables. Coding was done to prevent typographical errors. Validity was ensured by using a validated questionnaire. A pretest was done using 10 respondents with similar characteristics as the study sample. The questions were restructured and changes made to reflect the purpose of the study. The aim was to determine whether the instrument was clearly worded and able to solicit the type of information envisioned. The research assistants had adequate knowledge on the study area and were also trained in the administering of questionnaires and obtaining of informed consent. There was regular monitoring by the field supervisor at the study area to review questionnaires presented by the field staff.

3.12 Data Management and Analysis

STATA 12.0 was used for data analysis. Data obtained were initially entered into Epi-Info and cleaned. It was then exported into STATA. It was coded using numeric values (e.g. marital status with options married, single, separated will be coded as 1=single, 2=married, 3=separated), this helped to reduce the level of entering errors. For socio-demographic categorical data (e.g. age, ethnicity), summary tables of counts and percentage were presented with respect to these characteristics.

For socio-demographic continuous data (e.g. age), summary tables of means, standard deviations and ranges were presented. In cases of sparse data (less than 5% observation), to avoid bias on the conduct of analysis, the assessments of respondents in such categories were excluded. Univariate analysis of frequencies was reported. Composite variables, birth preparedness and knowledge on obstetric danger signs were computed using exploratory principal component analysis. Indicators of birth preparedness and dangers signs were recoded as 1 for yes and 0 for no. The generated composite variables were categorized into dichotomized variables prepared or not prepared and knowledgeable or not knowledgeable. Bivariate analysis using Chi square test and simple logistic regression was used to determine association's effect of selected characteristics on birth preparedness. Multiple logistic regression was done using characteristics, which were significant at 0.25. P-value of less than 0.05 ($p-< 0.05$) was used to denote statistical significance.

3.13 Ethical Consideration

The researcher has a responsibility of ensuring that risks and benefits of the research are well explained to participants. Before data collection, clearance was obtained from the

Ghana Health Service Ethical Review Committee. An introductory letter was obtained from the School of Public Health and administration of the Hospital for the purpose of seeking permission to gain entrance into the research setting. The letter indicated the nature and purpose of the research and a copy was forwarded to the Deputy Director of Nursing Services and doctor in charge of the unit, informing them of the research. Issues regarding informed consent, confidentiality, anonymity, risks and benefits, freedom to participate and withdrawal was addressed. The researcher explained the nature and purpose of the research to each participant and questions raised were duly answered, after which the "informed consent/assent form" was signed. To ensure that the participants have understood the information, they were made to complete the "Volunteer Agreement form. Respondents were informed that they had the right to withdraw from the study at any point of the study without giving reasons. Since the researcher anticipates the risk of psychological discomfort associated with some of the questions (e.g. marital status) a detailed explanation concerning the nature of the research was given and efforts made to reduce the level of psychological effect like further reassuring or encouraging them to have a positive outlook on their circumstances. Apart from academic and public health importance, there is no conflict of interest in this study. The study was self-financed from my resources. To maintain anonymity, individual participants were given identity numbers and to ensure confidentiality as well. All documented information given by participants were stored under lock and key and passwords were used for soft copies. The data will be made available only to supervisor and possibly authorities from the Ghana Health Service Ethical Review Committee if required. Copies of the research will be made available to the school's library and all the health facilities used in the study. The study will be published in a peer review journal pertaining to the field.

CHAPTER FOUR

RESULTS

4.0 Introduction

This section presents the results of the study in relation to the research questions and study objectives. The results are summarized as frequencies and percentages and presented in tables and plots. Also, the Pearsons Chi-square test was used to test for associations between selected characteristics of expectant teenage mothers and outcome variables. Simple and multiple logistic regressions were also used to determine predictors of birth preparedness and knowledge on obstetric danger signs.

4.1 Background and Socio-demographic characteristics

The study surveyed 305 respondents with the youngest 15 years of age and the eldest 19 years. The average age of the respondents was 17.4 years with a standard deviation of ±1.2 years. In this study, most of the respondents (77%) were in age group 17-19 years. Only (10.5%) of the respondents had no formal education with majority (74.4%) having secondary or higher level of education. More than half of the respondents (65.6%) were single with only (11.8%) married. Approximately (23%) of the respondents were cohabiting. Approximately half (51.1%) of the respondents are unemployed. Respondents stated varying types of employment in this research. Most predominant among these was trading, fish mongers, apprentices and seamstress. Only (5.9%) of the partners of respondents were unemployed though (45.6%) were self-employed. Majority of the respondents in the study (89.5%) were primigravida. A small proportion of the (1.3%) reported they have lost a child. The occupations of respondents' partners were also of various types. The most common among them is driver as reported by (18%) of them.

Also, (13.1%) were mechanics, (9.8%) were traders while (8%) were masons and fishermen. Majority of the respondents (73%) were in their second trimester while only 7% of them were in their first trimester. Most of the respondents (70%) have had less than 4 visits, while only (30%) have had more than 4 visits at the time of conducting the study.

Table 4.1 Characteristics of respondents

Selected Characteristics	Frequency (n=305)	Percent (%)
Age group		
15	23	7.5
16	47	15.4
17	86	28.2
18	81	26.6
19	68	22.3
Level of education of respondents		
No Formal Education	32	10.5
Primary	46	15.1
Secondary and above	227	74.4
Marital Status		
Single	200	65.6
Cohabiting	69	22.6
Married	36	11.8
Respondent's employment status		
Unemployed	156	51.1
Employed	149	48.9
Religion		
No Affiliation	21	6.9
Christianity	269	88.2
Others*	15	4.9
Employment status of spouse		
Unemployed	18	5.9
Employed	287	94.1
Gravidity		
Primigravida	273	89.5
Multigravida	32	10.5
Length of current pregnancy		
First trimester	21	7.0
Second trimester	223	73.0
Third trimester	61	20.0
Number of ANC visits		
< 4 visits	214	70.0
≥ 4 visits	91	30.0

*The others included Muslims and Traditional worshipers.

4.2 Birth preparedness of Expectant Teenage Mothers

In this study, a number of indicators were used to assess birth preparedness among expectant teenage mothers (Table 4.2). More than half of the respondents (67.9%) were aware of their expected date of delivery and almost all of them were able to state their expected date. Approximately half of the respondents were aware that labor may start before due date. Only (23.6%) reported that they have made provisions for transport to the hospital during the day and (22.6%) during the night. Most respondents reported that their partners will provide transportation, quite a number also reported on making an arrangement with a taxi driver living close by while others reported their mothers will provide transportation. However, (63%) reported that they have made funds available for hospital bill/expenses. For those who have not made provisions for transport, reasons given was that they do not have money whiles others were not aware of making such provision. Also, a few reported that they live close to the hospital so did not see the need to make such provisions. Almost all the respondents (94.1%) have identified a birth companion though only (29.8%) have identified a blood donor. Mothers were the most reported birth companions, a few of them reported on neighbors, partners and relatives. However, quite a large proportion was not aware that they have to identify a blood donor.

This study used exploratory PCA to construct a summary indicator of birth preparedness by using various indicators as used in Nawal and Goli (2013). Birth preparedness levels were based on seven tools; each indicator was assigned a weight (factor score) generated through principal component analysis, and the resulting scores standardized in relation to a normal distribution with the mean of zero and standard deviation of one. The score distribution was used to generate poorly prepared, moderately prepared and highly prepared. The resultant birth prepared ness index was used to examine the levels of birth

preparedness among teenage expectant mothers. In this study, approximately half of the respondents were prepared for delivery while a little over half (50.8%) were not prepared for delivery. Of those who were prepared (60%) were moderately prepared while (40%) were highly prepared (Table 4.2).

Table 4.2 Indicators of birth preparedness and levels of birth preparedness among teenage expectant mothers.

Indicators of birth preparedness	**Frequency**	**Percent**
Aware of your expected date of delivery	207	67.9
Aware that labor may start before due date	158	51.8
Made provisions for transport to the hospital during the day	72	23.6
Made provisions for transport to the hospital during the night	69	22.6
Made available funds for hospital bill/expenses?	192	63.0
Already identified a birth companion?	287	94.1
Already identified a blood donor?	91	29.8
Birth preparedness		
Prepared to deliver	150	49.2
Not prepared to deliver (poorly prepared to deliver)	155	50.8
Total	305	100
Level of preparedness		
Moderately Prepared	90	60.0
Highly prepared	60	40.0
Total	150	100

4.3 Knowledge of teenage expectant mothers on obstetric danger signs during pregnancy

In Table 4.3, a number of indicators of expectant mothers' knowledge on obstetric danger signs were assessed. More than half of the respondents (64.6%) had no idea of hemorrhage (bleeding) as a danger sign of pregnancy. However, after prompting, only (34.1%) could remember. A little over half (51.1%) spontaneously reported reduced/loss of fetal movement as a danger sign while (56.4%) reported on drainage of liquor after prompting. Only (9.8%) of the respondents spontaneously reported on swelling of hands, face and entire body (edema) as a danger sign during pregnancy. Less than (10%) of the respondents were able to spontaneously report blurred vision, convulsion and difficulty in breathing as danger signs of during pregnancy. Close to half of the respondents however reported severe vomiting and abdominal pains spontaneously as a danger sign during pregnancy. Approximately, (62.6%) of the respondents reported fever as a danger sign after prompting.

This study used exploratory PCA to construct a summary indicator of level of knowledge on danger signs of pregnancy using various components as used in Nawal and Goli (2013). Level of knowledge on danger signs of pregnancy were based on eleven indicators; each indicator was assigned a weight (factor score) generated through principal component analysis, and the resulting asset scores standardized in relation to a normal distribution with the mean of zero and standard deviation of one. The score distribution was used to generate poor knowledge, average knowledge and adequate knowledge. The resultant level of knowledge index was used to examine the levels of knowledge on danger signs of pregnancy teenage expectant mothers. More than half (73%) of teenage

expectant women were knowledgeable. Of those who were knowledgeable (47%) had average knowledge while (53%) had adequate knowledge (Table 4.3).

Table 4.3 Indicators of obstetric danger signs and teenagers level of knowledge on obstetric danger signs.

	Spontaneous response		Prompted response	
Danger Signs	**Yes**	**Percent**	**Yes**	**Percent**
Hemorrhage (bleeding)	4	1.3	104	34.1
Reduced/Loss of fetal movement	156	51.1	88	28.9
Drainage of liquor	30	9.8	172	56.4
Swelling of hands, face, entire body (edema)	46	15.1	187	61.3
Severe headache	73	23.9	171	56.1
Blurred vision	25	8.2	81	26.6
Severe vomiting	150	49.2	116	38.0
Fever	38	12.5	191	62.6
Convulsions	7	2.3	64	21.0
Abdominal pains	137	44.9	101	33.1
Difficulty in breathing	13	4.3	90	29.5
Knowledge on danger signs				
Knowledgeable		221		72.5
Not knowledgeable		84		27.5
Total		305		100
Level of knowledge				
Average knowledge		103		47.0
Adequate knowledge		118		53.0
Total		221		100

4.4 Associations between birth preparedness and selected characteristics.

Table 4.4 presents age group, marital status, educational level, employment status, religion and gravidity, length of pregnancy, number of ANC visits and their associations with level of birth preparedness. Respondent's employment status (p=0.001), length of pregnancy (p=0.001) and number of ANC visits (p=0.001) were significantly associated with level of birth preparedness. Level of education, marital status and religion were, however, not associated with birth preparedness (p>0.05) (Table 4.4).

Table 4.4 Associations between level of birth preparedness and selected characteristics of expectant teenage mothers.

Characteristics	Not Prepared	Prepared	χ^2	p-value
Age group				
15-16	27.1	18.7	3.064	0.081
17-19	72.9	81.3		
Level of education of respondents				
No Formal Education	11.6	9.3		
Primary	14.8	15.3	0.423	0.812
Secondary and above	73.5	75.3		
Marital Status				
Single	65.2	66.0		
Cohabiting	23.9	21.3	0.412	0.814
Married	11.0	12.7		
Respondent's employment status				
Unemployed	40.6	62.0	13.912	0.001**
Employed	59.4	38.0		
Religion				
No Affiliation	7.7	6.0		
Christianity	87.7	88.7	0.447	0.801
Others	4.5	5.3		
Gravidity				
Primigravida	86.5	92.7	3.135	0.077
Multigravida	13.5	7.3		
Length of current pregnancy				
First trimester	0.6	14.0		
Second trimester	72.9	73.3	26.214	0.001**
Third trimester	26.5	12.7		
Number of ANC visits				
< 4 visits	60.4	81.2	15.821	0.001**
≥ 4 visits	39.6	18.8		

***Significant at 0.05** ****Significant at 0.01**

4.5 Associations between level of knowledge on obstetric danger signs and selected characteristics

Table 4.5 presents age group, marital status, educational level, employment status, religion, gravidity and number of ANC visits and their associations with level of knowledge of obstetric danger signs. Age group (p=0.012), employment status (p=0.011) and length of pregnancy (p=0.001) were significantly associated with level of knowledge on obstetric danger signs. However, level of education, marital status, religion, gravidity and number of ANC visits were not associated with knowledge on obstetric danger signs (Table 4.5).

Table 4.5 Associations between level of level of knowledge on obstetric danger signs and selected characteristics of expectant teenage mothers

Characteristics	Not Knowledgeable	Knowledgeable	χ^2	p-value
Age group				
15-16	13.1	26.7	6.368	0.012*
17-19	86.9	73.3		
Level of education of respondents				
No Formal Education	3.6	13.1	5.967	0.051
Primary	15.5	14.9		
Secondary and above	81	71.9		
Marital Status				
Single	65.5	65.6		
Cohabiting	19	24.0	1.981	0.372
Married	2.9	10.4		
Respondent's employment status				
Unemployed	63.1	46.6	6.623	0.011*
Employed	36.9	53.4		
Religion				
No Affiliation	4.8	7.7		
Christianity	89.3	87.8	1.027	0.598
Others	6.0	4.5		
Gravidity				
Primigravida	90.5	89.1	0.116	0.734
Multigravida	9.5	10.9		
Length of current pregnancy				
First trimester	16.7	3.6		
Second trimester	69.0	74.7	16.335	0.001**
Third trimester	14.3	21.7		
Number of ANC visits				
< 4 visits	78.6	67.6	3.536	0.061
≥ 4 visits	21.4	32.4		

***Significant at 0.05** ****Significant at 0.01**

4.6 Predictors of birth preparedness of expectant teenage mothers.

Logistic regression analysis showed significant predictors of level of preparedness. These were employment status, length of pregnancy and ANC visits. When adjusted for those significant at 0.25 employment status, length of pregnancy and ANC visits were significant predictors of level of birth preparedness. Teenage expectant mothers who were employed were three times (OR=3.08; 95% C.I. 1.78-5.34) more prepared compared with those who were unemployed. Those with multigravida were also two times more prepared compared with primigravida (OR=1.981; 95% C.I. 1.42-4.27). Finally, those who were in their second trimester were 32 times more prepared compared with those who in their first trimester (OR=32.414 95% C.I. 3.99-269.99) (Table 4.6).

Table 4.6 Predictors of birth preparedness

Characteristics	Unadjusted Odds Ratio OR (95% C.I.)	Adjusted Odds Ratio OR (95% C.I.)
15-16	Ref	
17-19	0.62 (0.36-1.09)	
No Formal Education	Ref	
Primary	0.78 (0.37-1.06)	
Secondary and above	0.99 (0.54-1.90)	
Single	Ref	
Cohabiting	0.88 (0.43-1.79)	0.55 (0.24-1.27)
Married	0.77 (0.35-1.75)	0.58 (0.23)
Unemployed	Ref	
Employed	2.38 (1.50-3.78)**	3.08 (1.78-5.34)**
No Affiliation	Ref	
Christianity	0.66 (0.17-2.49)	
Others	0.86 (0.30-2.43)	
Primigravida	Ref	
Multigravida	1.98 (1.42-4.27)*	0.94 (0.39-2.30)
First trimester	Ref	
Second trimester	0.05 (0.01-0.35)**	32.41 (3.99-269.99)**
Third trimester	0.02 (0.03-0.18)*	1.68 (0.85-3.32)
< 4 visits	Ref	
≥ 4 visits	2.83 (1.68-4.78)	2.91 (1.55-5.47)**

***Significant at 0.05** ****Significant at 0.01** **Blanks were not significant at 0.25**

4.7 Predictors of Expectant Teenage Mother's Knowledge on Obstetric Danger Signs.

Logistic regression analysis showed significant predictors of level of knowledge on obstetric danger signs effect. These were age group, educational level, employment status and length of pregnancy on the. When adjusted for those significant at ($p<0.25$) age group, educational level, employment status, length of pregnancy and gravidity were significant predictors of level of knowledge on obstetric danger signs. Expectant mothers in age group 17-19 years were 4 times knowledgeable in obstetric dangers compared with those 15-16 years (OR=3.66; 95% C.I. 1.59-8.41). Expectant mothers with primary level of education were 14 times knowledgeable in obstetric danger signs compared with those with no formal education (OR=14.35; 95% C.I. 3.39-60.81) (Table 4.7).

Table 4.7 Predictors of knowledge on obstetric danger signs

Characteristics	Unadjusted Odds Ratio OR (95% C.I.)	Adjusted Odds Ratio OR (95% C.I.)
15-16	Ref	
17-19	2.417 (1.20-4.87)*	3.67 (1.59-8.41)**
No Formal Education	Ref	
Primary	4.13 (1.22-14.03)*	14.35 (3.39-60.81)**
Secondary and above	1.09 (0.54-2.19)	1.19 (0.54-2.65)
Single	Ref	
Cohabiting	1.49 (0.71-3.15)	
Married	1.87 (0.78-4.52)	
Unemployed	Ref	
Employed	0.51 (0.31-0.86)*	0.45 (0.25-0.81)**
No Affiliation	Ref	
Christianity	2.13 (0.46-9.81)	
Others	1.29 (0.43-3.91)	
Primigravida	Ref	
Multigravida	0.86 (0.37-2.01)	0.10 (0.05-0.21)**
First trimester	Ref	
Second trimester	0.14 (0.05-0.44)**	
Third trimester	0.71 (0.35-1.42)	
< 4 visits	Ref	
≥ 4 visits	0.57 (0.31-1.02)	0.59 (0.29-1.18)

***Significant at 0.05** ****Significant at 0.01** **Blanks were not significant at 0.25**

CHAPTER FIVE

DISCUSSION

5.0 Introduction

This section discusses the findings of the study in relation to literature reviewed on birth preparedness of expectant teenage mothers. The findings are also discussed in accordance with the stated objectives and research questions.

5.1 Background and Socio-demographic characteristics

The 305 teenage expectant mothers had a mean age of 17.4 and a standard deviation of 1.2. This age distribution is in agreement with cut off age used in the study. This finding seems to suggest that teenage expectant mothers in study area got pregnant in their late teens. According to JHPIEGO (2001), expectant teenagers have been shown to form majority of mothers who experience pregnancy and birth complications leading to their death or that of the child. Only (10.5%) of the teenage expectant mothers had no formal education with majority (74.4%) having secondary or higher level of education.

The educational level of teenage expectant mothers was fairly good and this showed some association with birth preparedness and knowledge on obstetric danger signs. However, Klein (2005), reported that births to teens (15-17 years) are of particular concern as they are at greatest risk for poor medical, social and economic outcomes (U.S. department of labor, 2014). Majority of the teenage expectant mothers were single and this may be attributed to their age as teens and also the general cultural practices in the study area. The community frowns on females who do not give birth early. Here, the emphasis is on child bearing and not marriage. However, a few of the teens (11.8%) were married. Teenage marriages are also not discouraged in the community. Mostly when the family finds out

the teenager is pregnant they try to arrange marriage between the two to reduce stigmatization and shame. In related studies Mayor (2004); Reynolds, Wong, Tucker (2006), they reported that in most low income countries such as Ghana where fertility rate is high, teenage pregnancy and early marriage are common and account for most maternal and child mortality. Finally, in this study, (22.6%) of the teenage expectant mothers were cohabiting. Cohabitation is encouraged in the study area because parents of such teenagers expect their girl–child to complete their education and become important people in society. Therefore, should they get pregnant along the line; parents force them out of their home to cohabit with whoever is responsible for their pregnancy.

In this study, unemployment was high (51%) among teenage expectant mothers. One of the key risk factors of teenage pregnancy is poverty. Teenagers who come from poor homes are usually coerced or influenced by money and this leads to exploitation by men. Even for those who are married their husbands do not cater for them adequately. Teenage expectant mothers stated varying types of employment in this research. Most predominant among these was trading; fish mongering, apprentices and seamstress. Only (5.9%) of the partners of teenage expectant mothers were unemployed though (45.6%) were self-employed. Most teenage expectant mothers seek for financial help from their mothers or in-laws. Majority of the teenage expectant mothers in the study (89.5%) were primigravida. This is to be expected as most of them were teenagers this pregnancy will most probably be their first one. The occupations of teenage expectant mothers' partners were also of various types. The most common among them was driving as reported by (18%) of them. Also, 13.1% were mechanics, 9.8% were traders while 8% were masons and fishermen. Such occupations do not provide them with necessary financial status to enable them to adequately cater for their partners. Majority of the teenage expectant

mothers 73% were in their second trimester while only 7% of them were in their first trimester. This may be attributed to cultural and religious belief as well as cost of health care. Most of the teenage expectant mothers 70% have had less than 4 visits, while only 30% have had more than 4 visits at the time of conducting the study. Since they start ANC visits late they do not normally meet the required number of visits before they give birth.

5.2 Level of birth preparedness

This section discusses the level of birth preparedness among teenage expectant mothers. According to Pembe et al. (2009) the knowledge of expectant women on birth preparedness will ultimately empower them and their families to make prompt decisions to seek care from skilled birth attendants. In this study, indicators of birth preparedness among teenage expectant mothers were on the average poor as more than half of them (50.8%) were not prepared. Being prepared for delivery is of utmost importance to prevent complications and ensure safe delivery. The inability of the teenage expectant mothers to adequately prepare may probably be due to lack of funds to attend ANCs regularly, lack of adequate information on birth preparedness, their age as teenagers and the fact that this is the first pregnancy for most of them.

Similar findings have been reported in recent literature which have shown lack of adequate birth preparedness as critical factors behind the sluggish progress towards the maternal target in countries which have failed to meet set goals on reducing maternal morbidity and mortality (Whitworth, Sewankombo, Snewin, 2010; Fullerton, Killian, Gass, 2005; Khadka, Moore, Sharma, 2006). Studies conducted among women in Tanzania (Pembe et al. 2009), Ethiopia (Hiluf et al. 2007) and Burkina Faso (Moran et al.

2006) indicated low levels of awareness of obstetric danger signs during pregnancy, delivery and postpartum. Similarly, studies have also indicated low rates of birth preparedness among women in Kenya (Mutiso 2008), Ethiopia (Hailu et al, 2011) and Burkina Faso (Moran et al. 2006). Additionally, another research carried out in some part of Ethiopia indicated, only 22% of pregnant women in Adigrat town (Hiluf and Fantahun, 2007) and 17% of pregnant women in Aleta Wondo of the southern region (Hailu et al, 2011) were prepared for birth and its complication.

More than half of the teenage expectant mothers were aware of their expected date of delivery and almost all of them were able to state their expected date. As an indicator of birth preparedness, knowing the expected allows expectant mothers to adequately prepare for their delivery. It also allows them to look out for signs and symptoms what are common during pregnancy. Approximately half of the teenage expectant mothers are aware that labor may start before due date. Having knowledge about this indicator helps in preventing late arriving to the health facility for delivery. This can prevent complications such as birth asphyxia, cerebral palsy and hydrocephalic. Only 23.6% reported that they have made provisions for transport to the hospital during the day and 22.6% during the night. Expectant mothers performed poorly in terms of this indicator. This practice was common among the study participants. All that is done is to look for one when labor commences. Expectant mothers attributed this to lack of knowledge on the indicator while some cannot afford it. This practice has led to complications during delivery and sometimes even death of either mother or baby or both. Expectant mothers who have made provisions for transportation either use the services of a taxi, their partner's car or that of a neighbor.

However, (63%) reported that they have made funds available for hospital bill/expenses. Also, a few reported that they live close to the hospital so do did not see the need to make such provisions. Lack of adequate preparation towards financing of delivery has resulted in expectant mothers seeking for help from non-professionals or resulting to home delivery. Almost all the teenage expectant mothers 94.1% have identified a birth companion though only 29.8% have identified a blood donor. Mothers were the most reported birth companions, a few of them reported on neighbors, partners and relatives. Identification of birth companions is common in the Ghanaian tradition and mothers or in-laws insist it on. However quite a large proportion were not aware that they have to identify a blood donor. This may also be attributed to cultural and religious belief, which frowns on blood donation. In this study, approximately half of the respondents were prepared for delivery while a little over half (50.8%) were not prepared for delivery. Of those who were prepared, (60%) were moderately prepared while (40%) were highly prepared. Similar finding was found by Agarwal et al, (2010) in which 47.8% women who have already given birth in Indore city in India. The level of birth preparedness found in the current study seems to be much higher than that found in other studies. Research carried out in some part of Ethiopia indicated, only 22% of pregnant women in Adigrat town (Hiluf and Fantahun, 2007) and 17% of pregnant women in Aleta Wondo of the southern region (Hailu et al, 2011) were prepared for birth and its complication. Also, 35% of pregnant women in Uganda were prepared for birth and its complication (Kyenga et al. 2011).

The study showed that employment status, length of pregnancy and ANC visits were significant predictors of level of preparedness. When adjusted for those significant at 0.25 employment status, length of pregnancy and ANC visits were significant predictors of

level of birth preparedness. Teenage expectant mothers who were employed were three times more prepared compared with those who were unemployed (OR=3.08; 95% C.I. 1.78-5.34). Those with multigravida were also two times more prepared compared with primigravida (OR=1.981; 95% C.I. 1.42-4.27). Finally, those who were in their second trimester were 32 times more prepared compared with those who in their first trimester (OR=32.414 95% C.I. 3.99-269.99). Contrary to the findings of this study, Nawal and Goli (2013) reported that in terms of educational level, the proportions of women who do not have any birth preparedness among no education category (77%) was nearly three times greater compared to women in educated category (28 %). Also, Hailu et al. (2011) reported that less-prepared pregnant women, compared to the well-prepared pregnant women tended to be illiterate.

5.3 Knowledge of danger signs during pregnancy

This section assessed teenage expectant mothers' knowledge on the various indicators of obstetric danger signs. Expectant mothers' knowledge on indicators of obstetric danger signs were moderate though most had to be prompted to give out information. Contrary to this finding, Agarwal et al. (2010) in their cross-sectional study involving 11 slums in India, mothers' awareness of dangers signs was investigated. They reported high awareness of mothers on at least one danger-sign of pregnancy, delivery and newborn-related complications of 79.2%, 78.5%, and 82.1% respectively. Women who knew 3 or more key danger signs during labor were more likely to use skilled care as compared to those who didn't know any key danger signs and were more prepared as reported in a prospective follow-up study by Tura et al. (2014).

More than half of the teenage expectant mothers (64.6%) had no idea of hemorrhage (bleeding) as a danger sign of pregnancy. However, after prompting, only (34.1%) could remember. Most of these teenage expectant mothers assume bleeding to be part of their normal menstruation during pregnancy and do not pay much attention to it. In a related study, WHO/UNICEF (2010), estimated that globally, 287,000 maternal deaths occurred in 2010. Sub-Saharan Africa and Southern Asia accounted for 85% of the global burden. Most of these deaths were attributed to pregnancy complications such as hemorrhage; the deaths were attributed to asphyxia, infection and low-birth weight (Koblinsky et al, 1999). A little over half (51.1%) spontaneously reported reduced/loss of fetal movement as a danger sign while 56.4% reported on drainage of liquor after prompting. Only a small proportion of the teenage expectant mothers spontaneously reported on swelling of hands, face and entire body (edema) as a danger sign during pregnancy. Less than (10%) of the teenage expectant mothers were able to spontaneously report blurred vision, convulsion and difficulty in breathing as danger signs of during pregnancy. Close to half of the teenage expectant mothers however reported severe vomiting and abdominal pains spontaneously as a danger sign during pregnancy. In this study, fever was identified by majority of the teenage expectant mothers as a danger sign. This is to be expected as most are familiar with fever and are aware of its implication through malaria.

The study also revealed that teenage expectant mothers were not provided with information on signs of labor, importance of hospital delivery, need to obtain HIV test, importance of postnatal care, importance of exclusive breast-feeding and importance of family planning. More than half (65.2%) and (70.2%) of the teenage expectant mothers reported no information was provided by health workers on importance of hospital delivery and family planning respectively. According to Pembe et al. (2009), the

knowledge will ultimately empower them and their families to make prompt decisions to seek care from skilled birth attendants. Studies conducted among women in Tanzania, Ethiopia (Hiluf M, Fantahun, 2007) and Burkina Faso (Moran et al, 2006) indicated low levels of awareness of obstetric danger signs during pregnancy, delivery and postpartum. More than half of the teenage expectant mothers reported that they were provided with information on danger signs in pregnancy after being prompted. Provision of information during ANC visits is crucial for teenage expectant mothers to make informed decisions and be adequately prepared for safe delivery. According to Graham (1998), women should be made aware of danger signs or obstetric complications during pregnancy, delivery and postpartum (WHO, 1994).

In this study, more than half (73%) of teenage expectant women were knowledgeable. Of those who were knowledgeable, (47%) had average knowledge while (53%) had adequate knowledge. In this study, age group, educational level, employment status and length of pregnancy were significant predictors of level of knowledge on obstetric danger signs effect. Expectant mothers in age group 17-19 years were 4 times knowledgeable in obstetric dangers compared with those 15-16 years (OR=3.66; 95% C.I. 1.59-8.41). Similarly, Chakraborty et al. (2003) also reported that mother's age might sometimes serve as proxy for the accumulated knowledge of health care services that may have a positive influence on the use of health services. Expectant mothers with primary level of education were 14 times knowledgeable in obstetric danger signs compared with those with no formal education (OR=14.35; 95% C.I. 3.39-60.81). Similarly, Nystrom (2012) reports that women with primary education and above are twice more likely be prepared for birth and its complications compared with those who lacked formal education. In

another study in Kenya, Pembe et al., (2009), have also reported direct relationship between high education and awareness of danger signs.

5.4 Factors affecting birth preparedness

In this study, close to half of the teenage expectant mothers reported that they decide on where they will deliver though a small proportion reported that their husband/partner decides for them. Most teenage expectant mothers (34.1%) reported that generally, their mothers make decisions pertaining to pregnancy and delivery for them. This may be due to the fact that they provide most of the financial support needed for the pregnancy. Contrary to the findings of this study, several studies; Amooti-Kaguna, Nuwaha (2000), Parkhurst, Rahman, Ssengooba, (2006), Orji, Adegbenro, Olakanmi, Olanrenwaju, Olowojure, (2007), Iliyasu, Abubakar, Galadanci, Aliyu (2010), Kakaire, Kaye, Osinde (2011) have indicated that in some sub-Saharan countries men generally are decision makers regarding the location at which their spouse should give birth.

Only a few of the teenage expectant mothers reported that they have particular beliefs about pregnancy. Some of the traditional beliefs are fading away as the younger generation is exposed to western lifestyles. This may account for the low proportion of teenage expectant mothers with beliefs about pregnancy. Some of the beliefs reported were not eating okra and snails. Wearing of headscarf and not going out late. These beliefs according to them may harm the mother or the child. Majority of the teenage expectant mothers (93.4%) reported that their husbands/partners as well as their families are in support of the pregnancy. Support from partners/husbands and families are of primary importance in helping teenage expectant mothers to cope with challenges during the period. More than half of the teenage expectant mothers lack financial support. This may influence their health choices and may limit their ability to adequately prepare for

safe delivery. Only (7.2%) of the teenage expectant mothers reported that the conduct of the health workers affect their decision to continue attending ANC.

5.5 Selected characteristics and level of birth preparedness and knowledge on obstetric danger signs

This section presents associations between selected characteristics and their influence on birth preparedness and knowledge of teenage expectant mothers on obstetric danger signs. There are evidences from several studies involving rural Nepal (McPherson et al., 2006), Burkina Faso (Moran et al., 2006), Ethiopia (Fullerton, Killian, Gass, 2005), and India (Kumar et al., 2008) that promoting birth preparedness leads to an improvement in preventive behaviors, knowledge of mothers about danger-signs, and leads to an enhancement in care-seeking during obstetric emergency. This study shows that the employment status, duration of pregnancy and number of ANC visits are significantly associated with birth preparedness. Majority of those not prepared for delivery were employed, (72%) were in their second trimester and (60.4%) have had less than 4 ANC visits. Teenage expectant mothers employed may not have time to attend ANC visits and may therefore lack information on birth preparedness. Employment status and duration of pregnancy were found to have significant effect on the birth preparedness. Expectant mothers who were employed were 3 times likely not to be prepared compared with those unemployed while those in their second trimester were also 32 times likely not to be prepared for delivery. In a study by Nawal and Goli (2013) using Nepal Demographic and Health Data (NDHS) for 2011, they found out that proportion of women with no birth preparation in rural areas is 40 percent higher compared to urban areas. They also reported poor birth preparedness among the lower and higher age bands. In terms of educational level, the proportions of women who do not have any birth preparedness

among no education category (77%) was nearly three times greater compared to women in educated category (28 %). This finding has been reported by Thaddeus and Maine (1994), who reported that the causes of high maternal mortality ratios are numerous and interrelated in terms of sociocultural factors, which delay care-seeking and contribute to these deaths. The delay is primarily due to (a) identifying the complication, (b) deciding to seek care, (c) identifying and reaching a health facility, and (d) receiving adequate and appropriate treatment at the health facility. The age of expectant mothers, employment status and duration of pregnancy were significantly associated with level of knowledge on obstetric danger signs. Among those who were not knowledgeable on obstetric danger signs (86.9%) were in age group 17-19 years, (81%) were unemployed, and (69.0%) were in their second trimester. This study revealed that age group, educational level, employment status, length of pregnancy and gravidity significantly had effect on level of knowledge on obstetric danger signs. Expectant mothers in age group 17-19 were 3 times more likely not to be knowledgeable compared with those in age group 15-16 years. However, Chakraborty et al. (2003) reported that mother's age might sometimes serve as proxy for the accumulated knowledge of health care services that may have a positive influence on the use of health services. Those with primary education were 14 times likely not to be knowledgeable compared with those with secondary school and above. In another study in Kenya, Pembe et al., (2009), have also reported direct relationship between high education and awareness of danger signs.

5.6 Limitations

The study had the following limitations.

1. Firstly, the use of questionnaire as data collection tool may have introduced recall bias.

2. Secondly, only quantitative method was employed in this study. However, qualitative could have brought out further insights.
3. Also, the exclusion criteria (non-speakers of English, Ga, Ewe, Twi) might have excluded some valuable respondents who might have provided rich information.
4. The timeframe given by the University of Ghana for the study to be conducted was limited.

CHAPTER SIX

CONCLUSIONS AND RECOMMENDATIONS

6.1 Conclusions

In this study, the level of birth preparedness and knowledge on obstetric danger signs among teenage expectant mothers were assessed. Approximately half of the respondents were prepared for delivery while a little over half (50.8%) were not prepared for delivery. Of those who were prepared (60%) were moderately prepared while (40%) were highly prepared. Also, more than half (73%) of teenage expectant women were knowledgeable. Of those who were knowledgeable (47%) had average knowledge while (53%) had adequate knowledge. Teenage expectant mothers who were employed were three times as likely as those who were unemployed to be prepared (OR=3.08; 95% C.I. 1.78-5.34). Multigravids were also two times more prepared compared with primigravida (OR=1.981; 95% C.I. 1.42-4.27). Also, those who were in their second trimester were 32 times more prepared compared with those who in their first trimester (OR=32.414 95% C.I. 3.99-269.99). Expectant mothers in age group 17-19 years were 4 times knowledgeable in obstetric dangers compared with those 15-16 years (OR=3.66; 95% C.I. 1.59-8.41). Expectant mothers with primary level of education were 14 times knowledgeable in obstetric danger signs compared with those with no formal education (OR=14.35; 95% C.I. 3.39-60.81).

6.2 Recommendations

The following recommendations are suggested: In the long term,

1. Further studies using mixed methods may show more insight on this phenomenon and fellow researchers or policy-makers could carry this, out.
2. Adolescent's educational level and employment status were significant predictors of birth preparedness and knowledge on obstetric danger signs, hence, the need to encourage the adolescents to improve on their educational level and be gainfully employed. This could be done in collaboration with the Ministry of Education, Ministry of Health and Ministry of Gender, Children and Social Protection.

However, in the short term:

3. Information on the various aspects of birth preparedness and obstetric danger signs need to be made readily available at all ANC visits.
4. Given that a little less than half of the teenage expectant mothers were prepared to deliver, healthcare providers should consider adequately educating them on all aspects of birth preparedness and obstetric danger signs. This will enable them make informed decisions on delivery. In addition, healthcare providers need to go into the communities to also educate relatives and friends on birth preparedness and knowledge on obstetric danger signs as they influence the decisions made by the expectant teenage mothers. The Ministry of Health, Ghana Health Service and the nurses at the various units or hospitals will be responsible for the latter recommendations

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APPENDICES

APPENDIX 1: CONSENT FORM

Title: Birth preparedness among adolescents in Ledzorkuku Krowor Municipal Assembly (LEKMA)

Principal Investigator: SUSAN RUBY EFUA KUMADI

Address: School of Public Health, University of Ghana.

General Information

Dear Participant, This consent form contains information about the research on birth preparedness among adolescents in Ledzorkuku Krowor Municipal Assembly (LEKMA). In order to be sure that you are well informed of the research, the researcher is asking you to carefully read (or have it read and explained to you) this Consent Form. You will then be asked to sign it or your parent or guardian will be asked to sign on your behalf. This consent might contain some words that are unfamiliar to you. Please ask the researcher to explain or clarify anything you may not understand.

Why the study

Birth preparedness and knowledge of obstetric danger signs or complication readiness (BP/CR) is the process of planning for normal birth and anticipating actions needed in case of emergency. These strategies have been shown to greatly reduce maternal deaths due to obstetric complications. Understanding the level of knowledge of expectant teenagers on birth preparedness and the factors that influence their health seeking behavior will help in improving on the quality of health service provided. This study seeks to determine the level of birth preparedness and knowledge of obstetric danger signs of expectant teenagers in the Ledzorkuku Krowor Municipal Assembly (LEKMA).

General Information and your part in the study

For you to qualify to be part of this study, you must be an expectant teenager for at least four weeks. I may contact you by phone if further information is needed.

Possible Risks and Discomforts

The researcher acknowledges that this research will course some psychological discomfort during the answering of some part of the questionnaire. However, the level of psychological distress will be minimal.

Possible Benefits

There are no direct benefits to you; however, findings of this study will help us to suggest improved ways of managing expectant teenager mothers in the municipality.

Confidentiality

Your identity and privacy will be protected; a number will be used to identify you instead of your name on anything that will be written about and the document bearing your name such as the consent form will be handled by the researcher and the supervisor only and these will be kept in safety.

Voluntary Participation and Right to Leave the Research

Your participation in this research is strictly voluntary and so, if you don't want to participate you are free to do so. You are not going to lose anything if you decide not to take part. If you participate and in the process you want to stop you will be allowed to do so.

Compensation

No compensation will be given to expectant teenagers in the research, however their inputs will be recognized and appreciated.

Contacts for Additional Information

If you ever have any questions about the research study or study-related problems, you may contact Ms. Susan Ruby Efua Kumadi,

School of Public Health, +233-244-796-092/ rubsue@yahoo.com or

Dr. Amos Laar, +233-244-982-176/ amos.laar@gmail.com or

Ms. Hannah Frimpong, +233-243-235-225 or +233-507-041-223

Your rights as a Participant

This research has been reviewed and approved by the Ghana Health Service Ethics and Protocol Review Board or Institutional Review Board (IRB). If you have any questions about your rights as a research participant you can contact the IRB Office between the hours of 8am–5pm.

VOLUNTEER AGREEMENT

The above document describing the benefits, risks and procedures for the research title (Birth preparedness among adolescents in Ledzorkuku Krowor Municipal Assembly (LEKMA) has been read and explained to me. I have been given the opportunity to ask any question about the research and answer to my satisfaction. I agree to participate as a volunteer.

_____ _____

Date Name and signature or mark of volunteer

If volunteers cannot read the form themselves, a witness must sign here:

I was present while the benefits; risks and procedures were read to the volunteer. All questions were answered and the volunteer has agreed to take part in the research.

_____ _____

Date Name and signature of witness

I certify that the nature and purpose, the potential benefits, and possible risks associated with participating in this research have been explained to the above individual.

_____ _____

Date Name Signature of Person Who Obtained Consent

NB: Modified version of Noguchi IRB assent form

Source Noguchi IRB

CHILD ASSENT FORM

Introduction

My name is Susan Ruby Efua Kumadi and I am from the School of Public Health at the University of Ghana. I am conducting a research study entitled Birth preparedness practices among adolescents in Ledzorkuku Krowor Municipal Assembly (LEKMA). I am asking you to take part in this research study because I am trying to learn more about the level of birth preparedness amongst expectant teenagers and their knowledge on danger signs. This will take 30-45 minutes of your time.

General Information

If you agree to be in this study, you will be asked to provide information on the various aspects of birth preparedness, dangers signs during pregnancy and traditional practices among teenage expectant mothers.

Possible Benefits

Your participation in this study will result in us identifying levels of birth preparedness and the level of knowledge of teenage expectant mothers to help in policy formulation. The result will help in providing optimum health services to teenage expectant mothers.

Possible Risks and Discomforts

This study is not associated with any physical or psychological risk to you or the unborn child.

Voluntary Participation and Right to Leave the Research

You can stop participating at any time if you feel uncomfortable. No one will be angry with you if you do not want to participate.

Confidentiality

Your information will be kept confidential. No one will be able to know how you responded to the questions and your information will be anonymous.

Contacts for Additional Information

You may ask me any questions about this study. You can call me at any time on *+233-244796092* or talk to me the next time you see me.

Please talk about this study with your parents before you decide whether or not to participate. I will also ask permission from your parents before you are enrolled into the study. Even if your parents say "yes" you can still decide not to participate.

Your rights as a Participant

If you have any questions about your rights as a research participant you can contact my supervisor Dr. Amos Laar on *+233-244982176*

Ms. Hannah Frimpong, +233-243235225 or +233-507041223

VOLUNTARY AGREEMENT

By making a mark or thumb printing below, it means that you understand and know the issues concerning this research study. If you do not want to participate in this study, please do not sign this assent form. You and your parents will be given a copy of this form after you have signed it.

This assent form, which describes the benefits, risks and procedures for the research titled Birth preparedness practices among expectant teenagers in Ledzorkuku Krowor Municipal Assembly (LEKMA), has been read and or explained to me. I have been given an opportunity to have any questions about the research answered to my satisfaction. I agree to participate.

Child's Name:…… **Researcher's Name:……**

Child's Mark/Thumbprint…… **Researcher's Signature:……**

Date: …… **Date:** ……...

NB: Modified version of Noguchi IRB assent form

Source Noguchi IRB

APPENDIX 2: QUESTIONNAIRE FOR PARTICIPANT

TOPIC: Birth preparedness among adolescents in Ledzorkuku Krowor Municipal Assembly (LEKMA)

I.D. NO.:……

NAME OF FACILITY:…….

This study seeks to assess the level of birth preparedness practices and knowledge on obstetric danger signs among expectant adolescents in Ledzorkuku Krowor Municipal Assembly (LEKMA). Please you are kindly requested to fill this questionnaire, and any information provided would be treated purely confidential. However, findings will be used to improve service provided to all patients.

Section A: Background and Socio-demographic Characteristics

		Coding Categories		
No.	**Questions**	**Responses**	**Codes**	**Skip to**
1.	Age (as at last birthday)	Write in Years		
2.	Highest level of education completed	No formal education Primary Middle/JHS SHS Tertiary	1 2 3 4 5	
3.	Marital status	Single Cohabiting Married Separated/divorced Widowed	1 2 3 4 5	
4.	Respondent's Employment/Occupation	Unemployed Employed Self-employed	1 2 3	If (1) skip to 6.
5.	Please State Employment/Occupation			

6.	Religion	No Affiliation Traditional Christianity Muslim Others Specify	1 2 3 4 5	
7.	Spouse Employment/Occupation	Unemployed Employed Self-employed	1 2 3	
8.	Please State Employment/Occupation			
9.	Gravidity	1 2 ≥3	1 2 3	If (1) skip to 12
10.	Are all your children alive?	No Yes	1 2	If (2) skip to 12
11.	How many are dead? Please state			
12.	How old is your current pregnancy? Please state			
13.	Number of ANC visits	1 2 3 4 ≥5	1 2 3 4 5	

Section B: Assessing the Level of birth preparedness

		Coding Categories		
No.	**Questions**	**Responses**	**Codes**	**Skip to**
14.	Are you aware of your expected date of delivery?	No Yes	1 2	If (1) skip to 16
15.	Please if yes, State the date			
16.	Awareness that labor may start before due date?	No Yes	1 2	
17.	Have you made provisions for transport to hospital during the **day** of labor?	No Yes	1 2	If (1) skip to 19
18.	Please if Yes, state how?			
19.	If No, please give reason(s) why you have not made provision for transport in the **day** to the hospital?			
20.	Have you made provisions for transport to the hospital during the **night** of labor?	No Yes	1 2	If (1) skip to 22
21.	If Yes, please state how?			
22.	Please state why you have made no provision for transport in the **night**?			
23.	Have you made funds available for hospital bill/expenses?	No Yes	1 2	If (1) skip to 25.
24.	If Yes, please state how much you have kept aside?			
25.	Please give reason(s) why you have not made funds available for your hospital expenses.			
26.	Have you already identified a birth companion?	No Yes	1 2	If (1) skip to 28
27.	If Yes. Please Who? And state relationship			
28.	If No, Please give reason(s) why you don't have a birth companion?			

29.	Have you already identified a blood donor	No Yes	1 2	If (1) skip to 31
30.	If yes, please who and state relationship			
31.	No, please state reason(s)			

Section C: Knowledge of danger signs during pregnancy

		Coding Categories			
No.	**Questions**	**Spontaneous**	**Prompted**		**Skip to**
		Yes	**Yes**	**No**	
32.	Hemorrhage (Bleeding)	1	2	3	
33.	Reduced/loss of fetal movement	1	2	3	
34.	Drainage of liquor	1	2	3	
35.	Swelling of hands, face, entire body (Edema)	1	2	3	
36.	Severe headache	1	2	3	
37.	Blurred vision	1	2	3	
38.	Severe vomiting	1	2	3	
39.	Fever	1	2	3	
40.	Convulsions	1	2	3	
41.	Abdominal pains	1	2	3	
42.	Difficulty in breathing	1	2	3	

Section D: Factors Affecting Level of birth preparedness and knowledge on danger signs

		Coding Categories		
No.	**Questions**	**Responses**	**Codes**	**Skip to**
43.	Who decides where you deliver	Yourself Husband/Partner Sister	1 2 3	

		Mother Mother-in-law Your Grandmother Nurse	4 5 6 7	
44.	Who generally makes decisions for you?	Yourself Husband/Partner Sister Mother Mother-in-law Your Grandmother	1 2 3 4 5 6	
45.	Do you have any particular belief(s) about pregnancy?	No Yes	1 2	If (1) skip to 48
46.	Please state your believe.			
47.	Is your partner in support of the pregnancy?	No Yes	1 2	
48.	Does your family support the pregnancy?	No Yes	1 2	
49.	Do you lack financial support?	No Yes	1 2	If (1) skip to 52
50.	If Yes, How do you intend getting financial help?			
51.	Does the conduct of the health worker (nurse/doctor) affect your decision to continue attending ANC?	No Yes	1 2	If (1) skip to 54
52.	Please state the conduct.			

Section E: Information provided by health workers on birth preparedness

		Coding Categories			
No.	**Questions**	**Spontaneous**	**Prompted**		**Skip to**
		Yes	**Yes**	**No**	
53.	Danger signs in pregnancy	1	2	3	
54.	Signs of labor	1	2	3	
55.	Importance of hospital delivery	1	2	3	
56.	Advance transport arrangements to hospital	1	2	3	
57.	Need for blood donor	1	2	3	
58.	Need to obtain HIV test	1	2	3	
59.	Importance of exclusive breastfeeding	1	2	3	
60.	Importance of postnatal care	1	2	3	
61.	Importance of family planning	1	2	3	
62.	Can you please tell me what other things the nurse told you that the clinic aside all that I have asked you?				

THANK YOU