ORIGINAL RESEARCH

Investigating Knowledge and Determinants of Birth Preparedness among Pregnant Women in Mangochi District

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Abstract

Introduction

Birth preparedness (BP) has been globally endorsed as an essential component of safe motherhood programs to reduce delays for care, so as to reduce maternal and neonatal mortality rate. In spite of the benefit of BP, no study has been documented that assessed the knowledge and determinants of birth preparedness in Mangochi District, Malawi. Therefore, this study aimed at investigating knowledge and determinants of BP among pregnant women attending antenatal clinic in Mangochi District, South-east Malawi.

Methods

A descriptive cross-sectional study was conducted involving 382 respondents for the quantitative component and five focus group discussions for the qualitative component. Simple random sampling was used to select respondents in the study area for quantitative data collection while purposive sampling was used for focus group participants. A researcher-administered questionnaire was used to collect quantitative data.

Results

A total of 382 mothers participated, achieving a response rate of 99.5%. Majority of women (97.6%) had heard about BP. Of the total mothers, 73.3% had adequate knowledge on birth preparedness. However, from the focus group discussion conducted, pregnant mothers pointed out communication as a barrier in accessing health care services as most of the health care workers could not communicate to them in Yao, which is the dominant local language in the study area. Among the factors associated with birth preparedness were religion ($r=-0.013$, $p<0.05$), maternal education ($r=-0.017$, $p<0.05$), maternal occupation ($r=-0.044$, $p<0.05$) and husband occupation ($r=-0.000$, $p<0.05$) showed statistically significant association.

Conclusion

About 73 % of pregnant women in this study had adequate knowledge in birth preparedness. The factors most associated with birth preparedness were maternal and husband occupation, maternal education and religion. There is a need to continue providing health education on birth preparedness to all women in the reproductive age band.

Keywords: Birth preparedness, Mangochi, pregnancy, antenatal care, women

Introduction

Birth preparedness (BP) entails a detailed plan that surrounds the delivery of the child. It includes immediate identification of negative signs and symptoms that requires prompt management, a plan of delivery place and midwife, emergency requirement like money, transport schedule and a significant other that can decide in a case of an unforeseen obstetric complications[1]. BP is made by the health care facilities, health care professionals, and the pregnant woman, her significant others, and the society at large. It is a specified action plan and decision made that covers the antenatal, intrapartum and postpartum period of the woman. This plan aids pregnant women to access skilled services during labor and consequently attend promptly to any identified complications. If birth preparedness is planned appropriately, it contributes significantly to the reduction of maternal and neonatal mortality as the pregnant women and their families are adequately prepared for the birth or any arising complication[1] .

Lack of birth preparedness will lead to poor maternal health[7]. The unprepared family wastes time in getting organized, finding money, recognizing the complications, reaching the appropriate referral facility and finding transport[2]. Pregnant women and their families need to have adequate knowledge of birth preparedness to enable them to respond appropriately to complications that may arise because informed women will be in a better position to make reasonable and on-time decisions[3].

Poor maternal health leading to maternal morbidity and mortality is a major problem in Africa[4]. The situation is more serious for women in Sub-Saharan Africa where one in every 16 women dies because of pregnancy related causes. In fact, Sub Saharan Africa incurs 98% of maternal deaths[5]. More than three-fourths of maternal deaths could be averted if all women had access to skilled care, which is considered the cornerstone and key intervention to minimize complications

https://dx.doi.org/10.4314/mmj.v37i3.9

associated with pregnancy and childbirth[6]. However, lack of transportation and concern over the cost of services, particularly inadequate preparation for rapid action in the event of obstetric complications are factors contributing to delays in receiving skilled obstetric care[7]. Pregnancy-related complications both for the mother and the newborn could be largely alleviated if there is a well-consolidated BP plan developed during pregnancy and implemented at the time of delivery[8]. World Health Organisation (WHO) indicates birth preparedness and complication readiness (BPCR) reduces home delivery with a consequent increase in skilled attendance during labor and childbirth[6].

Review of delivery records at Mangochi District Health Office in Malawi has shown that more than 50% of women seeking skilled attendance during delivery, report very late due to lack of birth preparedness. Some come in advanced active phase of labour or second stage of labour while others come having already delivered at home or on the way in the absence of midwives. Consequently, such women may be prone to infections, postpartum hemorrhage, obstetric fistula and even death while the neonates may be prone to numerous neonatal infections including birth asphyxia[9] which may lead to some serious complications and death. A number of factors determine women's knowledge on birth preparedness. A community-based survey from Ethiopia[10] found that educational status, age, religion, family income, and knowledge of obstetric danger signs were significantly associated with birth preparedness and complication readiness. Therefore, this study sought to investigate knowledge and determinants of birth preparedness among pregnant women attending antenatal care services in the district of Mangochi, Malawi.

Method And Materials

Research Design

This was facility based descriptive cross-sectional study that used both quantitative and qualitative approaches. A cross sectional study design allowed measurements to be taken at one specific point in time and no follow-up of participants was performed. A cross-sectional study ensured that the phenomenon under study was captured at that point in time[18]. This allowed the researcher to assess the predictors of birth preparedness in Mangochi. On the other hand, the quantitative approach enabled the researcher to make inferences about significant predictors of birth preparedness. Qualitative approach was used so as to have an in depth understanding of birth preparedness from the respondents' perspective.

Setting

The study was conducted in Mangochi district, Malawi. According to Malawi National Statistical Office (NSO), the estimated population of Mangochi was 1,148,611. The district has 56 health facilities with most of them being government owned. Most of Mangochi population are farmers who rely on subsistence crop production though a small population engages in fishing. The languages spoken are Yao and Chichewa which are dominant. The district has literacy rate of 53 percent. The main religions in the district are either Islam or Christianity whereas the predominant ethnic groups are Yao and Chewa[11].

Specifically the study took place in the following public health facilities: Mangochi District Hospital, Makanjira Health Centre, Monkey Bay Community Hospital, Namwera Health Centre and Chilipa Health Centre. Multistage sampling technique was used to select health facilities used in the study. Primarily, all health facilities in the district were stratified into five existing zones as demarcated by the Mangochi District Health Office. The stratum was also based on the geographical location of the facilities within the district. Then, in each zone, all facilities were written on a piece of paper, folded, and placed in a box. The researchers then shook the box and randomly selected one facility in each zone, thus coming up with one health facility in each zone to be a representative in the study. The above randomly selected facilities were ideal because they have high flow of antenatal care attendance. Except Mangochi District Hospital, the rest of the selected facilities are located in rural areas.

Study period

Data was collected from September to November 2022.

Study Population

Study participants were pregnant women of any gestational age and gravidity who came to attend antenatal care during the study period.

Eligibility criteria

Inclusion criteria: Every pregnant woman who was willing and consented to participate in the study.

Exclusion criteria: pregnant women who presented with danger signs or unable to communicate, and those not willing to be interviewed.

Sample Size determination

The total sample size was 384 using Cochran formula. This sample size was calculated at confidence level of 95% and a margin error (degree of accuracy) of ±5%. The study used the power of 80 percent. A total number of 382 participants responded to the study representing 99.5% response rate. Two respondents voluntarily withdrew from the study. Participants were interviewed using the questionnaire. Qualitatively, five focus group discussions were conducted. One focus group discussion composed of ten purposively selected participants was conducted at each study facility.

Sampling technique

Simple random sampling technique was used for quantitative data collection while purposive sampling was used for qualitative data collection. The researchers identified the pregnant mothers attending antenatal care clinic in the study area who were willing to participate in the study. The researchers cut small pieces of papers on which were separately written yes or no. These were folded and placed in a small carton and then study participants were asked to pick a paper from the box once without putting it back. Those who picked papers with a yes were allowed to participate in the quantitative data collection. This was done on the daily basis until the required sample was reached.

Data collection instrument and method

Quantitative data was collected using a structured questionnaire adapted and modified from Johns Hopkins Program for International Education in Gynecology and Obstetrics (JHPIEGO): Maternal and Neonatal Health on monitoring birth preparedness and complication readiness. The adapted questionnaire was modified and contextualized to fit the local situation and the research objective. The questionnaire was prepared first in English and later translated into Chichewa and Yao. Data on socio-

https://dx.doi.org/10.4314/mmj.v37i3.9

demographic factors, obstetric factors and knowledge and practice regarding birth preparedness were collected using a pre-tested and structured questionnaire. The questions were collated and graded as follows: those who were able to mention at least four components on birth preparedness (above 50 %) were said to have adequate knowledge, while those who mentioned three items or less in the birth preparedness components (below 50%) were said to have a poor knowledge of birth preparedness.

For focused group discussion, interview question guide was used to capture qualitative data.

Data was collected through face to face interview by the researchers.

Ethical consideration

Ethical approval to conduct the study was obtained from Kamuzu University of Health Sciences Research and ethics Committee with reference number U.01/22/3549 whereas permission to access the study sites was obtained from the Director of Health Services for Mangochi District Health Office and the health facility in charges.

Participants were provided with information about the objective of the study, participants' privacy, confidentiality of the information obtained during interview and written consent was obtained from participants. In the consent, statements about the potential risk, benefit, and confidentiality were included. Participants were informed that they had the right to withdraw from the study at any time without giving reasons and without facing any consequences.

Table 1: Socio-demographic characteristics of respondents in Mangochi, Malawi, (n=382)

Background variables	Categories	Frequency	Percent
Age of mother	15-19	48	12.6
	20-24	130	34
	25-29	100	26.2
	30-34	60	15.7
	35 years above	44	11.5
	Total	382	100
Marital status	Married	346	90.6
	Single	19	5
	Divorced	5	1.3
	Separated	10	2.6
	Widow	2	0.5
	Total	382	100
Education level	None	126	33
	Primary	184	48.2
	Secondary	66	17.3
	Tertiary	6	1.6
	Total	382	100
Religion	Islam	245	64.1
	Roman catholic	29	7.6
	Anglican	21	5.5
	Church of Central Africa Presbyterian	22	5.8
	Seventh Day Adventist	16	4.2
	Assemblies of God	6	1.6
	Apostolic faith	6	1.6
	Other	37	9.7
	Total	382	100
Occupation of the mothers	None	183	47.9
	Self employed	40	10.5
	Civil servant	11	2.9
	Farmer	108	28.3
	Company/Non-Governmental Organisation	3	0.8
	Others	37	9.7
	Total	382	100

https://dx.doi.org/10.4314/mmj.v37i3.9

Table 2: Knowledge of pregnant mothers on birth preparedness (n=382)

Back ground variables	Categories	Frequency	Percent
Gestation at first ANC visit	1-3 Months	143	37.4
	4-6 Months	207	54.2
	7-9 Months	27	7.1
	Don't know/ forgotten	5	1.3
	Total	382	100.0
Heard of BP	Yes	373	97.6
	No	9	2.4
	Total	382	100.0
Source of information on BP	Antenatal (ANC)	358	93.7
	Postnatal(PNC)	10	2.6
	Television (TV)	2	.5
	Radio	6	1.6
	Friend's	2	.5
	Other	4	1.0
	Total	382	100.0
Elements mentioned on birth preparedness	2	7	1.8
	3	95	24.9
	4	163	42.7
	5	117	30.6
	Total	382	100.0
Knowledge on birth preparedness	Yes	280	73.3
	No	102	26.7
	Total	382	100.0

Table 3. Birth preparedness and bivariate analysis results

Variable	Correlation coefficient	Sig (2-tailed)
Religion	-0.127	0.013
Maternal education	-0.122	0.017
Mother's occupation	0.103	0.044
Husband occupation	0.18	0.000

Data quality assurance

To ensure quality data, the questionnaires were pre-tested before data collection. The questionnaires were also checked immediately after interviews for completeness and accuracy of responses at the end of each collection day.

Data analysis

Data collected were coded and entered into Microsoft Excel. It was then transferred and analysed using SPSS software version 24.0 for analysis. Frequency tables, figures, and descriptive summaries were used to describe the study variables.

Spearman's rho test was used to analyze the association between the variables (knowledge of BP and influencing factors) at 0.05 level of significance. Qualitatively, data were manually analyzed using a thematic analytical technique. This involved familiarization, coding, generating themes, and reviewing themes, defining and naming themes, and writing. The themes were then reviewed, defined and named. Peer debriefing, member checking, and triangulation were used to enhance the credibility of the findings.

Results

Socio-demographic characteristics of respondents

A total of 382 study subjects participated in the study with a response rate of 99.5%. The majority of women (32%, n=130) were aged between 20-24 years. Among the total respondents, many of them (90.6%, n=346) were married while the rest (9.4%, n=36) were single, divorced, separated and widowed. Most of the respondents (64.1%, n=245) were Muslims while Christians accounted to 26.2 %. On occupation, (47.9%, n=183) were not working while 28.3% were farmers. Regarding educational background, majority of the respondents ended at primary level (48.2%, n=184) as shown in Table 1.

Knowledge of pregnant mothers on birth preparedness

Among the total study participants, (54.2% n=207) had started antenatal care at 4-6 months of gestational age while (37.4 %, n=143) of the women started antenatal care at

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gestational age of 1-3 months. In addition, (7.1%, n=27) women had started antenatal care at 7-9 months gestation while (1.3%, n=5) said did not know. Many women, (97.6%, n=373) responded that they had heard about birth preparedness (BP) while (2.4%, n=9) respondents said they had never heard about birth preparedness.

Source of information about birth preparedness

High proportion of the respondents got information on birth preparedness from antenatal clinic (93.7%, n=358) seconded by postnatal clinic which was at (2.6%, n=10). The majority of the respondents (73.3% ,n=280) had adequate knowledge on birth preparedness as they were able mention at least four elements of birth preparedness (place of delivery, transport, blood donor, resources, birth companion) as shown in Table 2.

At 0.05 level of significance using Spearman's rho, a significant association has been shown between birth preparedness and maternal education, religion, husband occupation and maternal occupation as shown in table 3. All the above predictors had very weak effect size.

The study also used focus group discussions to collect qualitative data. This study revealed the following three major themes namely: knowledge on birth preparedness and danger signs, attitude of the health care workers mainly nurses/midwives and communication barriers to health talk.

Knowledge on birth preparedness and danger signs

Majority of the mothers had knowledge on birth preparedness and were able to mention at least four elements in birth preparedness like resources (money, cloth, plastic sheet, torch or candle and basin), place of delivery, transport, blood donor, birth companion among others. One mother expressed in this way: *'During antenatal clinics we are told to keep items like money, basins, plastic sheet, torch or candles for delivery. In addition, we are advised to identify a blood and who to accompany us to the hospital during delivery'* (Participant 006), Namwera Health Centre. On danger signs in mother and neonate, majority of the mothers were able to mention danger signs in mother and neonate like convulsions, fever, vaginal bleeding, and inability to breast. One mother responded as follows: "*The common danger signs I know are convulsions, PV bleeding, edema, fever and inability to breastfeed and we are taught to go the hospital when we see this*"(Participant 004, Chilipa Health Centre).

Attitude of the health care workers

The mothers also mentioned health facility as place of delivery. However, in response to the attitude of the health workers (nurses/midwives), majority of the mother expressed dissatisfaction on the attitude of nurses/ midwives. Many said that most of the nurses were rude while others said the health workers were judgemental. One mother expressed the issue like: ' *We are sometimes called names up to the extent of being asked like" Was I there when you were doing sex with your spouse?"* (Participant 010, Monkey Bay Community Hospital).

Some participants expressed that attitude of some other health workers were good thus helping them to be more attentive during health education. One mother from Makanjira added:

"Like during my previous antenatal visit, the nurse who was giving us health education was so cheerful and humorous. All those who attended the talk were very eager to grasp what the nurse was teaching us. The topic was about birth preparedness and dangers signs in mother and neonates" (Participant 008, Makanjira Health Centre).

Communication barriers to health service.

Respondents said communication was the main barrier when accessing health service. They said many of the health workers could not speak or understand Yao language which is the main language of the study area. One woman said like this: *'Communication is a challenge. Most nurses and doctors will speak either Chichewa or English to us. We can't understand what they want to communicate. Even when they are giving health talk, they teach us in Chichewa. Our local language is Yao. This communication breakdown act as a barrier"*(Participant 007, Mangochi District Hospital).

Another participant added: *"Most of the times, health care workers give health talk in an open space. This makes our concentration to be low as they are a lot of distraction."* (Participant 002, Chilipa Health Centre)

Discussion

This facility-based study has attempted to assess knowledge on birth preparedness among pregnant mothers in Mangochi District, South-east Malawi. The study findings have shown that 73.3% of the respondents had knowledge on birth preparedness. The main source of information on birth preparedness was the antenatal clinic (93.7 %, n=358). The results are similar to the study carried out in central Ethiopia[12] which found that 76.8 % of the participants had knowledge on birth preparedness.

The age groups of the respondents were unevenly distributed with the age group of 20-24 years more dominant. This is probably due to the fact that this reproductive age group is sexually active. This is in contrast to a study done in Uganda,[13] in which they found that the age groups of the respondents in a similar study was evenly distributed.

In terms of the education level, most of the respondents (48.2% n=184) ended at primary level education. Three quarters of study area being a rural setting, the level of girl child education may still be low coupled with early marriage which is rampant[9]. In the current study, knowledge on birth preparedness was seen to be higher among the educated respondents especially those who attained secondary and tertiary levels of education than those who did not attend any formal education and those who ended in primary education. This corresponds to the findings of a study conducted in Uganda[7] which found out that knowledge of BPACR was higher among the educated than the uneducated ones. This could be due to the fact that an educated person can easily understand health-related issues. On religion, majority of the respondents were Muslims (64.1%) as the predominant people in the area are Muslims hence representing a greater percentage in antenatal care attendance in the study. In relation to the occupation of the respondents, almost half of the respondents (47.9%) were unemployed. This could be due to low levels of education attained by most of the respondents. Unemployment is one of the key factors which affects health care services in Malawi. Economic constraint due to unemployment as cited by[14] is one of the barriers to access to health care services in Malawi.

Regarding the gestational age of first antenatal visit with the current pregnancy, about half of the respondents (54.2%, n=207) started antenatal care in second trimester because most of them were staying far away from the hospital. This concurs with what a study done in Bahir Dar Zuria Woreda North West Ethiopia found that mothers who lived within short distances from the health facility were more likely early

https://dx.doi.org/10.4314/mmj.v37i3.9

initiate ANC visit than those who travelled more than one hour[15]. Attending antenatal care is very significant because most of the pieces of information about pregnancy and child birth for example, about BPACR are given during antenatal care services[10].

The study also revealed that components of BP were being taught during antenatal care clinic as 93.7% of the mothers responded that they were educated on BP at ANC clinics. This is congruent to findings of a similar study conducted in Ibadan, Ethiopia[1]. Advising pregnant mothers on BPCR during antenatal care contact is vital to keep the course of the pregnancy safer and prepare the women to deliver at health facilities[16].

In this study, the factors associated with BP on bivariate analysis were; maternal level of education, maternal occupation, occupation of the husband and religion. The level of education was statistically associated with birth preparedness on bivariate analysis as revealed in this study. Those who had tertiary education had more knowledge on birth preparedness as compared to those with primary level and below. Similarities to this finding were seen in studies carried out in Ethiopia, Kenya and Tanzania[5] which revealed that education as a predictor of birth preparedness and complication readiness. The ability of educated women to make decisions on issues concerning their health can explain this phenomenon. More educated mothers tend to have better awareness of warning signs of obstetric complications[11]. It might also be related to the fact that educated women have a better power to make their own decision in matters related to their health and the expected expenses. The results indicated that the level of education influenced the ability and the quality of decisions on birth preparedness and complication readiness. Women with a higher level of education are able to make better decisions on birth preparedness. Therefore, the education of women should be encouraged in the communities. The occupation status was also associated with birth preparedness and complication readiness on bivariate analysis. The occupation is the most probable steady source of income for an individual. In this study, women who were employed by the government and those whose husbands were employed were more likely to prepare for birth and complications than those with no employment. Similar findings were reported in another study in Ethiopia[10].

Similar to studies in Sub-Saharan region[19], our findings confirm that provider attitudes influence maternal health-seeking behavior. The study has found that some of the health workers had bad attitude towards the pregnant mother. Bad attitude towards pregnant mother may lead to some women shunning away from attending antenatal care resulting into poor knowledge on birth preparedness. However, this is dissimilar to the findings of the study conducted in North West, Ethiopia[17] which showed that patients and clients had relative satisfaction with the quality of nurse's work, perceptions of people about their attitudes and behaviors.

Summary

Generally, the study has found existence of adequate knowledge on birth preparedness among pregnant women in Mangochi District, Malawi. Socio-demographic characteristics of religion, maternal education, maternal occupation and husband occupation were factors associated with birth preparedness. These findings highlight the need for targeted health education campaigns focusing on women with limited formal education. Such strategy would assist pregnant mothers to identify danger signs during antenatal, labour and delivery and prepare for obstetric complication and therefore seek emergency obstetric care on time to minimize maternal and neonatal mortalities. Further research is needed to explore the role of male partner involvement in birth preparedness in rural settings.

Limitation of the Study

This study attempted to reduce selection bias by giving all eligible pregnant women in the study facilities an equal chance to be participate. One limitation is the use of self-reported data, which may be subject to recall bias. However, the large sample size enhances the reliability of our findings.

Conflict Of Interest

No conflict of interest was declared by the researchers.

Acknowledgements

Authors would like to thank the CHEER project for the financial support towards the study. We also thank Dr. Mwakikunga and Prof. Lampiao for the technical/ scientific support. Lastly, the study participants cannot go unmentioned for the role they played in the study.

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