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Knowledge of danger signs, pregnancy complications and associated factors among males in Ogbomoso, Nigeria

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Abstract

Background: Maternal mortality remains high in low-income countries. Men are major predictors of the frequency and quality of maternal healthcare especially in this part of the world and their support can significantly improve maternal health outcomes.
Objectives: To assess the knowledge of danger signs and complications of pregnancy as well as the associated factors among married men in Ogbomoso.
Methodology: It was a community-based cross-sectional study that involved multistage sampling technique to select study respondents in Ogbomoso town. It made use of a semi-structured questionnaires to obtain data from the respondents.
Results: Most of the respondents in this study were between 38 to 47 years of age (36.4%). The most common occupation indicated was Artisans/Traders (44.7%). Vaginal bleeding was the most recognized danger sign, with 72.5% of respondents recognizing it and it was found that the majority of respondents (97.6%) considered antenatal care to be important. The most common reason cited for the importance of antenatal care was for the safety of the mother and baby (82.8%). Only 48.5% of men reported accompanying their wives for their antenatal care appointments. 20.6% of the respondents decide wives' attendance at antenatal care visits.
Conclusion: The current study's findings indicate that is inadequate knowledge of danger signs during pregnancy among men in Ogbomoso. Interventions to improve men's knowledge should be implemented to enhance maternal and child health outcomes.

Keywords: Male Knowledge, Danger Signs, pregnancy complications.

Introduction

Maternal mortality in sub-Saharan Africa has been very high over the years in spite of the myriad of efforts which have been made to combat this[1]. Reduction in maternal mortality to less than 70 per 100,000 live births is the target required to achieve the maternal health component of the 3rd sustainable Development Goal (SDG) by the year 2030.

In Nigeria, maternal mortality rates have remained persistently very high. The lifetime risk of a Nigerian woman dying during pregnancy, childbirth, postpartum or post-abortion is 1 in 22, in contrast to the lifetime risk in developed countries estimated at 1 in 4900.[2] Most maternal deaths are caused by obstetric complications, such as obstructed labor, puerperal sepsis, hypertensive disorders and obstetric hemorrhage. Factors responsible for maternal mortality have been classified into direct and indirect causes as well as various levels of delay.[3] The levels of delay considerably affect maternal health outcomes. The failure to recognize complications, sociocultural barriers to seeking care

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as well as human resource and health facility constraints play major roles in contributing to these levels of delay.

Male partners, neighbors and mothers-in-law are key actors in determining the quality of antenatal care pregnant women receive in Nigeria. Although pregnancy and childbirth are traditionally considered as the woman's domain, women often do not have independent access to maternal health care services due to economic dependency and gender inequality.[4]

Maternal deaths can be reduced by increasing awareness of danger signs of obstetric complications because awareness of obstetric danger signs facilitates men in making joint decisions with their partners regarding accessing maternal healthcare services.[5] In a very patriarchal Nigerian society, the decision for a pregnant woman to access maternal care services many times rests on the shoulders of her husband; a fact that had been documented some years ago and is still very relevant now.[6,7] Husbands play a significant role in making healthcare decisions about their wives. Consequently, men are major predictors of why, when, where and how frequently a pregnant woman will access antenatal, delivery and post-delivery care.[8]

Also, in the Nigerian society, men are generally more financially stable compared with women; thus, men are often responsible for meeting costs of antenatal visits, hospital bills and cost of transport in case of obstetric emergencies. The support of men in the health care seeking behaviour of their pregnant partners such as attendance at antenatal and postnatal clinics is one of the ways by which maternal deaths can be avoided.[9] Women and their partners need to be informed about danger signs during pregnancy and delivery at the antenatal clinic and they should be counseled to seek assistance with minimum delay.[10]

To improve maternal health, reproductive and child health programs began to focus on the male partner in 1990, and reproductive health concerns have gained continual importance.[11] Many studies have reported the positive benefits of male knowledge of pregnancy complications for women's health in developed and developing countries; these include; the increased use of antenatal services, institutional delivery services, and postnatal care.[12] Male participation and support for women during pregnancy also lead to discouragement of unhealthy practices such as smoking and tobacco use among partners.[13] Husbands with knowledge of complications during pregnancy and delivery are more likely to promote wives for seeking antenatal care services, institutional deliveries, and postnatal services. Further, knowledgeable husbands will contribute to the birth preparedness.[6]

Studies in Africa have found that husbands and other family members often make the decision about where a woman will deliver,[14] especially with majority of women in Africa having low status in society and lacking decision-making power, a factor that can contribute significantly to adverse pregnancy outcomes.[15,16] Although it is unlikely that men are actively ignoring the signs of complications during pregnancy and labor, it is possible that they lack awareness of what to look for, thereby hindering their ability to judge when emergency actions must be taken. If men are acting as gatekeepers to women's health, it is of paramount importance that they are able to recognize the danger signs of obstetric complications and be involved in birth preparedness practices.[17,18]

The roles that men play in pregnancy and the influences they wield over its outcomes especially in this part of the world cannot be overlooked. More and more women are daily bearing the impact or consequences of choices with regards to their pregnancy, made by men who surround them; particularly their husbands. Hence, it is necessary that the information that men have concerning danger signs as it has to do with pregnancy is evaluated.

Very few studies have been conducted in Nigeria, especially in the South-Western part to evaluate the knowledge of danger signs and pregnancy complications among men. This also rings true for the site of this study, Ogbomoso, a town in Oyo State, located in the South-Western part of Nigeria. At the moment, no work has been done on the knowledge that men have about danger signs and complications of pregnancy in Ogbomoso. Therefore, this study is essential in determining the magnitude and depth of knowledge that is possessed by men in this region which will influence their response to danger signs and complications of pregnancy and more so provide information useful

for more targeted pregnancy education and orientation programs for the general public.

Aim: To determine the knowledge of danger signs, pregnancy complications and the associated factors among males in Ogbomoso, Nigeria.

Objectives

1. To assess knowledge of danger signs and complications of pregnancy among married men in Ogbomoso.
2. To assess attitude towards antenatal care (ANC) among married men in Ogbomoso
3. To identify factors associated with knowledge of obstetric danger signs among married men in Ogbomoso.

Materials and methods

Study Area: The Study was conducted in Ogbomoso town between 1st of April and 31st of May 2023. Ogbomoso is a town in Oyo State, located in the South-Western part of Nigeria. It is approximately 95 km north-west of Ibadan. There are five local government areas (LGAs) in Ogbomoso, with two LGAs in Ogbomoso town, each having five wards. The LGAs in Ogbomoso town are Ogbomoso North and Ogbomoso South. The estimated population of Ogbomoso is 628,682 according to the World Population Review 2023.

Target Population: The study population was all married men aged 18-65 years with at least one child who live in Ogbomoso town.

Sample Size Determination: To determine the sample size for the study, the formula used for population greater than 10,000 was used.

$$n = Z^2/d^2 \times pq$$

where n = the minimum sample size when the population is more than 10,000

z = the standard normal deviation was set at 1.96, which corresponds to 95% confidence level

p = assuming that the estimated proportion of men with knowledge of danger signs in pregnancy is 81.9%; which was 0.819.[22]

q = 1 – p; d = degree of accuracy desired, which was set at 0.05; *n* =228

Attrition rate of 5% was added to the calculated sample size, 5% of 228=12.

228+12= 240.

However, to increase the power of the study 300 respondents were recruited for the study.

Study Design: It was a community-based cross-sectional study design.

Sampling Technique: A multistage sampling method was employed to reach the study subjects.

In stage 1, the two Local Government Areas (LGA) in Ogbomoso town were listed, Ogbomoso South Local Government Area and Ogbomoso North Local Government Area.

In stage 2, the number of wards in each Local Government Areas were listed. Each LGA has 5 wards.

In stage 3, one ward was selected in each of the Local Government areas by simple random sampling technique. Each ward in each Local Government Area was written on a small piece of paper and properly squeezed together. Then, a neutral person was asked to pick one wrapped paper for each of the LGA. Recruitment of the respondents was made from the selected wards.

In stage 4, community entry and discussion with the stakeholders was done. The centre of the selected ward was identified during interaction with the community leaders. In order to locate the areas to recruit the respondents, a bottle was made to rotate gently and the direction faced by the head was taken as the selected area for the respondents' recruitment. The respondents were recruited from the households until the calculated sample size was completed. Equal numbers of respondents were recruited in each of the LGA.

Eligibility criteria

Inclusion criteria: All married men living in Ogbomoso town during the data collection period, who were between the age of 18 years and not more than 65years, and who had been residing there for 6months and more were included in this study.

Exclusion criteria: Unmarried men who were below 18 years and above 65 years.

Instruments of data collection: Self-administered Questionnaires were used to obtain data having pretested the questionnaires with 15 men that accompanied their wives for their routine antenatal clinic visits. The data was obtained between 1st April, 2023 and 31st May, 2023. The questionnaires had sections on the socio-demographic data of the respondents and their wives, Importance of

antenatal care, Knowledge of danger signs during pregnancy and other areas. Knowledge of danger signs involved the use of 14 questions. Knowledge of danger signs was scored with two points awarded for each danger sign correctly identified out of a total of fourteen signs. An overall score less than 14 was categorized as poor knowledge, scores from 14 to 19 is fair knowledge, while scores of 20 and above were classified as good knowledge.

Ethical consideration

The ethical approval for the study was obtained from the ethical committee of the Bowen University Teaching Hospital, Ogbomoso to conduct the research, and permission was sought from the appropriate authorities of the various LGAs, wards and communities that were involved in the study. It was voluntary, and verbal consent was obtained from the individual respondent without coercion to take part in the study.

Data analysis: Statistical analysis was done using IBM SPSS version 25.0 software package, descriptive statistics, diagrams, crosstab, Chi-square are adopted for the analysis, P<0.05 was considered as significant.

Table 1: Socio-demographic characteristics of the respondents

Variable	Categories	Frequency	Percent
Age(years)	18-27	12	4.1
	28-37	38	13.1
	38-47	106	36.4
	48-57	79	27.2
	58-67	56	19.2
Mean age (years)	36.76±0.23		
Occupation	Civil servant	92	31.6
	Semi-skilled labor	34	11.7
	Clergy	29	10.0
	Artisans/Traders	130	44.7
	Healthcare professionals	6	2.1
Religion	Christianity	172	59.1
	Islam	119	40.9
Tribe	Yoruba	285	97.9
	Igbo	6	2.1
Marital status	Separated	6	2.1
	Married	272	93.5
	Widowed	13	4.5
How long have you been married	1-5	19	6.5
	6-10	65	22.3
	11 and above	207	71.1
Educational level	Primary	36	12.4
	Secondary	54	18.6
	Tertiary	186	63.9
	Other	15	5.2
Wife's Occupation	Civil servant	96	33.0
	Clergy	13	4.5
	Artisans/Traders	163	56.0
	Healthcare professionals	13	4.5
	full house wife	6	2.1

Table 2: Perception of the respondents on importance of antenatal care

Variable	Categories	Frequency	Percent
Do you think antenatal care is important	Yes	284	97.6
	No	7	2.4
Do you follow your wife for antenatal care appointments	Yes	141	48.5
	No	150	51.5
Which of the following are the reasons why you think antenatal care is important	To avoid death of pregnant woman/baby	12	4.1
	For safety of baby and mother	241	82.8
	For good care and problem free delivery	33	11.3
	Staff at antenatal care clinics are in a position to handle complications that may arise	5	1.7
When should a woman commence antenatal care	First trimester	197	67.7
	Second trimester	63	21.6
	Third trimester	14	4.8
	Don't know	17	5.8
Who decides wife's attendance at antenatal care	Myself	60	20.6
	My wife	78	26.8
	Both	148	50.9
	Relatives/ Friends	5	1.7

Table 3: Knowledge of danger signs during pregnancy

Variable	Categories	Frequency	Percent
Abdominal pain during pregnancy	Yes	164	56.4
	No	127	43.6
Foul smelling vaginal discharge	Yes	124	42.6
	No	167	57.4
Bleeding per vaginam	Yes	211	72.5
	No	80	27.5
Fever	Yes	146	50.2
	No	145	49.8
Swelling of the face and hands	Yes	135	46.4
	No	156	53.6
Sustained vomiting	Yes	106	36.4
	No	185	63.6
Blurred vision	Yes	113	38.8
	No	178	61.2
Headache	Yes	140	48.1
	No	151	51.9
Convulsions	Yes	109	37.5
	No	182	62.5
Loss of consciousness	Yes	125	43.0
	No	166	57.0
Absence of fetal movements or decrease in fetal movements	Yes	125	43.0
	No	166	57.0
Elevated Blood Pressure	Yes	78	26.8
	No	213	73.2
Pallor	Yes	85	29.2
	No	206	70.8
Abnormal lie	Yes	134	46.0
	No	157	54.0

Table 4: Association between socio demographic and Knowledge of danger signs during pregnancy among the respondents

Variable	Categories	Poor	Fair	Good	Total	χ^2	df	P-Value
Age	18-27	2(0.69%)	6(2.1%)	4(1.37%)	12(4.1%)	9.435	4	0.327
	28-37	7(2.4%)	9(3.1%)	12(4.1%)	38(13.1%)			
	38-47	36(12.4%)	28(9.6%)	42(14.4%)	106(36.4%)			
	48-57	17(5.8%)	34(11.9%)	28(9.5%)	79(27.2%)			
	58-67	16(5.5%)	26(8.9%)	14(4.8%)	56(19.2%)			
Occupation	Civil servant	7(2.4%)	16(5.5%)	69(23.7%)	92(31.6%)	71.333	8	**0.000***
	Semi-skilled labor	7(2.4%)	0(0.0%)	27(9.3%)	34(11.7%)			
	Clergy	14(4.8%)	0(0.0%)	15(5.2%)	29(10.0%)			
	Artisans/Traders	30(10.3%)	51(17.5%)	49(16.8%)	130(44.7%)			
	Healthcare profcssionals	0(0.0%)	0(0.0%)	6(2.1%)	6(2.1%)			
Religion	Christianity	58(19.9%)	60(20.6%)	54(18.6%)	172(59.1%)	23.980	2	0.131
	Islam	0(0.0%)	7(2.4%)	112(38.5%)	119(40.9%)			
Tribe	Yoruba	58(19.9%)	67(23.0%)	160(55.0%)	285(97.9%)	4.613	2	0.100
	Igbo	0(0.0%)	0(0.0%)	6(2.1%)	6(2.1%)			
Marital status	Separated	0(0.0%)	0(0.0%)	6(2.1%)	6(2.1%)			
	Married	51(17.5%)	67(23.0%)	154(52.9%)	272(93.5%)			
	Widowed	7(2.4%)	0(0.0%)	6(2.1%)	13(4.5%)			
How long have you been married	1-5	0(0.0%)	0(0.0%)	19(6.5%)	19(6.5%)	25.290	4	**0.000***
	6-10	5(1.7%)	18(6.2%)	42(14.4%)	65(22.3%)			
	11 and above	53(18.2%)	49(16.8%)	105(36.1%)	207(71.1%)			
Educational level	Primary	7(2.4%)	22(7.6%)	7(2.4%)	36(12.4%)	46.305	6	**0.000***
	Secondary	13(4.5%)	7(2.4%)	34(11.7%)	54(18.6%)			
	Tertiary	31(10.7%)	38(13.1%)	117(40.2%)	186(63.9%)			
	Other	7(2.4%)	0(0.0%)	8(2.7%)	15(5.2%)			

**Statistically significant; χ^2 – Chi-squared test used; df – degree of freedom; p – p-value; OR=Odd ratio ratio used*

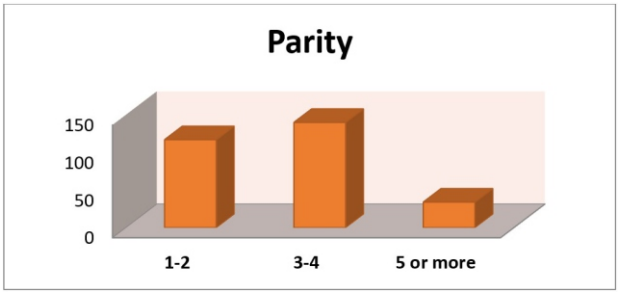

Figure 1: Parity of the respondents' wives

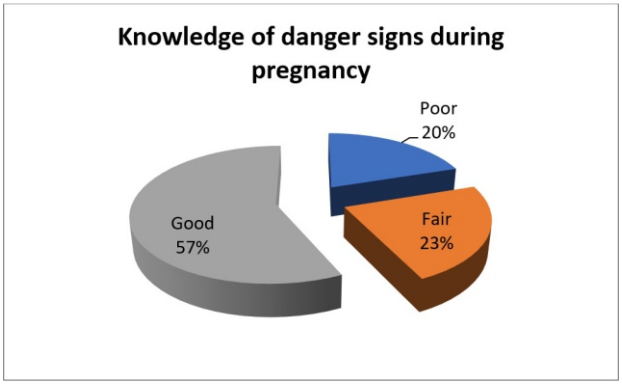

Figure 2: Overall Knowledge of danger signs during pregnancy among the respondents

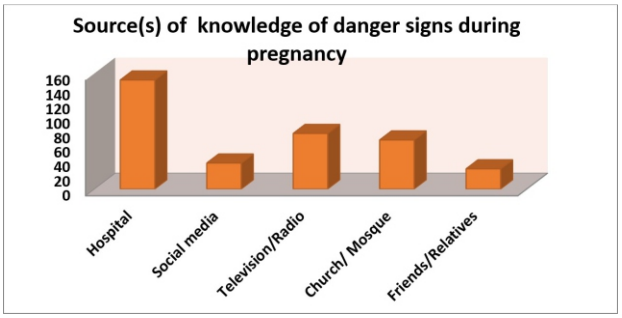

Figure 3: Source(s) of knowledge of danger signs during pregnancy

Results

A total of 300 questionnaires were administered, and 291 were returned properly filled and analyzed, giving a response rate of 97.0%. Table 1 shows that 130 (44.7%) of the respondents were artisans/traders, 34 (11.7%) were semi-skilled workers and 6 (2.1%) were healthcare professionals.

Figure 1 shows that (40.2%) of the respondents' wives had a parity of 1-2, followed by 3-4 (48.1%), and the smallest group had a parity of 5 or more (11.7%). Moreso, 97.6% of respondents believe antenatal care was important, with 48.5% accompanying their wives. Reasons cited include safety (82.8%), good care (11.3%), and problem-free delivery (4.1%) (Table 2).

Table 3, shows what the respondents considered as danger signs in pregnancy; 56.4% of respondents were aware of abdominal pain, 42.6% foul-smelling vaginal discharge, 72.5% bleeding per vaginam, 50.2% reported fever in the first trimester as danger sign, 46.4% reported leg swelling, 36.4% of the respondents regarded sustained vomiting danger sign. In the overall, 19.9% of the respondents had poor knowledge of danger signs during pregnancy, while 23.0% had fair, and 57.0% had good knowledge of danger signs during pregnancy as shown in Figure 2.

Table 4 examines socio-demographic variables' association with knowledge of pregnancy danger signs among respondents. While age groups 38-47 years (14.4%) and 48-57 years (9.5%) showed higher awareness compared to those aged 18-27 years (1.37%) and 28-37years (4.1%), significance wasn't reached ($\chi2=9.435$, $p=0.327$). Artisans/traders (16.8%) and civil servants (23.7%) demonstrated the highest awareness, with significant differences across occupations ($\chi2=71.333$, $p<0.001$). Christian respondents (57.0%) exhibited greater awareness than Muslim respondents (0%), with non-significant differences across religions ($\chi2=23.980$, $p<0.131$). Yoruba respondents (55.0%) showed higher awareness compared to Igbo respondents (2.1%), yet significance wasn't reached across tribes ($\chi2=4.613$, $p=0.100$). Married respondents (52.9%) displayed higher awareness compared to single and widowed respondents, with non-significant differences across marital statuses. Respondents married for 11 years and above (36.1%) showed higher awareness compared to those married for 1-5 years (6.5%) and 6-10 years (14.4%), with significant differences across marriage durations ($\chi2=25.290$, $p<0.001$). Tertiary educated respondents (40.2%) demonstrated greater awareness compared to secondary-educated (11.7%) and primary-educated respondents (2.4%), with significant differences across educational levels ($\chi2=46.305$, $p<0.001$).

Discussion

Most of the respondents in this study were between 38 to 47 years of age which accounted for 36.4% of the respondents. This is in tandem with studies in Kaduna and Katsina, Northern Nigeria, where the average ages were 39.6 years and 40.5 years respectively.[19] Studies in Ethiopia also show similar age distribution.[20,21] The most common occupation indicated by the respondents in this study was Artisans/Traders. This is similar to studies conducted in Ibadan where Artisans and Traders were about 80.6% forming the majority of respondents.[22,23] This could be because of the socioeconomic status of Ogbomoso as a mixed Rural-Urban City.

Knowledge of danger signs in pregnancy has been shown to be an indicator of the level of utilization of maternal health services.[24] In this study, bleeding per vaginam was the most recognized danger sign, with 72.5% of respondents recognizing it. Similarly, a study conducted in Abakaliki, Nigeria, reported that heavy bleeding was the most commonly known danger sign during pregnancy.[25] The high awareness of this danger sign could be due to the fact that it is the most alarming symptom and reason for presentation in the hospital.

Abdominal pain was the second most recognized danger sign in the present study, with 56.4% of respondents being aware of it, in a related study done in Tanzania, abdominal pain was reported as the second most common danger sign, however with reduced percentage knowledge of 14.7% which could be explained by the general poor knowledge reported among the men recruited in their study.[26] Pallor was the least recognized danger sign in the present study, with only 29.2% of respondents recognizing it. This finding is similar to the study conducted in Ibadan by Sekoni and Owoaje.[22] This may be explained by the fact that pallor is a sign that can only be elicited by a medically inclined individual.

Fever in this study was reported among 50.2% of the respondents as a danger sign during the first trimester of pregnancy. This finding is higher than findings in studies conducted in other African countries like Ethiopia and Tanzania. This could be said to be as a result of the awareness of Malaria in pregnancy being a common cause of febrile illness.

Overall, good knowledge was reported among 57% of respondents however 20% had poor knowledge of the danger signs in pregnancy and this is at variance with the findings of Sekoni et al in Ibadan where almost two thirds of respondents had poor knowledge about danger signs in pregnancy (60.6%).[22] This may be explained by the fact that the danger signs that were assessed by Sekoni et al study spanned into the intrapartum period which most respondents might not have had knowledge of.[22] However, the findings from this study were comparably similar to the findings in a study by Ogu et al which reported that 57.0 % of men had good knowledge of danger signs during pregnancy.[27]

In this study, it was found that the majority of respondents (97.6%) considered antenatal care to be important. This is consistent with the findings of previous study, which have reported high levels of awareness about the importance of antenatal care among men.[28] The most common reason cited for the importance of antenatal care in the present study was "for the safety of the mother and baby" followed by "for good care and problem-free delivery". This is in line with the findings of previous study, which have reported similar reasons given by men for the importance of antenatal care among men.[29] However, only 48.5% of the men reported accompanying their wives for their antenatal care appointments. This is consistent with the findings of previous studies, which have reported low levels of male involvement in antenatal care.[28,29] This could be ascribed to the fact that most of the respondents were Artisans/Traders who will be at their work places during the antenatal clinic visits of their spouses as well as cultural values concerning men's involvement in a pregnant woman's care.

In terms of who decides if the wife would attend antenatal care, this study shows that 20.6% of the respondents decided wives' attendance at antenatal care visits while 26.8% claimed that the onus lay on the wives, majority (50.9%) indicated that both of them decide the woman's antenatal care visits. In a study conducted in Tanzania, it was reported that women were more likely to attend antenatal care appointments if their husbands were involved in the decision-making process.[30] The study found that women whose husbands made the decision for them to attend antenatal care were more likely to attend at least four antenatal care appointments. Involving men on the maternal health care system improves

health service delivery, decreases rate of maternal depression, and decreased possibility of childbirth complications.[31-34]

In this study, older respondents who had been married for a longer period of time were more knowledgeable about the danger signs of pregnancy than younger respondents, but the respondents' age was not statistically significantly associated with knowledge of obstetric danger signs. However, the difference in knowledge levels across the duration of marriage was statistically significant. Respondents who had been married for 11 years and above had the highest knowledge of danger signs during pregnancy compared to those who had been married for 1-5 years and 6-10 years. This finding was consistent with the study done in Aneded woreda, north-western Ethiopia,[35] but contrary to the findings of the study done in North-East, Ethiopia, which showed that younger men were more knowledgeable[21]. This might be because older people might have more experience due to multiple child births also older individuals might fear complications associated with pregnancy and seek information from healthcare professionals about the tell-tale signs of certain complications.

Respondents who attended secondary school and above are more knowledgeable than those respondents who attended primary education and less. This is similar to the findings in a study conducted in Northwest, Ethiopia.[20] This may be due to the fact that those who have higher level of education have good level of understanding of the complications and importance of having a birth plan. However, Sekoni and Owoaje in Ibadan showed that educational attainment did not have a significant bearing on whether respondents had good knowledge of danger signs or not.[22] The corollary of this is that being educated is not enough to make a difference in knowledge with regards to danger signs in pregnancy. Similarly, Occupation which could be indicators to the level of education also show some knowledge dependence. In this study, occupation of the respondents was found to be statistically significant with the knowledge of danger sign of pregnancy. Civil servants showed a higher level of knowledge of danger signs during pregnancy than their counterparts who are Traders/Artisans, Semi-skilled laborers and Clergy. Healthcare professionals who were respondents all showed good knowledge of danger signs during pregnancy. The possible reason might be that an educated man may have access to various information sources where knowledge about the danger signs of pregnancy could have been gained.

It is essential to improve men's knowledge of danger signs during pregnancy as it could contribute to improved-maternal and child health outcomes. Several interventions have been proposed to improve men's knowledge, including community-based education and awareness programs,[27] involvement of men in antenatal care services and the use of mobile health technology.[36]

Conclusion

This study has shown the inadequate knowledge of danger signs and pregnancy complications among the male in Ogbomoso town which is consistent with findings from other related previous studies. This underscores the need for health education interventions to improve men's knowledge of the danger signs of pregnancy and their implications on the overall health of the mother and the unborn child.

Limitations of the study

Recall bias: The study relied on self-reported data from the respondents, which might be subject to recall bias. Respondents might have had difficulty accurately recalling details related to their knowledge of danger signs and complications of pregnancy, especially if they were not recently exposed to such information.

Social desirability bias: The respondents in the study might not have provided honest responses to the questionnaires, as they might have felt pressure to answer in a socially desirable way.

Conflict of interest

There was no conflict of interest of any kind.

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