



**KNOWLEDGE OF DANGER SIGNS DURING PREGNANCY AND SUBSEQUENT
HEALTH SEEKING ACTIONS AMONG WOMEN IN KINONDONI
MUNICIPALITY, TANZANIA**

BY

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DECLARATION

“This study is original and has not been submitted for any other degree award to any other University before”.

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This dissertation titled “*Knowledge of Danger Signs during Pregnancy and Subsequent Health Seeking Actions among Women in Kinondoni Municipality, Tanzania*” has been submitted for examination with the approval of the following supervisors:

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LIST OF ABBREVIATIONS

AIDS: -	Acquired Immune Deficiency Syndrome
ANC: -	Antenatal Care
HBM: -	Health Belief Model
HIV: -	Human Immunodeficiency Virus
MDG: -	Millennium Development Goal
NBS: -	National Bureau of Statistics
NCI: -	National Cancer Institute
NOMA: -	Norad's Program for Master Studies
RCHC: -	Reproductive and Child Health Clinic
SPSS: -	Statistical Package for Social Scientist
TBA: -	Traditional Birth Attendant
WHO: -	World Health Organization

ABSTRACT

Background: Tanzania is among countries with a high maternal mortality rate. Every pregnant woman is at risk of developing pregnancy related complication. It is not understood if and how the information and education on danger signs of pregnancy; translate into appropriate actions when a woman experiences a danger sign. Knowledge and recognition of danger signs during pregnancy would result in timely emergency obstetric care.

Objectives: This study aimed at determining knowledge on danger signs during pregnancy and subsequent health seeking actions among women who experienced danger signs.

Methodology: This was a cross sectional study that enrolled 384 eligible postpartum women that delivered within the past six weeks from Magomeni and Sinza health centers, in Kinondoni Municipality, Dar-es-salaam, Tanzania. The women were interviewed using a semi structured Swahili questionnaire with closed and open ended questions. Systematic random sampling method was used to select the women to be interviewed. Descriptive and inferential analysis was done and associations between independent and dependent variables were computed.

Results: Of the 384 women were interviewed, 95 percent had attended ANC at least once and 59 percent made four or more visits. Mean age was 26.8 and majority had two or more children. Knowledge of danger signs was low (31%); commonly mentioned danger signs were vaginal bleeding (81.2%), swelling of fingers, face and legs (46.3%) and severe headache with blurred vision (43.6%). In bivariate analysis age, education and occupation were associated with knowledge on danger signs during pregnancy ($P \leq 0.05$). In multivariate logistic regression, age and occupation were statistically significant associated with knowledge on danger signs. Having older age was eight times more likely (OR 8.1; CI 1.6-42) to have knowledge on danger signs compared to young ones (≤ 20 years); self-employed women were two times more likely (OR=1.9; CI; 1.1-3.3) to have knowledge on danger signs compared to being employed. Of the 69 women who reported a danger sign in the last pregnancy, 75 percent took appropriate health seeking action. However, attendance of health facility for care was significantly related to knowledge only for difficulty in breathing ($P=0.023$) and swelling of fingers, face and legs ($P= 0.035$). It was established that knowledge on danger signs did not significantly relate to appropriate actions taken when the women experienced danger signs.

Conclusion: Knowledge on danger signs during pregnancy is low. Appropriate health care seeking actions were observed among women who had fever and difficulty in breathing for those who had experienced danger signs. Knowledge of danger sign during pregnancy was not translated into appropriate actions.

Recommendations: The quality of ANC care particularly health education should be evaluated. Further studies are recommended to address the knowledge gap and to understand why knowledge was not positively translated into actions regarding experiencing danger signs during pregnancy. Community based projects should be initiated to provide childbearing health education.

Key words: Knowledge, Danger signs, Pregnancy, Health Seeking action

DEFINITION OF TERMS

Knowledge-Is defined as information, skills and understanding that person has acquired through learning or experience ("Longman dictionary of contemporary english," 2003).In this study knowledge will be defined as being aware of and mentioning danger signs seen during pregnancy.

Danger signs- Danger sign during pregnancy refers to alerts of obstetric complications that occur commonly in the middle and late pregnancy. The danger signs that will be looked at in this study include severe vaginal bleeding, convulsions, severe headache with blurred vision, severe abdominal pain, fever, swelling of fingers, face and legs (Moran et al., 2006; A. B. Pembe et al., 2009; WHO, UNFPA, UNICEF, & Group, 2003).

Health seeking actions- Is defined as the sequence of remedial actions that individual undertake to rectify perceived ill health (Chrisman, 1977). In this study it will refer to the health action a woman took after recognizing a danger sign during pregnancy. The actions include doing nothing; consult a friend/relative; self-care/treatment; consult a TBA/traditional healer and consult a qualified health professional in a health facility.

CHAPTER ONE: INTRODUCTION

1.1 Background information

Worldwide, about 287,000 women die from pregnancy and childbirth related complications in 2010 (WHO, 2012). It is estimated to be about 99 percent of these deaths occur in Sub-Saharan Africa (Wilmoth & Gemmill, 2012). According to World Health Organization (WHO), maternal death is defined as the death of a woman while pregnant or within 42 days of termination of pregnancy, irrespective of the duration or site of the pregnancy, from any cause related to or aggravated by the pregnancy or its management, but not from accidental causes. Maternal death could be prevented if action is taken early and promptly.

Most countries within Sub-Saharan region have high rates of maternal mortality for example Tanzania stands at a rate of 454 deaths per 100,000 live birth (NBS & Macro, 2011). The major complications that account for 80 percent of all maternal deaths are severe bleeding, infections, high blood pressure during pregnancy, obstructed labor and unsafe abortion (Lerberghe, 2005). Women are expected to receive health education about pregnancy including outcomes, danger signs during pregnancy, nutrition and family planning as well as other services when they attend clinic for antenatal care. However other women do not attend antenatal clinic and they may receive the information about danger signs through media or close friends/relatives (Moran, et al., 2006). Despite various safe motherhood initiatives and interventions in East Africa, studies in Tanzania, Ethiopia and Uganda have shown that even within the last five years awareness of danger signs during pregnancy was still low (Pembe, et al.,2009) especially in rural populations.

Tanzania demographic health survey report (2011) shows 53 percent of pregnant women were told about danger signs of pregnancy during ANC visits. Additionally, the issue of health seeking actions after identifying a danger sign during pregnancy was not investigated. These studies set out to show a clear picture of the problem in health delivery systems. Since every pregnant woman is at risk of developing pregnancy related complication, education on danger signs of pregnancy should be provided to all women who are attending the clinic for antenatal care.

The danger signs that normally occur during pregnancy include vaginal bleeding, severe headache, trouble with vision, high fever, swollen hands/face, and reduced fetal movement (Moran, et al., 2006). During attendance at the clinic women are given an antenatal card

where all the information about the services provided during each visit are recorded. The risk factors for pregnancy complications are listed. For example; maternal age below 18, maternal age above 35, and history of chronic diseases such as hypertension and diabetes mellitus. However there are many danger signs that are not listed in the antenatal card and hence for those pregnant women who are able to read will still lack the information.

Women are also told to go to a nearby health facility so as to seek care in case they experience any danger signs but everyone tends to behave differently. Some can take no action while others do go to a health facility. Others can visit a traditional birth attendant/healer while others ask help from a friend or relative (Ahmed, Tomson, Petzold, & Kabir, 2002). Therefore this study will investigate how the level of knowledge regarding danger signs during pregnancy is related to health seeking actions.

1.2 Statement of the problem

High maternal mortality and morbidity in the country rated at 454 per 100,000 live births (NBS & Macro, 2011) is closely linked to delay in decision to seek care as few women (26 %) are aware of the signs that indicate an upcoming obstetrical complication (Pembe et al., 2009). Lack of information on danger signs during pregnancy is one of the factors that contribute to delay in seeking care and hence sluggish decrease in maternal mortality (WHO, 2012). A woman may die because they have not understood the need to seek care (Lewis, 2003).

The low knowledge is compounded by the limited access in rural areas, less skilled health workers that are available in rural areas, but the problem still persists even in urban areas where it is acknowledged to have more health facilities, improved infrastructure and transport. Irrespective of cost and easier access of health facilities, low level of knowledge is also highly likely caused by inadequate dissemination of information on danger signs at the health facilities (Mwaikambo, 2010). It contributes to significant delay in seeking health care and compromises the survival of the mother and expected new born. This may ultimately result into the persistent high maternal morbidity and mortality rate within Kinondoni district. Furthermore, little is known about knowledge on danger signs during pregnancy and its correlation with appropriate health seeking actions. The maternal mortality is still high and one of the contributing factors is low knowledge of the danger signs. The study focuses on the actions taken after experiencing a danger sign. The other problem is that much as people have the knowledge they may have negative attitude, no finances or partners may affect their decisions.

This study aimed at estimating the magnitude of knowledge on danger signs during pregnancy within the urban district in Dar es Salaam to establish if low level of knowledge is also an important factor that facilitate women's health care seeking. To improve maternal health, barriers that limit access to quality maternal health services must be identified and addressed at all levels of health system, hence this study.

1.3 Study justification

Despite the fact that attendance at antenatal clinic is about 98 percent (NBS & Macro, 2011) there is still low knowledge on danger signs during pregnancy. Antenatal clinic is a place where health education on danger signs during pregnancy is mostly provided. Knowledge of the danger signs during pregnancy is the essential first step to accept appropriate and timely referral to obstetric care (Pembe et al., 2010). Health seeking actions can be influenced by having knowledge about a certain issue (Moran et al., 2007).

High levels of maternal mortality can be reduced by empowering women with knowledge on danger signs of pregnancy and promote appropriate health seeking attitude. Counseling on the danger signs of unpredictable obstetric complications and the appropriate management of such complications are crucial in reducing maternal mortality (Sarker et al., 2010). Efforts should be done to increase awareness of danger signs and prevent severity of obstetric complications.

1.4 Significance of the study

Women die from a wide range of complications in pregnancy, childbirth or after delivery. These life threatening complications are treatable, and thus most of these deaths are avoidable if women with the complications are able to identify and seek timely and appropriate emergency obstetrical care (Killewo, Anwar, Bashir, Yunus, & Chakraborty, 2006). The information obtained from this study will give an insight on the knowledge of danger signs during pregnancy and if it correlate with appropriate health seeking behavior after recognizing a danger sign. In case the study would identify low knowledge and inappropriate health seeking actions in relation to danger signs during pregnancy, then training materials and posters that emphasize information about danger signs will be developed. Also some volunteers can be trained to provide health education within the community about danger signs of pregnancy and the importance of attending to a health facility early enough to prevent severity of the problem. This will help in the efforts of reducing maternal and child morbidities and mortalities and thereafter reduction of maternal mortality ratio in the country.

1.5 General objective

The general objective of this study was to determine knowledge on danger signs during pregnancy and health seeking actions among postpartum women attending Reproductive and Child Health Clinic (RCHC) at Magomeni and Sinza Health Centers in Kinondoni Municipality in Dar es Salaam Region.

1.6 Specific objectives

1. To determine the knowledge on danger signs during pregnancy among postpartum women.
2. To identify the subsequent health seeking action for danger signs experienced in their last pregnancy among postpartum women.
3. To determine the association between socio-demographic characteristics and knowledge on danger signs.
4. To determine the association between knowledge on danger signs during health seeking action.

1.7 Conceptual framework

The conceptual framework provides a conceptual perspective regarding interrelated phenomena and it presents an understanding of phenomena of interest (Polit & Hungler, 1997). The conceptual framework of this study describes knowledge on danger signs during pregnancy and health seeking actions concepts. Different studies have shown the relationship among these variables.

The association of socio demographic factors and knowledge has been highlighted in some studies conducted in Jordan, Tanzania and Uganda. It has been found that having secondary education or more increased the likelihood of awareness of obstetric danger signs in comparison with no education at all (Okour, Alkhateeb, & Amarin, 2012; Pembe, et al., 2009).

Moreover, the likelihood to have more awareness increased significantly by increasing age of the mother, number of deliveries, number of antenatal visits, whether the delivery took place at a health institution and whether the mother was informed of having a risks/complications during antenatal care (Pembe, et al., 2009). Furthermore, knowledge on danger signs has been significantly associated with maternal age(Hoque & Hoque, 2011). Older women are more likely to have knowledge on danger signs of pregnancy compared to young ones.

Level of knowledge about a particular condition has been highlighted as a contributing factor to health seeking actions ((NCI), 2003; Currie & Wiesenberg, 2003). A lack of educational opportunities and poor understanding of both danger signs during pregnancy and appropriate actions means that many women may not be familiar with the presentation of different obstetric complications and hence influence the health action. For example a woman may suffer from severe headache and assume it is because of exhaustion while it can be a sign of pre-eclampsia. Having knowledge on danger signs of pregnancy provoke the need for health seeking. In absence of early and prompt management of complications of pregnancy, maternal death may occur.

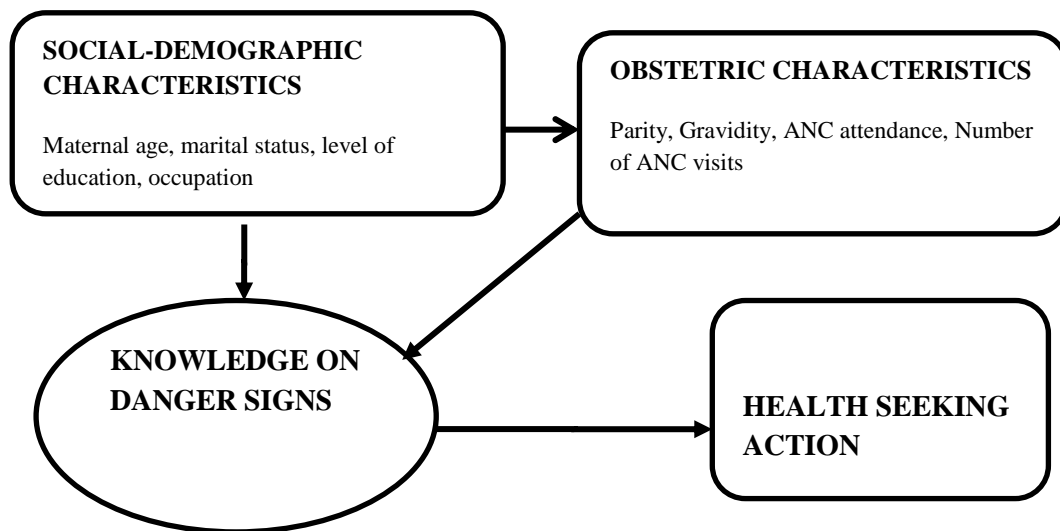


Figure 1: Conceptual framework on knowledge of danger signs and health seeking actions

The conceptual framework has been used during study development and data analysis to determine if there is association between socio-demographic and obstetric characteristics with knowledge. Furthermore the relationship between knowledge on danger signs during pregnancy and health seeking actions has been identified.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

Maternal mortality is unacceptably high. About 800 women die from pregnancy or childbirth related complications around the world every day (WHO, 2012). The high number of maternal deaths in some areas of the world reflects inequities in access to health services, and highlights the gap between rich and poor (Mamdani & Bangser, 2004). Factors that prevent women from receiving or seeking care during pregnancy and childbirth are poverty, distance, lack of information, inadequate services and cultural practices (Jammeh, Sundby, & Vangen, 2011). This section will involve review of different studies which have been conducted on knowledge and health seeking actions. Through these literatures what is known and unknown about knowledge on danger signs and health seeking actions will be identified. The literatures have been reviewed according to the objectives.

2.2 Knowledge of danger signs during pregnancy

Most of the studies have shown low level of knowledge on danger signs not only during pregnancy but also during delivery and after childbirth. In a study done in Uganda and Ethiopia, knowledge of danger signs was relatively low (Hoque & Hoque, 2011; Kabakyenga, Östergren, Turyakira, & Pettersson, 2011). During antenatal care, health care workers are expected to educate pregnant women on danger signs of pregnancy so that women could understand and seek help immediately when they experience one or more of the symptoms. The same was also found in Tanzania on a study on rural women's awareness of danger signs (Pembe, et al., 2009). The study recommended to improve the quality of counseling and also to involve family members in the care of pregnant women during pregnancy and delivery.

A study on knowledge about danger signs in pregnancy among pregnant women was conducted in Southern Ethiopia. It indicated that the knowledge was low and affected by residential area whereby those who lived in urban were more knowledgeable than those who lived in rural areas (Hailu, Gebremariam, & Alemseged, 2010). The most common danger sign to be mentioned was vaginal bleeding. Additionally, another study in Uganda shows similar results about knowledge and residential area (Kabakyenga, et al., 2011).

Some studies have shown the relationship between level of education and knowledge on danger signs of pregnancy. Women with higher education level have been found to have more knowledge on danger signs compared to those with no formal education (Raj, 2005). This is speculated to be due to having high literacy hence an ability to understand the information given and also be able to look for details from other sources such as the internet and magazines.

In Gambia, a delay in recognizing danger signs of pregnancy/labor or decision to seek care outside the home was the second important contributor of perinatal deaths (Jammeh, et al., 2011). A study was also conducted by Rashad (2010) in Albeheira Governorate, the researcher suggested that there is a need to establish strategic plan to increase the awareness to shape health seeking actions of the public related to signs of obstetric complications.

2.3 Health seeking actions

A study conducted in Uganda revealed poor health seeking behavior among adolescent mothers for reproductive health services and faced more challenges during pregnancy and early motherhood compared to adult mothers. This explains age as a factor in determining health seeking actions (Atuyambe et al., 2008). Adolescent mothers were more likely to attend antenatal care visits less than four times compared to adult mothers and hence miss an opportunity to be educated on danger signs during pregnancy, delivery and post-delivery. Likewise in Bangladesh young mothers were significantly less likely to seek professional healthcare at the time of birth (Chowdhury, Islam, Gulshan, & Chakraborty, 2007).

In Turkey cultural influences were linked to delay in seeking care when they experience complications (Ay et al., 2009). The decision regarding whether a pregnant woman is seriously sick or not was the responsibilities of elder women, which delays the use of health care service. Another study in Turkey showed that women who experienced antenatal bleeding faced difficulties to decide whether or not to seek care (Kosum & Yurdakul, 2012). And this was contributed by factors such as age, level of education, lack of health insurance, receiving antenatal care, nuclear family structure and knowledge of the danger signs during pregnancy. This shows the impact of knowledge on health seeking actions among pregnant women.

Another study conducted in Bangladesh shows that most women do not seek antenatal care except for confirmation of pregnancy, and no prior preparation for childbirth was taken.

Financial constraints, coupled with traditional beliefs and rituals, delayed care-seeking in cases where complications arose (Choudhury & Ahmed, 2011). Similar study revealed that cultural beliefs and practices also reinforced these health seeking actions, including home delivery without skilled assistance (Choudhury et al., 2012).

The possession of assets emerged as an important predictor of health actions by seeking care from health professionals at the time of birth as revealed by a study conducted in Bangladesh (Chowdhury, et al., 2007). Those with more assets used as an alternative for income visited trained healthcare providers more often and were more likely to use healthcare facilities provided by trained personnel at the time of delivery.

The woman's age may be related to her attitude about which health action she could take. This was found in a study conducted in India which was looking at pregnancy complications and health-seeking behavior among married women. Women who are pregnant for the first time with young age are more likely to suffer from eclampsia, which can be life-threatening to mother and baby while pregnancy at older age above 35 years pose more risk to complications.

A study conducted in Haiti by White et al (2006) revealed a delay in seeking or absence of care during times when illness does arise. Women recognize that they are ill and that lack of care can lead to death, yet they continue to delay obtaining medical assistance or do not seek care at all either within the formal health sector or among lay and spiritual healers.

A study done in Bangladesh (Koenig et al., 2007) has found out that only one in three sought treatment from a qualified provider. More than three-fourths of women with the time-sensitive complications of convulsions or excessive bleeding either failed to seek any treatment or sought treatment from an unqualified provider. The principal reason cited for failing to seek care for life-threatening complications was concern over medical costs, and pronounced socioeconomic disparities.

CHAPTER THREE: METHODOLOGY

3.1 Research design

The study design was health facility-based cross-sectional study. Cross sectional study design involve the collection of data at one point in time and is especially appropriate for describing the status of phenomena or relationships among phenomena at a fixed point in time (Polit & Hungler, 1997). Quantitative research approach was used during data collection and analysis.

3.2 Study area

The study was conducted in Magomeni and Sinza Health Centre's Reproductive and Child Health Clinic (RCHC) located in Kinondoni Municipality in Dar Es Salaam Region. Kinondoni is an urban district and also one of the districts in Tanzania with highest maternal mortality indices (529/100,000 live births). The health facilities were purposively selected since they provide services to majority of the population with different socioeconomic status in the district.

Kinondoni Municipality has an area of 531KM² and the population density is estimated at 2051 persons per square kilometer. The Municipality is bordered by the Indian Ocean to the North East, Ilala Municipal to the South, Bagamoyo District to the North, Kibaha District to the West and Kisarawe District to the South West. Based on the 2012 Population and Housing Census, Kinondoni Municipality has a population of about 1.7 million people with a growth rate of 5.0 percent. According to Kinondoni Health Department report (2012) the maternal mortality rate is 529 per 100,000 live births.

The RCHC's services include postnatal and child immunization services, family planning, HIV counseling and testing, antenatal services and breast/cervical cancer screening services. The municipality has a total of 42 public health care facilities (1 Hospital, 2 Health Centers and 39 Dispensaries) and 164 private health facilities. The center provides reproductive and child health care services that include antenatal clinic, postnatal and child immunization, counseling and testing of HIV/AIDS and family planning services (KMC, 2012).

In Kinondoni Municipality, 67 percent of pregnant women booked for antenatal before 16 weeks of pregnancy; 600 babies born before arrival to the health facility; total live births are 345,052; fresh still birth 145 and macerated still birth 241 (KMC, 2012).

3.3 Study population

The study population was postpartum women attending RCHC services at Magomeni and Sinza health centers in Kinondoni Municipality during the time of data collection in May-June 2013. All postpartum women who were seeking immunization services for their children were selected by proportionate random sampling for participation in the study. In this study a postpartum woman was defined as a woman who has given birth within the past six weeks from the day of data collection.

Inclusion criteria

- Postpartum women who had delivered within six weeks at the time of data collection
- Postpartum women who had given consent to participate in the study

Exclusion criteria

- Postpartum women who were mentally sick
- Postpartum women who were unwell or having a sick child

3.4 Sample size estimation

Sample size was estimated using the Kish Leslie formula for quantitative studies. The formula states that:

$$n = \frac{Z^2 P (1-P)}{D^2}$$

Whereby;

n- Sample size

D-The standard error in the study, which is 5%

P- Proportion of women aware of danger signs during pregnancy = 26 percent (A. B. Pembe, et al., 2009)

Z- The standard normal deviation of 1.96 corresponding to 95% confidence interval.

Substituting; $N = \frac{1.96^2 \times 0.26 (1-0.26)}{0.05^2}$

$$= 296$$

Therefore, the estimated sample size was 296 women.

For the second objective, the proportion of women's health seeking action they would undertake when they recognize a danger sign was not available in literatures and therefore 50% was used.

Calculating the sample size using Kish Leslie formula,

$$N = \frac{1.96^2 \times 0.50 (1-0.50)}{0.05^2}$$

Therefore, the sample size will be 384 women.

The estimated sample size that was used in this study was **384 women** as this increased the power of the study.

3.5 Sampling procedure

The participants were selected from among the postpartum women who had gone for immunization services for their children at Sinza and Magomeni RCHC clinics. After gaining permission from clinic in-charge, the principal researcher and research assistants reviewed the postnatal cards for date of delivery. All women who had delivered within the past 6 weeks were included in the study. The identified women who were eligible to participate in the study were informed about the study and asked for their consent. Participants were recruited for interviews in private rooms until the required sample size was achieved.

The sampling frame of eligible women attending RCHC clinic on the day of data collection was developed. This was obtained from the average number of women attending the clinic for immunization services in the past three months. Then, study participants were selected by using systematic random sampling approach which involves dividing the total number of women attending the clinic for immunization services with estimated sample size to obtain a random sampling interval. After obtaining the sampling interval, the first participant was selected using simple random sampling, while the subsequent participants were selected in a systematic way. The average number of women attending Sinza health facility was 180 per day and Magomeni health facility was 67 women per day. About 387 women were eligible to participate in the study. Proportionate random sampling method was used to select women to be recruited from each Health Centre a day prior to data collection after identifying the average number of women attending RCHC for immunization services.

3.6 Data collection methods

Data was collected using pre-tested and pre-coded interviewer administered semi-structured questionnaire with both closed and open ended questions. The questionnaire was modified from a questionnaire about awareness of danger signs among rural women in a study in Tanzania. Permission was obtained from the author and questions are revised in accordance with the conceptual framework.

The questionnaire comprised of four sections that are socio demographic characteristics, experiences in the last pregnancy, knowledge on danger signs of pregnancy, and health seeking actions. The socio-demographic characteristics section includes age, marital status, education level and occupation; pregnancy characteristics including number of deliveries, number of pregnancies; experiences during their last pregnancy including whether they attended antenatal care, month of pregnancy booked for care, the number of visits made and if were informed of any risk or complication during antenatal care and danger signs of obstetric complications. The knowledge section of danger signs comprised general knowledge about danger signs during pregnancy, the recognition of danger signs and where the source of information was. The section of health seeking actions comprised of the recognized danger signs, health actions women had taken for each danger signs and why did/will they decide so.

The principle researcher and five trained research assistants collected data for a period of one month in both Magomeni and Sinza Health Centre. Data was collected during normal working hours from Monday to Friday. The interviews were conducted in side rooms within the clinics to ensure privacy and confidentiality. Each interview was estimated to last for 40 minutes.

3.7 Data quality control

Validity and reliability

Validity refers to the degree to which an instrument measures what it is supposed to be measuring (Polit & Hungler, 1997). Content validity of the research tool has been checked by the researcher's supervisors, a midwife with experience in qualitative and quantitative research methods, and an obstetrician with research experience.

An instrument can be said to be reliable if its measures accurately reflect the true measures of the attribute under investigation (Polit & Hungler, 1997). Pre-test to check reliability of the

tool was done to respondents with similar criteria as the study sample and appropriate justifications were made. This was done by the research assistants in Mbweni Health Centre within Kinondoni Municipality. Twenty eligible people were interviewed by the researcher. Generally the questionnaire was found to be valid for the main study and thus good to be employed for data collection. Two day training session was conducted to five research assistants and they were involved in pre-testing of the tool so as to be familiar with the methods. The training session included description of the overall study purpose and objectives, data collection methods and probing techniques, sampling and criteria for study participants and procedures for obtaining written consent from the participants.

The principle investigator was present at the study area during the period of data collection to ensure correct and appropriate procedures are followed and also handling any setbacks that occurred. Data was cleaned every day after field work by the principal investigator before entry to ensure missed data were collected.

3.8 Research measurement of variables

The variables of this study are:

Independent variable: a. Socio-demographic characteristics

b. Obstetric characteristics

Dependent variable: a. Knowledge

b. Health seeking actions

However, at level of regression to establish factors associated with knowledge the independent variables were socio-demographics and the dependent variable was the knowledge. At level of regression for health seeking actions, knowledge was also an independent variable

In determining the knowledge about danger signs, a list of danger signs stated in WHO guide for essential practice (Childbirth, Postpartum and Newborn Care) was used. There are a total of common nine danger signs during pregnancy and they include severe vaginal bleeding, convulsions, severe headache with blurred vision, severe abdominal pain, too weak to get out of bed, fast or difficulty in breathing, reduced fetal movement, fever, swelling of fingers, face and legs (WHO, et al., 2003). A woman was considered to have sufficient knowledge if she has been able to mention at least four danger signs (Okour, et al., 2012). Mentioning one to

three was categorized as low knowledge and not being able to mention any danger sign was categorized as no knowledge.

Health seeking actions was identified by asking a woman the actions she took/would take after recognizing a danger sign during pregnancy. The actions were pre-coded and included doing nothing, consulting a friend or relative, self-care/treatment, consulted a TBA/traditional healer and visiting a health facility. The appropriateness of each action a woman took after recognizing a particular danger sign will be identified. The appropriate action to take in any circumstance is to visit a health facility for early and prompt care and management. Other pre-coded health seeking actions were considered inappropriate.

3.9 Data analysis

Data entry was done using SPSS statistical package followed by cleaning, coding, and editing. Data was cleaned before being used in order to remove apparent errors. Frequency tables for all questions were produced to identify missing information, detecting entry errors, and checking for inconsistencies such as outliers.

The statistical analysis was done through descriptive and inferential analysis. In descriptive analysis; frequency table for selected variables such as age, marital status, highest level of education, occupation, parity, gravidity, distance from the facility and number of antenatal clinic attendance produced to study the characteristics of the respondents. In inferential analysis; the Chi Square test at 5% level of significance was used to examine the relationship between the dependent variable and the independent variables. After identifying significant relationships between the variables a multinomial logistic regression analysis was performed to assess the strength of association and control of confounders among variables.

Data was analyzed using descriptive and inferential statistics. Frequencies and percentages were calculated for categorical variables and the results are presented in the form of frequency tables and pie chart. Bivariate analysis was done through Chi square test to find if there is any association between demographic variables, knowledge and health seeking actions.

The health seeking actions were categorized into appropriate and inappropriate actions for the stated danger signs. Open ended questions responses were categorized and coded then analyzed by SPSS statistical package. Multivariate analysis by logistic regression was done

following bivariate analysis at 95% confidence interval. Crude and adjusted odds ratio were calculated and presented in a table.

3.10 Ethical consideration

Ethical approval was sought and granted from Makerere University School of Health Sciences Research Ethical Committee and Muhimbili University of Health and Allied Sciences (MUHAS) IRB. Permission to conduct the study was obtained from Kinondoni Municipality commissioner for health. The description about the study was given to health workers of Magomeni and Sinza Health Centre to gain access and collaboration.

Written informed consent was obtained from all the participants before interview in a voluntary basis with no compensation. The participants were informed about the purpose of the study, the benefits and risks of participating in the study and then asked to sign. The mothers who were below 18 years of age will be considered as emancipated minors and hence they will have the ability to sign the consent form. This also applies to Tanzania ethical guidelines (Personal communication). For illiterate mothers, the consent form was read in the presence of a witness and they were asked to put a thumbprint. Then a witness put a signature after a participant has consented. The witness was either the unit in charge/nurse on duty or any other person who has accompanied the study participant. The information given was confidential and no names appeared on the questionnaire. The record of consent forms was stored in box and will be kept in a cabinet for three years.

Subject's personal privacy will be protected and confidentiality of data maintained by storing information in a sealed box locked in the cabinet. Data will be stored at principal investigator's premises and will be responsible for utilization and review. The research assistants had access to the data during data collection and Principal investigator accessed them during collection and analysis. Questionnaires will be kept for five years after time of report writing and then will be burnt.

3.11 Plan for dissemination

The findings of the study are in partial fulfillment of the requirements for the award of the Master of Nursing (Midwifery and Women's Health), Makerere University. The findings will be disseminated to Makerere University-College of Health Sciences (Department of Nursing), Albert cook library, Muhimbili University of Health and Allied Sciences library,

Kinondoni Municipal Health Department and Magomeni and Sinza Health Centres. The findings will be presented in conferences and published in local and International journals.

CHAPTER FOUR: RESULTS

4.1 Introduction

This chapter presents the analysis of the collected data. Statistical analysis was done using SPSS statistical package version 13.0. The results are presented in frequency distribution tables and pie chart.

4.2 Socio-demographic and Reproductive characteristics

Two hundred and fifty three women (65.9%) were interviewed at Sinza health facility and the remaining respondents were interviewed at Magomeni facility. The mean distance to both health facilities was 1.58 kilometers. The frequency distribution table below (Table 1) shows the socio demographic and reproductive characteristics of the respondents.

Majority of the respondents (68.8%) are at the age of 21-30 years (range 14-39 years) and the median age of the study group was 26. The other 7.8 percent (n=30) belongs to the age group less than 20 years old while 23.4 percent belong to the age group of 21 to 30 years.

Most women were living with their partners (85.7%; n=329) while the others (14.3%, n=55) were not living with partners. The group of those not living with partners includes women who were either; single, separated, divorced or widowed.

Regarding education level it was observed that majority were educated to secondary school level or less; 1.3% (n= 5), 45.6% (n= 175), and 44.8% (n= 172) having no education, primary and secondary education respectively. The remaining 8.3% (n= 32) had a post- secondary education level (either university or vocational training). Majority of the women were unemployed (45.8%; n=176), while 43.0% (n= 165) were self- employed and only 11.2 percent (n= 43) were employed.

The obstetric characteristics that were looked at include parity, gravidity and antenatal clinic attendance. About 59.6 percent (n=229) of the study group attended antenatal clinic four times or more during their last pregnancy where as 34.9 percent (n=134) attended less than four ANC visit.

Furthermore about 34.9 percent (n= 134) respondents had carried pregnancy once, while 59.6 percent (n= 229) had been pregnant twice to four times and 5.5 percent (n=21) had been pregnant five times or more.

Majority of the women (55.7%) had two to four numbers of deliveries. Also 41.7 percent (n=160) had delivered once and 2.6 percent (n=10) had delivered five times or more. The median number of pregnancy was 2 (Range: 1-7) and the median number of deliveries was 2 (Range: 1-5).

Table 1: Socio-demographic and Reproductive characteristics (N=384)

VARIABLE	CATEGORIES	FREQUENCY n (%)
Age	≤ 20	30 (7.8)
	21-30	264 (68.8)
	31-39	90 (23.4)
Median age in years		26.00 (14-39)
Marital status	Living with partner	329 (85.7)
	Not living with partner	55 (14.3)
Education level	No formal education	5 (1.3)
	Primary	175 (45.6)
	Secondary	172 (44.8)
	Post-secondary	32 (8.3)
Occupation	Employed	43(11.2)
	Unemployed	176 (45.8)
	Self-employed	165 (43.0)
Parity	1	160(41.7)
	2-4	214(55.7)
	≥5	10(2.6)
Gravidity	1	134(34.9)
	2-4	229(59.6)
	≥ 5	21(5.5)
ANC Attendance	< 4 visits	134(34.9)
	≥ 4 visits	229(59.6)
Distance to facility (kilometers)	< 1	160(41.7)
	≥1 but <5	224(58.3)

4.3 Knowledge on danger signs during pregnancy

About 97.9 percent (n=376) of women had attended ANC during their last pregnancy. The median number of visits was four (4.00); and the age at first ANC visit was four month or more for 54.4 percent (n=204). The study participants were asked if they have ever heard of

danger signs that occur during pregnancy. More than half of the respondents (87.2%; n=335) had ever heard about danger signs during pregnancy and the main source of information was from the RCHC clinic (81.8%). The knowledge was categorized into three namely no knowledge, low knowledge and sufficient knowledge.

A woman who had not mentioned any danger sign was categorized into no knowledge; mentioned 1-3 danger signs low knowledge; and mentioned 4 or more was categorized as having sufficient knowledge. The following figure (Figure 2) shows the knowledge on danger signs during pregnancy for each category. When asked to spontaneously mention the danger signs, only 31 percent (n=104) were able to mention at least four danger signs correctly. This means that actually more than half (66.3%) had low knowledge on danger signs during pregnancy. Some of the respondents (2.7%) who reported that they have ever heard about danger signs during pregnancy were not able to mention even one danger sign correctly.

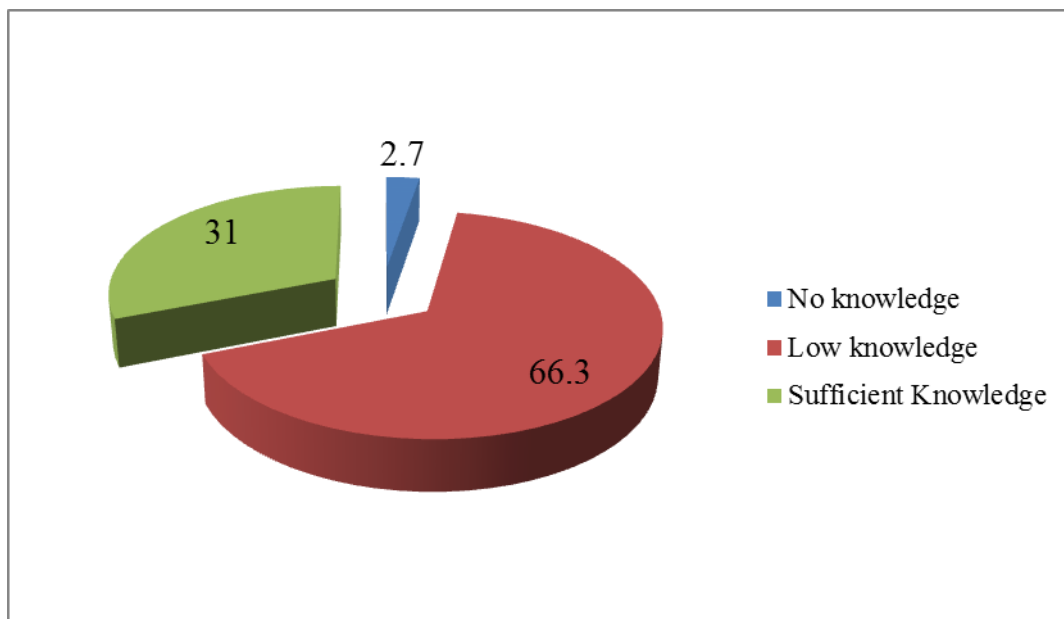


Figure 2: Knowledge on danger signs during pregnancy

The remaining participants (12.8%, n=49) were not included in identifying their knowledge level since they have not heard of danger signs during pregnancy. When prompted on the stated danger signs 63.3 percent were aware of four or more danger signs.

The following table (Table 2) shows the frequency of the stated danger signs that may occur during pregnancy as a sign for obstetric complications. The commonly mentioned danger

signs were vaginal bleeding (81.2%, n=272); swelling of fingers, face, and legs (46.3%, n=155); and severe headache (43.6%, n=116). Few women stated vaginal discharge and anemia as danger signs of pregnancy. The main source of information was from the health facility (93.7%, n= 314) followed by 3.9% (n=13) who heard from friends and 1.3% (n=5) from the television. Generally this population had some information about danger signs during pregnancy.

Table 2: Knowledge on Danger signs during pregnancy

Danger signs during pregnancy	Yes n (%)	No n (%)
Vaginal bleeding	272 (81.2)	63 (18.8)
Convulsions	50 (14.9)	285 (85.1)
Severe headache with blurred vision	146 (43.6)	189 (56.4)
Severe abdominal pain	103 (30.7)	232 (69.3)
Too weak to get out of bed	32 (9.6)	303 (90.4)
Difficulty in breathing	39 (11.6)	296 (88.4)
Fever	91 (27.2)	244 (72.8)
Swelling of fingers, face and legs	155 (46.3)	180 (53.7)
Reduced fetal movement	116 (34.6)	219 (65.4)

*Multiple responses

4.4 The relationship between socio-demographic and reproductive characteristics with knowledge

4.4.1 Bivariate analysis

The relationship between demographic and reproductive characteristics with knowledge was determined through bivariate analysis using cross-tabulation with Chi-square test. A variable was said to have significance if the *P* value is <0.05. The *P* value was determined for each categorized variable. The analysis included only those who have ever heard of danger signs. Knowledge was categorized into low knowledge and sufficient knowledge so as to allow model development during regression analysis. Those with no knowledge have been regrouped into low knowledge.

In Table 3 below, majority of the respondents had low knowledge on danger signs during pregnancy along all age groups. It is observed that 9.5 percent of the respondents aged 20 years or less had low knowledge of danger signs, compared to 67.1% of those aged 21 to 30 years old. It is also observed that 23.4% of the respondents aged 31 to 39 years old exhibit

low knowledge regarding such signs. Age has shown to have relationship with knowledge on danger signs during pregnancy ($P= 0.039$).

The majority of the respondents (51%) having secondary education had sufficient knowledge compared to 35.6 percent with primary education. This shows that there is a relationship between level of education and knowledge ($P= 0.013$).

Occupation was also shown to have significance ($P= 0.023$) on knowledge of danger signs during pregnancy. About 46.2 percent ($n=48$) of the respondents who were unemployed had sufficient knowledge on danger signs during pregnancy compared to 35.6 percent (37) who were self-employed.

The independent variables marital status, parity, gravidity and ANC attendance were not associated with knowledge on danger signs during pregnancy.

Table 3: Chi-Square and P Values of Cross-Tabulation between Demographic Variables and Knowledge

VARIABLE		KNOWLEDGE		χ^2	P value
		Low knowledge n (%)	Sufficient knowledge n (%)		
Age	≤ 20	22 (9.5)	2 (1.9)	6.472	0.039
	21-30	155 (67.1)	73 (70.2)		
	31-39	54 (23.4)	29 (27.9)		
Marital status	Living with partner	199 (86.1)	92 (88.5)	0.337	0.562
	Not living with partner	32 (13.9)	12 (11.5)		
Education level	No education	4 (1.7)	0 (0.0)	10.84 8	0.013
	Primary	105 (45.5)	37 (35.6)		
	Secondary	111 (48.1)	53 (51.0)		
	Post-secondary	11 (4.8)	14 (13.5)		
Occupation	Employed	21 (9.1)	19 (18.3)	7.563	0.023
	Unemployed	100 (43.3)	48 (46.2)		
	Self-employed	110 (47.6)	37 (35.6)		
Parity	1	89 (38.5)	48 (46.2)	1.740	0.419
	2-4	135 (58.4)	53 (51.0)		
	≥ 5	7 (3.0)	3 (2.9)		
Gravidity	1	79 (34.2)	34 (32.7)	0.337	0.845
	2-4	138 (59.7)	65 (62.5)		
	≥ 5	14 (6.1)	5 (4.8)		
ANC Attendance	< 4 visits	55 (24.1)	30 (28.8)	0.837	0.360
	≥ 4 visits	173 (75.9)	74 (71.2)		

4.4.2 Multivariate analysis

Multivariate analysis using hierarchical block multivariate logistic regression was done to find out the relationship between knowledge and socio demographic and reproductive characteristics. The confounders were controlled using this method of analysis where by all the variables were included in the model to confound each other so as to get the independent variable associated with knowledge on danger signs. Socio demographic and reproductive variables were entered in the model in blocks. Knowledge was categorized into two low knowledge and sufficient knowledge so that multivariate analysis can be done.

Results for multivariate logistic regression show that the likelihood of having knowledge on danger signs during pregnancy increased with age and occupation. The independent variables marital status, education, parity, gravidity and ANC attendance were not statistically significant associated with knowledge about danger sign during pregnancy. However the level of education had shown significance with bivariate analysis but after control of confounders it has lost its statistical significance in multivariate analysis. Without controlling for confounders, having post-secondary education was 62% more likely to have knowledge on danger signs compared to those with no education.

Having older age was significantly associated with knowledge of danger signs compared to younger age. Respondents who were aged 31-39 years were eight times (OR= 8.1; CI: 1.6-42) more likely to have knowledge on danger signs compared to those aged less than 20 years. And those aged 21-30 years were six times (OR= 5.6; CI: 1.2-26) more likely to have knowledge on danger signs compared to those with 20 years or less.

Moreover, being self-employed has shown association with knowledge of danger signs during pregnancy by two fold (OR= 1.9; CI: 1.1-3) compared to being employed and being unemployed had also shown more likelihood of having knowledge by two fold (OR=2.0; CI: 0.9-5) with reference to those who were employed.

Table 4: Logistic regression for knowledge on danger signs during pregnancy

VARIABLE CATEGORIES		COR	95% CI	P value	AOR	95% CI	P value
Age	≤ 20	1			1		
	21-30	0.17	0.04-0.77	0.022	5.58	1.20-25.91	0.028
	31-39	0.88	0.52-1.49	0.627	8.07	1.55-41.89	0.013
Marital status	Living with partner	1			1		
	Not living with partner	1.23	0.61-2.50	0.562	0.97	0.43-2.17	0.938
Education level	No education	1			1		
	Primary	0.00	0.00	0.999	0.00	0.00	0.999
	Secondary	0.28	0.12-0.66	0.004	0.41	0.15-1.13	0.084
	Post-secondary	0.38	0.16-0.88	0.025	0.48	0.19-1.23	0.128
Occupation	Employed	1			1		
	Unemployed	2.69	1.30-5.55	0.007	2.02	0.89-4.60	0.094
	Self-employed	1.43	0.86-2.37	0.165	1.86	1.05-3.30	0.034
Parity	1	1			1		
	2-4	1.26	0.31-5.09	0.747	3.38	0.33-34.13	0.303
	≥ 5	0.92	0.23-3.68	0.902	0.89	0.10-7.63	0.914
Gravidity	1	1			1		
	2-4	1.21	0.40-3.61	0.739	0.54	0.08-3.46	0.540
	≥ 5	1.32	0.46-3.82	0.610	1.87	0.36-9.83	1.873
ANC Attendance	< 4 visits	1			1		
	≥ 4 visits	1.28	0.76-2.15	0.361	1.46	0.80-2.17	0.218

*COR- Crude Odds Ratio; **AOR- Adjusted Odds Ratio; ***CI- Confidence Interval

4.5 Health seeking actions on danger signs during pregnancy

Only 69 (18%) women have reported to recognize several danger signs during their last pregnancy. The following multiple response table shows the frequency of actions women took after recognizing any of the listed danger signs.

Majority of the respondents (75.3%) who had recognized danger signs went to the health facility for care and treatment followed by 10.3 percent who had self-treated. These actions were most prevalent in vaginal bleeding (96.2%), reduced fetal movement (100%) and swelling of fingers, face and legs (100%). See table 5 below.

Table 5: Health actions taken when respondents recognized a danger sign

DANGER SIGNS	ACTIONS (%)				
	Did nothing	Consulted a friend/relative	Self-care/treatment	Went to a health facility	Total
Vaginal bleeding	1 (3.8)	0 (0.0)	0 (0.0)	25 (96.2)	26 (100)
Convulsions	0 (0.0)	0 (0.0)	1 (20)	4 (80)	5 (100)
Severe headache with blurred vision	1 (5)	0 (0.0)	5 (25)	14 (70)	20 (100)
Severe abdominal pain	0 (0.0)	1 (8.3)	2 (16.7)	9 (75)	12 (100)
Reduced fetal movement	0 (0.0)	0 (0.0)	0 (0.0)	5 (100)	5 (100)
Too weak to get out of bed	4 (30.8)	1 (7.7)	1 (7.7)	7 (53.8)	13 (100)
Fast or difficulty in breathing	1 (12.5)	3 (37.5)	1 (12.5)	3 (37.5)	8 (100)
Fever	2 (40)	0 (0.0)	0 (0.0)	3 (60)	5 (100)
Swelling of fingers, face and legs	0 (0.0)	0 (0.0)	0 (0.0)	3 (100)	3 (100)
Total	9 (9.3)	5 (5.2)	10 (10.3)	73 (75.3)	97 (100)

When asked in an open ended question why they took that action, the responses were coded and then analyzed descriptively. Most of the women (79.1%, n= 53) preferred to be attended at the hospital because they believe that they can receive extra care in case of complications. About 10.4 percent (n= 7) were educated at the health facility about danger signs and they also preferred to seek care from the health facility. Furthermore, others (7.5%, n=5) went to the health facility after their condition worsened where as 3 percent thought it was a normal event in pregnancy so there was no need to take any action.

Although majority of women had low knowledge about danger signs during pregnancy, their health seeking behavior was appropriate. They feel like hospital is the place where all their health issues can be taken care of therefore it was better to visit the health facility.

The open ended question about outcomes for their health seeking actions was coded and about 88 percent of those who seek care had been attended by health care workers; they received medication, counseled and were cured of the presenting problems after recognizing a danger sign. Some women (5.8%, n= 4) were attended in the health facility but the problem

persisted while the other (2.9%, n= 2) were admitted due to worsening of the situation and had a preterm delivery.

For those who had not recognize any danger signs during their last pregnancy more than 80 percent perceived that it is better to visit the health facility for care and management when you recognize a danger sign.

4.6 The relationship between Knowledge and Health seeking actions

The association between knowledge, health seeking action and experiencing a danger sign in the last pregnancy has been shown in table 6 below. The analysis was done through chi-square test to determine the strength of association between knowledge and action for each danger sign.

Majority of the women had appropriate health seeking action but their actions were not related to their knowledge on danger signs of pregnancy. This was evident on all the mentioned danger signs except for fast or difficulty in breathing ($P=0.023$) and swelling of fingers, face and legs ($P= 0.035$). All the respondents who had experienced swelling of fingers, face and legs they had sufficient knowledge on danger signs during pregnancy.

Table 6: Relationship between Knowledge and Health seeking actions (n=69) **

DANGER SIGN		KNOWLEDGE % (n)		P value
		Low	Sufficient	
Vaginal bleeding	Inappropriate	1 (1.4)	0 (0.0)	0.721
	Appropriate	19 (27.5)	6 (8.7)	
Convulsions	Inappropriate	1 (1.4)	0 (0.0)	0.384
	Appropriate	1 (1.4)	3 (4.3)	
Severe headache with blurred vision	Inappropriate	5 (7.2)	1 (1.4)	0.234
	Appropriate	6 (8.7)	8 (11.6)	
Severe abdominal pain	Inappropriate	3 (4.3)	0 (0.0)	0.712
	Appropriate	4 (5.8)	3 (4.3)	
Too weak to get out of bed	Inappropriate	1 (1.4)	3 (4.3)	0.365
	Appropriate	4 (5.8)	3 (4.3)	
Fast or difficulty in breathing	Inappropriate	0 (0.0)	5 (7.2)	0.023
	Appropriate	2 (2.9)	1 (1.4)	
Fever	Inappropriate	2 (2.9)	0 (0.0)	0.893
	Appropriate	2 (2.9)	1 (1.4)	
Swelling of fingers, face and legs	Inappropriate	0 (0.0)	0 (0.0)	0.035
	Appropriate	0 (0.0)	3 (4.3)	
Reduced fetal movement	Inappropriate	0 (0.0)	0 (0.0)	0.058
	Appropriate	1 (1.4)	4 (5.8)	

** This analysis included only those who experienced danger signs during their last pregnancy

CHAPTER FIVE: DISCUSSION

5.1 Introduction

This chapter displays the interpretation of the findings that have presented in the previous chapter. The findings of this study in an urban district in Tanzania suggest that only 31 percent of women had sufficient knowledge on danger signs during pregnancy. Having older age and woman's employment status were the most important predictive factors for having sufficient knowledge. Knowledge of danger signs during pregnancy is the first essential step for appropriate and timely referral for care. Majority of the women (75.3%) were having appropriate health seeking action after recognizing a danger sign in their last pregnancy. They went to health facility for investigations, care and management. Furthermore, the study has shown direct association between knowledge and health seeking action. Whether having low or sufficient knowledge, most women had appropriate health seeking action.

Generally, women from this area were having some knowledge on danger signs during pregnancy. More than three quarter (81.8%) had heard the information from the health facilities. Only one third of the study respondents exhibited sufficient knowledge on danger signs during pregnancy. This knowledge can be in turn transferred into action. Knowledge has been found to be the important factor in shaping health seeking behavior which contributes to save women's live from presentable causes of maternal deaths (Rashad & Essa, 2010).

After recognizing a danger sign a woman was supposed to visit a health facility for examination, care and management. The danger signs indicate the presence of an obstetrics complication that may arise during pregnancy, delivery or post-delivery. Visiting a health facility for care is the best way to identify any problem that may endanger the health of the mother/unborn baby and take actions early and promptly. Majority of women were not employed and had primary education.

More than half of the women (66.3%) had low knowledge on danger signs during pregnancy and this may compromise their decision on seeking health care in cases where obstetric complication has occurred. This is speculated to be due to poor quality of care since about 95 percent of women had attended antenatal clinic at least once in their last pregnancy. Poor quality of care was thought to be due to shortage of providers, informal costs in public hospitals and illiteracy (Tibandebage, Kida, Mackintosh, & Ikingura, 2013). Despite the poor

quality of care, women in urban area still decided to be attended at health facilities as they believe it is the place where they can receive services whether early or delayed.

5.2 Knowledge on danger signs during pregnancy

The finding that there is a low knowledge on danger signs during pregnancy is similar to the finding of a study conducted in rural Tanzania (26%), Ethiopia (30.9%) and South Africa (2%) (Hailu, Gebremariam, & Alemseged, 2010; Hoque & Hoque, 2011; Pembe, et al., 2009). Low level of education can be one of the major reasons for low knowledge of danger signs of pregnancy. Effective approaches are thus immediately required to streamline the information delivery systems. Simplified information delivery system will enhance recollection ability of the population with little or no education and consequently enable them to use public health services more effectively. However the results imply that having knowledge on danger signs is not enough without additional change of attitude and empowerment to take appropriate action.

Variables such as marital status, parity, gravidity, ANC attendance and number of ANC visits were not significantly related to knowledge on danger signs during pregnancy. The level of education has been found to be not statistically significant with knowledge of danger signs during pregnancy. This is in contrast to a study conducted in rural Tanzania and Uganda (Pembe, et al, 2009; Kabakyenga, et al., 2011) whereby; having secondary education or higher increases the likelihood of having knowledge on danger signs during pregnancy. A lack of educational opportunities and poor understanding of both danger signs and possible complications means that many women may not be familiar with the presentation of complications and consider them normal appearances in pregnancy (Currie & Wiesenber, 2003).

5.3 Association between knowledge and socio-demographic characteristics

Older age was significantly associated with knowledge of danger signs compared to younger age. Respondents who were aged 31-39 years were eight times (OR= 8.1; CI: 1.6-42) more likely to have knowledge on danger signs. This was in contrast with a study conducted in Ethiopia (Hailu, 2010; Nisar & White, 2003) whereby age was not significantly associated with knowledge on danger signs during pregnancy. Age may mean more exposure and experience about matters concerning pregnancy.

Moreover, being self-employed has shown association with knowledge of danger signs during pregnancy by two fold (OR= 1.9; CI: 1.1-3) compared to being employed. It is speculated that women who were self-employed can reduce the barriers to access the services such as costs and time to attend to the facilities. They can easily make decision to seek health information and also services since they have the ability to do so compare to those who were employed. Those who were employed might had tight schedule at work and therefore unable to have time to visit a health facility unless there was a complication.

5.4 Health seeking actions after experiencing a danger sign

The findings of this study has surprisingly shown three quarter of women who had recognized signs for complications during pregnancy had attended health facility for care and management. This is explained further by the reasons women gave that they have been told to go to hospital if they recognize any danger sign. Furthermore majority were living at a distance of one but less than five kilometers hence can access the services. They believe that being in the hospital environment can solve most of their health related issues. This finding is compared with findings from a study done in Bangladesh (Koenig et al, 2007) whereby only one in three sought treatment from a qualified provider. More than three-fourths of women with the time-sensitive complications of convulsions or excessive bleeding either failed to seek any treatment or sought treatment from an unqualified provider. The principal reason cited for failing to seek care for life-threatening complications was concern over medical costs, and pronounced socioeconomic disparities. Also it contrasts the findings of a study in Haiti (White et al., 2006) whereby women continue to delay obtaining medical assistance or did not seek care at all either within the formal health sector or among lay and spiritual healers.

5.5 Association between knowledge and health seeking action

One of the unique finding of this study is lack of significant relationship between knowledge and health actions. Having low or sufficient knowledge has not shown an impact of the appropriate actions among women who experienced danger signs. Their actions may be influenced by the severity of the condition and advise from significant others. Medically oriented knowledge may help to dispel traditional beliefs about the inevitability of obstetric complications and women's susceptibility to them. A decision to take action is not simply a result of believing that one's condition requires treatment. It is usually influenced by many factors not explored in details in this study. These factors may include financial status,

perceived threat and severity of the condition, time and distance to the facility. All these have to be taken into account when helping women during antenatal clinic and arrange an individualized birth plan.

CHAPTER 6: CONCLUSIONS AND RECOMMENDATIONS

6.1 CONCLUSION

Based on the findings of this study, it can be concluded that there is low level of knowledge on danger signs of pregnancy in urban area. Age and employment status had significant association with knowledge on danger signs during pregnancy. The findings provided insight information on women's knowledge about danger signs in the urban area, which could help in designing appropriate interventions and as a base for further exploratory studies in other parts of the country. Knowledge about danger signs during pregnancy has been found not to have a significant relationship to health seeking action.

6.2 RECOMMENDATIONS

Delay in seeking appropriate health care due to lack of knowledge on danger signs can be reduced by improving access to health information and education. This can be done by developing community outreach projects that are specifically targeting information on childbearing issues particularly danger signs for obstetric complications. The information should be given to individual women and their families so that they can collaborate in situation where care is needed. Different posters and banners that have messages about danger signs during pregnancy should be prepared in simple terms for easy understanding even among illiterate people.

The quality of health education at the health facility should be checked in context. The content of health education and how do health workers disseminate the correct information should be evaluated. This is because the study has shown there is higher antenatal clinic attendance but the knowledge level is low for majority of women. After evaluating the quality of health education other factors should be taken into consideration. Factors such as shortages in staff and inadequate medical supplies can be reduced by producing an adequate number of health professionals and increase budget allocation for health services. The government should increase the number of skilled health care workers at all levels of health care facilities so as to improve the availability of quality services. Lastly, Nurses and midwives of lower cadres who are the majority in most health facilities should be involved in policies and procedures making. These policies should emphasize the best way of interaction among patients and service providers which is important in health information dissemination. This will ultimately empower women with the required knowledge.

The study included women from the health facilities who have gone for health services. Future research should be conducted in the community setting and it should be qualitative exploratory study so as to ascertain the factors for actions related to recognition of danger signs during pregnancy. Further studies are needed to understand why knowledge was not translated into appropriate actions regarding experiencing danger signs.

LIMITATIONS OF THE STUDY

Limitation of this study was the setting used to ascertain the health seeking actions. This study was conducted in a health facility which might have affected women's response concerning actions taken related to danger signs. Therefore the study would have been community based where by women could be easily able to express how and why do they think the actions they would take are appropriate. The study could be conducted in a mixed method of qualitative and quantitative designs. The question on how long did they take to decide to seek care was not included. Also the study was limited to only two health centers within the district and this reduces the generalizability of the results to the entire urban district area. Despite choosing women who have delivered in the past six weeks prior data collection, there could still be room for recall bias.

IMPLICATION FOR PRACTICE

The study findings have shown low level of knowledge on danger signs during pregnancy. Necessary measures are needed to increase the level of knowledge on danger signs during pregnancy. This can be achieved through increasing the number of staff in health facilities so that they can be able to disseminate simple yet adequate information on danger signs during ANC visits to the majority of women. Furthermore health care workers need to update their knowledge several times so as to offer correct information to clients. Also telling women to come to the facilities in case of complication is not enough. Explaining to them in details why they are supposed to visit a health facility for care is essential. The environment should be as user friendly as possible so that even the poor people can benefit for their right to health without a need to pay informal costs.

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APPENDICES

RESEARCH INSTRUMENTS

QUESTIONNAIRE

The following questions should be asked to a woman who is currently attending RCHC clinic for immunization services for her child and has delivered within the past six weeks

IDENTIFICATION
1. Questionnaire number: /___/___/___/___/
2. Division:
3. Ward:
4. Street:
5. Hospital name.....Distance.....km

SECTION 1: SOCIODEMOGRAPHIC AND OBSTETRIC CHARACTERISTICS

1.1 What is your current age? Age in years:_____

1.2 What is your current marital status? *(circle the response)*

- a) Single
- b) Married
- c) Separated
- d) Cohabiting
- e) Divorced
- f) Widow

1.3 Who is the head of your household? *(circle the response)*

- a) Myself (Mother)
- b) Husband/Spouse
- c) Father
- d) Mother
- e) Inlaws
- f) Others(Mention)_____

1.4 What is your highest level of education? (*circle the response*)

- a) None
- b) Primary
- c) Secondary
- d) Vocational
- e) University

1.5 What is your occupation? (*circle the response*)

- a) Peasant
- b) House wife
- c) Employed by the government
- d) Employed by a private institution
- e) Pet trader
- f) Others(Mention) _____

1.6 How many pregnancies have you had in your entire life time (*including abortions, still and*

live births)?

Number _____

1.7 How many times have you given birth in your life time?

(*Remember: A pregnancy which reached 7 months or more will be regarded as a delivery?*)

Number _____

SECTION 2: EXPERIENCE IN LAST PREGNANCY

2.1 Did you attend antenatal clinic during your last pregnancy? (*circle the response*)

- a) Yes (*go to 2.8*)
- b) No

2.2 What was the age of pregnancy at your first ANC visit?

Months _____

2.3 How many times did you attend clinic during that pregnancy?

Number _____

2.4 In any of those ANC visits did you get an opportunity to be advised/counselled on the following;

(*circle either yes, no or don't know for each option*)

- a) Where to deliver **YES NO DK**
- b) Benefits of delivering at the health facility/hospital **YES NO DK**
- c) What to do in case of any complication **YES NO DK**

- d) How to reach the health facility in case of emergency **YES NO DK**
- e) Danger symptoms during pregnancy **YES NO DK**

2.5 During the ANC visits were you alerted by health care providers that you have a danger sign? *(Circle the response)*

- a) Yes
- b) No

2.6 If yes; which signs were you alerted that you have?

2.7 Were you advised to go to health facility or hospital for further investigations or delivery? *(Circle the response)*

- a) Yes
- b) No

2.8 When did you give birth?

Date _____

2.9 Where did you deliver? -----

SECTION 3: KNOWLEDGE ON DANGER SIGNS DURING PREGNANCY

3.1 Have you ever heard about danger signs during pregnancy?

- a) Yes (go to 2.2-2.3)
- b) No (go to 2.4)

3.2 Where did you hear about danger signs during pregnancy?

3.3 What danger signs do you know that occur during pregnancy? *(Insist that it should be during pregnancy only!, Don't read the answers, Listen carefully!, Probe for more answers!, Circle more than one answer)*

- a) Severe vaginal bleeding
- b) Convulsions
- c) Severe headache with blurred vision
- d) Severe abdominal pain
- e) Reduced fetal movement
- f) Too weak to get out of bed
- g) Fast or difficulty in breathing
- h) Fever
- i) Swelling of fingers, face and legs

3.4 Have you ever heard about these danger signs during pregnancy? (*Write true or false for each symptom*)

- a) Severe vaginal bleeding
- b) Convulsions
- c) Severe headache with blurred vision
- d) Severe abdominal pain
- e) Reduced fetal movement
- f) Too weak to get out of bed
- g) Fast or difficulty in breathing
- h) Fever
- i) Swelling of fingers, face and legs

3.5 Which among the danger signs you have mentioned would have greater danger to the life of the mother? (*Circle where appropriate*)

- a) Severe vaginal bleeding
- b) Convulsions
- c) Severe headache with blurred vision
- d) Severe abdominal pain
- e) Reduced fetal movement
- f) Too weak to get out of bed
- g) Fast or difficulty in breathing
- h) Fever
- i) Swelling of fingers, face and legs

SECTION 4: HEALTH SEEKING ACTIONS

4.1 Have you ever experienced any of the following danger signs in your last pregnancy?

- a) Yes
 - b) No (*go to 4.5*)
-
- 1. Severe vaginal bleeding
 - 2. Convulsions
 - 3. Severe headache with blurred vision
 - 4. Severe abdominal pain
 - 5. Reduced fetal movement
 - 6. Too weak to get out of bed
 - 7. Fast or difficulty in breathing
 - 8. Fever
 - 9. Swelling of fingers, face and legs

4.2 Tell us your actions when you experienced the danger signs in your last pregnancy:

(1) Nothing (2) Consulted a friend/relative (3) Self-care/treatment (4) Consulted a TBA/traditional healer (5)Went to a health facility (6) Others (specify)_____

(*Put the coded number of the action in the box for any danger sign, probe for more answer*)

Danger sign	Action
Severe vaginal bleeding	<input type="checkbox"/>
Convulsions	<input type="checkbox"/>
Severe headache with blurred vision	<input type="checkbox"/>
Severe abdominal pain	<input type="checkbox"/>
Reduced fetal movement	<input type="checkbox"/>
Too weak to get out of bed	<input type="checkbox"/>
Fast or difficulty in breathing	<input type="checkbox"/>
Fever	<input type="checkbox"/>
Swelling of fingers, face and legs	<input type="checkbox"/>

4.3 Explain further why you decided to take that action (s)

(For each danger sign she mentioned probe answers)

4.4 What was the outcome after an action (s)?

(For each danger sign she mentioned probe answers)

4.5 What are your views when you experience the following danger signs during pregnancy?

- a) (1) Nothing (2) Consulted a friend/relative (3) Self-care/treatment (4) Consulted a TBA/traditional healer (5)Went to a health facility (6) Others (specify)_____

(Put the coded number of the action in the box for any danger sign, probe for more answer)

Danger sign	Action
Severe vaginal bleeding	<input type="checkbox"/>
Convulsions	<input type="checkbox"/>
Severe headache with blurred vision	<input type="checkbox"/>
Severe abdominal pain	<input type="checkbox"/>
Reduced fetal movement	<input type="checkbox"/>
Too weak to get out of bed	<input type="checkbox"/>
Fast or difficulty in breathing	<input type="checkbox"/>
Fever	<input type="checkbox"/>
Swelling of fingers, face and legs	<input type="checkbox"/>

*******END OF THE INTERVIEW*******

THANK THE PARTICIPANT

MAKERERE RESEARCH APPROVAL LETTER

MUHAS RESEARCH APPROVAL LETTER

INTRODUCTORY LETTER