

**KNOWLEDGE AND PRACTICE ON BIRTH PREPAREDNESS
AND COMPLICATION READINESS AMONG PREGNANT
WOMEN IN SINGIDA URBAN DISTRICT, TANZANIA**

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**Master of Medicine (Obstetrics and Gynecology)
Muhimbili University of Health and Allied Sciences**

October 2013

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AND COMPLICATION READINESS AMONG PREGNANT
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By

Caroline Damian, MD

**A Dissertation Submitted in (Partial) Fulfillment of the Requirement for the
Degree of Master of Medicine (Obstetrics and Gynecology) of
Muhimbili University of Health and Allied Sciences**

**Muhimbili University of Health and Allied Sciences
October 2013**

CERTIFICATION

The undersigned certify that he has read and hereby recommends for acceptance by the Muhimbili University of Health and Allied Sciences a dissertation entitled: ***Knowledge and practice in Birth Preparedness and Complication Readiness among pregnant women in Singida Urban District, Tanzania*** in (partial) fulfillment of the requirements for the degree of Masters of Medicine (Obstetrics and Gynecology) of the Muhimbili University of Health and Allied Sciences.

.....

Dr Furaha August (MD, MMed Obstetrics and Gynecology)

(Supervisor)

.....

Date

**DECLARATION
AND
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I, **Dr Caroline Damian**, declare that this **dissertation** is my own original work and that it has not been presented and will not be presented to any other university for a similar or any other degree award.

Signature.....

Date.....

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DEDICATION

This book is dedicated to my husband Dr David R. Shosho, my daughter Glory and her sister Flaviana and my parents Mr and Mrs. Damian Mayengo.

ABSTRACT

Background: Avoidable maternal mortality and morbidity remains a formidable challenge in many developing countries. According to TDHS 2010 the maternal mortality rate is 454 per 100,000 live births. Many of the complications that result to maternal deaths are unpredictable, and their onset can be both sudden and severe. Delays in seeking, reaching and receiving appropriate health care services have been shown to be associated with maternal mortality. The causes of these delays are common and preventable. Birth preparedness and complication readiness in a third world setting where there is prevailing illiteracy, inefficient infrastructure, poor transport system, and unpredictable access to skilled care provider have the potential of reducing the existing high maternal morbidity and mortality rates.

Objectives: To assess the knowledge and practice on birth preparedness and complication readiness among pregnant Women attending ANC at Singida Urban district.

Methodology: A cross sectional analytical study which was done among 405 pregnant mothers. A structured exit questionnaire was used to collect data. SPSS version 16.0 was used to analyze data. Frequency distribution tables were created and logistic regression analysis was done to find the factors associated with BPCR.

Results: Majority of responded were aged between 21 and 25 years old. More than 50% had completed primary school and 65% were married. About 25.6% of the respondents reported to have obstetric problems during previous pregnant. The knowledge of danger sign was found in 20% of respondents, and the most common mentioned danger sign was vaginal bleeding. The knowledge of danger sign was found to be strongly associated with previous obstetric problem. (OR 2, 95%CI: 1.1-4.0) Thirty six percent of respondents were found to be knowledgeable on BPCR and the knowledge was strongly associated with the knowledge of danger signs. (OR 4, 95% CI: 2-7.5). Birth

plan was found in 68.1% of pregnant mothers and these were associated with marital union.

Conclusion and recommendation: The study has revealed the low level of knowledge on danger signs and relatively low level of knowledge on BPCR among pregnant women attending ANC clinics. Despite these findings encouragingly majority of women had birth plan.

Education on the knowledge of danger sign and BPCR should be provided from the community level to individual pregnant mother's level. Also, male involvement and improvement of health care services are important in improving the maternal health.

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LIST OF ABBREVIATIONS

ANC	Antenatal Care
BPCR	Birth Preparedness and Complication Readiness
DMO	District Medical Officer
EMOC	Emergency Obstetrics Care
FANC	Focused Antenatal Care
IMPAC	Integrated Management of Pregnancy and Child birth
JHPIEGO	Johns Hopkins Program for International Education in Gynecology and Obstetrics (An Affiliate of John Hopkins University)
MDGs	Millennium Development Goals
MMR	Maternal Mortality Ratio
MOHSW	Ministry of Health and Social Welfare
RCH	Reproductive and Child Health
RMO	Regional Medical Officer
TBA	Traditional Birth Attendant
TDHS	Tanzania Demographic Health Survey
WHO	World Health Organization

OPERATIONAL DEFINITIONS

Birth preparedness and complication readiness (BPCR) is the process of taking a series of steps prior to birth to ensure that a pregnant woman is prepared for normal birth and complications (JHPIEGO, 2004).

Skilled care provider/attendant is a professional caregiver who has the knowledge and skills to manage labor, childbirth, and postpartum period; recognize complications; diagnose, manage, or refer woman or newborn to a higher level of care if complications occur that require interventions beyond current caregiver's competence (JHPIEGO, 2004).

Well prepared for birth/Birth plan; a pregnant mother is considered to be well prepared for birth or having a birth plan if she have done or have an intension to do/follow at least five basic steps of BPCR.

INTRODUCTION

Childbirth is a universally celebrated event for thousands of women each day, yet child bearing is experienced not as the joyful event as it should be by many women especially in the resource limited areas. Maternal mortality is a substantial burden especially in developing countries. World Health Organization (WHO) estimated that 99% of all maternal deaths worldwide occur in developing countries, and more than half occurs in Sub Saharan Africa region[1].Tanzania is one of the ten countries contributing to 61% of the global total of maternal deaths[2].

In Tanzania the maternal Mortality ratio is 454 per 100,000 live births, this is unacceptably high and poses a global challenge[2].It is estimated that, in the absence of skilled obstetric care, 15% of all pregnant women will suffer from serious and long term morbidities and disabilities[1].

It is not possible to predict life-threatening obstetric complications that lead to maternal mortality[3].Along with the other barriers such as failure to recognize signs of complications, cost considerations, transportation difficulties and shortages of supplies and basic equipment; receiving care from a skilled provider during childbirth has been identified as an important intervention [4]. However, the use of skilled providers in developing countries remains low[4, 5] . According to the Demographic and Health Survey Data (TDHS), 51% of pregnant mothers are delivered by skilled birth attendants[2].

Maternal deaths are thought to occur due to three delays which were described by Thaddeus and Maine (1994).They explained the three delays which are delays in seeking, reaching and receiving care as the key factors leading to maternal deaths[6]. Delays in seeking care may be caused by failure to recognize signs of complications, failure to perceive the severity of illness, cost considerations, previous negative experiences with the healthcare system, and transportation difficulties. Delays in reaching care may be created by the distance from a woman's home to a facility or provider, the condition of roads, and a lack of emergency transportation and delays in receiving care may result from unprofessional attitudes of providers, shortages of supplies and basic equipment, a lack of healthcare

personnel, and poor skills of healthcare providers[7]. This explanatory model is also known as the Three Delays Model[6].

The Maternal and Neonatal Health (MNH) Program of JHPIEGO developed the birth-preparedness and complication readiness (BPCR) matrix to address these three delays at various levels. The levels include the pregnant woman, her family, her community, health providers, health facilities, and policy-makers during pregnancy, childbirth, and the postpartum period. The concept of BPCR 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[3].

In 2001, Tanzania adopted from WHO a new goal oriented or Focused Antenatal Care [FANC] model, BPCR being one of the component of FANC. This requires that all pregnant women should have a written plan for birth and for dealing with unexpected adverse events that may occur during pregnancy, childbirth or immediate postnatal period. The plan has to be discussed and reviewed with a skilled attendant at each antenatal assessment and at least one month prior to the expected date of birth[8].The plan aims to assist women, their partners and families to be adequately prepared for childbirth and complications if any[7].

Studies done in different countries have shown that BPCR improves seeking, and utilization of skilled health care also improves knowledge of mothers about obstetric danger sign[9-11].

In Tanzania, about 96% of all pregnant women make at least one antenatal care visit, though only 50% deliver to the health facility[2]. Education on BPCR is given from the first ANC visit therefore; ANC is an opportunity for the pregnant women to be informed about BPCR. Education on BPCR is the most important tool in removing the delays demonstrated by the delay model in the contest of reducing Maternal Mortality Ratio (MMR)[6].

LITERATURE REVIEW

Among the most important key roles of antenatal care is the provision of health education on obstetric danger signs and preparation for birth and complications[12].It is expected from ANC that pregnant mothers are assisted to have their own birth plan which contribute to good pregnancy outcome.[13].

Information, education and counseling during ANC visits play a vital role in prevention of maternal death. These create an awareness of the sequence of events from late recognition of danger signs, through delays in seeking and receiving care. An appropriate programme such as BPCR can improve maternal health and pregnancy outcome[14].

Birth preparedness is not easy to achieve especially in developing countries where majority are relatively poor. In rural areas, the situation is even worse whereby even if transportation is available distance and lack of maintained roads in case of emergency may still cause delays sufficient to put the life of the woman in danger [15].Therefore, arranging transport ahead of time reduces the delay in seeking and reaching services. In the study done in Ethiopia and in Nepal showed that less than a quarter of the respondents had identified transportation ahead of childbirth and put aside fund for transport in case of labour or emergency[9, 16].

The study done in Voi Hospital Kenya on birth preparedness among antenatal clients showed that, over 60% of the respondents were counseled by health workers on various elements of birth preparedness and two third new at least one danger signs. This shows that the education on a different aspect of BPCR was not given to all clients. The study also showed that the level of education positively influences birth preparedness[12].

Some other studies done on birth preparedness and complication readiness have shown that, most of the pregnant mothers had their plan for delivery but, the awareness of danger signs was found to be low, or poor. One study done in India showed different findings that the knowledge on danger sign was not low. It was then recommended that, more emphasis on birth preparedness and complication readiness should be given during antenatal sessions [17-21]

A study in Uganda showed that many of the referrals were in critical condition at admission suggesting possible delays in seeking care, in making the decision to refer, or reaching referral hospital[14].

Cash for transport, availability of transport and distance to health facilities have also shown to be associated with delays in seeking health care and home deliveries in pregnant women in some studies done in Africa [16, 22, 23].

Studies done on BPCR in Nigeria, and Kenya have shown that the majority of women 61% and more than 70% respectively had adequate preparation for delivery including being aware on their EDD and set aside fund for transport to hospital during labor and emergency and only 4.8 % were ready for emergency /complication[12, 14].Among the recommendations from these studies was that, greater emphasis should be placed on education about BPCR during antenatal care visits. Similarly another study conducted in India showed that those women who attended antenatal care services were well prepared than those who did not attend[21].Different results were shown from the study done in Southern Ethiopia that only 17% of the pregnant women were well prepared, implying the importance of interventions to increase the awareness, knowledge and practice on BPCR among pregnant women. This signifies that antenatal care services are an opportunity to inform pregnant women the components of BPCR[24].

Study done by Mutiso and Hail indicated that women were not given enough information about all the components of BPCR. These showed that about one third of the mothers were not informed about obstetrics danger signs,14.7% were not informed about the importance of hospital delivery, 39.2% were not informed about the need of making transport arrangement and more than half were not informed about the need to identify a blood donor[12, 24].This shows that, the quality of education provided to pregnant mothers was not adequate. Similarly, the study done in Kenya showed almost the same findings that, discussion on birth plan among ANC attendees was less frequently given. The overall rating of the delivery of services was low, so it was concluded that health services delivery was sub-optimal, especially with regard to the provision of key information to pregnant

mothers[12].The knowledge on BPCR among pregnant mothers probably depends more on the information given from their providers.

It has been shown that, well preparedness for birth was associated with marital status, where by those in marital union were more likely to have a birth plan as compared to those who were not in union. More support was provided by the spouse including accompanying to the health facility and looking after children and other household chores during pregnancy. [14].

Based on findings from different studies on BPCR it is recommended that; BPCR should be integrated in all maternal and child health services and the community should have an emergency response system to provide funds, transport and blood donors in case of emergency. It is believed that with the removal of delays, the prevailing high maternal/infant morbidity and mortality can be reduced to acceptable limits[20].

PROBLEM STATEMENT

Maternal mortality is a significant burden in developing countries. The World Health Organization (WHO) estimates that 99% of the maternal deaths occur in developing countries. Sub-Saharan Africa and South Asia accounted for 87% of global maternal deaths.

Maternal deaths are thought to occur due to three delays: delay in deciding to seek appropriate care, delay in reaching an appropriate health facility and delay in receiving immediate and appropriate care once at a facility. These delays can be reduced if pregnant women are prepared for birth and complications.

Therefore, the practice of BPCR in a third World setting where there is prevailing illiteracy, inefficient infrastructure, poor transport system, and unpredictable access to skilled care provider BPCR have the potential of reducing the existing high maternal and neonatal morbidity and mortality rates[20].

BPCR can be achieved by promoting 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. This can be done through creating awareness and education to both pregnant mothers, families and the community at large.

According to TDHS 2010, there is a gap in knowledge on BPCR among pregnant mothers attending ANC. It shows that, the proportion of women told about pregnant complications by health providers in the ANC varies greatly from as high as 74% in the Eastern zone and to as low as 50% in the central zone whereby in Singida region(the central zone) only 53% of pregnancy mothers were informed about pregnancy complications. Singida urban district has been having a relatively high maternal mortality ratio compared to other districts in the Region.

Studies have indicated low rates of BPCR among pregnant women in Kenya, Ethiopia, Burkina Faso and central zone of Tanzania [3, 12, 24, 26]. The low rate of BPCR coupled with low rate of knowledge of danger sign contribute to the delay in seeking health care henceforth leading to high level of maternal mortality and morbidities. This study was

assessing the knowledge and practice on birth preparedness and complication readiness among pregnant mothers attending ANC at Singida Urban district.

RATIONALE

Historical evidence shows that no country has managed to bring its maternal mortality ratio below 100 per 100 000 live births without ensuring that all women are attended by an appropriately skilled health professional during labor, birth and the period immediately afterwards[25].

Studies done on BPCR among pregnant mothers have shown that promoting BPCR through ANC visits improves preventive behaviors, improves knowledge of mothers on danger signs, and leads to improvement in care seeking during obstetric emergencies. It is also recommended that antenatal care should place emphasis on birth preparedness and complication readiness which have been shown to be critical in reducing maternal and/orperinatal mortality and morbidity[6].

Tanzania Ministry of Health and Social welfare has as a strategy of increasing coverage of births attended by skilled attendants to 80% and increasing the number of pregnant women with birth plans to 50% by the year 2015 [30]. Currently, there is the program going on in the central zone of Tanzania on BPCR (WAZAZI NIPENDENI program), yet Singida region is not included in this program.

Therefore, this study aimed at assessing the knowledge and practice on BPCR among pregnant women attending ANC in Singida urban district which have been contributing to a relatively high maternal mortality ratio in the Region. These results will provide valuable information about the knowledge and practice on BPCR which actually reflects the effectiveness of the ANC services in Singida District.

OBJECTIVES

Broad objectives

To assess the knowledge and practice on BPCR among pregnant women attending ANC in Singida urban district, Singida

Specific objectives

1. To determine the proportion of women with knowledge on specified obstetrics danger signs among pregnant women attending ANC
2. To determine the proportion of women who identified place of delivery
3. To determine the proportion of women who identified a mode of transport to a place of delivery
4. To determine the proportion of women who identified a skilled birth attendant
5. To determine the proportion of women with a plan to save money for obstetric complication
6. To determine the proportion of women who identified blood donor incase of obstetric complication
7. To determine the proportion of women with a plan to practice BPCR
8. To determine the factors associated with BPCR

METHODOLOGY

Study design

Cross sectional analytical study

Study area description

Singida Region is among the central regions in Tanzania. It covers an area of 49,438 km² and has 1,090,758 inhabitants (National Census 2002). The estimated total number of households is 217,572 with an average household size of 5 people.

Singida urban district has 657 km² with a total population of 115,354 (National Census 2002). In Singida urban there are 14 health facilities (one hospital, one health centre and 12 dispensaries); all the facilities offer RCH services. On average 30 pregnant mothers attend ANC at hospital level, 20 in health centers and 10 in dispensaries per day. ANC services are offered every working day in a week (5 days in a week). The services provided at ANC include health education given by nurses on various topics such as importance of breastfeeding, family planning, obstetric danger signs, components of FANC and maternal nutrition. Health education is given to mothers before entering the provider's room.

Staff offering the ANC services in the hospital includes medical officers, assistant medical officers, clinical officers, nurse officers, nurse midwives and nurse attendants. In the dispensary and Health centers there are assistant medical officers, clinical officers, nurse midwives and nurse attendants who offer the ANC services.

Study population

Antenatal clinic attendees in Singida urban district, Singida

Study sample

All pregnant mothers attending ANC clinics on their second visit and with gestation age (GA) of more than 20 weeks in the selected health facilities

Sample size

Obtained by the formula

$$n = \frac{Z^2 \times p(1-p)}{\varepsilon^2}$$

WHERE

n = required sample size

Z = confidence level at 95% (standard value of 1.96)

p = estimated prevalence (63%)

ε = margin of error at 5% (standard value of 0.05)

With the proportion of mothers having adequate birth preparedness plan of 63% in the study done by Mganga et al 2006 at Mpwapwa district, Dodoma, the calculated minimum sample size is found to be 358. Ten percent of the non respondent is added to the sample size calculated above, hence a minimum sample size taken to be is 394

Sampling technique

Simple random sampling by using simple random pick was done to select 6 dispensaries out of 12 available dispensaries. Since there is only one health center and only one hospital (A Regional hospital), these were all included in the study aiming at involving all the available levels of health care services in the study. A systematic sampling using an ANC register was used to recruit the participant from the selected health facilities where by every third client was recruited. On average, a total of 20 mothers were interviewed in a day from 4 facilities out of 8 selected. The ANC cards of women interviewed were marked to avoid repetition.

Exclusion criteria

Mothers who were sick not able to respond

Language barriers

DATA COLLECTION

Three research assistants (trained nurses) were trained on the objectives of the study, methods of data collection and data collection instrument. Familiarization of the questionnaire was done at one of the selected health facility.

Data was collected using exit structured questionnaire with closed ended questions which need spontaneous responses to assess the knowledge and practice on BPCR among eligible ANC attendees.

Each researcher (i.e. principal investigator and 3 researches assistant) had two facilities for data collection whereby data collection was done in one facility in a day. Therefore, data was collected in 4 facilities in a day in alternative days with a minimum of 20 respondents in total in a day from the 4 facilities. Data was collected for 4 weeks.

The questionnaire was adopted from the safe mother hood questionnaire developed by maternal and neonatal health program of JHPIEGO the affiliate of Johns Hopkins University, and modified according to the objectives of this study. The questionnaire had four parts.

Part one: Social demographic characteristics and obstetric characteristics

This part aim to gather the information on age, marital status, level of education and occupation, number of pregnancies, number of deliveries, if any abortions, number of living children, gestation age of the current pregnancy, expected date of delivery of the current pregnancy, and obstetric complication during previous pregnancies.

Part two: Knowledge on danger signs

Knowledge on danger signs during pregnancy, delivery and post delivery were asked. Those who mentioned at least a total of 3 obstetric danger sign during pregnancy, delivery and post delivery were regarded as “knowledgeable” the rest including those who did not mention anything were regarded as “less knowledgeable”

Part three: Knowledge on BPCR

On assessing knowledge of BPCR, only basic components were used as they are the one which are associated with the delays. Mothers were asked to mention the components of BPCR. Those who mentioned at least two of the five basic component of BPCR were regarded as “knowledgeable”, and the rest were regarded as “less knowledgeable” The five basic BPCR components which were considered includes, identifying the trained birth attendant, identifying health facility for emergency and delivery, identifying mode of transport for delivery and/or for obstetric emergency, saving money and identifying blood donor. Other components include, identifying someone to take care of the family in her absence, collection of essential items necessary for clean birth, and identifying a decision making family member to accompany the mother to the hospital were also included but not analyzed. The place of birth identified was categorized as health facility, home, TBA or other places. A birth attendant was regarded as either skilled or non skilled.

Part four: Practice on BPCR

The intention to practice BPCR among pregnant women was assessed. The assessment based on the number of components of BPCR intended to be followed by a pregnant woman during labor or emergency. Those who intended to follow at least four components of BPCR were regarded as “well prepared” and those who intended to follow less than four were regarded as” less prepared”

Data quality check was done by the principal investigator at the end of each day for completeness. The questionnaire with missing information of more than 20% was excluded. Data entry was done at the end of each day.

Definition of variables

All the variables were categorized during analysis into meaningful categories

Socio demographic characteristics

Age group was dichotomized into young age group ' ≤ 35 ' years and older group of ' > 35 ' years old. The level of education was categorized as 'illiterate' those who have at least completed primary school including those with no formal education, primary incomplete and primary complete and 'literate' for those who have acquired more than primary school including secondary school incomplete, secondary school complete and collage. Marital status was dichotomized into 2 categories coded as 'in marital union' including married and cohabiting and 'not in marital union' including single, divorced and widowed. Occupation status was categorized into 2 groups depending on the possibility of having regular income as 'employed' including employed women and petty traders and those with irregular income as 'not employed' including peasants and house wives.

Obstetrics characteristics

Gravidity was coded into 3 categories that is '1' '2-4' and ' ≥ 5 ', parity was categories into 2 i.e. ' < 4 ' and ' ≥ 4 ', gestation age into two groups preterm ' < 38 ' and term ' ≥ 38 '.

Previous pregnant complication, the most recent pregnant was considered.

Being knowledgeable on danger signs was considered for those who mentioned at least 3 danger signs during pregnancy, during labor or post delivery.

Knowledge of BPCR was considered for those who mentioned at least 2 components among the five basic components of BPCR

Well prepared for birth/Birth plan was considered for those who have planned or have an intention to follow at least 4 of the five basic steps of BPCR.

DATA ANALYSIS

Data was entered and analyzed by using SPSS windows version 16. Simple frequency distribution tables were created. Comparison of the proportion of women who had knowledge on BPCR and plan for birth by each category of the independent variables were done, and statistical significance was assessed using chi-square test whereby the P value of <0.05 was considered to be statistically significant. The net association of these variables with P value of < 0.2 was further analyzed using the logistic regression analysis. Odds ratio and 95% confidence intervals were computed using binary logistic regression analysis both bivariate and multivariate analysis.

ETHICAL CLEARANCE AND CONSIDERATION

Approval to conduct the study was obtained from MUHAS research and publication committee.

Permission to conduct the study was sought from RMO Singida then DMO Singida urban District who introduced the researchers to the RCH coordinator. The purpose of the study was explained to the nurses in charge of the selected RCH clinics.

Explanation was also given to the participants on the objectives of the study and that all the information provided was confidential. Participants were ensured that data collected would be used for research purpose only.

Both verbal and written consent was included in the study. To ensure confidentiality, women's names were not written on the questionnaires.

For the mothers who were unaware on BPCR, at the end of the interview education on BPCR was given and emphasis to practice was made.

Participation to the study was voluntarily and the participants were free to withdraw from the study at anytime when they feel so. The contact addresses were given to participant in case of any clarification or concern about the study.

RESULTS

A total of 1657 pregnant mothers attended ANC during the study period. Among them, 411 mothers were recruited for the study. Among those who were recruited 409 (99.5%) accepted to be interviewed while 2(0.5%) declined. Of those who accepted 405 were analyzed, and 4 were excluded from the study due to the language barrier, emergency obstetric complication (had spontaneous rupture of membrane), and missing information from the questionnaire.

TABLE 1: Socio-demographic and obstetric characteristics of the study population

Variables	N=405	%
Age		
≤35	366	90.4
>35	39	9.6
Education level		
Illiterate	256	63.2
Literate	149	36.8
Marital status		
Not in union	55	13.6
In union	350	86.4
Occupation		
Employed	96	23.7
Not employed	309	76.3
Gravidity		
1	106	26.2
2-4	234	57.8
≥5	65	16
Parity		
<4	349	86.2
≥4	56	13.8
Gestation age (wks)		
<38	369	91.1
≥38	36	8.9
*Previous obstetric problem		
Yes	75	25.6
No	218	74.4

*Primigravidae are excluded as they have no previous pregnancy

Table 1: Majority of the participants were aged less than 35 years old with a mean age of 25.8 and standard deviation of 6 years. Majority were illiterate and in marital union. More than three quarters were employed. Majorities were between gravida 2 and 4 and most of them had a gestation age of less than 38 weeks. Previous obstetric problem was reported in 25.6% of the respondents.

TABLE 2: Distribution of women with knowledge on obstetrics danger signs

Danger sign reported	Numbers	%
During pregnancy		
Vaginal bleeding	273	67.4
Swollen hands, face or both	188	46.4
Blurred vision	2	0.5
Severe headache	31	7.7
During labor and delivery		
Severe vaginal bleeding	46	11.4
Prolonged labor >12 hrs	6	1.5
Convulsions	2	0.5
Retained placenta	3	0.7
Post partum		
Severe vaginal bleeding	22	5.4
Foul smelling vaginal discharge	51	12.6
High fever	11	2.7
Knowledge of danger signs		
Yes	80	19.8
No	325	80.2

Multiple responses

Most frequently mentioned danger sign was vaginal bleeding during pregnancy. Other danger signs mentioned were swollen hands, face or both 46.4% followed by foul smelling vaginal discharge post partum 12.6%. Only 20% of the respondents were able to recognize at least three danger signs and these were regarded knowledgeable

Figure 1: Number of danger signs mentioned during pregnancy, labor and delivery and post partum with their percentages

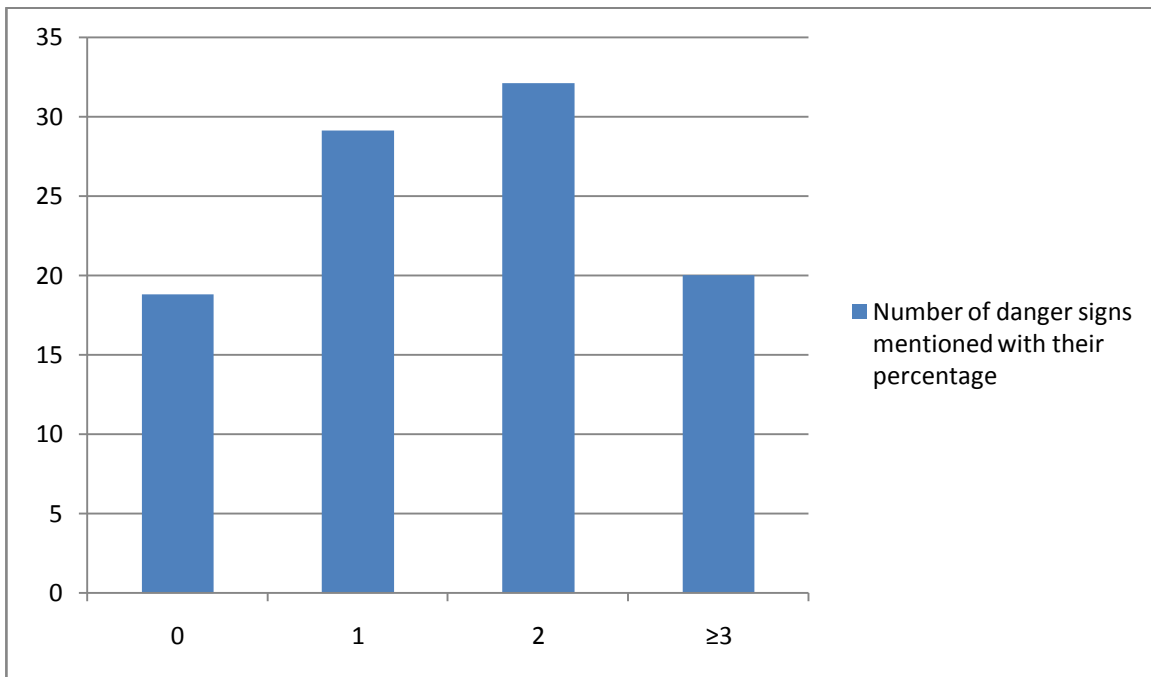


Figure 1 shows the number of danger signs mentioned by the respondents where by majority about 32% mentioned 2 danger signs. Twenty percent mentioned at least 3 danger signs and about 19% did not mention any of the danger sign.

TABLE 3: Distribution of women with knowledge on the components of BPCR

Variables	Number	Percentage (%)
Basic component of BPCR		
Preparations for place of birth.	52	12
Identifying transport in case of emergency and during labor	108	26.7
Identifying a skilled attendant at birth.	4	1
Saving money in case of emergence and labor	272	67.2
Identifying a blood donor.	60	14.8

Multiple responses

More than two third of the respondents identified that saving money in case of emergency or during labor is an important component of BPCR. Those who mentioned to identify means of transport were 26.7% and blood donor was mentioned by only 14.8%.With these findings only 36.5% of the respondents were regarded as knowledgeable on BPCR.

Figure 2: Number of basic components of BPCR mentioned with their percentages

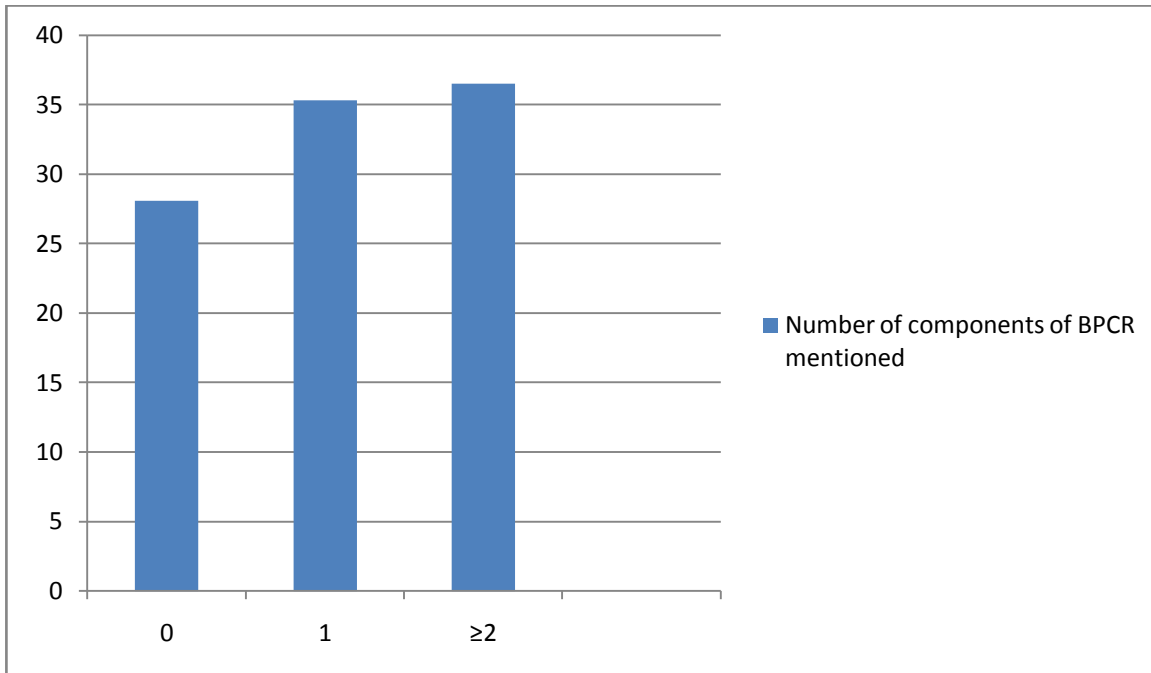


Figure 2 shows that more than 35% of the respondents mentioned at least two components of BPCR, however about 28% were not able to mention any of the components.

**TABLE 4: Frequency distribution of respondents with their intention to practice BPCR
(N=405)**

Variables	Numbers	%
Plan for a place of birth		
Yes	395	97.5
No	10	2.5
Place planned		
Health facility	385	97.5
Home	7	1.8
TBA	3	0.8
Plan for birth attendant		
Yes	364	89.9
No	41	10.1
Attendant chosen		
Doctor	24	5.9
Nurse	329	81.2
TBA	11	2.7
Family member	41	10.1
Category of the attendant chosen		
Skilled	353	87.2
Not skilled	52	12.8
Saving money in case of labor/emergency		
Yes	314	77.5
No	91	22.5
Arrangement for transport		
Yes	357	88.1
No	48	11.9
Type of transport arranged		
Tax	270	66.7
Public buses	9	2.2
Private car	43	10.6
Bicycle	4	1
Motorcycle	31	7.7
Arrangement for blood donors		
Yes	65	16
No	340	84
Women who are prepared for birth		
Yes	276	68.1
No	129	31.9

Table 4 shows that; 97.5% of the respondents intend to be delivered in the health facilities. More than 75% of the respondents report an intention to save money in case of labor or any obstetrics emergency. Majority had an intention to arrange for transport ahead of labor or an emergency while only 16% intended to arrange someone to donate blood in case of its need.

Figure 3: Number of basic components of BPCR intended to be followed by the pregnant mothers with their percentages

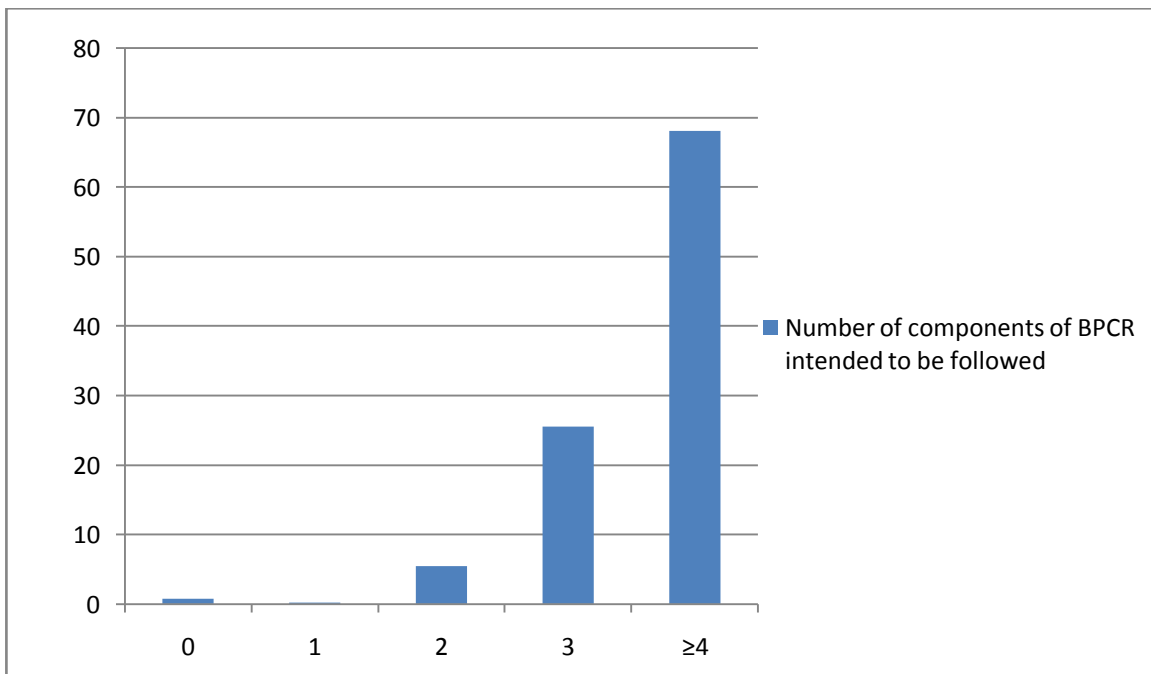


Figure 3 show that 68.1% of the pregnant mothers intend to follow at least 4 of the 5 basic components of BPCR.

Table 5: 'Bivariate' and 'multivariate' logistic regression analysis of likelihood of the woman to be knowledgeable on danger signs (N=405)

Variables	Total	Knowledgeable		Univariate	Multivariate
	N=405	n=80	%	OR(95%CI)	OR(95%CI)
Age					
≤35	366	71	19.4	1	1
>35	39	9	23.1	1.2(0.5-2.7)	1.3(0.4-3.7)
Education level					
Literate	149	30	20.1	1	1
Illiterate	256	50	19.5	1.1(0.7-1.7)	1.9(0.9-4.0)
Marital status					
In union	350	63	18.0	1	1
Not in union	55	17	30.9	2.0(1.1-3.8)	0.7(0.3-2.1)
Occupation					
Employed	96	22	22.9	1	1
Not employed	309	58	18.8	0.8(0.4-1.3)	0.4(0.2-0.8)
Parity					
<4	349	66	18.9	1	1
≥4	56	14	25.0	1.4(0.7-2.7)	1.2(0.5-2.9)
Gestation age					
≥38	36	6	16.7	1	1
<38	369	74	20.1	1.2(0.5-3.2)	1.9(0.6-6.6)
*Previous obstetric problem					
Yes	75	20	26.7	1.7(1.0-3.1)	2(1.1-4.0)
No	218	39	17.9	1	1

*Primigravidae are excluded as they have no previous pregnancy

Women who are employed and those who have obstetric problems during the previous pregnancy seem to be more likely to be knowledgeable on danger signs as compared to those who are not employed and those who had no any problem during previous problem both in univariate and multivariate analysis.

Table 6: 'Univariate' and 'multivariate' logistic regression analysis of a likelihood of a woman to be knowledgeable on BPCR (N=405)

Variables	Total	Knowledgeable		Univariate	Multivariate
	N=405	n=148	%	OR(95%CI)	OR(95%CI)
Age					
≤35	366	133	36.3	1	1
>35	39	15	38.5	1.1(0.6-2.2)	1.5(0.5-4.2)
Education level					
Literate	149	56	37.6	1	1
Illiterate	256	92	35.9	0.9(0.6-1.4)	1.3(0.7-2.6)
Marital status					
In union	350	109	31.1	1	1
Not in union	55	39	70.9	5.3(2.9-10.0)	6.2(2.5-15.3)
Occupation					
Employed	96	45	46.9	1	1
Not employed	309	103	33.3	0.5(0.4-0.9)	0.3(0.2-0.6)
Parity					
<4	349	132	37.8	1	1
≥4	56	16	28.6	0.6(0.3-1.2)	0.5(0.2-1.2)
Gestation age (wks)					
≥38	36	19	52.8	1	1
<38	369	129	35.0	0.5(0.2-0.9)	0.2(0.1-0.5)
Knowledge of danger signs					
No	325	97	29.8	1	1
Yes	80	51	63.8	3.9(2.4-6.6)	3.9(2.0-7.5)
*Previous obstetric problem					
Yes	75	32	42.7	1	1
No	218	66	30.3	0.6(0.3-1.0)	0.7(0.4-1.3)

*Primigravidae are excluded as they have no previous pregnancy

Of all the independent variables only marital status, occupation, gestation age and the knowledge of danger signs have shown an association with the knowledge of BPCR. Mothers who are not in marital union are 5 times more likely to be knowledgeable on BPCR as compared to those who are in marital union. Those who are knowledgeable on danger signs, employed and those with gestation age ≥38 weeks are more knowledgeable on BPCR compared to their counterpart.

Table 7: 'Univariate' and 'multivariate' logistic regression analysis of the likelihood of the woman to be well prepared for birth (N=450)

Variables	Total	Well prepared		Univariate	Multivariate
	N=405	n=276	%	OR(95%CI)	OR(95%CI)
Age					
≤35	366	253	69.1	1	1
>35	39	23	59.0	0.6(0.3-1.2)	0.4(0.1-1.1)
Education level					
Literate	149	92	61.7	1	1
Illiterate	256	184	71.9	1.6(1.0-2.4)	2.2(1.2-4.2)
Marital status					
In union	350	245	70.0	1	1
Not in union	55	31	56.4	0.5(0.3-0.9)	0.4(0.2-0.9)
Occupation					
Employed	96	65	67.7	1	1
Not employed	309	211	68.3	1.0(0.6-1.6)	0.8(0.4-1.6)
Parity					
<4	349	236	67.6	1	1
≥4	56	40	68.3	1.1(0.6-2.2)	1.3(0.5-3.1)
Gestation age (wks)					
≥38	36	22	61.1	1	1
<38	369	254	68.8	1.4(0.6-2.8)	1.4(0.5-3.8)
*Previous obstetric problem					
Yes	75	42	56.0	1	1
No	218	161	73.9	2.2(1.3-3.8)	1.7(1.0-3.1)
Knowledge of danger signs					
Yes	80	49	61.2	1	1
No	325	227	69.8	0.6(0.4-1.1)	1.3(0.6-2.5)
Knowledge on BPCR					
Yes	148	94	63.5	1	1
No	257	182	70.8	1.4(0.9-2.1)	1.2(0.7-2.3)

*Primigravidae are excluded as they have no previous pregnancy

Table 7: The level of education, the marital status and the history of problem in previous pregnant has been associated with well preparedness for birth. Mothers who are illiterate, in marital union and those with problems in the previous pregnancy are more likely to be associated with well preparedness for birth.

DISCUSSION

Recognition of obstetric danger sign is an important factor in seeking health care therefore, lack of basic information and awareness of obstetric danger sign is associated with delays[7].In this study less than a quarter of participants were able to recognize at least three obstetric danger signs during pregnancy, labor and post partum. These were considered to be knowledgeable. About two thirds of women recognized vaginal bleeding as a danger sign. The knowledge of danger sign was significantly associated with history of problems in a previous pregnancy. The lower level of knowledge on danger sign indicates that the key danger signs are not emphasized during ANC despite the fact that 96% of all pregnant mothers make at least one visit[2].These findings differ from those found in the study done in rural Tanzania which showed that higher level of education was the most important predictive factor to recognize danger signs[18]. These differences may be explained by the fact that the previous study was a community based with relatively large sample size as compared to the current study.

In this study, one third of pregnant mothers were knowledgeable on BPCR. The knowledge of BPCR was found to be statistically associated with occupation status, gestation age, marital status and the knowledge of danger signs. Pregnant mothers who were knowledgeable on danger signs were four times more likely to be knowledgeable on BPCR as compared to those who were less knowledgeable on danger signs.

Identification of place of delivery is very important especially in low resource setting where the main means to get a skilled provider and emergency obstetric care services is to deliver at health institutions [16].In this study, only 12% of the pregnant mothers knew that identifying place of birth is an important component of BPCR though more than 90% report to have an intention to be delivered in the health facility. This may not be the real practice as only 50% of pregnant mothers deliver in the facility according to TDHS 2010.Pregnant mothers may report intention to practice BPCR but may not practice it. This is one of the limitations of this study. These findings are similar to those found in the central zone of Tanzania that more than 90% of mothers had identified place of delivery. However, these

were higher compared to the findings reported from others studies in Africa [16, 20, 21, 24]. Home delivery in this study was found to be very low which can be explained by the study setting. However other studies on BPCR showed that more than half of the respondents had a plan to deliver at home[24, 26].

About one out of four women identified the means of transport to the place of delivery in case of labor or any obstetric complication. The most common means of transport identified by about two thirds of the women were taxi. This proportion is high compared to that found on the study done in Northern and Southern Ethiopia which showed only less than ten percentage of women had made an arrangement for transport[16, 24].This can be explained by the differences in study design that the two studies were community based study in rural areas. However relatively higher proportions were reported in the study done in Burkina Faso where more than half of the women had an arrangement for transport[3]. Arranging transport ahead of time reduces the delay in reaching services. This is due to the fact that, even when money is available, it can be difficult to secure transport after a complication has occurred[27].The patient's condition can deteriorate with increasing delays in reaching a treatment facility, making the condition more difficult to treat once the facility is reached as compared to when the transport is readily prepared [6].

In this study, only 1% of the women knew that identifying skilled birth attendant is an important component of BPCR. However, majority of them more than three quarters had an intention to be delivered by skilled birth attendant and only few intends to be delivered by TBA. However, TBA deliveries were found to be high in the study done in India and rural Tanzania [21, 26]. This can be explained by the fact that in our setting where there is a shortage of skilled health attendants and disappointing health services in the facilities, whoever is available in the facility or at home do attend the mothers.

Saving money ahead of labor or any other obstetric complication is among the most important factors in reducing the delays which are thought to be associated with maternal mortality and morbidities. In this study, more than two thirds of the respondents recognize that saving money is a crucial component of BPCR and more than three quarters of them

report having saved some amount of money for birth or any obstetric complication. These findings are similar to those found in other studies done on BPCnR where by majority saved money[21, 26, 28]. Different findings were also reported on other studies whereby, the proportions of those who saved money was relatively lower[12, 16, 24]. High proportion of women who saved money signifies that women knew that money is required to pay for health services and supplies, as well as for transport and other unforeseen cost[6].

Making arrangements for blood donors is important because women giving birth may need blood transfusions in the event of hemorrhage or cesarean section. A survey done in Tanzania showed that 59% of the districts reports to have a shortage of blood supply to meet the demand for blood transfusion[29]. In this study, about 15% of women mentioned that identifying a blood donor is among the components of BPCR and hence planned someone to donate blood in case there is a need. These findings were relatively higher compared to those found in other studies [24, 26]. However, a study done in Kenya showed that more than a quarter of mothers had identified blood donors. Lower proportions imply that less emphasis is given by health care providers on identifying blood donors by pregnant mothers. Unavailability of blood limits individuals' access to lifesaving management [6] therefore, blood donating systems at the community level can help to overcome problems related with access to blood[7, 30].

In this study, two third of the mothers were well prepared for birth that means, they had an intention to follow at least four of the five components of BPCR. This proportion is relatively high compared to that found in the studies done in Ethiopia which showed that less than a quarter of pregnant mothers were prepared for birth[16, 24]. This study revealed that women in marital union were found to be more likely to have a birth plan as compared to those who are not in marital union. This could be explained by the fact that support provided by the partners is essential for preparation of birth. Pregnant mothers who had problems in the previous pregnancy were found to be two times more likely to be well prepared for birth as compared to those who had no previous obstetric problems. Surprisingly mothers who are illiterate were also found to be more likely to be prepared than those who are literate. Other

independent factors like age of the mother, occupation, parity and gestation age were found to have no association with well preparedness for birth. Apparently the knowledge of danger sign and knowledge of BPCR were not associated with well preparedness for birth.

CONCLUSION

The study has revealed the low level of knowledge on danger sign and relatively low level of knowledge on BPCR among pregnant women attending ANC clinics. Despite these findings, encouragingly majority of mothers had a birth plan. Since it's obvious from the statistics that almost all pregnant women make at least one ANC visit therefore, it is high time for the health care providers to use that opportunity to give proper education on both the knowledge of danger sign and BPCR which seems to go hand in hand.

RECOMMENDATIONS

Education on the knowledge of danger sign and BPCR should be provided in different levels, including an individual pregnant mother, the husband/partner, the family, and the community at large.

Improvement of health care services may increase the proportion of facility deliveries.

REFERENCES

1. WHO, *Maternal mortality in 2000: estimates developed by WHO, UNICEF and UNFPA*. Geneva: World Health Organization. 2004: 36.
2. TDHS, *Preliminary Report, National Bureau of statistics Dar es Salaam, Tanzania*. 2010, ICF Macro Calverton: USA.
3. Allisyn, C.M., Gabriel Sangli, Rebecca Dineen, Barbara Rawlins, Mathias Yaméogo, and Banza Baya, *Birth-Preparedness for Maternal Health: Findings from Koupéla District, Burkina Faso*. JHEALTH POPULNUTR, 2006. 24(4): 489-497.
4. UNICEF, *State of the world's children, 2008: Child survival*. 2007: New York.
5. JHPIEGO, *Monitoring birth preparedness and complication readiness: tools and indicators for maternal and newborn health*. 2004.
6. Thaddeus S, M.D., *Too far to walk: maternal mortality in context*. Social Science and Medicine, 1994. 38: 1091–1110.
7. JHIPEGO, *Maternal and neonatal health (MNH) program. Birth preparedness and complication readiness: A Matrix of shared responsibilities*. 2001: 1377–1386.
8. MoHSW, *Learners Guide on Reproductive and Child Health: Ministry of Health and Social welfare, The United Republic of Tanzania*. 2010.
9. Sood S, C.U., Mishra P, Neupane S., *Measuring the effects of behavior change interventions in Nepal with population-based survey results. Maternal and neonatal health*. Johns Hopkins Bloomberg school of Public Health, 2004.
10. Mulogo, E.M.W., K., Bajunire, F., *Birth plans and health facility based delivery in rural Uganda*. East Afr. Med. J, 2006. 83: 74-83.
11. Moke, M.J.R., Oona MR Campbell, Simon Cousens, Veronique Filippi, *High ANC coverage and low skilled attendance in a rural Tanzanian district: a case for implementing a birth plan intervention*. BMC Pregnancy and Childbirth, 2010. 10(13): 1471-2393.
12. Mutiso, S.Q.Z., Kinuthia J., *Birth preparedness among antenatal clients*. Afr J Reprod Health, 2008. 12(3): 71-92.

13. Olufemi. T.; Oladapo, C.A.I.a.A.O.S.-O., *Quality of Antenatal Services at the Primary Care Level in Southwest Nigeria*. Afr J Reprod Health, 2008. 12(3): 71-92.
14. Othman, K.D.K., and Michael O Osinde, *Male involvement in birth preparedness and complication readiness for emergency obstetric referrals in rural Uganda*. Reprod Health, 2011. 8: 12.
15. WHO, *Birth and Emergency preparedness in Antenatal care. Intergrated Management of Pregnant and Childbirth {IMPAC}.Standards for Maternal and Neonatal Care 1.9: Department of Making Pregnancy Safer*. 2006.
16. Mihret, H.M.F., *Birth Preparedness and Complication Readiness among women in Adigrat town, north Ethiopia*. Ethiop.J.Health Dev, 2007. 22(1): 14-20.
17. Pembe, A., D.P. Urassa., and A. Carlstedt., *Rural Tanzanian women's awareness of danger signs of obstetric complications*. BMC Pregnancy and Childbirth, 2009. 9: 12.
18. Pembe., A., D.P. Urassa., and A. Carlstedt., *Rural Tanzanian women's awareness of danger signs of obstetric complications*. BMC Pregnancy and Childbirth, 2009. 9: 12.
19. Onayade, A.A.O., Okunola HA, Oyeniyi CF, Togun OO, Sule SS, *Birth preparedness and emergency readiness plans of antenatal clinic attendees in Ile-ife, Nigeria*. Niger Postgrad Med J, 2010. 17(1): 30-9.
20. Ekabua, J.K.J.E., Patience Odusol, *Awareness of Birth Preparedness and Complication Readiness in Southeastern Nigeria*. ISRN Obstetrics and Gynecology, 2011. 2011.
21. Agarwal, S., et al., *Birth preparedness and complication readiness among slum women in Indore city, India*. J Health Popul Nutr, 2010. 28(4): 383-91.
22. Mrisho, M.S.J., Mushi AK, Obrist B, Mshinda H, Tanner M, Schellenberg D, *Factors affecting home delivery in rural Tanzania*. Trop Med Int Health, 2007. 12: 862-872.
23. Bicego, G.C.S., Raggars H, Kapiga S & Ngallaba S *Sumve survey on adult and childhood mortality, Tanzania, 1995: in-depth study on estimating adult and childhood mortality in settings of high adult mortality*. 1997, Macro International, Demographic and Health Surveys [DHS]: Calverton, Maryla.

24. Hailu, M.A.G., Fissehaye Alemseged, Kebede Deribe, Sidam., *Birth Preparedness and Complication Readiness among Pregnant Women in Southern Ethiopia*. PLoS ONE, 2011. 6(6).
25. Van Lerberghe W, D.B.V., *Of blind alleys and things that have worked: history's lessons on reducing maternal mortality*. 2001. 7–33.
26. Mganga, F.D.U.a.A.P., *Birth Preparedness and ion Readiness among women in Mpwapwa District, Tanzania*. Tanzania Journal of Health Research, 2012. 14(1).
27. Khanum P, Q.M., Islam A, Ahmed S., ICDDR, B, *Complications of pregnancy and childbirth: Knowledge and practices of women in Rural Bangladesh*. Centre for health and population research, 2000(131).
28. Kabakyenga, J.K., et al., *Knowledge of obstetric danger signs and birth preparedness practices among women in rural Uganda*. Reprod Health, 2011. 8: 33.
29. MoHSW, *Tanzania Service Availability Mapping 2005–2006; Ministry of Health and Social Welfare and WHO*. 2006. 33-34.
30. United Republic of Tanzania, Ministry of Health and Social Welfare .*The National Road Map Strategic Plan To Accelerate Reduction of Maternal, Newborn and Child Deaths in Tanzania 2008 - 2015*. April 2008
31. Z Iliyasu, I.A., HS Galadanci, MH Aliyu, *Birth preparedness, complication readiness and fathers' participation in maternity care in a northern Nigerian community*. African Journal of Reproductive Health, 2010. 14(1): 22.

APPENDICES

QUESTIONNEIRE

English version

Questionnaire number.....Name of the facility.....

Date of interview.....Name of interviewer.....

Interviewer: Circle all the responses. Do not read the responses

PART A: SOCIO DERMOGRAPHIC AND OBSTETRICS CHARACTERISTICS

1	Age		...	
			...	
2	Religion	Christian	1	
		Muslim	2	
		Others	3	
3	What is your current marital status	Single	1	
		Married	2	
		Divorced	3	
		Widowed	4	
		Cohabiting	5	
4	What is your highest level of education?	No formal education	1	
		Primary education incomplete	2	
		Primary education complete	3	
		Secondary education incomplete	4	
		Secondary education complete	5	
		College	6	
5	What is your current occupation?	House wife	1	
		Petty trader	2	
		Employed	3	
		Peasant	4	
6	Which gravida are you?		...	
			...	
7	Parity		...	
			...	
8	Do you have any history of abortion?	Yes	1	
		No	2	
9	How many living children do you have?		...	
			...	
10	What is the gestation age?(weeks)		...	Conf
			....	irm
				in
				the

				AN C card
11	Did you get any obstetric problem during previous problem?(Recent previous)	Yes No	1 2	Go to 13
12	Which problem did you get?	Anaemia Malaria Hypertension Vaginal bleeding Others.....	1 2 3 4 5	
PART B: KNOWLEDGE OF DANGER SIGN DURING PREGNANCY, LABOUR AND POSTPARTUM				
13	Do you know any of the danger sign during pregnancy? Mention	Vaginal bleeding Swelling of the face/ hand or both Blurred vision Severe headache Cessation of fetal movement	1 2 3 4 5	
14	Do you know any of the danger sign during labour and delivery? Mention	Severe vaginal bleeding Prolonged labour of >12 hours Convulsions Retained placenta	1 2 3 4	
15	Do you know any of the danger sign post delivery? Mention	Severe vaginal bleeding Foul smelling vaginal discharge Fever	1 2 3	
16	Number of danger sign mentioned	0 1 2 3 >3	1 2 3 4 5	
PART C: KNOWLEDGE ON BIRTH PREPAREDNESS AND COMPLICATION READINESS (BPCR)				
17	Do you know your EDD?	Yes No	1 2	Conf irm in the AN C card
18	How many times did you plan to attend ANC clinic?	Once As scheduled by my provider	1 2	

		Only when am sick	3	
18	How many visits have you made so far?	1 2 3 4 >4	1 2 3 4 5	
19	Do you know what BPCR is?	Yes No	1 2	Go to 23
20	What does BPCR comprise? (Basic components)	Identifying place of birth Identifying transport Identifying skilled attendant Saving money Identifying blood donor	1 2 3 4 5	
	(Other components)	Identifying someone to take care of my family in my absence To identify essential items for clean birth To identify a decision maker in the family who will escort me to the health facility	6 7 8	
22	Number of basic component mentioned	0 1 2 ≥3	1 2 3 4	Mentioned option 1,2,3,4,&5 of question 21
PART D: PRACTICE ON BPCR				
23	Have you identified a place of birth?	Yes No	1 2	Go to 25
24	If Yes, where did you plan to deliver?	Health facility Home TBA Others	1 2 3 4	
25	If no, why?	The facility is far from here No transport to the facility It expensive to deliver to a facility	1 2 3	

		Health services provided are poor I will be helped by my relative	4 5	
26	Have you identified a transport to the place of delivery in case of labour or emergencies?	Yes No	1 2	Go to 29
27	If Yes, what type of transport have you identified?	Tax Public transport Private transport Bicycle Motor cycle Others	1 2 3 4 5 6	
28	How much does it cost from your place to the place of delivery for the chosen transport?	Tax Public transport Private transport Bicycle Motor cycle Others	1 2 3 4 5 6	Check for the type of transport 27
29	Have you identified a skilled health provider?	Yes No	1 2	Go to 32
30	If Yes, who have you planned?	Doctor Nurse TBA Relative	1 2 3 4	
31	Check the identified provider, if	Skilled (1 or 2) Not skilled (3or 4)	1 2	
32	If no, why?	They are readily available I have no money to pay them Others	1 2 3	
33	Have you saved money?	Yes No	1 2	Go to 36
34	How much have you planned to save?		... ....
35	How much have you saved so far?		... ....
36	If no, why??	I have got no money to save I can get money all the time The time to save is not yet	1 2 3	

		Others.....	4	
37	Have you planned someone to donate blood for you?	Yes No	1 2	
38	Check the basic component planned	<4 ≥4	1 2	
39	Have you planned someone to escort you to the facility during labor or any complication?	Yes No	1 2	Go to 41
40	If Yes, who have you planned?	Husband Relative TBA Others	1 2 3 4	
41	Have you prepared essential item for clean birth?	Yes No	1 2	Go to 43
42	If Yes, which item have you prepared?	Gloves Cotton wool Cord tie Piece of clothes Oxycitocic agent Others.....	1 2 3 4 5 6	
43	If no why?	We are told that are available for free I have no money to prepare It is not allowed to prepare Time to prepare is not yet Others.....	1 2 3 4 5	

THANK YOU FOR YOUR PARTICIPATION

Swahili version**DODOSO**

Namba ya dodoso.....Jina la kituo.....

Tarehe ya usahili.....Jina la Msahili.....

Msaili: Zungushia majibu yote atakayotaja mama. Usisome majibu.

SEHEMU A: TAARIFA ZA MAMA ZA JUMLA NA TAARIFA ZA UJAUZITO

1	Umri wa mama		.....
2	Wewe ni dini gani?	Mkristu Muislamu Nyingine	1 2 3	
3	Hali yako ya ndoa ya sasa ikoje?	Sijaolewa Nimeolewa Nimetalikiwa Mjane Ninaishina bwana	1 2 3 4 5	
4	Kiwango chako cha juu cha elimu ni kipi?	Sijasoma Sijamaliza shule ya msingi Nimemaliza shule ya msingi Sijamaliza shule ya sekondari Nimemaliza shule ya sekondari Chuo	1 2 3 4 5 6	
5	Kazi yako kwa sasa ni nini?	Mama wa nyumbani Biashara ndogo ndogo Muajiriwa Mkulima	1 2 3 4	
6	Hii ni mimba yako ya ngapi?		.....
7	Je, umeshazaa mara ngapi?		.....
8	Je, kuna mimba ilishawahi kuharibika?	Ndiyo Hapana	1 2	
9	Je, una watoto wangapi walio hai?		.....
10	Umri wa mimba(wiki)		.....	Hakikisha kwenye kadi
11	Je, ulipata matatizo yoyote katika mimba iliyotangulia?(inayofuatana na hii)	Ndiyo Hapana	1 2	Nenda swali la 13
12	Ulipa tatizo gani?	Upungufu wa damu Malaria Shinikizo la damu Kutokwa damu Mengineyo	1 2 3 4 5	

SEHEMU B: UFAHAMU WA VIDOKEZO VYA HATARI WAKATI WA MIMBA, KUJIFUNGUA NA BAADA YA KUJIFUNGUA			
1 3	Unafahamu vidokezo vya hatari wakati wa ujuzito.Taja	Kutoka damu ukeni Kuvimba mikono/miguu au vyote Kutokuona vizuri Kuumwa sana kichwa Mtoto kuacha kucheza	1 2 3 4 5
1 4	Unafahamu vidokezo vya hatari wakati wa uchungu na kujifungua.Taja	Kutokwa na damu nyingi ukeni Kuumwa uchungu zaidi ya masaa 12 Kupata degedege Kondo la nyuma kuchelewa kutoka	1 2 3 4
1 5	Unafahamu vidokezo vya hatari baada ya kujifungua.Taja	Kutokwa na damu nyingi ukeni Kutokwa na majimaji machafu yenye harufu Homa kali	1 2 3
1 6	Idadi ya vodokezo vilivyotajwa na mama	0 1 2 3 >3	1 2 3 4 5
SEHEMU C: UFAHAMU NA UELEWA WA MPANGO BINAFSI WA KUJIFUNGUA(MBK) NA UTAYARI WA KUKABILIANA NA MATATIZO(UKM)			
1 7	Je,unajuatareheyamakadirioyakoyakujifungua?	Ndiyo Hapana	1 2 Hakikishakwenyekadi
1 8	Je,umepangakuhudhuriaklinikimarangapi?	Mara mojata Kadirinitakavyopangiwanamhudumu Nikiwamgonjwa	1 2 3
1 8	Je,umeshahudhuriaklinikimarangapi?	1 2 3 4 >4	1 2 3 4 5
1 9	Je,unafahamu MBK na UKM?	Ndiyo Hapana	1 2 Nendaswali la 23
2	Je.MBK na UKM unajumuisha nini?	Kutambua sehemu ya kujifungua	1

0		Kuandaa usafiri utakao tumika wakati wa uchungu na wakati wa dharura Kutambua mtu atakae hudumia familia wakati mimi sipo Kuandaa pesa kwa ajili ya dharura au wakati wa kujifungua Kuandaa mtu wa kunitolea damu wakati itakapohitajika	2 3 4 5	
		Kutambua mtu atakae hudumia familia wakati mimi sipo Kuandaa mahitaji muhimu kwa ajili ya mama na mtoto wa kati wa kujifungua Kutambua mtu mwenye uwezo wa kufanya maamuzi katika familia atakaenisindikiza kituoni	6 7 8	
2 2	Idadi ya vipengele muhimu vya MBK na UKM vilivyotajwa	0 1 2 ≥3	1 2 3 4	Swali 21 chagu o 1,2,3, 4,&5
SEHEMU D:UTEKELEZAJI WA MBK na UKM				
2 3	Je, umepanga sehemu ya kwenda kujifungua?	Ndiyo Hapana	1 2	Nenda a 25
2 4	Kama ndiyo, wapi umepanga kwenda kujifungua?	Kituo cha afya Nyumbani Kwa mkunga wa jadi Kwingineko	1 2 3 4	
2 5	Kama hapana, ni kwanini?	Kituo kipo mbali na nyumbani Hakuna usafiri Gharama za huduma ni ghali Huduma za afya ni duni Nitasaidiwa na ndugu yangu	1 2 3 4 5	
2 6	Je, umeandaa usafiri kwa ajili ya dharura au wakati wa uchungu?	Ndiyo Hapana	1 2	Nenda a 29
2 7	Kama ndio ni aina gani ya usafiri umeandaa?	Tax Mabasi ya abiria Usafiri binafsi Baiskeli Pikipiki	1 2 3 4 5	

		Nyinginezo.....	6	
2 8	Ni gharama kiasi gani kutoka mahali unapoishi mpaka sehemu ya huduma kwa usafir iulochagua?	Tax Mabasi ya abiria Usafiri binafsi Baiskeli Pikipiki Nyinginezo.....	1 2 3 4 5 6	Angalia usafiri aliochagua swali la 27
2 9	Je, umemuandaa mtaalamu mwenye mafunzo atakaye kusaidia wakati wa uchungu au dharura	Ndiyo Hapana	1 2	Nenda 32
3 0	Kama ndiyo, ni nanai uliyemuandaa?	Daktari Muuguzi Mkungawajadi Ndugu	1 2 3 4	
3 1	Angalia kama mtu aliyeandaliwa ni;	Mtaalamu mwenye mafunzi(1 au 2) Sio mtaalamu mwenye mafunzo(3au 4)	1 2	
3 2	Kama hapananikwanini?	Wanapatikana kila wakati Sina pesa za kuwalipa Nyinginezo	1 2 3	
3 3	Je,umeandaa pesa kwa ajili ya dharura au wakati wa uchungu?	Ndiyo Hapana	1 2	Nenda 36
3 4	Umepanga kuandaa kiasi gani?		.... .
3 5	Mpaka sasa umeandaa kiasi gani?		.... .
3 6	Kama hapana ni kwa nini?	Sijapata fedha za kuhifadhi Ninaweza kupata fedha muda wote Muda wa kuhifadhi haujafika Nyinginezo.....	1 2 3 4	
3 7	Je, umemuandaa mtu wa kukutolea damu kama ikihitajika?	Ndiyo Hapana	1 2	
3 8	Angalia vipengele muhimu alivyopanga kujiandaa	<4 ≥4	1 2	
3 9	Je,umeandaa mtu wa kukusindikiza kwenye kituo cha huduma za afya wakati wadharura au wakati wa uchungu?	Ndiyo Hapana	1 2	Nenda 41
4	Kama ndiyo, ni nani ulitemuandaa?	Mume	1	

0		Ndugu Mkungawajadi Mwingine.....	2 3 4	
4 1	Je, umeandaa vifaa muhimu kwa ajili ya uzazi salama wakati wa kujifungua?	Ndiyo Hapana	1 2	Nenda 43
4 2	Kama ndiyo, ni vifaa gani umeandaa?	Glovu Pamba Kibanakitovu Kanga Dawa za kuzuia kutokwa damu Vinginevyo.....	1 2 3 4 5 6	
4 3	Kama ni hapana ni kwa nini?	Tumeambiwa vifaa vinapatikana bure Sina pesa za kuandaa Ni vibaya kuandaa mapema Muda wa kuandaa bado haujafika Nyinginezo.....	1 2 3 4 5	

ASANTE KWA KUSHIRIKI

CONSENT FORM FOR PARTICIPATION IN A STUDY

English version

Title:

KNOWLEDGE AND PRACTICE ON BIRTH PREPAREDNESS AND COMPLICATION READINESS AMONG PREGNANT WOMEN AT SINGIDA URBAN DISTRICT

Foreword

I am Dr. Caroline Damian, a postgraduate student at MUHAS conducting a study on Knowledge and Practice on Birth Preparedness and Complication Readiness among pregnant women at Singida Urban District.

How to participate

Interview will be conducted between the investigator and the woman who attends the ANC. The participation is not compulsory, meaning that a woman is free to accept or refuse to be involved in the study without affecting the routine ANC services provided. In case of noted poor knowledge on BPCR, proper information will be given to client.

Purpose of the Study

The study will help us to assess the level of knowledge and practice on Birth Preparedness and complication readiness among pregnant women attending ANC services as the most important tool in reducing delays during labour or during an obstetric complication. The study has the permission from Muhimbili University (MUHAS), the Senate Research and Publication committee.

Risks

The study will not cause any harm to the women participating.

Signing of the consent

If you agree to participate in this study please sign in this consent form.

I have read and understood the contents of this form and I have been given satisfactory explanation with all my questions answered. I therefore consent to participate in this study.

Signature of participant..... Date

Signature of researcher/ research assistant.....Date.....

For more information or clarification you may contact one of the Doctors mentioned below;

Dr. Caroline Damian Phone number 0713 552738 Prof. Muhsin Aboud, Research chairperson. Phone number 2150302

Swahili version**FOMU YA RIDHAA YA KUSHIRIKI KATIKA UTAFITI****Kichwa cha Habari:****UELEWA NA UTEKELEZAJI WA MPANGO BINAFSI WAKUJIFUNGUA NA UTAYARI WA KUKABILIANA NA MATATIZO KWA WAKINAMAMA WAJAWAZITO WILAYA YA SINGIDA MJINI.**

Kwa mwanamke anayehudhuria kiliniki ya wajawazito

Utangulizi

Mimi Dk. Caroline Damian ni mwanafunzi wa shahada ya uzamili Chuo Kikuu cha Afya na Sayansi Shirikishi Muhimbili nafana Utafiti kuhusu, Uelewana utekelezaji wa Mpango binafsi wakujiifungua na utayari wakukabiliana na matatizo (MBK na UKM) kwa wa kinamama wajawazito wilaya ya Singida Mjini.

Taratibu za kushiriki

Kina mama wajawazito wote wanaohudhuria kliniki ya Afya ya uzazi watashiriki. Ushiriki kwenye utafiti huu ni wa hiari kabisa, hivyo mshiriki ana hiari ya kukataa au kukubali, na hii haitaathiri huduma anazopatiwa katika kituo hiki. Kila mshiriki ataelimishwa endapo kutajitokeza mapungufu katika uelewa wa MBK na UKM, elimu sahihi itatolewa.

Dhumuni la Utafiti

Utafiti huu utasaidia kujua kiwango cha uelewa na utekelezaji wa Mpango Binafsi wa kujifungua na utayari wa kukabiliana na matatizo miongoni mwa wakina mama wajawazito wanaohudhuria kliniki ya uzazi ikiwa ni nyenzo muhimu katika kupunguza uchelewaji wa kupata huduma za afya wakati wa uchungu na wakati wa vidokezo vya hatari. Utafiti huu umepata kibali kutoka kwa kamati ya jopo la madaktari wa Chuo kikuu cha Tiba cha Muhimbili

Madhara

Utafiti huu hautasababisha madhara yoyote katika kupata huduma katika kituo hiki.

Kukubali kushiriki

Ukikubali kushiriki tafadhali thibitisha kwa kujaza na kusaini sehemu ya fomu hii hapa chini.

Nimesoma/nimesomewa na kuelewa yaliyomo kwenye fomu hii na maswali yangu yote yamejibiwa vizuri .Hivyo ninakubali mwenyewe kwa hiari yangu bila kushurutishwa au kushawishiwa kushiriki katika utafiti huu.

Sahihi _____ ya _____ mshiriki.....

Tarehe.....

Sahihi ya mtafiti/mtafiti msaidizi.....

Tarehe

Kwa ufafanuzi au maelezo zaidi waweza kuwasiliana na mmoja kati ya madaktari wafuatao.

Dk. Caroline Damian simu namba 0713 552738

Prof. Muhsin Aboud ,Mwenyekiti wa kamati ya utafiti. Simu namba 2150302-6