

Awareness and Perception of Factors Associated With Maternal Mortality among Men/ Husbands of Women Attending Antenatal at Ndola Teaching Hospital in Copperbelt Province, Zambia

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Abstract

Background: Most studies related to maternal mortality have focused mainly on women and direct clinical causes. However, it is important to look at the background predisposing factors in order to reduce maternal deaths. Men's involvement in reproductive health is recommended. Their involvement in antenatal care service is identified as important in maternal health. Awareness of obstetric danger signs facilitates men in making a joint decision with their partners regarding accessing antenatal and delivery care. The aim of this study was to assess the level of awareness and perception of factors associated with maternal mortality among men/ husbands of women attending antenatal at Ndola Teaching Hospital in Copper belt province, Zambia.

Methodology: A descriptive cross-sectional study was carried out in 2021 using a structured questionnaire to collect information on socio-demographic characteristics, awareness levels, perception, knowledge of factors associated with maternal mortality and the role of men in antenatal care. A total of 316 respondents (men/husbands of women attending antenatal care) were sampled using a simple random sampling technique. Data were analysed based on descriptive statistics, chi-square and Fisher's exact test using SPSS version 21. The level of statistical significance was set at $p < 0.05$. The results were presented using tables and charts.

Results: Awareness scores show that approximately 56% of the respondents had high awareness level, while 34.4% had low awareness level and 9.6% had average level. Delay/problems of going to the hospital in case of an emergency was the most commonly identified (97.2%) maternal mortality risk factor and Lack of preparation for a pregnancy was the least identified (31.9%). Perception of maternal mortality risk factors was negative in just above half (51.9%) of the respondents. There was a statistically significant relationship between educational level; occupation with both awareness and perception scores.

Conclusion: More than half (56%) of the respondents obtained scores that fell into the category of high awareness level, while 34.40% had low awareness level and 9.6% had average awareness level of factors associated with maternal mortality. perception of maternal mortality risk factors were negative in about half (51.9%) of the respondents. Though most respondents (86.4%) understand their role in antenatal care, only 21.8% of the participants escorted their partners for antenatal visit. There was a statistically significant relationship between educational level; occupation and both awareness level and perception score.

Keywords: Male participation • Maternal mortality • Maternal health • Ndola • zambia

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Introduction

Background information

Maternal mortality is very high in many parts of the developing world, especially in sub-Saharan Africa. The average maternal mortality ratio in sub-Saharan Africa is estimated to be 546 per 100,000 live births and in Zambia is about 190 per 100,000 live births. While in European region is about 10 per 100,000 live births. Most of maternal deaths are direct obstetric deaths due to obstetric complications such as hemorrhage, sepsis, hypertensive disorder, unsafe abortion and obstructed labor. Non-obstetric causes include anemia, sickle cell disease and cardiac diseases. Nonmedical factors include socioeconomic factors (illiteracy, poverty, ignorance, poor nutrition and poor use of available maternal services), cultural factors, religious factors, poor transport and telecommunication and biological factors (age and parity differential). These non-medical factors apart from lack of provision of emergency obstetric care also play important roles in maternal mortality.

It is a common sense that the quality of obstetric care in a country can be measured by the maternal and the prenatal mortality rates. An initial survey done by Nava A and the colleagues on male and female perceptions of maternal risk in Zambia found that superstitions about causes of maternal mortality are pervasive and that such beliefs impede learning about maternal health risk levels. The survey revealed that people who hold traditional beliefs disregard past birth complications completely in assessing future risk, unlike those who hold modern beliefs. This misconception likely impedes efforts to reduce maternal health risk. Reproductive health policies should therefore be designed to increase information on health-related risk factors. Pregnancy and delivery are regarded as natural processes, and complications may not be a sufficient reason for concern.

However, whatever the cause, most maternal and child health programs seek to address the health needs of women and children by engaging and educating pregnant women and mothers in appropriate care seeking and care giving practices for themselves and their children. This focus on women, and a tendency to think about family planning, pregnancy, childbirth and child health as 'women's business', has often led to men being excluded from spaces and services in which they could learn more about reproductive, maternal and child health. Men tend to be the decision-makers within families and often govern behavior regarding use of contraceptives, the availability of nutritious food, women's workload, and the allocation of money, transport and time for women to attend health services. In addition, men's behavior influences the reproductive health of both men and women and the health of their children. Yet men are often unable to make informed choices because they have not been included in reproductive, maternal and child health services and education.

Zambian men's recognition of the correct causes of maternal mortality will greatly improve their health-seeking behavior and therefore could reduce our present high rates of maternal mortality. As stated by Jessica et al (2013) that in many settings worldwide, within families men tend to be responsible for important choices relating to the allocation of household resources and care-seeking behavior that directly impact on the health of women and newborns. In addition, men's behavior influences the reproductive health of both

men and women and the health of their children. Despite this, most maternal and child health programs focus strongly on engaging and educating women and mothers, to the exclusion of men. Although there has been increasing recognition of the need to include men in maternal and child health services since the mid-1990s actual progress towards engaging men in maternal and child health has been slow in most developing country contexts. Therefore it is necessary to determine the awareness and perception of factor associated with maternal mortality among men. No such study has been done in the Copper belt province and as a country at large. It is against this background that this study is to done conceived. Awareness and perception among the community members of the causes of maternal deaths will influence their decision to seek help in the face of an emergency.

Literature Review

Statement of the problem

Maternal mortality is a big problem worldwide, about 211 deaths per 100,000 live births (WHO 2019), more especially in developing countries, about 190 per 100,000 live birth in Zambia [1]. This is due partly because pregnancy and childbirth have generally been viewed as the domain of women, with men relegated to the periphery. However since men hold the primary decision-making power in the society, the decision of anything in the house such as to a health facility in an emergency must wait until the husband give consent. Thus men without knowledge on factors contributing to maternal mortality cannot make comprehensive decisions towards their pregnant partners. Although men reported to facilitate their wives' utilization of antenatal and delivery care services, this does not translate to practice as adherence to antenatal-care schedules. Recommendations to improve men involvement and potentially increase services utilization include awareness campaigns targeting men. A lot of research has been done on causes of maternal mortality while studies assessing the awareness levels in the affected population are few. Further still most of such studies that have been done mainly focus on the awareness and perception of maternal mortality among women. It is therefore necessary that the awareness level and perception of men towards factors associated to maternal mortality are also studied and as they are key decision makers in the community.

Global and regional: Maternal mortality reduction needs action beyond prevention and treatment of biomedical causes; it needs the modification of the socio-cultural contexts that contribute to high maternal mortality. They are difficult to change but indispensable to maternal health. Hence, high maternal death must be addressed within the socio-cultural context. Maintained that researchers and people tackling maternal mortality issues, should identify new information sources in different environments by, for instance looking at the communities own experience.

The socio-demographic factors seen to influence SBA up-take in other developing countries include residential area, parity, financial status, mother's education, and access to transport [3]. One study conducted in this area attributed the high percentage of home deliveries to a combination of economic, geographical, cultural, and psychological reasons [4]. Studies on determinants of SBA utilization

in other countries also have found marked geographical variations in utilization of SBAs [5]. Residence (rural-urban) has also been shown to be associated with utilization of SBAs; women in rural areas are less likely to utilize an SBA than are women in urban areas. As might be expected, the poorest women are the least likely to utilize an SBA during delivery.

Maternal characteristics, especially higher education and employment, also are associated with the utilization of SBAs in delivery. In Nigeria the mother's occupation was found to be associated with utilization of an SBA [1]. Parity has also been shown to be a determinant of SBA utilization. Women are more likely to have skilled birth attendants for the first birth than for later births [2]. Health system factors associated with SBA utilization are place of last delivery, service provider's attitude, health facilities infrastructure, distance to a health facility, and knowledge of pregnancy risks.

Several studies have examined the role of men in influencing uptake of reproductive health services. These studies define male involvement in terms of men's roles as clients of health care services, as partners, or as agents of positive change. Current literature indicates that the influence of male involvement on SBA uptake among women acts through husband's approval, agreement between spouses on the importance of delivery at a health facility, gender roles (perceiving services as being female-focused), men's knowledge of the relevance of their involvement, and traditional perceptions of delivery as exclusively a woman's concern.

Men play a significant role in the reproductive life of women, from the pre-pregnancy stages of family planning to pregnancy, birth and post-natal periods. This was shown in a study in which a survey of the perceptions of women on males' involvement in maternal healthcare in rivers state, Nigeria by Koneke and the colleagues. Responses from a total of 300 pregnant and post-natal mothers who were purposively selected from randomly drawn health centers in the three senatorial districts in rivers state were analyzed. The results showed no significant difference in the perceptions of women with primary or post-primary education, unemployed or employed women as well as those residing in rural or urban areas. In addition, there was a unanimous agreement that joint decision-making was better than a decision solely taken by the man or woman alone. They all agreed that financial empowerment and autonomy were crucial for enabling women to access and utilize maternal healthcare facilities. It was concluded that despite the pivotal role of men in family affairs, their involvement in maternal health process was abysmal and this could be due to some extraneous factors. The study therefore recommended that women empowerment, in terms of education and finances would go a long way towards improving maternal health which, over the years, has been on the decline, despite men's good intentions [3]. This study contradicts itself in that it clearly state that, "men play a significant role in the reproductive life of women, from the pre- pregnancy stages of family planning to pregnancy, birth and post-natal periods and then oppose in the conclusion that. "Women empowerment, in terms of education and finances would go a long way towards improving maternal health which, over the years, has been on the decline, despite men's good intentions." These things they have to go hand in hand.

A study that was done in Kenya by Judith Nekesa Mangeni and three other friends (Mangeni et al. 2013) showed that the majority (68 percent) of women whose husbands accompanied them for at least

one antenatal care (ANC) visit utilized a skilled birth attendant during delivery. The odds of utilizing a skilled birth attendant were 2.8 times higher for women who were accompanied by their husbands to at least one antenatal visit than for women who had ANC but not accompanied by their husbands (or 2.82, ci 1.49-5.36). As for the man's perception variable, about half (49.5 percent) of the women whose husbands had a positive perception were attended by a skilled birth attendant. Further, women whose husbands had a positive perception of the use of a skilled birth attendant had slightly higher odds of utilizing a skilled birth attendant than women whose husbands had a negative perception. This difference was not statistically significant, however. Several studies have examined the role of men in influencing uptake of reproductive health services. These studies define male involvement in terms of men's roles as clients of health care services, as partners, or as agents of positive change. Current literature indicates that the influence of male involvement on skilled birth attendants (SBA) uptake among women acts through husband's approval, agreement between spouses on the importance of delivery at a health facility, gender roles (perceiving services as being female-focused), men's knowledge of the relevance of their involvement, and traditional perceptions of delivery as exclusively a woman's concern. In many cases primary pregnancy support is most often provided by other women. Overall, men often are excluded from a supporting role, even as part of a couple. Literature mentioned that disclosure of pregnancy is rarely made to them in the first instance, despite some men's wish to be the first to know. In their study most men reported that women typically chose to tell their mothers in law, co-wives, friends or trusted female neighbors before their husbands [4].

Some men told them that they thought delayed or even non-disclosure to their husband was often due to women's shyness in discussing female issues" or fear of the husbands" reaction to an unplanned pregnancy (which many were).

"she did not tell me but i saw her stomach growing, is when i realized that she is pregnant so when i asked her slowly that what's happening nowadays that you're gaining weight, that is when she told me" . "She told one of her in- laws about the pregnancy, therefore that is how i got the information. She was scared to tell me because the family planning method failed, so she thought her in law was going to convince me not to beat her up" [5].

The evidence on the role of men in household decision-making about fertility and its policy implications is mixed. Although several randomized public health studies found that providing health education to husbands may actually increase uptake of or adherence to modern contraception other studies found no effect.

On men's role in fertility decision-making, most studies conclude that men's desires override the desires of their wives, and men maintain almost complete power in fertility decision-making.

On the complex interaction between men and women in deciding how many children to have, when to have another child, and when to use contraceptives, there are limited findings that women indeed influence men's decision-making. Most reported marital communication increased likelihood of joint decision-making and contraceptive.

However, even under optimal circumstances such as increased spousal communication, greater education, and higher income, there

is no evidence that women have greater autonomy over their reproductive decisions than their husbands.

Local: In Zambia, researchers have focused on couples with at least one HIV positive spouse where clinic visits are more habitual and the desire for contraception is greater [1]. Ashraf and colleagues found that women in Lusaka, Zambia were less likely to seek family planning services if their husbands were present when the services were offered, implying that unmet need for contraception and excess fertility may reflect underlying differences between partner preferences. In 2012 Ashraf and colleagues founded that while male involvement programs are a growing trend in reproductive health, they could do more harm than good if not designed to ensure men are sufficiently informed about risks of childbirth. A systematic review of the literature in Kalabo showed that women who were employed had a financial advantage and, therefore, were more likely to utilize SBAs during delivery. Community meeting intervention data indicates that the information conveyed at the community meetings was understood by the respondents and affected their perception of risk as expected. This was demonstrated by a convergence in husbands' and wives' beliefs, with the respondents that started with the highest under- or over-estimation of risk being more reactive. Our study will be the first to systematically examine the determinants of men's awareness and perception of maternal mortality in Zambia and will provide useful information for clinicians, researchers, and policymakers.

Main aim and specific objectives

Aim: To explore men's awareness and perception of factors associated with maternal mortality.

Specific objectives:

- To determine the awareness level of factor associated with maternal mortality among men/husbands.
- To determine the perception of men (particularly husbands) on factor associated with maternal mortality.
- To describe if men's (particularly husbands) understanding of their roles in antenatal care.

Research questions:

Three major questions are used to guide this study:

- Are men (particularly husbands) aware of factors associated with maternal mortality?
- How do men (particularly husbands) perceive factors associated with maternal mortality?
- Do men (particularly husbands) understand their role in antenatal care?

Rationale and justification

Most of the studies on improving maternal mortality focus on awareness and educating women forgetting that men (husbands of these women). Data shows that men, in particular, tend to underestimate maternal mortality risk, which may lead to their lower participation in measures taken to reduce maternal mortality. This study will determine awareness and perception of men towards determinants of maternal mortality. This will inform policy maker, whose main aim is to reduce the maternal mortality rate, on the

awareness levels and perception of factors associated with maternal mortality among men (particularly husbands). Policy maker will then be able to make evidence based interventions aimed at reducing maternal mortality. When men/husbands have good awareness levels and perception of these factors, they will make informed decision on matters of their pregnant partners hence reducing the maternal mortality rate. This will also benefit the MOH on the expenses of maternal health and as a result the whole country benefit at large. It is now realized that men are actually the right people to be aware and of good perception on factors contributing to maternal mortality. This is the reason why this study is to be conducted.

Measurement

Maternal mortality has been defined by WHO in its 10th Revision as "the death of a woman while pregnant or within 42 days of termination of pregnancy irrespective of duration and the size of the pregnancy from any cause related to or aggravated by the pregnancy or its management, but not from accidental or incidental cause. Awareness is defined as having knowledge or perception of a situation or fact [2]. Perception is defined as a way of regarding, interpreting or understanding something. Antenatal care (ANC) is the care one gets from health professionals during a woman's pregnancy [2].

Knowledge is defined as information and skills acquired through experience or education or awareness or familiarity gained by experience. The sum of what is known, Philosophy true, justified belief, as opposed to opinion.

The table below illustrates how the measurements of awareness and perception of factors associated with maternal mortality will be analyzed. It also shows the degree of understanding their (men) role in antenatal care.

Variable	Variable type	Indicator	Scale
Awareness	Ordinal	Percentage	Low <40 Average ≥ 40 - <70 High ≥ 70
Perception of factors associated with maternal mortality	Nominal	Percentage	Poor <50 Good ≥ 50
Perception of role in antenatal care	Ordinal	Percentage	Low <40 Average ≥ 40 - <70 High ≥ 70

Table 1. Measurements.

Conceptual framework

Basically men's awareness and perception of factors associated with maternal mortality are partly due to their age, Level of education occupation, Religion, Wealth status and awareness programmes. Only men who are aware and of good perception understand their role in antenatal care and can make comprehensive decisions on the matters relating to their pregnant spouse. The figure below illustrates how these variables are related.

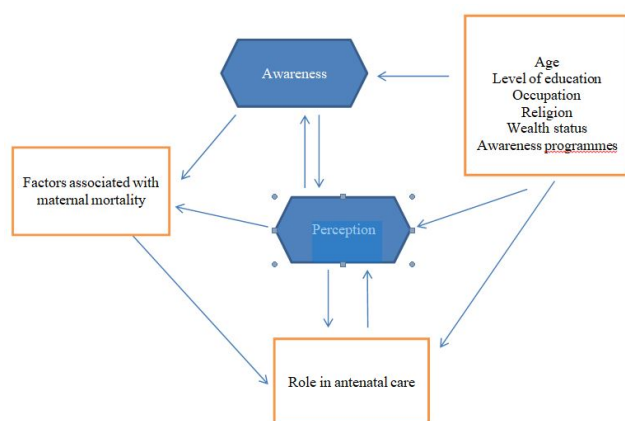


Figure 1. conceptual framework; Awareness and Perception of Factors Associated with Maternal Mortality among Men.

Methodology

Summary of the methodology

This descriptive cross sectional study was conducted in Copperbelt province of Zambia at Ndola Teaching Hospital to husbands of women attending antenatal care selected using simple random selection. The participants were men between the ages of 15 to 50. A structured questionnaire was administered with the aid of three trained assistants. A simple random sampling technique was used to select married men, who gave consent to be enrolled in the study. They were assisted in filling a structured questionnaire containing questions on awareness and perception of maternal mortality among men in the community. Information that generated was recorded on a data collection sheet designed for the study. The coded data fed into the computer using the SPSS program to determine the mean values and frequencies. Data analysis was assessed at 90 % confidence interval and 10 % non-respondent rate was expected.

Setting

The study was carried out at Ndola Teaching hospital in Ndola district of Copperbelt Province Zambia. Ndola Teaching Hospital is the second largest third level referral hospital built in 1968 (commissioned 1972) with 26 in-patient wards accommodating bed capacity of 851 and 97 cots. Now have 760 active beds (Variance is due to housing of Tropical Diseases Research Centre and the Copperbelt University School of Medicine its 6th and 7th floors).

The hospital was built by the Government of the republic of Zambia and since its inception; it has provided tertiary level referral services to the five provinces of the Northern part of Zambia. Within Ndola district, the hospital permissively carts for second and sometimes first level services to a district catchment population of 563,082. By end of second quarter 2019, the hospital workforce stood at 1512, two thirds of which were clinicians and a third support staff.

Study design

The study was a cross-sectional descriptive quantitative research. The approach was the best for this study whose main focus was to assess men's awareness and perception of factors associated with maternal deaths. The study design was very helpful in collecting information of men on awareness of maternal mortality. The study was conducted in 2020.

Study population

The target population consisted of men/husbands whose wives were attending antenatal care at Ndola Teaching Hospital. Ndola teaching Hospital provided a good population study as it receives many clients who seek services in obstetrics, antenatal care services in particular. The total study population is 900.

Inclusion criteria

Males between the ages of 15 and above, whose wives booked for antenatal care services at NTH. Those willing and signed an informed consent

Exclusion criteria

- Men whose wives/women did not book for antenatal care at NTH were not be included in the study.
- Those who were severely ill, could not talk and hear were not included.
- Those not available at time of study were also excluded from this study.

Sample size determination

The following formulae were used to determine the required sample size for a finite population using stat calc programmer in Epi info. Version 604. The estimated population study is 900

$$\text{Sample size} = (n / n + 1) \times \text{population}$$

Where

$$n = (Z^2 PQ / d^2)$$

P is the estimated prevalence: 0.5

Z is 1.96

d is the desired width of confidence interval: 0.05

Q is (1-P) which is 0.5

Therefore the sample size of at least 316 was needed.

The information in the used to arrive at a sample size (to be selected randomly)

Total Population Size	
Level of Confidence Measure (z)	1.96 (at 95% Confidence Level)
Margin of Error (d2)	5%
Baseline levels of the indicators (P)	50% (as no estimates exist)
Design effect	2.00 (as no information on

previous surveys is available)

Table 2. Information required for computing the sample size.

Sampling technique

Simple random sampling was used to select the participants. Selection of the men to be assessed was based on the availability of the participant during the period of data collect and their willingness to participate in taking the anonymous survey.

Data collection

A structured questionnaire was used to assess the men's awareness levels. This questionnaire was developed using information from previous studies related to maternal mortality. Questionnaires were given to the wife as they attend antenatal care, went with it and give the husband to fill in and return the filled on the following visit. When the wife says that her husband didn't know how to read or does not understand English or both, then they were asked to leave an address in order to be followed at their respective homes to explain in local language and collect information in local language. The questionnaire consisted three parts that sought information on socio-demographic profile of the respondents, awareness of maternal mortality causes and risk factors, perception towards the aforementioned risk factors and understanding the role of men in antenatal care. The awareness of respondents on causes and risk factors of maternal death was assessed using 20 questions, while perception and understanding the role of men in antenatal care with 24 questions from the questionnaire. Each correct response to the question scores one mark while incorrect response scores zero. Thereafter the sum of the scores was determined and the percentage scores was determined using the formula: $\text{Obtained score} / \text{Total score} \times 100$. Based on this, respondents awareness level was graded as high (scores above 70%), average (scores between 40% and 70%) and poor (less than 40%). perception of respondents was graded positive if they score 50% or more while a negative attitude represents a score of less than 50%.

Permission was sought from Ndola Teaching Hospital management to conduct this study from the hospital and among men whose attend antenatal care services. Participants were required to sign a written consent form with full explanation of the study objectives.

Data analysis

Following collection of data, analysis will be done using data analysis software Epi info version 6.04 and Epi data 3.1. Data collected were coded, entered into the computer and analysed using statistical package for social sciences (SPSS, IBM Corporation USA) software version 19. Results were arranged and presented in tables, bar charts, or pie charts. Chi-square and Fisher's exact test were applied for the comparison of proportions. Statistical significance was set at $p < 0.05$.

Limitation of study

The information from the men was subjective and hence may not be very accurate. Other anticipating limitations include time and financial assistants.

Ethical consideration

Ethical approval was sought from the Tropical Disease and Research Center (TDRC) Ethics Committee. Participants were asked to take part in the study with full explanation of what the study is all about and were required to sign a consent form to ensure their safety and confidentiality. Autonomy is respected, participants were free to decline taking part in the study or leave the study when they feel they cannot continue. The information provided by the participants was only be used for this study purpose. The anticipated ethical issues included; consent, confidentiality, risks, benefits (beneficence) and fairness (justice).

Informed consent: Volunteers were provided with all the information about the study which included purpose of the study, what it involves and the use of the results. After explaining the purpose of the research, an informed consent form was given to all the participants and before taking part in the interview, consenting participants signed. Those who felt like discontinuing the interview mid-way were free to do so and those who felt like not answering some of the questions were free not to do so. Participation was voluntary and permission was sought from the participants prior to the interview. Participants were forced to take part in the study. It was clearly explained that whether they agree or refuse to take part in the study their access to health care would not in any way be affected.

Confidentiality: In order to ensure participants' confidentiality, no names or any other personal identities was included in any recording or transcribed scripts. Identification of participants was done through numerical codes. The interviews was conducted in private places (preferably indoors) or any other place preferred by the participants to insure confidentiality and openness. The questionnaires were kept in a safe place to ensure confidentiality of the information provided.

Risks: The study involved sexual reproductive issues which may be very personal. Some participants may feel uncomfortable discussing some of the sensitive issues. In order to address this risk, participants were notified that they were free not to answer any of the questions that they were not comfortable with.

Benefits: There were no direct benefits to the participants for taking part in the study. Participation was voluntary and no imbursements or payments were made to any of the volunteers. However, the findings of the study are to benefit the entire community because more awareness was generated on the male partner participation in antenatal care which would be used to improve their participation.

Fairness: All eligible research participants were given an equal chance to participate or decline. Those who took part as participant were treated the same regardless of their social-economic status or level of education. All participants had a right to stop the interview at any time if they wished, without giving any reason.

Results

All the participants were male whose wives/partners were pregnant and attending antenatal care at Ndola teaching hospital at the time of the study. A total of 316 questionnaires were distributed; of these, all 316 completely filled and analyzable questionnaires were returned, giving a response rate of 100%. Table 3.1, below, shows

that the majority (52.5%) of the respondents was in the age group 25-34 years. The mean age was 31.6 ± 7.7 years. Among these subjects majority (93.7%) were married, while 28.8%, 44.9% and 24.7% had tertiary, secondary and primary education, respectively, and 1.6% had no education. Among the respondents 25.1% had formal employments, 35.8% informal employment and 38.9% were unemployed.

Parameter	Frequency n=316	Percentage
Age (years)		
15-24	41	13
25-34	166	52.5
35-45	101	32
>45	8	2.5
Marital status		
Married	296	93.7
Others	20	6.3
Education		
None	5	1.6
Primary	78	24.7
Secondary	142	44.9
Tertiary	91	28.8
Occupation		
Unemployed	123	38.9
Informal employment	113	35.8
Formal employment	80	25.3

Table 3. Socio-demographic status of the study subjects.

Table 4 shows that 97.2% of the subjects were of the opinion that delay/problems of going to the hospital in case of an emergency due to financial problems is a cause of death of most pregnant women while only 76.3% of the subjects were knew that poor decision making by the husband is associated with maternal mortality. Less than half were aware that age of the pregnant and Socio-cultural barriers to seek care are associated with maternal mortality, Lack of preparation for a pregnancy scored the least 31.9%. Most of the respondents were aware of the factors associated with maternal mortality, approximately 56.0% of the respondents obtained scores that fell into the category of high awareness level, while 34.4% had low awareness level and 9.6% had average awareness level as shown by fig 2. There was a statistically significant relationship between highest level of education attained; occupation of the respondents and awareness levels Table 5.

Factor	Frequency	Percentage
Delay in seeking antenatal care	194	61.4
Home delivery	172	54.4
Maternal age	111	35.1

To many pregnancies (high parity)	135	42.7
Delay to reach health facility in case of an emergency	307	97.2
Lack of understanding of complications	266	84.2
Poor decision making by the husband	210	66.5
Socio-cultural barriers to seek care	129	41.1
Lack of preparation for a pregnancy	101	32
lack to follow instructions from health care providers	276	87.3

Table 4. proportion of the respondents that correctly identified factors associated with maternal death (n=316).

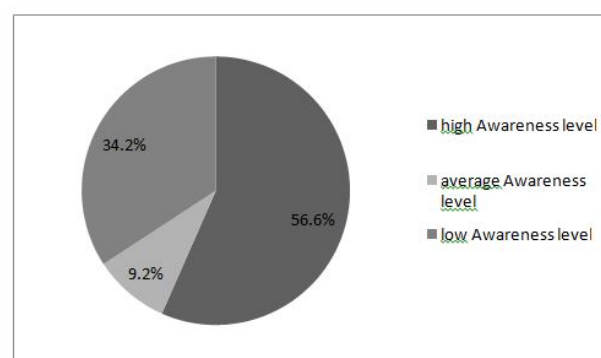


Figure 2: Respondents' awareness of factors associated with maternal mortality.

Awareness level				
Parameter	low	average	High	P-value
Age (years)				
15-24	9	8	24	0.687
25-34	43	10	113	
35-45	54	8	39	
>45	2	3	3	
Education				
None	3	2	0	0.021
Primary	43	11	24	
Secondary	42	13	87	
Tertiary	20	3	68	
Occupation				
Unemployed	54	5	64	0.025
Informal employment	25	15	73	

Formal employment	29	9	42
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Table5: relationship between Socio-demographic status of the study subjects and awareness level score.

Table 6 shows that the overall perception scores after grading all the questions showed that slightly more than half (51.9%) of the respondents obtained scores that fall into the category of negative attitude. There was a statistically significant relationship between highest level of education; occupation of the respondents and perception score as illustrated in table 3.6.

Perception	Frequency	Percent
Positive	152	48.1
Negative	164	51.9

Table6: Overall perception of factors associated with maternal mortality (n=316).

Perception score			
	negative	positive	P-value
Age (years)			
15-24	26	15	0
25-34	93	73	
35-45	42	59	
>45	3	5	
Education			
None	4	1	0.578
Primary	57	21	
Secondary	84	58	
Tertiary	19	72	
Occupation			
Unemployed	97	26	0
Informal employment	60	53	
Formal employment	7	73	

Table7: relationship between Socio-demographic status of the study subjects and perception level score.

Question	Yes N=316 (100%)
Is Antenatal care necessary?	313 (99.5)
Do u think is important for the husband to escort his partner for antenatal care	190 (60.1)
Is child spacing important	116 (36.7)
Do you escort tour partner for antenatal care	69 (21.8)

Ever followed wife to labour room	48 (15.2)
Do u remind your wife the date for antenatal visit	213 (67.4)
Do you always excuse and allow your partner for antenatal care	251 (79.40)
Which month of pregnancy is the woman supposed to have first Antenatal checkup?	1st or 2nd trimester 242 (76.6)
How many visits are recommended for antenatal	178 (56.3)
>4	

Table8: Understanding men's role in antenatal care.

In addition table 3.6 demonstrates that most of the respondents 313 (99.5%) understand that ANC is necessary. 190 (60.1%) respondents believed that men had a role to escort his partner for antenatal care, Also 213 (67.4%) reminded there partner the date for antennal visit. An appreciable number of respondents 242 (76.6%) understood the timing of first antenatal visit, and 178 (56.3%) were knowledgeable about the minimum number of antenatal visits. Majority (79.4%) of the respondent always excused and allowed their partner for antenatal care.

Discussion

Level of education was quite high as 73.7% have attained secondary or tertiary education which is also not surprising as the Ndola is home to many tertiary institutions. Awareness of maternal deaths was high in the study population (86.7%), and majority of them perceived maternal deaths as a problem. The findings are consistent with the findings that were obtained in two studies in urban settings in Nigeria [1]. However, this is contrary from a study in Ethiopia where the men in the study had poor knowledge of the causes of maternal mortality. This could be as a result of the fact that the respondents had lower educational status and were mostly residing in rural areas where accessibility to education is hard [2]. Knowledge of the direct causes of maternal deaths translates into awareness of the risk factors that predispose women to death as a result of pregnancy or childbirth. More than half (56.0%) of the respondents were found to have high awareness levels of factors associated with maternal mortality while 9.6% had average awareness levels and 34.40% had low awareness level. An analysis of the individual outcome variables used to obtain awareness level scores however showed that a very high proportion of the respondents (97.2%) agreed that delay to reach health facility in case of an emergency is associated with maternal death, adding to the burden of maternal mortality in Zambia. This is similar to a study among women in south Nigeria, where lack of money was perceived as a contributor to maternal mortality by about 80% of the respondents. This is not surprising as majority of the Zambian populace lives below the poverty line and as such, are likely to understand the hardships that come with out-of-pocket spending on health care. Respondents in the study area are very likely to have lost someone, or at least know someone whose death was as a result of one of the mentioned maternal deaths risk factor. This is the

reason for being highly aware of the above risk factor associated with maternal deaths found in the study. Home delivery as a risk factor of maternal mortality was only recognized by just above half of the respondents (54.4%) comparable with the a study in Nigeria but contrasts with findings from a study in Mali where 95% of the male respondents said they would advise a pregnant woman to deliver in a health facility. In contradicting the study in Nigeria, the cultural practices is no longer common issue in the region where our study was conducted thereupon does not plays a major role in determining women's choice of place of child delivery. Lack of preparation for a pregnancy and maternal age were the least common identified risk factors in this study. Only 32.0% and 35.1% of the respondents viewed Lack of preparation for a pregnancy and maternal age respectively as risk factors influencing maternal mortality. When asked why this could not be a factor most subjects said they handle a pregnancy irrespective of the way it came about. This was related to the fact that most of respondents were married and each pregnancy is well welcomed regardless when it comes, planed or unplanned. Less than half of the respondents (42.7%) in the study were aware that too many pregnancies or collectively lack of family planning and high parity is associated with maternal mortality. This is in agreement with a study in Nigeria, where none of the men interviewed in a reproductive health survey thought that the number of pregnancies a woman would affect her health. The reason for the similarity with the findings of this study is that in Africa, most societies are patriarchal and men always are the one to determine familial fertility and contraceptive decisions. With high demand for children, the motivation to regulate number of children is low; hence forth it is not surprising that so many men do not see lack of family planning and high parity as risks for maternal deaths.

This study found out that more than half (51.9%) of the respondents had negative perception, with the other 48.1% having positive perception. In keeping with the high proportion of respondents who identified lack of antenatal care as a maternal mortality risk factor, 73.5% of the respondents agreed that men should encourage their wives to seek antenatal care during their period of pregnancy. However, perception of child spacing was decidedly negative, as only 36.7% of the respondents agreed that child spacing is important. The general negative perception of child spacing was also captured in a study carried in Nigeria which found 61% had unfavorable attitude towards family planning, similar to the findings obtained in this study. This is largely related to cultural beliefs coupled with the desire for more children which all add up to discourage people from stopping or limiting child-bearing. In contrast, another a study in an urban region of Enugu, Nigeria found out that respondents were generally supportive of family planning, although overall women were said to be more likely than men to agree with positive such arrangements. In that study more than 80% of the female respondents agreed that family planning helps a woman repair properly between pregnancies and protects the health of mothers. This is expected as the inequalities in the use of family planning methods is captured in different areas. There was a statistically significant relationship between the highest level of education; occupation with the awareness level score. This is similar to a study in Nigeria and Uganda where it was determined that those respondents with higher educational levels were likely to have good knowledge on maternal health issues than those with lower educational levels and those with formal occupations are likely to

have better knowledge on maternal health issues than those with informal occupations. There also was a statistically significant relationship between the highest level of education; occupation with the perception score. This was similar to a study in Nigeria where there was a statistically significant relationship between the male respondent s ' educational level; occupation with attitude. The relationship could be explained by the fact that with higher education comes better understanding of maternal health and its determining factors which will invariably lead to a good perception.

Regarding understanding of the role of men in ANC, most men (86.4%) understand their role in antenatal care. For this study, despite their understanding, the results showed that ANC attendance is considered as a women's activity especially that in the country the services are predominantly provided by female health workers as only 21.8% of the participants escorted their partners for antenatal visit. This perception is not unique to the studied population in Zambia because it is associated with femininity in majority settings (H. Muloongo et al 2019). Nevertheless, the importance of involving men in safe motherhood activities such as ensuring wellbeing and survival of mothers during pregnancy and childbirth can-not be over emphasized. The respondents in the study were aware that their involvement in ANC could lender them an opportunity to learn about pregnancy and the care required to ensure good health of the pregnant woman for improved maternal health outcomes. Studies in other settings have shown that involving participation of men in ANC leads to improved birth preparedness and complication readiness [2]. Some of the elements of birth preparedness include among others knowledge of danger signs during pregnancy and child birth, plan for where to give birth, transportation and sourcing for money. In this setting, men are influential in providing not only money but other necessities that might be needed at child birth and hence involving them at ANC provides an opportunity for them to plan early for child birth and avoid delays.

Conclusion

This study showed that more than half (56%) of the respondents obtained scores that fell into the category of high awareness level, while 34.40% had low awareness level and 9.6% had average awareness level of factors associated with maternal mortality. perception of maternal mortality risk factors were negative in about half (51.9%) of the respondents. Though most respondents (86.4%) understand their role in antenatal care, only 21.8% of the participants escorted their partners for antenatal visit. There was a statistically significant relationship between educational level; occupation and both awareness level and perception score.

Recommendations

Interventions such as health education and community mobilization that aims to educate men on risk factors and danger signs associated with poor maternal health outcomes should be carried out in this area. Such can be done through the use of religious leaders, as suggested by the men would help promote awareness especially among men. Men should not be left out since they make most of the decisions in families. Contents of such health education messages should include early recognition of danger signs of maternal mortality, dispelling harmful cultural beliefs, registering

early for antenatal care and prompt presentation at the hospital when in labor, risk of delivering in homes of traditional birth attendants, maternity homes and health centers, and the concept of early referral of women to the hospital should be reinforced. Also, the socioeconomic status of the populace, especially men, should be improved. The researchers suggested that further studies need to be

conducted to in various places assess the magnitude of problems related with maternal mortality. While one cannot be sure that men will act on their awareness and perception, improving them is an important step toward involving men as active stakeholders in the fight against maternal mortality in Zambia.

Abbreviations AIDS: Acquired Immunodeficiency Syndrome; ANC: Antenatal; CHWs: Community Health Workers; HIV: Human Immunodeficiency Virus; M DG's: Millennium Development Goals; MMR: Maternal Mortality Rate; MOH: Ministry of Health; NTH: Ndola Teaching Hospital; SBA: Skilled Birth Assistant; TDRC: Tropical Disease Research Centre; W H O: World Health Organization

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