BIRTH PREPAREDNESS AND COMPLICATION READINESS AMONG PREGNANT TEENAGERS SEEKING CARE IN KAYUNGA DISTRICT

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RSI6M07/316

A DISSERTATION SUBMITTED TO THE FACULTY OF PUBLIC HEALTH, NURSING AND MIDWIFERY IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE AWARD OF THE DEGREE OF MASTERS IN PUBLIC HEALTH AND LEADERSHIP OF UGANDA CHRISTIAN UNIVERSITY

May, 2024

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DECLARATION

I, Kiyuba Ivan, hereby declare to be the author of the Dissertation presented entitled: BIRTH PREPAREDNESS AND COMPLICATION READINESS AMONG PREGNANT TEENAGERS SEEKING CARE IN KAYUNGA DISTRICT; is the original work which has never been submitted either in part or as a whole for attainment of a degree to any university or institutions of higher learning.

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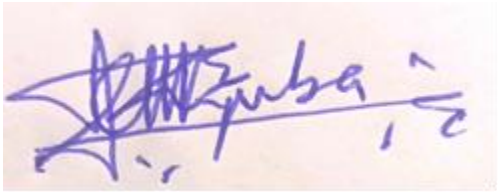

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Date: 27th May, 2024

APPROVAL

I, Namyalo Josephine Mawerere (Mrs.) certify that the dissertation hereby submitted; BIRTH PREPAREDNESS AND COMPLICATION READINESSES AMONG PREGNANCY TEENAGERS SEEKING CARE IN KAYUNGA DISTRICT; has been prepared by Kiyuba Ivan under my supervision and guidance and it is submitted with my approval.

Sign

Date: 27th May 2024

Namyalo Josephine Mawerere (Mrs.) BCH, MPH

Supervisor

DEDICATION

This work is dedicated to my GRANDMOTHER- B U L YA JANE, who during the time of my development into a resource person and achievement of the Degree of Bachelor of Medicine and Bachelor of Surgery feared not to approach her death, but preferred that my studies should not be distracted in order to let me know she was dead, so that I successfully accomplish my studies.

ACKNOWLEDGEMENT

This work has for many reasons been an effort of a number of people and teams who deserve to be appreciated and recognized for their contribution to the noble cause of successfully accomplishing this work.

First, to my Supervisor Namyalo Josephine Mawerere (Mrs), the management and the Lectures at MPH-L Uganda Christian University, these have tirelessly guided me through the dissertation report for the fulfillment to the award of the Master of Public Health - Leadership at the institution.

Secondly, to the students of the Uganda class 2016 who have kept a keen eye towards the accomplishment of the good work started.

The Resource Centre - Ministry of Health for the support during the sample selection.

Appreciation goes to Kayunga District local government through the District health office; Dr. Matovu Ahmed and ADHO Busingye Oliver, for the support rendered during the data collection process in the selected health facilities across the District.

Sincere acknowledgement goes to Dr. Kyasiima Grace – Kalisizo Hospital and Dr. Wabigogobye Herbert - Bbaale Heath Centre IV for the financial and moral support accorded during the different stages of the study.

To my work mates at Gwalibawadde Medical Centre - Mukono who from time to time desired to see the task accomplished with joys of achievement.

To Kabuganda Yusuf and Onyango Timothy, that tirelessly worked with me through data entry and analysis.

To My family for the moral, spiritual, social and financial support provided through the time of this research. Special regards go to my wife Jane Ruth, daughter Ruth, son's; Seth, Joel and John who have endured and accepted to miss me when my company was most needed while I pursued this course and training.

ABSTRACT

Introduction

Birth preparedness and complication readiness the strategy that promotes timely use of skilled maternal and neonatal care, targets to improve the quality of pregnancy and its outcomes, thus reducing the delays, pregnant teenagers are more at risk and contribute significantly proportion to the maternal mortality ratios globally.

Objective:

To determine the proportion and factors associated with birth preparedness and complication readiness among pregnant teenagers seeking care in Kayunga district.

Methods:

Analytic cross-sectional study conducted at 13 selected health facilities.

Consecutive sampling enrolled emancipated minors the pregnant teenagers (13-19years) between > 36 weeks of amenorrhea to two days post-partum. Pregnant teenager considered birth prepared complication ready if attained four indices; 2 mandatory signs spontaneous knowledge of danger signs and identified compatible blood donor plus 2 others among; pregnancy registration, place to give birth, identified skilled birth attendant, transport plan and birth companion. Data captured in excel program exported to IBM SPSS 23.0 and finally STATA for analysis. Bivariate and multivariate logistic regressions were done.

Results:

377 pregnant teenagers' 1.59% had birth prepared and complication ready despite 94.16% with a birth plan.

Majority 63.4% were 18-19years, 66.0% had no formal /primary education, 79.2% were married and 329 (84.6%) low income with < 500,000UGX monthly expenditure. Occupation of pregnant teenagers and partners were informal and peasantry 316(83.8%) and 335(88.8%) respectively.

Only 3.5% had 8 or more ANC contacts 101(27.2%) started antenatal at less or equal to 12 weeks of amenorrhea.

Bivariate; primary level education [X^2–11.559-0.009], being married [X^2 - 11.520 – 0.003], grass thatched house [X^2–10.818–0.004]. Plan giving birth at HC IV, III [X^2–16.385–0.006] identified a compatible blood donor [X^2– 21.597– 0.001]. Spontaneous knowledge of danger signs;[X^2– 137.564– 0.000].

Conclusion:

Only 1.59% pregnant teenagers were birth prepared and complication ready despite 94.16% with a birth plan.

Bivariate significant factors were primary level education, being married, grass thatched house, plan to give birth at H/C IV and III, identified compatible blood donor and spontaneous knowledge of danger signs.

TABLE OF CONTENTS.

LIST OF ACRONYMS.

ANC	-	Antenatal Care
BP/CR or BPACR	-	Birth Preparedness and Complication Readiness
FANC	-	Focused Antenatal Care
HC	-	Health Center
JHPIEGO	-	John Hopkins Program for International Education in Gynecology and Obstetrics
LBW	-	Low Birth Weight
MDG	-	Millennium Development Goal
SDG	-	Sustainable Development Goals
SGA	-	Small for Gestation Age
UDHS	-	Uganda Demographic Health Survey
UNDP	-	United Nations Development Programme
WOA	-	Weeks of Amenorrhea
SBA	-	Skilled birth attendant

OPERATIONAL DEFINITIONS

Antenatal care (ANC) also known as prenatal care: is a type of preventive healthcare. Its goal is to provide regular check-ups that allow doctors or midwives to treat and prevent potential health problems throughout the course of the pregnancy and to promote healthy lifestyles that will benefit both mother and child. Is the care and support you get through the health system while you're pregnant to look after you and your baby. Pregnant teenager was considered to have been achieved when the pregnant teenager started visits at a designated health facility at weeks of amenorrhea 12weeks and below, with eight or more contacts /visits.

Birth plan: The pregnant teenager in the study was considered to have a birth plan when she attained any four (4) or more of the seven indices enlisted. (Registration, identified health facility, identified skilled birth attendant, transport plan and companion at birth, knowledge of danger signs and emergency blood transfusion plan)

Birth preparedness and complication readiness (BPCR): is the process of planning for normal birth and anticipating the actions needed in case of an emergency which is critical ill averting maternal morbidity and mortality.
In this study Birth preparedness was measured as achieved (two or more out of five indices) - registration, identified health facility, identified skilled birth attendant, transport plan and companion at birth. While complication readiness achieved two indices, knowledge of danger signs and identified compatible blood donor. Therefore a pregnant teenager was considered prepared if four or more indices of BPCR were met.

Focused antenatal care (FANC): This provides free counseling on these danger signs to all pregnant women attending to antenatal care (ANC). The FANC strategy insists ANC providers inform pregnant women about danger signs verbally with the help of visual aids such as brochures and posters.

Knowledge of the key obstetric danger signs during pregnancy, childbirth and postpartum: A woman will be considered knowledgeable if she spontaneously mentioned at least any three danger signs from the three phases; Phase 1: Danger signs during pregnancy (vaginal bleeding, swollen hands/ face, and blurred vision). Phase 2: Danger signs during labor/childbirth (severe vaginal bleeding, prolonged labor (> 12 h), convulsions, and retained placenta). Phase 3: Danger signs during postpartum (severe vaginal bleeding, foul-smelling vaginal discharge, and high fever). This method of scoring has been previously used to assess women's knowledge of obstetric danger signs. (Bintabara, 2017).

Informed consent by emancipated minors: Mature minors are individuals' 14-17 years of age who have a drug dependency or a sexually transmitted infection; while emancipated minors are individuals below the age of majority, who are pregnant, married, have a child or cater for their own livelihood. Mature and emancipated minors may independently provide informed consent to participant in research if:

In the view of the REC the research is not objectionable to parents or guardians (established by the REC with evidence from the community); The research protocols include clear justification for targeting mature and emancipated minors as participants; and a clear justification for not involving parents or guardians in the consent process.

Seeking care: The study considered it as the behavior or any action undertaken by pregnant teenagers who perceive to have a pregnancy problem or to be unwell for the purpose of finding an appropriate remedy at health facility. The actions included; attending antenatal care, delivery and postnatal care prior to discharge after birth.

CHAPTER ONE: INTRODUCTION

1.1 Background

Birth Preparedness and Complication Readiness (BPCR) is a strategy which promotes timely use of skilled maternal and neonatal care especially during child birth, based on theory that preparing for childbirth and being ready for any complication reduces delays in seeking care". BPCR encourages women, households, and communities to make arrangements such as identifying or establishing available transport, setting aside money to pay for service fees and transport, and identifying a blood donor in order to facilitate swift decision making and reduce delays in reaching care once a problem arises.

In sum, at the demand level, BPCR promotes the use of a skilled provider at birth through increasing demand and improving access.

There is evidence from Nepal, Burkina Faso and India that promoting BPCR improves preventive behaviors, improves knowledge of mothers about danger signs, and leads to improvement in care -seeking during obstetric emergency. (Dhakal, 2016).

The standard that, "all pregnant women should have a written plan for birth and for dealing with unexpected adverse events, such as complications or emergencies, that may occur during pregnancy, childbirth or the immediate postpartum period, and should discuss and review this plan with a skilled attendant at each antenatal assessment and at least one month prior to the expected date of birth. (Maha Aldughaishi, 2023).

Every pregnant woman faces the risk of sudden, unpredictable complications that could end in death or injury to herself or to her infant. Pregnancy-related complications cannot be reliably predicted. Hence, it is necessary to employ strategies to overcome such problems as they arise. (Acharya AS, 2015).

Birth preparedness and complication readiness (BP/CR) is a common strategy employed by numerous groups implementing safe motherhood programs; however, the applications of the

concept are varied and there is no single agreed-upon definition. Birth Preparedness and Complication Readiness include many elements, including;

Registration of pregnancy,
Knowledge of danger signs,
Plan for where to give birth,
Plan for a skilled birth attendant
Plan for transportation,
a birth companion, and
Identification of compatible blood donors in case of emergency. (Gedefa, 2023).

By definition teenage pregnancy refers to “a teenage girl, usually within the ages of 13-19, becoming pregnant and refers to girls who have not legal adulthood, which varies across the world". (Cohen Anthony Mark, 2019)

Globally teenage pregnancy accounts for about 16 million births to mothers aged 15-19 years, which is 11% of all births worldwide and is a substantial public health problem. (WHO2023). Pregnant teenagers are "twice as Likely to die during pregnancy or childbirth compared to women over 20 years of age; those under 15years of age are five times more likely to die during pregnancy or childbirth" (WHO, 2024).

Similar challenge has been demonstrated in United States with approximately 410,000 teens giving birth in the year 2009 (CDC, 2011). While England alone, over 7,000 teenagers < 16 years become pregnat every year (ONS, 2024). Adolescents age 15-19 in Uganda have begun childbearing: (Mulalu, 2023) 19 percent of women age 15-19 have given birth, and another 5 percent were pregnant with their first child at the time of interview (UNICEF, 2022). And “childbearing is more common in rural than in urban areas. (27 versus 19 percent, respectively) (Nabugoomu, 2020). Uganda report shows maternal mortality ratio of 189 deaths per 100,000 live births, (UDHS, 2022).

Kayunga District has over the previous year’s 2016/2017 been endeavoring to reduce maternal deaths in the health facilities and community. This cause active surveillance of deaths of women

in which a District council resolution to reduce delay one was enacted to deter traditional birth attendants from managing mothers in the time of giving birth.

The pregnant teenagers attending antenatal clinics were grouped to enable timely follow-up. District health officer in partnership with the AIDS control program trained the civil society organization members to help in increasing the capacity of the District to curb the high rates of pregnant teenagers.

However, pregnant teenagers have continued to face challenge to prepare for birth and complication readiness.

1.2 Statement of the Problem

Birth preparedness and complication readiness is an integral process of making pregnancy and its outcomes safer. Almost all of maternal deaths 99% that occur in low and middle income countries could be prevented if the pregnant women or adolescents girls had access to quality antennal care (Alobo, 2022 Mar 17). Pregnant teenagers that contributed to the global maternal mortality ratio in 2020 223per 100,000 are twice more likely to die during pregnancy and childbirth whereas those under the age of 15 years are five times more likely to die. (Ochen, 2019) often these have inadequacy or lack of birth and emergency preparedness (Bintabara D. M., 2015).

In Uganda, Ministry of Health, reports show 24 per cent teenagers become pregnant by the age of 19 (UDHS, 2022). There is limited understanding of the level and factors associated with birth preparedness and complication readiness among pregnant teenagers in Uganda and Kayunga as a district. Hence the need for the research in this age group of 13 -19years.

1.3 Objectives

General objective

To determine the proportion and factors influencing birth preparedness and complication readiness among pregnant teenagers seeking care in Kayunga District.

Specific objectives

1. To determine the proportion of pregnant teenagers with birth preparedness and Complication readiness seeking care in Kayunga district.

2. To determine the factors that influence birth preparedness and complication readiness among the pregnant teenagers seeking care in Kayunga district.

1.4 Research Questions

1. 1. What is the proportion of pregnant teenagers with birth preparedness and complication readiness seeking care in Kayunga district?
2. What are the factors that influence birth preparedness and complication readiness among the pregnant teenagers seeking care in Kayunga district?

1.5 Scope of the Study

The study was to determine the proportion and factors associated with birth preparedness and complication readiness among pregnant teenagers seeking care in Kayunga district. The health facility based cross-sectional study involved 377 enrolled participants using consecutive enumerative sampling of pregnant teenagers who are 36 weeks of amenorrhea and above up to 2days post-partum teenagers prior to discharge if these were not evaluated before. Thirteen health facilities were involved in the study. Purposively selected regional referral hospital, two health centre IV's, then randomly selected 5 health centre III's and 5 health centre II's.

The independent variables were; socio-demographic factors, birth preparedness and knowledge of danger signs. The dependent variables were birth preparedness and complication readiness. Analysis performed using SPSS version 23.0 for socio-demographics, bivariate to determine associations while STATA the multivariate regressions done for the factors associated to birth preparedness and complication readiness.

Approvals of the Research:

The study approval of research by Uganda Christian University REC under Reference number: UCUREC-2021-241 held on 03/03/2022 over the period of 23/03/2022 to 23/03/2023.

Uganda Christian University provided an introductory letter for data collection on 6th June, 2022.

Kayunga district granted permission on the 10th June, 2022.

Kayunga regional referral hospital ethics committee granted access to patients on; 1st July, 2022.

Data collection commenced on 15th June, 2022 completed on 23rd August, 2022.

The study did not include evaluation of the person to stay at home when going to hospital and pregnant teenagers in the community. Limitations to the study constituted of the time frame and limited funds.

1.6 Study Justification

Birth preparedness and complication readiness among pregnant teenagers has not been researched and remains with little known findings which could address such an issue of public health importance.

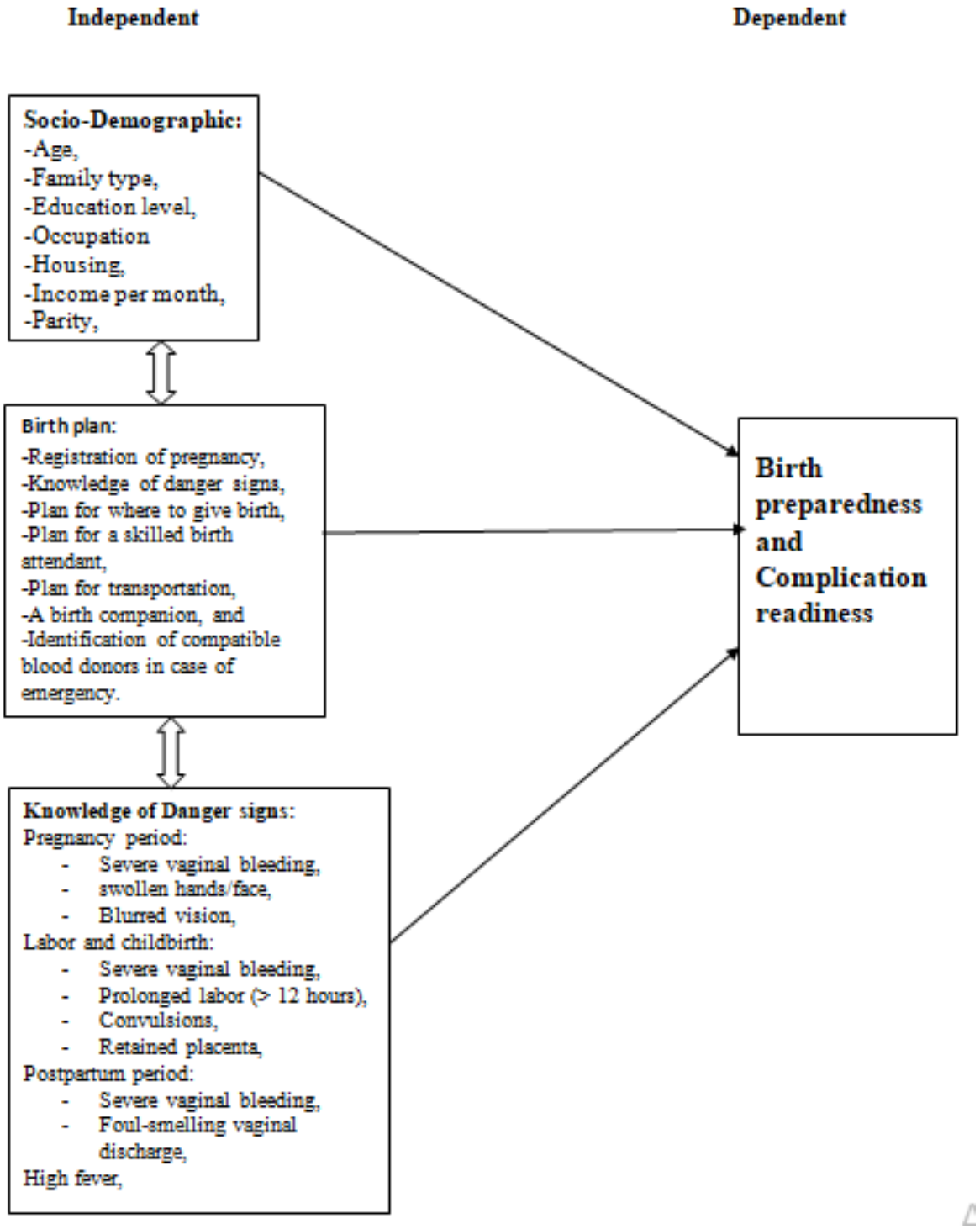
The study has potential to contribute and create awareness among policy makers with an opportunity to develop policies and guidelines that will strengthen the birth preparedness and complication readiness in the country among pregnant teenagers.

By the help of the study findings the program designers are able to influence the reproductive health department to put focus upon pregnant teenagers while planning for services at antenatal clinics, intra-partum and postpartum towards birth preparedness and complication readiness.

The study demonstrate a basis upon which the community could be guided, brought on board that the pregnant teenagers are supported towards effective birth preparedness and complication readiness in the short and long run.

The findings of this study have demonstrated baseline information on the level of birth Preparedness and complication readiness among the pregnant teenagers seeking care in Kayunga District.

1.7 Conceptual Framework



CHAPTER TWO
LITERATURE REVIEW

2.1 Literature review

Birth Preparedness and Complication Readiness (BP/CR) is a strategy to promote the timely use of skilled maternal and neonatal care, especially during childbirth, based on the theory that preparing for childbirth and being ready for complications reduces delays in obtaining this care.

Thaddeus and Maine (1994) provided safe motherhood community with an explanatory model of maternal mortality that indicates delays in seeking, reaching and obtaining care as the key factors leading to maternal death (JHPEIGO 2004). However, lack of knowledge about complications and birth preparedness among respondents was coupled with a large proportion of clients not prepared for obstetric emergencies (Gedefa AG, 2023). BPCR is an important strategy in improving care-seeking during obstetric emergency therefore reducing the maternal and child mortality.

2.2 Demographic factors

The socio-demographic risk factors for a lack of BPCR plan known to be more prevalent in teenage gravidas were poverty, low education level, inadequate prenatal care and being unmarried (Moshi FY, 2023 Feb.) In Ghana Solomo Suglo and Mate Siakwa the study also revealed that 19.7% were below the age of 20. Despite the fact that risk of maternal death for mothers below 20 years in low-and middle-income countries doubles that of older females 21-40, this group of very young adolescents is often beyond the reach of national health, educational and maternal health services (Suglo, Nov 2016).

Seeking of antenatal care service is the entry point of BPCR. Report by World Health Organization, in 2015, showed that only 40% of all pregnant women in low-income countries attended the recommended antenatal care visits (Haile D, 2022). A study in Nigeria showed that only a quarter of the pregnant women, initiated ANC contact during the first trimester with wider disparities across the states in Nigeria and across the background characteristics of the pregnant women. There are needs to enhance women's autonomy in healthcare utilisation. Concerted

efforts on awareness creation and empowerment for women by all stakeholders in maternal and child healthcare are a support for early ANC contact initiation.(Fagbamigbe AF, 2021)

First, birth preparedness (in a programming approach focused on skilled care during childbirth) motivates people to plan to have a skilled provider at every birth (Olowokere, 2020). If women and families make the decision to seek care before the onset of labor, and they successfully follow through with this plan, the woman will reach care before developing any potential complications during childbirth, thus avoiding the first two delays completely. Second, complication readiness raises awareness of danger signs among women, families, and communities, thereby improving problem recognition and reducing the delay in deciding to seek care (Florina Serbanescu, 2019).

Findings reveal that the prevalence of BP/CR was low in urban and rural area, though significantly higher in urban area (Letose F. A. 2020). An Ethiopia study by Haile revealed that the mean score and overall practice of birth preparedness and complication readiness were low. In order to improve access to life saving care for women and neonates, there is a pressing need for implementing of existing strategies to increase practice of birth preparedness and complication readiness (Haile D, 2020). The study in Nepal revealed that, the women who are well prepared belong to higher age group (45%), higher education (36%) and with higher women autonomy (86%) (Nawal D, 2013).

The prevalence levels of birth preparedness and complication readiness varied in different studies have showed that BP and CR in Nigeria was 87.7% and 79.5% respectively (Onoh.RC, EgedeJO, LO, Ekwedigwe, LO, & Anozie, 2020) in Tanzania BP/CR was low at 40% and 35% (Ennegrace Nkya, 2021) while in Uganda 35% of the respondents were birth prepared (Kabakyenga, 2011).

2.3: Factors contributing to birth preparedness:

Many factors contribute to varying levels of birth preparedness and complication readiness. In Nepal, Nawal and Goli noted that by the ecological zones, the proportions of women with no birth preparedness were found more in Mountain (72%) than Hill (69 %) or Terrain zones (66%).

There is a huge urban- rural gap in birth preparedness. The proportion of women with no birth preparation in rural areas is 40 percent higher compared to urban areas. Education of women shows greater association with birth preparedness. The proportions of women who do not have any birth preparedness among no education category (77%) are nearly three times greater compared to women in educated category (28%). The results indicate huge variation in birth preparedness by wealth quintile. The proportion of women with no birth preparedness is almost double in poorest wealth quintile (80%) as compared to richest wealth quintile (45%). However, women autonomy also emerges as a major contributor of birth preparedness among Nepal women. The women with birth preparedness plans were three times greater among women with high autonomy compared to those with low autonomy (Nawal D. and Goli Srinivas 2013).

2.4: Knowledge of key danger signs:

Danger signs are not the actual obstetric complications, but symptoms that are easily identified by non-clinical personnel. Spontaneous knowledge refers to the respondent's naming a sign without being asked about that sign by name. Knowledge of the danger signs of obstetric complications is the essential first step in the appropriate and timely referral to essential obstetric care (Tewodros Yosef, 2021).

Danger signs in women to simplify the way to measure the knowledge. The danger signs specified below were selected as key because they are common, easy to recognize, and associated with a potentially severe problem.

Pregnancy period include: Severe vaginal bleeding, swollen hands/face, Blurred vision. Labor and childbirth include: Severe vaginal bleeding, Prolonged labor (>12 hours), Convulsions, retained placenta, the postpartum period include: Severe vaginal bleeding, Foul-smelling vaginal discharge, High fever. (Tiruye Tilahun Mesele, 2023)

Findings of the pre-term birth, small-for-gestation age(SGA), low birth weight(LBW) and newborn mortality followed a U-shaped trend in which prevalence was highest among the youngest mothers (10-14years) and then reduced gradually, but increased again for older mothers (40+ years). When compared to mothers aged 20-29years, there was a 23% increased risk of preterm birth, a 60% increased risk of perinatal mortality, a 63% increased risk of neonatal

mortality, a 28% increase risk of LBW, and a 22% increased risk of SGA among mothers 10-14years when compared to the 20-29 year group. (Akseer, 2022).

Large population-based study indicated that teenage pregnancy was associated with increased risks of very pre-term delivery, pre-term delivery, very LBW, LBW, SGA and neonatal mortality, with a general tendency of poorer outcomes in younger teenagers. Younger teenage (18) was associated with very low/low Apgar score at 5 minutes. Teenage pregnancy increases the risk of adverse birth outcomes that is independent of important known confounders. This finding challenges the accepted opinion that adverse birth outcome associated with teenage pregnancy is attributable to low socioeconomic status, inadequate prenatal care and inadequate weight gain during pregnancy (Xi-Kuan Chen, 2007).

An Ethiopia Study showed that the majority of women 304 (77.6%) had heard about birth preparedness and complication readiness. High proportions had got information from health professionals 297 (75.8%) (Begashaw B, 2017). About 56.1%, 58.8% and 34.5% of participants were knowledgeable about obstetric danger signs during pregnancy, childbirth and post-partum, respectively. Excessive vaginal bleeding was the most frequently mentioned obstetric danger sign in all categories. (Gashaw Garedew Woldeamanuel, 2019).

In Tanzania, when asked to spontaneously mention the danger signs, more than half of the participants (n = 222, 57.8%) were able to mention only one to three danger signs. Only 104 (31%) had correct knowledge of at least four danger signs and nine (2.7%) were not able to mention any item (Mwilike, 2018). Other studies in Kenya and Tanzania showed that, improving level of education, creating awareness on danger signs during preconception, pregnancy, childbirth, and postpartum period, and encouraging antenatal care and skilled birth care among women and their male partners, families are recommended strategies to promote BPCR practices and contribute to improved pregnancy outcomes in women and newborns. (Orwa J, 2020).

Other factors that prevent women from receiving or seeking care during pregnancy and childbirth are: poverty, distance, lack of information, inadequate services cultural practices. To

improve maternal health, barriers that limit access to quality maternal health services must be identified and addressed at all levels of the health system (WHO 2016).

CHAPTER THREE

METHODS

3.1 Study design:

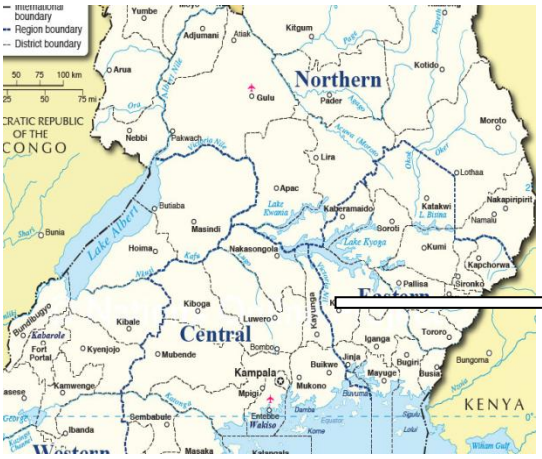
An analytic cross-sectional study design was utilized.

3.2 Study Area or setting

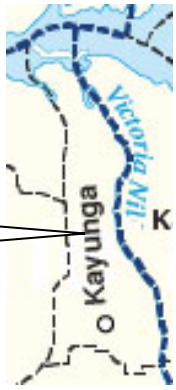
Kayunga District was carved out of Mukono District in 2000. The District headquarter is located approximately 74 kilometers (46 mi) northeast of Kampala, on an all-weather tarmac road. With borders Amolatar District to the north, Buyende District to the northeast, Kamuli District to the east, Jinja District to the southeast, Buikwe District to the south, Mukono District to the southwest, Luweero District to the west, Nakasongola District to the northwest.

Kayunga District health facilities that offer 24hour comprehensive and basic maternal neonatal obstetric care having skilled personnel to provide the services were involved in the study. Therefore, purposively selected high-volume facilities; (1) one regional referral hospital, (2)two health Centre IV's. The randomly selected lower health centers (5) five III's and (5) five II's. Health facilities at these levels provide reproductive health care. Private facilities were not included since their service provision is not linked to the good data or records management.

Kayunga District in relation to Uganda



Map of Kayunga District



3.3: Study population:

The study population included pregnant teenagers (13-19 years) seeking care at the selected health facilities in Kayunga District. Kayunga District had a population 400,900 males: 198,800, females: 202,100 composed of predominantly Rural 371,400 and Urban 29,500. The projected population of teenagers was at 17.3% (69,355). The male/female ratio stood at (50.9/49.1)% there were approximately 34,053 teenage girls (UBOS 2019).

Participants / respondents enrolled were pregnant teenagers

Inclusion criteria:

Pregnant teenagers (13-19years) with the following characteristics:

Those attending antenatal clinic (ANC) who have completed 36 weeks of gestation or more up to the 2 days post-partum, if not contacted before in the study. Such pregnant teenagers are set for the time of birth with that possibility of having accomplished preparation plans.

Exclusion criteria:

Any pregnant teenager, who is eligible to be picked for inclusion in the study but she is in labour or one recovering during post-operative care and cannot to respond to the questionnaire.

Data collected: From 15th June 2022 to 23rd August 2022.

Sample size: The sample size determination employed the Kish and Leslie. 1965 Formulae

$$n_0 = \frac{Z^2 pq}{e^2}$$

Where: n = sample size, Z = Area under the normal curve (1.95) with 95% confidence, e =level of precision (0.05),

Q = (1-P) P= (49.2%) of the respondents were prepared for delivery (Kumadi, 2015)

n= 1.95^2 x 0.492 x (1-0.492) / 0.05^2 the calculated sample n = 384 participants were enrolled in the study.

3.4 Sampling techniques:

The selection of health facilities encompassed the different health system levels in the district. The regional referral hospital, followed by the health center IV level, then the health center III and finally the health center II

The high-volume facilities were purposively selected which include; Regional referral hospital, and the two healths Centre IV's. While random selection was done at the lower health facilities (5) five health Centre III's and (5) five of health centre II's since these health facilities provide reproductive health care to the pregnant teenagers in Kayunga District.

Proportionate assignment of number of participants was determined per given health facility based on the health management information system antenatal care report for the financial year 2018/2019. This avoided the interference by the COVID-19 upsurge of the reported drastic increase of pregnant teenagers as an effect of the COVID-19 lockdown.

Respondents per health facility = No. annual ANC each health facility / Total ANC for all selected health facilities X Sample size (384)

NB: The health management information system records of antenatal care 2028-2019 accessed from District health office records. These were utilized in the proportionate allocation of respondents to each health facility selected.

Participants who were involved in the study were based on consecutive sampling (complete enumerative sampling). Which is a non-probability sampling technique considered as the best of all non-probability samples because it includes all the subjects that are available which makes the sample a better representative of the entire population (Mohamed Elfil, 2017).

The pregnant teenagers seeking care at the selected facilities during the day of data collection and meet the inclusion criteria were legible to be part of the study. Since the sample space may not be large enough to complete data collection in a short period; data was collected over a period of 10 weeks (3days per week) from the onset of administration of questionnaires.

3.5: Variables and indicators

Independent variable

1. **Socio-demographic variables:** BPCR were collected using semi-structured questionnaire: Age, Family type, Education level, Housing, Income per month, Parity, Occupation, ANC.

2. **Birth preparedness complication readiness indices** included: (a) Registration of pregnancy, (b) Knowledge of danger signs, (c) Plan for where to give birth, (d) Plan for a skilled birth attendant, (e) Plan for transportation, (f) A birth companion, and (g) Identification of compatible blood donors in case of emergency.

3. **Knowledge of danger signs** (any three danger signs) spontaneously reported by the participant not after prompting. **Pregnancy period** include: Severe vaginal bleeding, swollen hands/face, Blurred vision. **Labor and childbirth** include: Severe vaginal bleeding, Prolonged labor (> 12 hours), Convulsions, Retained placenta. **Postpartum period** includes: Severe vaginal bleeding, Foul-smelling vaginal discharge, High fever. (JHPEGO 2004)

Dependent variable

Birth preparedness and complication readiness

3.6 Procedure for data collection

The researcher recruited midwives of the same cadre as research assistants to minimize variation in conducting the study. These were bi-lingual (able to speak and understand English and *Luganda*) to cater for proper translation of the questions in the tools for data collection.

The research assistants were trained on the research protocols that were used for one day. The informed consent by emancipated minors (individuals below the age of majority who are pregnant, married, have a child or cater for their own livelihood) process, collection, and aggregation of data at the end of the day.

Candidate identified:

At the every health facility, on a daily basis the researcher was introduced to the mothers present by the midwife on duty as being a student undertaking a study on birth preparedness and complication readiness and shall interact with some of the mothers as expected.

Sensitized group of mothers:

Researcher sensitized the group of mothers concerning the ongoing study at the health facility. That the study involved pregnant teenagers who are equal or more than 36 weeks of amenorrhea up to two days post-partum before discharge not yet involved in the study.

Health education session:

Educated the mothers present that non-participation in the study does not lead to denial of any regular services provided to pregnant mothers per the appointment. General health education on birth preparedness and complication readiness was performed latter after responding to the questionnaires by the enrolled pregnant teenagers.

Eligibility

Researcher reviewed the antenatal card of the pregnant teenager based on the self-reported last normal menstrual period to ascertain the gestation period as being 36 weeks of amenorrhea or more up to the second postpartum day prior to discharge from facility. In the study it was not possible to validate gestation age by ultra sound scan due the limited funding capacity.

Ethical consideration

The candidate was cleared by the Uganda Christian University Research and ethics committee and availed an introductory letter to the study area. The candidate got clearance from the district health office in order to access the different health facilities as identified according to the protocol.

Pregnant teenagers found eligible were enrolled into the study and signed a consent form. Each signed a consent form since these are emancipated minors. The enrolled participants were each asked if they had any questions prior to signing the consent form. Feedback was given as appropriate. Participation was voluntary and the pregnant teenager had the autonomy to withdraw from the study at any time without explanation and without penalty or loss of benefit. This could not affect her services at the health facility in anyway.

Confidentiality:

Participants' identity was not to appear anywhere in report or dissemination of findings whether electrical, printed form of material utilized or in any data collection tool since an encrypted identity was to be utilized to identify the participant after the code was developed.

The study ensured participants confidentiality by use of an encrypted code as follows; First (2) two letters of **SURNAME**, last (2) two letters of **GIVEN NAME**, date (**YEAR, MONTH, DAY**) of interview, **SEX** of companion.

E.g: Namusisi Jane interviewed on 21/Nov./2017; companion is male.

Code will read: in: **NANE20171121M**

Questionnaires: This entailed the interviewer administered questionnaires to pregnant teenagers. The researcher participated in the administration of the questionnaires while conducting supervision of the process to ensure accurate data collection at the different facilities on alternate days.

3.7 Data collection instruments

Questionnaires

Questionnaires used followed the list of indicators for individual index on birth preparedness and complication readiness adapted and tailored to the study (Letose et al., 2020).

Pretesting determined if the questions were clear to the research participants' and deliver the information the study is expected to evaluate.

3.8 Quality/Error control

a) The researcher reviewed the questionnaires for completeness after the research assistants had ended the day's data collection.

3.9: Data management and analysis

Data management:

The completed consent forms during the data collection process were kept securely by the research assistant who then handed over to the researcher after every end of day. Consent forms were then kept with their respective questionnaires for verification by the researcher.

The assembly of filled questionnaires based on level of health facility was done. Sorted per health facility and aligned these according to their dates within each health facility.

Then forms were assigned a code and serial number as follows:

A - Regional referral hospital,

B - Health centre IV,

C - Health centre III and

D - Health centre II along with numbers 1-384.

The entries were double checked by the researcher at the end to ascertain completeness of each form. Data was entered into the computer from the paper based questionnaire into an excel sheet by the researcher. Secured and kept the filled questionnaires and consent forms under lock and key.

Data cleaning was done by the statistician after exporting to IBM SPSS version 23.0 that was used for the analysis of the socio-demographic independent, dependent and bivariate analysis. While the multivariate analysis was performed using STATA.

Data analysis:

Analysis of the study participants

1. Analysis of the study participants
   Analysis of the socio-demographic factors was performed; frequencies and percentages were generated along other independent variables.
2. Dichotomized analysis of the birth plan and Birth preparedness and complication readiness were performed. A pregnant teenager was considered to have a birth plan when she had attained any four of the seven indices assessed.
3. The determination of proportion of pregnant teenagers with birth preparedness and complication readiness considered mandatory two (2) indices for complications readiness that is knowledge of danger signs and identification of compatible blood donor as well as any two (2) or more from registration at health facility, planned health facility for

delivery, identified skilled birth attendant, available transport plan and identified companion at birth. Thus attainment of four or more indices rendered the pregnant teenager as birth prepared and complication ready.

4. Bivariate analysis was performed to compare socio-demographic characteristics of pregnant teenagers seeking care in Kayunga district. In relationship to dichotomized birth plan and birth preparedness and complication readiness.
5. Multivariate analysis investigated the factors influence birth preparedness and complication readiness among pregnant teenagers seeking care in Kayunga district. Findings of the Adjusted Odds Ration derived for the variables and statistically significant chi-square and ($P<0.05$)

Benefits:

Pregnant teenagers and all mothers received a health talk which composed of the birth preparedness and complication readiness expected for all pregnant and post-partum mothers. This was given by the research assistant following the Mother's passport the guideline provided by the researcher.

No direct benefits were given to the participants.

Limitation to the study:

In this study, gestational age was estimated based on self-report of last menstrual period. The 3 basic methods used to help estimate gestational age (GA) are menstrual history, clinical examination and ultrasonography. The first 2 are subject to considerable error and should only be used when ultrasonography facilities are not available (Max Mongelli, 2021). No verification means of ultra-scanning were employed. Last menstrual period was more likely to be uncertain among pregnant teenagers than among older women.

CHAPTER FOUR

RESULTS AND ANALYSIS

4.0 Introduction

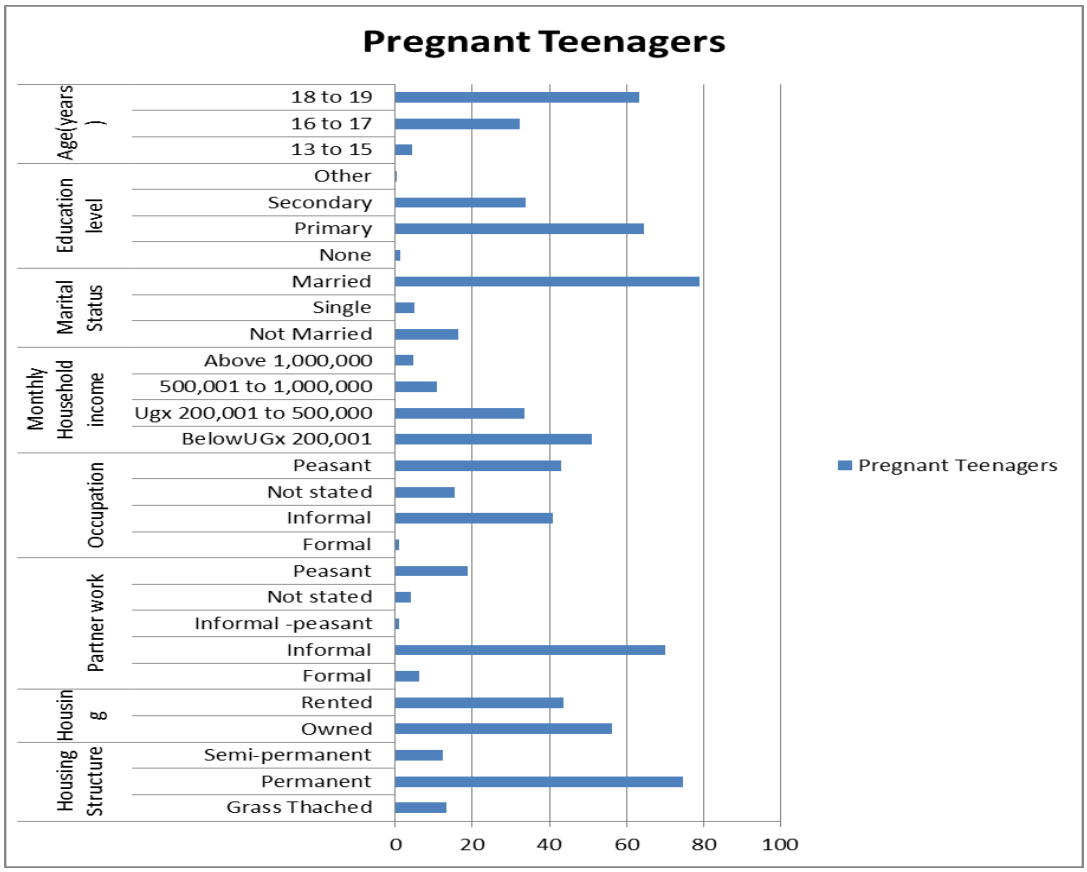
First and foremost, the socio-demographics and obstetric factors of the pregnant teenagers seeking care in selected health facilities in Kayunga District are presented.

Followed by the results on the Birth preparedness and complication readiness indices, ANC attendance, access to funds, plans for transport, identification of skilled birth attendant (SBA) and knowledge of dangers signs are then presented concurrently.

4.1 Socio-demographic factors of the respondents

Respondents interviewed were n= 384. However, 1.8% of data was rejected during analysis, thus leaving n=377 for presentations. Excluded during selection were 10 pregnant teenagers in labor.

Figure 1: Socio-Demographic factors of pregnant Teenagers Seeking Care in Kayunga District.

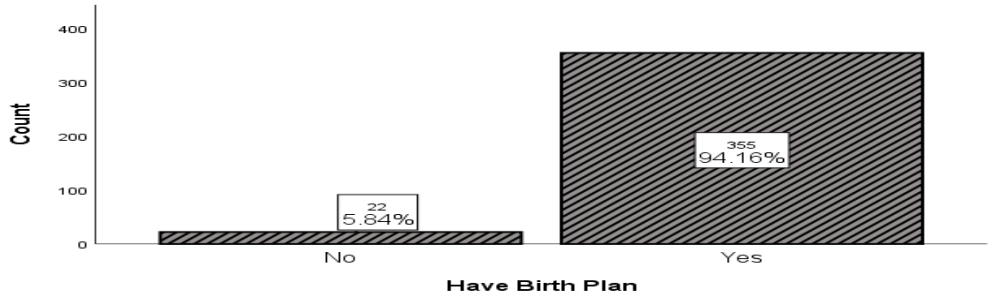


From a sample of 377 pregnant teenagers Seeking Care in Kayunga District, the results in figure 1; shows that majority of the teenagers 239 (63.4%) were 18 to 19 years of age, majority 244 (64.7%) had a primary level of education, most 298 (79.0%) are married. Also majority of the teenagers 193 (84.6%) earned less than UGX 500,001, most 162 (43.0%) being peasants with majority 264 (70.0%) having partners working in the informal sector. The results further indicates that most teenagers 212 (56.2%) owned their housing, majority 280 (74.7%) living in permanent houses.

Birth plan

A pregnant teenager was considered to have a birth plan when she had attained any four of the seven indices assessed. These include; knowledge of danger signs, identification of compatible blood donor, registration at health facility, planned health facility for delivery, identified skilled birth attendant, available transport plan and identified companion at birth.

Birth plan: Figure 2: The proportion of pregnant teenagers with a birth plan.



The majority 355 (94.16%) of the pregnancy teenagers had a birth plan as illustrated in figure 2.

The proportion of birth preparedness and complication readiness among pregnant teenagers seeking care in Kayunga district:

The determination of proportion of pregnant teenagers with birth preparedness and complication readiness considered mandatory two (2) indices for complications readiness that is knowledge of danger signs and identification of compatible blood donor as well as any two (2) or more from

registration at health facility, planned health facility for delivery, identified skilled birth attendant, available transport plan and identified companion at birth. Thus attainment of four or more indices rendered the pregnant teenager as birth prepared and complication ready.

Figure 3: The proportion of pregnant teenagers with birth preparedness and complication readiness.

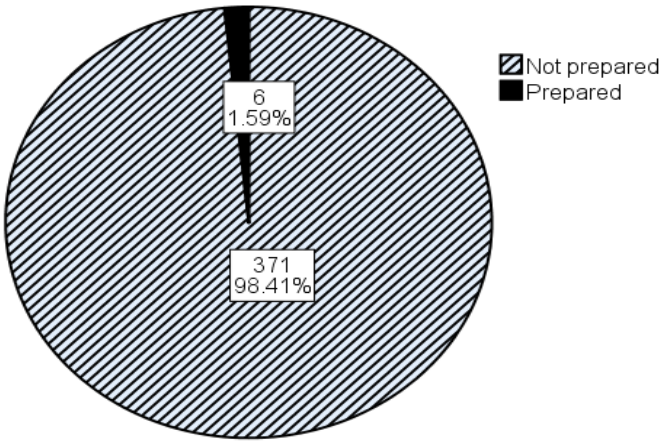


Figure 3 demonstrated that out of the 377 pregnant teenagers seeking Care in Kayunga District**,** majority 371 (98.43%) were not birth prepared and complication ready with only 6 (1.59%) found to be birth prepared and complication ready.

Table 1: Bivariate Analysis of the demographic factors of pregnant teenagers with or without a birth plan.

Variable (n=377)	**Have a birth plan**		**Pearson Chi-square**	**P-Value**
	No (<4 indices)	Yes (≥4 indices)		
Age				
13 to 15	1 (4.5%)	15 (4.2%)	5.422	0.066
16 to 17	12 (54.5%)	110 (31.0%)		
18 to 19	9 (40.9%)	230 (64.8%)		
Education level				
None	2 (9.1%)	3 (0.8%)	11.559	0.009*
Other	0 (0.0%)	1 (0.3%)		
Primary	15 (68.2%)	229 (64.5%)		

Secondary	5 (22.7%)	122 (34.4%)		
Marital status				
Not Married	5 (22.7%)	56 (15.8%)	0.739	0.691
Single	1 (4.5%)	17 (4.8%)		
Married	16 (72.7%)	282 (79.4%)		
Monthly Household Income				
Below Ugx 200,001	14 (63.6%)	179 (50.4%)	2.723	0.436
Ugx 200,001 to 500,000	5 (22.7%)	121 (34.1%)		
Ugx 500,001 to 1,000,000	3 (13.6%)	38 (10.7%)		
Above 1,000,000	0 (0.0%)	17 (4.8%)		
Occupation				
Formal	0 (0.0%)	3 (0.8%)	1.505	0.681
Informal	7 (31.8%)	147 (41.4%)		
Not stated	5 (22.7%)	53 (14.9%)		
Peasant	10 (45.5%)	152 (42.8%)		
Partners work				
Formal	1 (4.5%)	22 (6.2%)	0.389	0.983
Informal	16 (72.7%)	248 (69.9%)		
Informal-Peasant	0 (0.0%)	4 (1.1%)		
Not stated	1 (4.5%)	14 (3.9%)		
Peasant	4 (18.2%)	67 (18.9%)		
Housing				
Owned	12 (54.5%)	200 (56.3%)	0.027	0.869
Rented	10 (45.5%)	155 (43.7%)		
Housing structure (N= 375)				
Grass thatched	4 (18.2%)	45 (12.7%)	0.635	0.728
Permanent	15 (68.2%)	265 (75.1%)		
Semi-Permanent	3 (13.6%)	43 (12.2%)		
***Significant at p < 0.05**				

From table 1, the results indicated that most 229 (64.5%) of pregnant teenager who had a birth plan had a primary level of education showing a statistically significant association [$X^2 = 11.559$, P-Value = 0.009].

Bivariate Analysis of the factors that influence birth preparedness and complication readiness among the pregnant teenagers.

Table 2: Socio-demographic factors

Variable (n=377)	Birth preparedness and Complication readiness.		Pearson Chi-square	P-Value
	Not Prepared	Prepared		
Age				
13 to 15	15 (4.0%)	1 (16.7%)	3.672	0.159
16 to 17	119 (32.1%)	3 (50.0%)		
18 to 19	238 (63.9%)	2 (33.3%)		
Education level				
None/primary	244 (65.7%)	5 (83.3%)	0.948	0.814
Secondary/Higher	127 (34.3%)	1 (16.7%)		
Marital status				
Not Married/ single	77 (20.7%)	2 (33.3%)	11.520	0.003*
Married	294 (79.2%)	4 (66.7%)		
Monthly Household Income				
Below Ugx 200,001	187 (50.4%)	6 (100.0%)	5.813	0.121
Ugx 200,001 to 500,000	126 (34.0%)	0 (0.0%)		
Ugx 500,001 to 1,000,000	41 (11.1%)	0 (0.0%)		
Above 1,000,000	17 (4.6%)	0 (0.0%)		
Occupation				
Formal	3 (0.8%)	0 (0.0%)	1.182	0.757
Informal	151 (40.3%)	3 (50.0%)		
Not stated	58 (15.6%)	0 (0.0%)		
Peasant	159 (42.9%)	3 (50.0%)		
Partners work				
Formal	23 (6.1%)	0 (0.0%)	2.929	0.570
Informal	260 (69.3%)	4 (66.7%)		
Informal-Peasant	4 (1.1%)	0 (0.0%)		
Not stated	14 (3.8%)	1 (16.7%)		
Peasant	70 (18.9%)	1 (16.7%)		
Housing				
Owned	208 (56.1%)	4 (66.7%)	0.270	0.604
Rented	163 (43.9%)	2 (33.3%)		
Housing structure (N= 375)				
Grass thatched	46 (12.4%)	3 (60.0%)	10.818	0.004*

Permanent	279 (75.4%)	1 (20.0%)		
Semi-Permanent	45 (12.2%)	1 (20.0%)		
*Significant at p < 0.05				

From table 2, the results indicate that there is a statistically significant association between Marital status and birth preparedness and complication readiness [X^2 = 11.520, P-Value = 0.003] with majority 4 (66.7%) of pregnant teenager who are birth prepared and complication ready being married. The results also indicated most 3 (60.0%) of pregnant teenager who are birth prepared and complication ready lived in grass thatched house showing a statistically significant association with birth preparedness and complication readiness [X^2 = 10.818, P-Value = 0.004].

4.2 Antenatal Care factors

Table 3: Antenatal care factors

Variable (n=377)	Birth preparedness and Complication readiness.		Pearson Chi-square	P-Value
	Not Prepared	Prepared		
ANC				
Yes	371 (98.9%)	6 (1.1%)		
Facility Attended				
HC II	25 (6.7%)	0 (0.0%)	2.719	0 .437
HC III	187 (50.4%)	5 (83.3%)		
HC IV	126 (34.0%)	1 (16.7%)		
Hospital	33 (8.9%)	0 (0.0%)		
Number of ≥ 8 visits				
No	358 (96.5%)	6 (100.0%)	0.218	0.641
Yes	13 (3.5%)	0 (0.0%)		
First visit Weeks of Amenorrhea				
Above 12	270 (72.8%)	4 (66.7%)	0.111	0 .739
12 and below	101 (27.2%)	2 (33.3%)		
*Significant at p < 0.05				

From table 3 above, all factors were found to be insignificant with birth preparedness and complication readiness among pregnant teenager at 5% level of significance. The results

indicated that all 6 (100%) of the teenagers who were birth prepared and complication ready attended antenatal care with most 5 (83.3%) attending at least a HC III level of health facility.

Table 4: Birth Plan

Variable (n=377)	Birth preparedness and Complication readiness.		Pearson Chi-square	P-Value
	Not Prepared	Prepared		
Birth Plan				
No	22 (5.9%)	0 (0.0%)	0.378	0.539
Yes	349 (94.1%)	6 (100.0%)		
Pregnancy registration				
No	1 (0.3%)	0 (0.0%)	0.016	0 .899
Yes	370 (99.7%)	6 (100.0%)		
Plan to give birth				
Home	9 (2.4%)	1 (16.7%)	16.385	0 .006*
Clinic	1 (0.3%)	0 (0.0%)		
HC II	6 (1.6%)	0 (0.0%)		
HC III, IV	303 (81.7%)	4 (66.7%)		
Hospital	48 (12.9%)	0 (0.0%)		
Don`t have	4 (1.1%)	1 (16.7%)		
Have identified skilled birth attendant				
No	272 (73.3%)	3 (50.0%)	1.626	0.202
Yes	99 (26.7%)	3 (50.0%)		
Transportation Plan				
Bicycle	1 (0.3%)	0 (0.0%)	1.019	0.961
Hire	4 (1.1%)	0 (0.0%)		
M/cycle	317 (85.4%)	6 (100.0%)		
Money	8 (2.1%)	0 (0.0%)		
Own car	16 (4.3%)	0 (0.0%)		
Don`t have	25 (6.7%)	0 (0.0%)		
Birth companion				
Mother	175 (47.2%)	4 (66.7%)	1.775	0 .777
Other	77 (20.8%)	0 (0.0%)		
Sister	58 (15.6%)	1 (16.7%)		
Spouse	58 (15.6%)	1 (16.7%)		
Don`t have	3 (0.8%)	0 (0.0%)		
Have identified compatible blood donor				

No Yes	294 (79.5%) 77 (20.5%)	0 (0.0%) 6 (100.0%)	21.597	0.001
***Significant at p < 0.05**				

From table 4, the results indicate that there is a statistically significant association between the pregnant teenager having a compatible blood donors and birth preparedness and complication readiness [X^2 = 21.887, P-Value = 0.001] with all 6 (100%) of pregnant teenager who are birth prepared and complication ready having a compatible blood donor. The results also indicated most 4 (66.7%) of pregnant teenager who are birth prepared and complication ready plan to give birth at a HC IV showing a statistically significant association with birth preparedness and complication readiness [X^2 = 16.385, P-Value = 0.006].

4.4.1 Knowledge of danger signs during l a b o u r /pregnancy

The knowledge of danger signs by the pregnant teenagers in the study was categorized with levels into two; good when she mentioned 3 or more danger signs and poor when she mentioned less than 3 danger signs. The table 5 below further presented results which were divided into the pregnant teenager who gave an answer spontaneously or after being prompted to respond.

Table 5: Knowledge of danger signs

Variable (n=377)	**Birth preparedness and Complication readiness.**		**Pearson Chi-square**	**P-Value**
	Not Prepared	Prepared		
Spontaneous knowledge of danger signs No Yes	 361 (97.3%) 10 (2.7%)	 0 (0.0%) 6 (100.0%)	 137.564	 0.000*
Prompted Knowledge of danger signs No Yes	 75 (20.2%) 296 (79.8%)	 1 (16.7%) 5 (83.3%)	 0.046	 0.830
***Significant at p < 0.05**				

From table 5, the results indicate that there is a statistically significant association between the pregnant teenager having spontaneous knowledge of danger signs and birth preparedness and complication readiness [X^2 = 137.564, P-Value = 0.000] with all 6 (100%) of pregnant teenager who are birth prepared and complication ready having a spontaneous knowledge of danger signs.

4.4.2 Common danger signs in pregnancy / Labour mentioned:

Table 6: Commonly mentioned danger signs by the pregnant teenagers

Variables	Frequencies	Percentage
Labour period severe vaginal bleeding	36	30.0
Labour period prolonged labour	31	25.6
Pregnancy severe vaginal bleeding	28	23.1
Labour period Retained placenta	14	11.8
Pregnancy swollen face/hands	6	5.0
Pregnancy blurred vision	6	5.0
Total	**121**	**100.00**

The following were the frequently mentioned danger signs during pregnancy and labour as in table 6 consist of the following in order; Severe vaginal bleeding (labour/pregnancy) 64(54%), followed by prolonged labour 31(26%) then retained placenta 14(11.8%) and finally 6(5%) swollen hands/legs and blurred vision respectively.

Multivariate analysis

The study investigated the factors that influence birth preparedness and complication readiness among pregnant Teenagers Seeking Care in Kayunga District and from the table 7 below, the result of Odds Ratio are displayed, run for the variables that showed a statistically significant Chi-square ($P< 0.05$) relationship with birth preparedness and complication readiness.

At multivariate analysis, there was no significant factor found to influence birth preparedness and complication readiness. The results indicate that the single and married teenagers were 3.298 and 1.312 times respectively to be more birth prepared and complication ready as compared to those not married. The results also show that the teenager who lived in semi-permanent houses were 1.147 times more likely to be birth prepared and complication ready.

Table 7: Multivariate analysis shows factors associated with birth preparedness and complication readiness

Birth preparedness and complication readiness	Odds Ratio	P- Value	[95% Conf. Interval]	
			Lower	Upper
Marital status				
Not Married	1			
Single	3.298	1.000	0.000	
Married	1.312	1.000	0.000	
Housing structure				
Grass thatched	1			
Permanent	0.459	1.000	0.000	
Semi-Permanent	1.147	1.000	0.000	
Plan to give birth				
Home	1			
Clinic	2.343	1.000	0.000	
HC III	0.000	0.999	0.000	
HC IV	0.000	0.999	0.000	
Hospital	0.000	0.999	0.000	
Don`t have	0.000	0.999	0.000	
Have compatible blood donors				
No	1			
Yes	260527841605237.6	0.990	0.000	
Spontaneous knowledge of danger signs				
No	1			
Yes	1724324501943195.5	0.989	0.000	

CHAPTER FIVE
DISCUSSION OF RESULTS

5.0 Introduction

First and foremost the objective of the study was to determine the proportion of Birth preparedness and complication readiness among pregnant teenagers seeking care in Kayunga District.

Secondly, the study was to determine the factors that supported the attainment of the level of birth preparedness and complication readiness among the pregnant teenagers seeking care in Kayunga District.

5.1 The discussion of proportion of birth preparedness and complication readiness compared to birth plan.

Birth preparedness and complication readiness is the practice that caters for any female who get pregnant an opportunity to access the most appropriate health services and pregnancy outcome. Pregnant teenagers unlike the women in the older age category in this study have been with little attention. Most of the studies conducted focus upon the women of reproductive age group 15-49years. There remains the unanswered concern what happens among pregnant teenagers which this study addressed.

Based on the results of the study it was evident that the pregnant teenagers had good intentions towards planning for the birth as reflected in figure 2 with up to 94.16% with birth plans. However, being birth prepared and complication ready was not easy for them to achieve as demonstrated in figure 3 where only 1.59% were found to be prepared for birth and complication ready.

This brings to the realization that the general population and pregnant teenagers had a collective commitment towards safe pregnancy and childbirth. But the community often lacked knowledge of the critical aspects which constitute the best practices to cater for the attainment of standard of care.

The level of birth preparedness and complication readiness among the pregnant teenagers seeking care in Kayunga district was markedly low at 1.59% of the 377 pregnant teenagers. The majority of 98.43% were without birth preparedness and complication readiness. When

compared with to studies conducted among the women of reproductive age group during community based studies in different parts where the results were higher; BPCR 85% were prepared study in a population-based cohort in eastern Uganda (Mariam Komugisha, Jul. 17, 2024). BPCR 48.5 % in wolaita sodo a town in southern Ethiopia (Azeze, 2019) and 48.4% in a rural community in southern Nigeria (S H Ibadin, V Y Adam, O A Adeleye, & O H Okojie, December 2016). Such differences could be a result of the age, education level, marital status and the economic status of the respondents in the study.

The results of the study clearly demonstrated that the pregnant teenagers who were mainly first time mothers could not much the level of birth preparedness and complication readiness among the women in the older age category commonly enrolled in studies of the subject of BPCR.

The strict requirement that every pregnant teenager had to have spontaneous knowledge of danger sign and identified compatible blood donor upon which other two or more indices should be added. Therefore attainment of the score four or more was strict to ensure sensitivity of the complication readiness which contributes to the high maternal mortality ratio.

The pregnant teenagers enjoyed numerous support based on their age 18-19years, marital status of being married, social involvement of the mothers, sisters and spouse. The number of respondents who had planned to have support by a skilled birth attendant at 99.7% was a remarkable finding in this study. This showed that pregnant teenagers were committed to accessing professional health care during pregnancy and childbirth.

Pregnant teenagers in the study having been demonstrated poor attainments level of achievements. These constituted of the following; the no/ low education levels, low economic status, limited achievement of ANC targets of the number of ≥ 8 ANC visits, the start of ANC visits at ≤12 weeks of amenorrhea, low knowledge of danger signs in labour and pregnancy and emergency blood transfusion services.

Therefore, the pregnant teenagers in the study were better committed with 94.16% having a birth plan in place. However, the requirement for birth preparedness and complication readiness was quite difficult to achieve by the pregnant teenagers in the study making results extremely low at only 1.59% being prepared for birth and complication ready.

5.2 The factors that influence birth preparedness and complication readiness among the pregnant teenagers.

5.2.1 Socio-demographic and obstetric factors of respondents

Studies across different spheres by age, location, education, and economic level to mention have demonstrated better levels of BPCR was 32.2% almost similar to a study in western Uganda (Kabakyenga. J.K, 2011) while findings were 21.2% in Thatta district, Sindh (Noor R, 2022) in Debre Tabor town, northwest, Ethiopia had 76.6% with at least a primary educational level (Wondu Feyisa Balcha, MArch 6, 2024)

The six (6) pregnant teenagers seeking care in Kayunga who attained good birth preparedness and complication readiness were strongly associated with the following socio-demographic factors. The age 16-17years at 50%, primary level of education at 83.5%, marital status of being married at 66.7%, household income below 200,001 Uganda shillings at 100%, Owned house at 66.7% majority of which were grass thatched at 60.0%, Informal occupation of the pregnant teenager and partner at 50% and 66.7% respectively. Unlike the study in central Ethiopia that found the majority of participants in the medium wealth index (Girma, 2022). However, the study in Kayunga showed that occupation of both the pregnant teenagers and their spouse were extremely not supportive with the household income below 200,001 Uganda shillings to enable good birth preparedness and complication readiness.

5.2.2 Antenatal care factors

The antenatal care experience by the pregnant teenagers was associated with the low birth preparedness and complication readiness found during the study in Kayunga. Health behavior factors related to the antenatal care among the pregnant teenagers in the study did not show statistical significance when these were compared to the outcome variable birth preparedness and complication readiness. For all the 6 (100%) of the teenagers who were birth prepared and complication ready attended antenatal care with most 5 (83.3%) attending at least a HC III level of health facility. While the majority of pregnant teenagers failed to attain the standards with 96.5% having less than number of ≥8 visits and 72.8% attended their first visit after 12 weeks amenorrhea.

The findings fell short of the standards by the World Health Organization ANC 8 or more contacts by any positive pregnancy experience guideline (WHO, 2025) with the majority of 96.5% not being birth prepared or complication ready. Only 3.5% pregnant teenagers attained

the standard on number of contacts /visits during antenatal care. Similarly the pregnant teenagers poorly attained the requirement of having the first antenatal visit at 12 or less weeks of amenorrhea this could have allowed for the multiple contacts during the time of pregnancy hence lack of exposure to sufficient information related to making pregnancy safe. The pregnant teenagers during antenatal care did not get information on danger signs and their importance to them during pregnancy. Therefore, lack of emphasis to the risk factors that result into the complications and how to respond when the challenges arise.

5.3 Plan to utilize a skilled birth attendant

The identification of the skilled birth attendant was poorly scored at 102(27.1%) since these were unable to specify the cadres of the staffs to attend to them during birth. Often the pregnant teenagers could not differentiate the cadres of the health workers to care for them. For example these mentioned staffs who are nursing assistants or nurses not gazette as skilled birth attendants in the reproductive health guidelines.

Consistent to other studies in Ghana, rural postpartum women that had only 38% assistance by a SBA (Robert Kuganab-Lem1, 2014) as well as the pregnant women in Ethiopia who only had 10% plan to use SBA. (Gebre M, 2015)

The findings showed that birth companion being available to support during time birth mothers at 47% others (peers) other people 20.8% with sister and spouse both at 15.6% were found to be the preferred persons to support the pregnant teenagers at the time of birth.
This demonstrated the role of the community where the mothers at the time of delivery were being considered very important in the social networks of the pregnant teenagers. Peers other than the sisters or spouse were seen as preferred options of support during time of birth. Thus the evidence not to ignore when plans for any interventions to this effect.

5.4 Plan for transport

Whereas transport for the pregnant teenagers is very vital the majority of 85.6% had motorcycle as the possible available means of transport. The capacity of the pregnant teenagers to provide or access better means of transport based on the low economic status of the study participants thus the predominant mode of transport being motorcycle.

5.5 Knowledge of danger signs in pregnancy or labor

Spontaneous knowledge of danger signs as factor for being birth prepared and complication ready in the study is one of the factors that attained 100% for the pregnant teenagers that were able to be birth prepared and complication ready.

The extremely low spontaneous knowledge of danger signs was responsible for the poor attainment by the pregnant teenagers in the study. This comes with the explanation that the content of the antenatal care health education concerning the risk factors for the pregnant teenagers to watch during the periods of pregnancy, birth and after delivery lacked emphasis in order to equip the expectant teenagers. The high levels of knowledge of danger signs in several studies could be explained by the pregnancy experiences were these often are of higher parity compared to these pregnant teenagers who were first time mothers.

Despite the poor knowledge of the danger signs there were some danger signs commonly identified by the pregnant teenagers. These ought to be the foundation building block upon which future strengthening of the awareness. They include; vaginal bleeding in pregnancy 30%, vaginal bleeding in labour 23%, prolonged labour (≥12hour) 25.6%, retained placenta 11.8%, and finally swollen face/ hands and blurred vision at 5%.

Likewise the pregnant teenagers who identified the compatible blood donor were very few showing the challenge by which in case need for blood transfusion then the chance of having a remedy to support the pregnant teenager could come with difficulty.

Following the multivariate analysis there were no statistically significant independent variables that were identified. The reason for this finding could be that there were a very small number of the pregnant teenagers who were able to meet the criteria for birth preparedness and complication readiness.

But the results showed that the single and married teenagers were 3.298 and 1.312 respectively more birth prepared and complication ready. It is best to do the discussion per objective!! It will bring out your results/discussions best!

CHAPTER SIX
CONCLUSION AND RECOMMENDATIONS

6.0 Introduction

6.1 The conclusion of the results of the study.

Only 1.59% pregnant teenagers were prepared for birth and complication ready despite those who had a birth plan that were 94.16%. The pregnant teenagers had limited access to information during antenatal care thus the finding.

Bivariate analysis demonstrated statistical significant factors for birth preparedness and complication readiness these consisted of; primary level of education, being married, having grass thatched house, plan to give birth at HC III and IV, identified a compatible blood donor and spontaneous knowledge of danger signs. Along with the factor for birth plan which was low educational level to mention.

Other factors that influence the birth preparedness and complication readiness among the pregnant teenagers demonstrated household income which was below 200,001UGX and predominantly informal occupation by the pregnant teenager and their partners.

The obstetric factors revealed that there was late first antenatal visit leading to the limited contacts less than the required eight times for antenatal care. Therefore pregnant teenagers received insufficient information pertaining to birth preparedness and complication readiness.

6.2 Recommendations

Birth preparedness and complication readiness as a strategy that benefits all pregnant women should have special considerations in order to be complete in making safe pregnancy experiences and their outcomes.

The researcher upon completion of the academic requirement shall embark on an awareness birth preparedness and complication readiness campaign. The activity shall employ the existing health structure in the district with the help of the network of partners in safe motherhood. Emphasis will be to reduce the delays through increased knowledge of danger signs and identification of compatible blood donors.

Strengthen the knowledge of pregnant teenagers towards the need for early antenatal care attendance through the local leaders to foster behavioral change.

6.3 Area for future research

There is need for collaborations with the entire maternal reproductive health department to perform a longitudinal study to validate the study findings. This is in order to improve on the entire neonatal, maternal and child morbidity and mortality.

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Appendix 1a: Consent form:

Research title: BIRTH PREPAREDNESS AND COMPLICATION READINESS AMONG PREGNANT TEENAGERS SEEKING CARE IN KAYUNGA DISTRICT

Principal investigator: Kiyuba Ivan

Organization: Uganda Christian University

Supervisor: Namyalo Josephine Mawerere (Mrs.) BCH, MPH

Introduction:

I am **Kiyuba Ivan**, a Masters student at Uganda Christian University. I am doing research titled, **Birth preparedness and complication readiness among pregnant teenagers seeking care in kayunga district**. I am going to discuss with you information related to the research and invite you to be part of this research. You may not have to confirm your participation today whether or not you

will participate in the research. Before you decide, you can talk to anyone you feel comfortable with about the research.

There are words that you may not understand. Please let me know by asking me to stop as we go through the information and I will take time to explain. If you have questions later, you can ask me.

Purpose of the research:

The purpose of the study is to assess **Birth preparedness and complication readiness among pregnant teenagers seeking care in Kayunga district.** Therefore, because this special group has got unique features this study shall guide on the future policies of how to help prepare for birth with pregnant teenagers as they mature in the social, physical and psychological stages of life.

The study shall inform the discrepancy between the aspects of birth preparedness and complication readiness among pregnant teenagers compared to the numerous studies that have not demonstrated the correlation within this high-risk group.

Findings shall help inform policy and programming in order to contribute to the way preparation of pregnant teenagers is supported in birth preparedness and complication readiness, not merely generalizing as women of reproductive age.

Participant selection:
You were selected using the enumerative sampling in order to participate in the study.

Voluntary participation:
Your participation in this research is entirely voluntary. It is your choice whether to participate or not. You may change your mind later and stop participating even if you agreed earlier.

Confidentiality:
We will protect information that you provide about you and your decision to take part in the research to the best of our ability. A code will be used on the questionnaire and your name will not appear anywhere in the report. After data collection all questionnaires will be securely stored and access will be to the research team only.

Sharing the results:
The result of this research will be shared with you through feedback meetings before it is made available to other people. Confidential information will not be shared.

Possible risk and benefits:
There is no known risk that you will be exposed to by participating in this study. There will be no direct benefits to the participants. However, the findings will be communicated to keys stakeholders in the country to make possible development of supporting guidelines and policies in regard to birth preparedness and complication readiness. Particularly the district will be empowered towards developing a strategy to help improve the situation as per the findings.

Upon completion of the questionnaire the research participant will be accorded a session that equips the respondent with **how birth preparedness and complication readiness** is carried out.
While using the Ministry of Health guidelines enshrined in the mother's passport which shall be availed to the respondent after the session of filling the questionnaire.

Right to withdraw:
You do not have to take part in this research if you do not wish to do so. You may also stop the interviewer at any point if you so wish to. It is your choice and all of your rights will still be respected. Even upon withdraw contacted pregnant teenagers will be given information on birth preparedness and complication readiness.

Who to contact:
This research has been reviewed and approved by Uganda Christian University Ethics Review Committee, which is a committee mandated to make sure that research participants are protected from harm.

Do you have any questions?
Yes ……..
…….
No ……
……..

INFORMED CONSENT FORM:

The consent shall encompass the Emancipated minors are individuals below the age of majority who are pregnant; married have a child or cater for their own livelihood.

I confirm that the information above was read and explained to me. I have had the opportunity to ask questions about it and any questions that I have asked have been answered to my satisfaction.
I hereby consent to participate as a participant in this research.

Name of participant …….

Signature of participant/ Thumb print ……..
Date: ……

Researchers' statement:
I confirm that the participant was given an opportunity to ask questions concerning the study, and all the questions asked by the participant have been answered correctly and to the best of my ability.
I confirm that the individual has not been coerced into giving consent, and the consent has been given freely and voluntary.
Name of the Researcher: ……
Signature: ……..
Date: ……..

Appendix 1b: (Translated form into *Luganda*).

Research title: BIRTH PREPAREDNESS AND COMPLICATION READINESS AMONG PREGNANT TEENAGERS SEEKING CARE IN KAYUNGA DISTRICT

***Anonyerezza omukulu*:** Kiyuba Ivan

Organization: Uganda Christian University

***Omukubiliza*:** Namyalo Josephine Mawerere (Mrs.) BCH, MPH
***Enyanjula*: (Introduction)**

Nze **Kiyuba Ivan**, *Omusomi Ku* Uganda Christian University. *Omutwe gwo kunonyereza kwange*, **Birth preparedness and complication readiness among pregnant teenagers seeking care in kayunga district**. (*Okwetegekera mukuzaala no kwelinda kulwo'buzibu mu bawala abatiini nga bazze okulabilirwa mu distulikiti ye'kayunga). Ngenda kukunyonyola ebikwata kukunonyereza era nkwaniriza obeere kitundu kukunonyereza. Oyinza obutakakasa kwetabamu*

okusalawo obukwetabamu oba okwegata mukunonyereza. Nga tona salawo, oyinza okwogerako no'muntu yenna gwe wewulilamu emirembe kubikwata kukunonyereza.

Ebigambo bino oyinza okubanga tobitegera. Nkusaba ontegeeze ngo bwo'nsaba okuyimilizamuko nga bwe'tugenda tuyita munsonga nzija kutwala obudde okunyonyora. Bwo'beere ne bibuuzo oluvanyuma, oja kusobola okubimbuza.

E'kigendererwa kyo'kunonyereza kuno:

E'kigendererwa kyo'kunonyereza kuno **Birth preparedness and complication readiness among pregnant teenagers seeking care in kayunga district.** (*Okwetegekera mukuzaala no kwelinda kulwe'buzibu mu bawala abatiini nga'bazze okulabilirwa mu distulikiti ye'kayunga) Kale no'lwekyo nga bano bwebalina eneyisa ezenjawulo okunonyereza kuno kunalungamya enungamya ya'mateeka mungeri gye'tuyambamu abatiini nga funye embuto atenga bwebakula muneyisa, mumibiri nemundowoza gye'mitendera mubulamu.*

Okunonyereza kuno kunayanjula obutali bumu kunsonga yO'kwetegekera mukuzaala no kwelinda kulwe'buzibu mu bawala abatiini bwogerageranya no'kunonyereza okwenjawulo okugenze kubawo nga tekusa siira ku bano abali mutuluba elyo'buzibu.

Nsubiira nga ebina funibwa binayamba kuntekateka za'mateeka olwono kyongereko kungeri omuwala otiini bwanayanbibwa mu kwetegekera mukuzaala no kwelinda kulwe'buzibu nga tebalowozebwa kubeera kyekimu na'bakazi abalala abali mubudde bwo'kuzaala.

Enondda ya'bana netabba nukunonyereza
Walondedwa okusinzira ku'bisanizo ebikukiliza okwetaba mukunonyereza.

Okwetaba mu kwa'kyeyagalire:
Okwetaba mu kunonyereza kwakyeyagalire. Kiligyoli okwetaba no'butetaba mu. Newakubadde o'kyusamu endowozayo okubuza nekukoma okwawukana no'kukilizaganya kwe'twabadde nakwo.

Emizii
Tuja kukuuma amawulire gonna go'genda okutuwa nga wetaaba mukunonyereza nga bwe'kinaaba kisoboka. Enamba ye'kyama yegenda okukozesebwa kulupapula luno erinnya lyo telirina welina labikira mu'lipoti. Oluvanyuma lwokufuna bwetuku buziza empapula zino zakukumilwa ddala butilibili nga teri azituukako yenna okujjako anonyereza.

Okugabana ebivudde mukunonyereza:
Ebinava mukunonyereza bina gabanwako nawe nga tutesewo enkungaana nga abantu abalala tebana bimanyako. Emizii kubikwata kumuntu tebijja kwasanguzibwa.

Ebizibu ebyandiba ne' migaso

Tewaliwo yakukosebwa yonna esubilwa okubawo nga we'tabye mukunonyereza kunno. Tewagenda kubawo kuganyulwamu kwabuliwo eri abetabye mukunonyereza. Ebinaava mukunonyereza bijja kwanjurwa eri abakwatibwako abenjawulo basobole okubagila e'ggwanga entabuza nenungamya enayamba Okwetegekera mukuzaala no kwelinda kulwe'buzibu. Okusingira ddala distulikiti egenda kuwebwa ekizo no kusala empenda mungeri yokulongoosa embeera nga esinzira kubyazulibwa.

Oluvanyuma lwo'kumaliliza okujjuza olupapula, eye'gasse mukunonyereza agenda kusomesebwa asobole okumanya okwetegekera okuzaala no'kumanya obubonero bwa'kabenje gye'kukolwamu.

Tugenda kusinzira ku'ndagiriro ye'kitongole kye byo'bulamu nga bwebyatekebwa mu Mother Child Passport akaweebwa omukyala lwakebeddwa olubutto o'gusooka.

Obuyinza obwo'butetaaba:

Tolina kwetaaba mukunonyereza bwoba toyagala. Osobola okuyimiliza akubuuza ekisera kyona nga bwoyagala. Kwekusalawo kwo era obuyinzabwo busibwamu ekitiibwa. Newankubadde nga omutiini ali olubutto avudde mukunonyereza agenda kumanyisibwa kubikwata kubyo'kwetegekera okuzaala neo bubonero obwakabbi.

Okwebuuza:

Okunonyereza kuno kwasomeddwa nekukakasibwa Uganda Christian University Ethics Review Committee, ekibiina ekyawebwa olukusa okulaba nga abantu abetabye mukunonyereza tebatukako bulabe bwona.

Olina ekibuuzo kyonna?
Nnye ……..
…….
Nedda ……
……..

INFORMED CONSENT FORM:

Ezzikanya ya'ku twalilamu obato abasuumusiddwa nga abo abatanawezza bukulu obwe myaka kumi namunana(18) abalina olubuto, abafumbirwa, balina abaana oba nga be be'labilira mubulamu bwa'bulijjo.

Nkakasa nga ebiwadikiddwa wagulu bya nsomeddwa nenfuna no kunyonyorwa. Nafunye no'mukisa okubuza ebibuzo kunsonga nga ne'bibuzo binyanukuddwa ne matila ensoga.
No'lwekyo nzikiriza okwetaba nga abuzibwa ebibuzo mukononyereza.

Amanya ga'buzzibwa …….
Omukono gwa'buzibwa/ ekinkumu: …….
Olunaku: ……

Researchers' statement:

I confirm that the participant was given an opportunity to ask questions concerning the study, and all the questions asked by the participant have been answered correctly and to the best of my ability.

I confirm that the individual has not been coerced into giving consent, and the consent has been given freely and voluntary.

Name of the Researcher: ……

Signature: ……..

Date: ……..

Appendix 2a: Questionnaire

Uganda Christian University

Master of Public Health – Leadership

Birth preparedness and complication readiness

Questionnaire Number:													
Participant code:													
Interviewer code:													
Date:													
Health facility name/													

level		

CODING OF PARTICIPANT IN (CAPITAL LETTERS)**:**
First (2) two letters of **SURNAME**, last (2) two of **GIVEN NAME**, date (**YEAR, MONTH, DAY**) of interview, **SEX** of companion.
E.g: Namusisi Jane interviewed on 21/Nov./2017; companion is male
Code will read: in: **NANE20171121M**

SOCIO-DEMOGRAPHIC										
1. Age:										
2. Education level:				None			Indicate actual class:			
				Primary						
				Secondary						
				Other						
3. Marital status:				Single						
				Married						
				Not married						
4. Occupation:				Formal			**Partners work:**			
				Informal			Specify:			
				Peasant						
5. Housing:	Rented			Grass thatched						
	Owned			Semi-permanent						
				Permanent						
6. House income per month							Shs:			
7. Parity,				G	P	+				
8. ANC				Yes	No.	No	Hosp	HCIV	HC III	HCII	1st visit WOA:

Birth preparedness	**Response**	**Achieved**	
9. Do you have a birth plan? (**Completed of the 7 sections**)	Y (≥4)	If Yes - well	If No - poor
	N (<4)		
10. Have you done registration of your pregnancy?	Y	If Yes where	
	N		
11. Do you have knowledge of danger signs among women who are pregnant?	Y (≥3)		
	N (<3)		
12. Where do you Plan to give birth?	Home		Comment why choice:
	Clinic		
	Hospital		
	HCVI, III		
13. Do you have a skilled birth attendant you planned to help you during time of delivery?	Yes	Indicate cadre:	
	No		
14. What is your transportation plan when labour or need arises?	Money		How much estimated cost
	Own car		
	M/cycle		

	Bicycle		planned?
	Hire		
15. Who shall be your birth companion during labour?	Spouse	Specify why choice?	
	Mother		
	Sister		
	Other		
16. In case of emergency have you identified compatible blood donors?	Yes	Blood group:	Donor group:
	No		

Knowledge Danger signs	**Patient sign**	**Spontan.**	**Prompt**	**Planned Action**
17. Pregnancy	Severe vaginal bleeding			
	swollen hands/face			
	Blurred vision			
18. Labour or birth time	Severe vaginal bleeding			
	Prolonged labor (> 12 hours)			
	Convulsions/fits			
	Retained placenta			
19. post-partum	Severe vaginal bleeding			
	Foul-smelling vaginal discharge			
	High fever			

Thank you very much for your cooperation:

Appendix 2b: Questionnaire translated

Uganda Christian University
Master of Public Health – Leadership
Birth preparedness and complication readiness Questionnaire: (Translated)

Questionnaire Number:												
Participant code:												
Interviewer code:												
Date:												
Health facility name/ level												

CODING OF PARTICIPANT IN (CAPITAL LETTERS)**:**
First (2) two letters of **SURNAME**, last (2) two of **GIVEN NAME**, date (**YEAR, MONTH, DAY**) of interview, **SEX** of companion.
E.g: Namusisi Jane interviewed on 21/Nov./2017; companion is male
Code will read: in: **NANE20171121M**

SOCIO-DEMOGRAPHIC								
1. Age: (*Emyaka gyo*)								
2. Education level: (*Obuyivu bwo*)	None		Indicate actual class:					
	Primary							
	Secondary							
	Other							
3. Marital status: (O*li mu'bufumbo*?)	Single							
	Married							
	Not married							
4. Occupation: (*Omulimo gwo gwaki*)	Formal		**Partners work:**					
	Informal		Specify:					
	Peasant							
5. Housing: (*Ensula yo*)	Rented (K*upangisa*)		Grass thatched (*Yasubi*)					
	Owned (*Twazimba*)		Semi-permanent (*Mabati/takka*)					
			Permanent (cement /*mabati*)					
6. Household income per month (*Enfuna yamwe buli mwezi*)			Shs:					
7. Parity, (*E'zaalo zo*)	G	P	+					
8. ANC (*Okunywa eddagala*)	Yes	No	Hosp	HCIV	HC III	HCII	1st visit WOA:	

Birth preparedness	**Response**		**Achieved**
9. Do you have a birth plan? (*OLina entegeka yo'kuzaala*)	Y (≥4)	If Yes check (*katugilabe*)	If No - Teliwo
	N (<4)		
10. Have you done registration of your pregnancy? (*Wewandiisako nga owo'lubuto*?)	Y	If Yes where (*ludda wa*?)	
	N		
11. Do you have knownledge of danger signs among women who are pregnant? (*Omanyi obubonero bwakambenje mu balina embutto*?)	Y (≥3)		
	N (<3)		
12. Where do you Plan to give birth?	Home	Comment why	

(*Osubila ku zaalila wa*?)	(*e'waka*)		choice: (*Lwaki olonda awo*?)
	Clinic ()		
	Hospital(*ddwaliro e'dene*)		
	HCVI,III		
13. Do you have a skilled birth attendant you planned to help you during time of delivery? (*Olina omuzaalisa omtendeke gwo'suubila okuyamba mukuzaala*?)	Yes	Indicate cadre: (*wadala ki*?)	
	No		
14. What is your transportation plan when labour or need arises? (*Entegeka ye yo'kutambula eri etya*?)	Money (*Sente*)		How much estimated cost planned? (*Wa tekateka sente meka*?)
	Own car (*Tulina motoka*)		
	M/cycle (*piki-piki*)		
	Bicycle (*Gaali*)		
	Hire (*kupangi sa*)		
15. Who shall be your birth companion during labour? (*Ani anakutwala mu kuzaala*?)	Spouse (*Mwami*)	Specify why choice?(*Lwaki walondamu oyo*?)	
	Mother (*Mama*)		
	Sister (*Mugand a wange*)		
	Other (*omulala*)		
16. In case of emergency have you identified compatible blood donors? (*Bwe wetaaga omusaayi, watekateka anagukuwa*?)	Yes	Blood group: *Ekika kyo'musaayi gwo*:	Donor group: *Ekika kyo'musaayi gwa'kuwa*:
	No		

Knowledge Danger signs (*Okumanya obubonero bw'akabenje*)	**Patient sign (*obubonero bwa mama*)**	**Sponta n.**	**Promp t**	**Planned Action (*Okolawoki*)**
17. Pregnancy	Severe vaginal bleeding			

(*Nga olilubuuto*)	(*Okuyiwa omusayi enyo*)			
	swollen hands/face (*Okuzimba engalo ne mumaaso*)			
	Blurred vision (*Ekifu kumaaso*)			
18. Labour or birth time (*Obudde bwokuzaala*)	Severe vaginal bleeding (*Okuyiwa omusayi enyo*)			
	Prolonged labor (> 12 hours) (*Okulwawo nga to zaala > sawa 12*)			
	Convulsions/fits (*Okwesiika*)			
	Retained placenta (*Owemabega nga tazaalidwa*)			
19. Post-partum (*Oluvanyuma lwokuzaala*)	Severe vaginal bleeding (*Okuyiwa omusayi enyo*)			
	Foul-smelling vaginal discharge (*Okubundula amazzi agawunya*)			
	High fever (*Okwokya omubiri*)			

Thank you very much

Webale nnyo

Appendix 3: Table: Research Sample Calculation per Health unit

Organization unit name	Jul 2018 to Jun 2019	Calculated sample	Adjusted sample
Bbaale HC IV	3315	38.1114	38
Kangulumira Mission HC II	29	0.3334	2
Kangulumira HC IV	8442	97.0548	97
Busaana HC III	4414	50.7462	50
Nakatovu HC II	633	7.2773	7
Namusaala HC II	469	5.3919	5
Galiraya HC III	2528	29.0635	29
Kawongo HC III	1286	14.7847	14
Nazigo HC III	2887	33.1908	33
Kayunga Hospital	4192	48.1940	48
Buyobe HC II	229	2.6327	3
Lugasa HC III	4830	55.5288	55
Kakiika HC II	147	1.6900	2
	33401		

List of health facilities where the sample selection was drawn.

1	Kayunga RRH		**RRH**		
2	Bbaale		**IV**		
3	Kangulumira		**IV**		
	HC III		**HCII**		**HC II**
1	Kawongo	**1**	Kasokwe	**11**	Kakiika
2	Galiraya	**2**	Buyobe	**12**	Bulawula
3	Lugasa	**3**	Kawoomya	**13**	Nazigo Mission
4	Nkokonjeru	**4**	Nakyesa		
5	Ntenjeru	**5**	Nakatovu		
6	Wabwoko	**6**	Namusaala		
7	Busaana	**7**	Kangulumira mission		
8	Busaale	**8**	Namagabi mission		
9	Nazigo	**9**	Kangulumira prison		
10	Bukamba	**10**	Kayunga prison		

Appendix 4: Research Budget

Simple research budget

Budget items	**Number of items**	**Cost per item**	**Total cash cost**	**In-kind cost**	**Notes**
Baseline district visit	1	50,000	50,000		Fuel for car
Proposal development - Stationery - Internet - Printing - Binding	1 2months 3 3	7,000 130,000 10,000 5,000	7,000 260,000 30,000 15,000	260,000	internet
SDA for research assistant	10	12,000	120,000		R/A's travel for training
Refreshments for training for 10 Research assistants	1	4,000	40,000		
Transport refund R/A's	1	10,000	100,000		
Researcher transport(fuel)	8weeks	40,000	320,000	100,000	Servicing /

					running
Draft copy binding	1	15,000	15,000		
Final copy binding	3	30,000	90,000		
Per-diem	8	110,000	880,000		
Digital saving of the data on CD	5	5,000	25,000		
Access to Biostatistician	1	100,000	100,000		
Chief Investigator: Academic research	5	50,000	250,000	250,000	
Teaching relief: Supervisor contacts	5	50,000	250,000	250,000	
Research Assistant: 8days	10*8 man days	12,000	960,000		
Total			2,515,000		