

Original Article

KNOWLEDGE OF OBSTETRIC DANGER SIGNS AMONGST WOMEN OF REPRODUCTIVE AGE IN PATHS2 ZARIA CLUSTER, KADUNA NIGERIA

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ABSTRACT

Background: The Partnership for Transforming Health Systems 2 (PATHS2) in Nigeria is implementing selected Behavior Change Communication (BCC) models to increase the knowledge of obstetric danger signs amongst women of reproductive age in Kaduna, Nigeria.

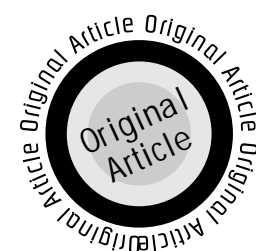
The objective of this survey was to establish baseline proportions for knowledge of at least four danger signs of pregnancy, delivery and postpartum period respectively amongst women age 15 - 49, residing within 25 selected communities in Zaria.

Method: A cross-sectional survey was carried out amongst the eligible women within the communities. A pre-tested structured questionnaire was used for interview.

Results: 617 (94.5% response) eligible women participated in the study. Only 113 (18.31%) knew at least four danger signs during pregnancy. 61 (9.89%) knew at least four danger signs that can occur during labor and delivery and only 57 (9.24%) knew at least four danger signs that can occur during the postpartum period.

Conclusion: A high proportion of the respondents are unaware of obstetric danger signs. It is recommended that radio broadcast be used as part of efforts towards increasing the proportion of women with knowledge of four or more obstetric danger signs in the study population.

Keywords: Danger Signs, obstetric, pregnancy, labor and delivery, postpartum.



INTRODUCTION

In 1987, the international Safe Motherhood Conference convened in Kenya. The conference raised global awareness of the devastating maternal mortality rates in developing nations and formally established the Safe Motherhood Initiative. The goal was to reduce maternal mortality by 50% by the year 2000, and announce to the global community the plight of the pregnant woman. Initially, donors, United Nations (UN) agencies, and governments focused on 2 strategies to reduce maternal mortality: increasing antenatal care and

training for traditional birth attendants. By the year 2000, the goal was far from realized. The global community reaffirmed its commitment in 2000, and the United Nations issued 8 Millennium Development Goals (MDG); the fifth goal (MDG-5) stipulated a reduction of the maternal mortality rate by 75% by 2015¹.

The Partnership for Transforming Health Systems 2 (PATHS2) in Nigeria, with funding from Ukaid under the Department for International Development, is implementing (in 2012) selected Behavior Change Communication (BCC) models in Kaduna, Nigeria, to increase the proportion of women within the reproductive age group with the knowledge of at least four danger signs of pregnancy, childbirth and the postpartum period. These models are intended to

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increase the proportion of women with knowledge of four danger signs of pregnancy, labor & childbirth and the postpartum period - as a means towards self-identification of obstetric emergency situations, promotion of self and community health seeking behavior and increased utilization of hospital services, thereby contributing significantly to achieving the health related Millennium Developmental Goals (MDGs).

All over the world, reports and research have estimated that every day, 800 women die from pregnancy-related causes during pregnancy, childbirth and postpartum. Over 99% of these 287,000 annual deaths occur in developing countries, and most are avoidable¹⁻⁶. Current estimates indicate that Nigeria has one of the highest rates of maternal mortality in the developing world. With an estimated 52,000 annual deaths, Nigeria contributes 10% to annual estimates of maternal mortality, and is one country where progress must be made if the global Millennium Development Goals (MDG) target of reducing maternal mortality by 75% by the year 2015 would be achieved⁷.

While many women die because they do not receive the right medical care, good percentages die because they do not get that care fast enough. In most cases this is due to the fact that pregnant women, their families and the community in general, do not know about the danger symptoms and signs that can occur during pregnancy, labor or the puerperium⁸.

Mesay Hailu et al in a 2010 study of the Knowledge of Obstetric Danger Signs among Pregnant Women, in Southern Ethiopia, pointed out that Maternal morbidity and mortality could be prevented significantly if women and their families recognize obstetric danger signs and promptly seek health care⁶. With the assumption that "every pregnancy faces risks" more studies insists that women should be made aware of danger signs of obstetric complications during pregnancy, delivery and the postpartum as the knowledge will ultimately empower them and their families to make prompt decisions to seek care from skilled birth attendants⁹.

The safe motherhood programs can effectively increase knowledge of danger signs through clinic- and community-based educational strategies¹⁰. Furthermore to this findings, since the mid-1990s and

following the model of development communication, many donors, government, communication scholars and institutions have designed, implemented and evaluated innovative communication programs to achieve behavior change rather than simply informing and educating. Behavior change communication (BCC) is a research-driven approach for promoting and sustaining behavior change in individuals and communities, and is implemented through the development and distribution of specific health messages via a variety of communication channels¹¹.

One of PATHS2's key works focuses on enhancing the capacity of citizens' to make informed choices about prevention, treatment and care for common health conditions through the operationalization of its SMID strategy, using BCC models to promote personal responsibility and accountability for health at the individual and community level. The objective of this survey was to establish baseline proportions for the knowledge of at least four danger signs of pregnancy, delivery and postpartum period respectively amongst women age 15 - 49, residing within 25 selected communities in Zaria - just prior to the implementation of PATHS2's SMID strategy in the communities.

METHODOLOGY

A cross-sectional survey was carried out between April 29 2012 and June 8 2012 amongst women of reproductive age group who reside within the twenty-five communities where the Partnership for Transforming Health System 2 (PATHS2) is to implement its Safe Motherhood Intervention-Demand side (SMID) program in Zaria LGA, Kaduna. Only females within the reproductive age group 15 - 49 years old who reside within the study area, irrespective of their marital and gestational status were included in the study. Mentally incapacitated individuals were excluded from this study

A sample size of 653 was derived using: $n = D \{Z_a [2P(1 - P)]^{1/2} + Z_b [P_1(1 - P_1) + P_2(1 - P_2)]^{1/2}\}^2 / (P_2 - P_1)^2$ with the assumption that the proportion of women who know the danger signs (of either pregnancy, child birth or puerperal period), margin of error, confidence interval, power, design effect, observed change of size $(P_2 - P_1)$ and expected non-response rate to be 50%, 5%,

95%, 80%, 2, 10% and 7.5%, respectively.

Systematic random sampling was used to select all the subjects. First, all the households in each community were listed with the corresponding numbers of eligible women in each of those households. The calculated sample size of eligible women to be interviewed was then proportionally allocated to each of the 25 communities. To estimate the number of households to survey to derive the proportional sample size per community, the allotted sample size of eligible women was divided by the average number of eligible women per household for each community. Sample interval of households was then calculated and every eligible woman in the interval-selected-households was then interviewed for the study. A pre-tested structured questionnaire was used for interview. The questionnaire included questions on socio-demographic characteristics of respondents, knowledge of danger signs of pregnancy, child birth and postpartum period, media experience and access to health advice.

Sampling frame was derived using the Village Heads of the 25 communities to compute the list and the Local Government's Maternal and Child Health Officer to validate it by visiting randomly selected households. Then data was collected by 12 trained interviewers who were supervised by two field supervisors, a statistician and a nurse. All the questionnaires were checked at the site of the survey daily for accuracy and completeness by the research supervisors. If any data was found missing, the interviewers went back to the household for the information if possible.

The collected data were coded, entered, and cleaned, and analyzed using Epi-Data and SPSS for Windows version 17.0. Analysis of data was done and bivariate statistics techniques to identify explanatory factors associated with predicting the knowledge of four or more obstetric danger signs. Eligible women who mentioned at least four danger signs out of at least eleven danger signs of pregnancy, at least four out of at least eight danger signs during labor and child birth, and at least four out of at least ten danger signs in postpartum period were considered as knowledgeable for the respective category.

Ethical approval was obtained from Kaduna State Ministry of Health Ethical Committee and permission was obtained from the Village Heads before undertaking the study. Verbal informed consent was obtained from the study participants before data collection and the collected individual data was kept confidential.

RESULT

Table 1 describes the socio-demographic and baseline characteristics of the respondents. Out of the sampled 653 respondents, 617 were successfully interviewed making a response rate of 94.5%. The mean and modal age group of respondents was 28.25 years \pm 7.8 and 20 -29 years (71.2%) respectively. 601 (97.4%) of the respondents were currently in marital union. All 617 (100%) of the respondents were Muslims with 477 (77.3%) of them having never attended formal school/preschool. 523 (84.8%) of the respondents could neither read English nor Hausa. 358 (58%) of them were either unemployed or full housewives with no income generating activity. Regarding their obstetric history, 160 (25.9%) of them were currently pregnant as at the time of survey and 513 (83.1%) of them had at least one child. 179 (29%) of the respondents had a history of ever losing a pregnancy.

Table 1: Socio-demographic and Baseline Characteristics

Baseline characteristics	Frequency	Percent
Age in years		
15-19	40	6.5
20-29	439	71.2
30-39	93	15.1
40-49	45	7.3
Marital status		
Currently in marital union	601	97.4
Currently living with a man as if in marital union	3	0.5
Currently not in marital union	13	2.1
Religion		
Muslim	617	100
Christian	0	0
Others	0	0
Attended School/Preschool		
Yes	140	22.7
No	477	77.3
Educational level		
No Certificate at all	485	78.6
First School Leaving Certificate	97	15.7
Junior Secondary School Certificate	22	3.6
Senior Secondary School Certificate	11	1.8
Technical College Certificate	1	0.2
National Diploma	1	0.2
Ability to Read		
Can't read English nor Hausa	523	84.8
Able to read English and or Hausa	94	15.2
Occupation		
Unemployed/Full Housewife	358	58.0
Paid employment	72	11.7
Petty Trader	112	18.2
Others	75	12.2
Currently Pregnant		
Yes	160	25.9
No	457	74.1
Ever Lost a Pregnancy?		
Yes	179	29
No	438	71
Children		
Yes (only one)	97	15.7
Yes (more than 1)	416	67.4
No	104	16.9
Where Did You Give Birth to Your Last Child?		
Home	303	59.1
Government Hospital	132	25.7
Private Hospital/Maternity Home	78	15.2
Others	0	0

With regards to access to media, 605 (98.1) of the respondents don't read newspaper at all. 237 (38.4%) of them listen to radio almost every day, only 117 (19%) watch television almost daily, while 247 (40%) of them received a message in the last three months on the danger signs on pregnancy (Table2).

Table 2: Respondents Access to Mass Media

Access to Mass Media	Frequency	Percent
How often do you read the Newspaper or Magazine?		
Almost every day	3	0.5
At least once a week	5	0.8
Less than once a week	4	0.6
Not at all	605	98.1
How often do you listen to the Radio?		
Almost every day	237	38.4
At least once a week	185	30.0
Less than once a week	26	4.2
Not at all	169	27.4
How often do you watch the Television?		
Almost every day	117	19.0
At least once a week	122	19.8
Less than once a week	29	4.7
Not at all	349	56.6
Received a message in the last three months on the danger signs of Pregnancy?		
Yes	247	40.0
No	274	44.4
Can't Remember	96	15.6

When asked to mention danger signs during pregnancy the most commonly known and spontaneously mentioned danger signs were severe headache 257(41.7%), severe abdominal pain 230(37.3%), severe weakness 176(28.5%) and vaginal bleeding 155(25.1%). 51(8.3%) respondents did not know any danger sign of pregnancy (Table 3). Only 113 (18.31%) knew at least four danger signs during pregnancy.

Table 3: Knowledge of Danger signs of pregnancy amongst respondents

Danger signs of pregnancy	Frequency	
	Number	Percent
Bleeding	155	25.1
Severe Headache	257	41.7
Blurred Vision	52	8.4
Fit/Convulsion	143	23.2
Swollen hand /face	216	35
Fever	97	15.7
Fainting/Loss of Consciousness	15	2.4
Difficulty breathing	22	3.6
Severe Weakness	176	28.5
Severe abdominal pain	230	37.3
Water breaks without labor	14	2.3
Don't know	51	8.3

The most commonly known and spontaneously mentioned danger signs of labor and delivery were labor lasting longer than 12 hours (38.1%), severe vaginal bleeding (35.7%), baby's feet, hand or bottom coming before the head (29.8%) and severe headache (21.7%) as described in Table 4. Only 61 respondents (9.89%) knew

at least four danger signs that can occur during labor and delivery.

The danger sign of the postpartum period commonly known and mentioned was severe weakness (30.79%). Only fifty seven respondents (9.24%) knew and mentioned at least four danger signs during postpartum period.

Table 4: Knowledge of Danger Signs of Pregnancy amongst Respondents

Danger signs of labor and childbirth	Frequency	
	Number	Percent
Severe Bleeding	220	35.7
Severe Headache	134	21.7
Fit/Convulsion	65	10.5
High Fever	80	13.0
Fainting/Loss of Consciousness	17	2.8
Labor lasting more than 12 hrs	235	38.1
Placenta not Delivered 30mins after baby's delivery	112	18.2
Baby's feet, hand or bottom coming before the head	184	29.8
Don't Know	65	10.5

Table 5: Knowledge of Danger Signs of the Postpartum Period amongst Respondents

Danger signs of postpartum period	Frequency	
	Number	Percent
Severe bleeding	161	26.09
Severe headache	137	22.20
Blurred vision	32	5.19
Fit/Convulsion	32	5.19
Swollen hands/Faces	154	24.96
High fever	96	15.56
Bad smelling vaginal discharge	81	13.13
Fainting	17	2.76
Difficulty breathing	11	1.78
Severe weakness	190	30.79
Don't know	91	14.75

The statistically significant predictors of knowledge of at least 4 danger signs of pregnancy, labor & delivery and the postpartum period are shown in table 6. Able to partly read Hausa (OR= 3.608; 95%CI 1.22 – 10.65) or partly read English (OR= 4.21 : 95%CI 1.49 – 11.9), having a child (OR= 2.923; 95%CI 1.21 – 7.03), listening to the radio almost every day (OR= 5.25; 95%CI 2.94 – 9.37) and having received information/message on danger sign of pregnancy in the previous two months (OR= 2.687; CI 1.73- 4.18) were independently associated with knowledge of at least four danger signs of pregnancy.

Table 6: Statistically significant predictors of knowledge of four danger signs of pregnancy, labor & delivery and postpartum period

Predictors for knowledge of at least four danger signs of pregnancy		
Variate	(95%CI)	P Value
Can't read English nor Hausa	OR = 1	
Can Partially Read Hausa	OR = 3.608 (1.22 – 10.65)	0.000
Can Partially Read English	OR = 4.210 (1.489 – 11.904)	0.007
Has no child	OR = 1	
Have a child	OR = 2.923 (1.214 – 7.036)	0.017
Have more than one child	OR = 3.127 (1.464 – 6.82)	0.003
Doesn't listen to the radio at all	OR = 1	
Listens to the radio almost everyday	OR = 5.25 (2.940 – 9.374)	0.000
Received a message in the last three months on the danger signs of Pregnancy? - No	OR = 1	
Received a message in the last three months on the danger signs of Pregnancy? - Yes	OR = 2.687 (1.729 – 4.178)	0.000

Predictors for knowledge of four danger signs of labor and delivery		
Variates	OR(95%CI)	P Value
Doesn't listen to the radio at all	OR = 1	
Listens to the radio almost everyday	OR = 22.32 (5.35 – 93.17)	0.000
Received a message in the last three months on the danger signs of Pregnancy? - No	OR = 1	
Received a message in the last three months on the danger signs of Pregnancy? - Yes	OR = 0.303 (0.185 – 0.187)	0.000

Predictors for knowledge of four danger signs of postpartum period		
Variate	OR(95%CI)	P Value
Can't read English nor Hausa	OR = 1	
Can Partially Read Hausa	OR = 7.64 (2.59 – 22.48)	0.000
Have no child	OR = 1	
Have a child	OR = 6.52 (1.407 – 30.24)	0.017
Have more than one child	OR = 6.03 (1.44 – 25.31)	0.014

The predictor variables that were independently associated with knowledge of at least four danger signs during labor were listening to the radio almost every day (OR = 22.32; 95%CI 5.350 – 93.17) and having received information/message on danger signs of pregnancy in the last two months (OR = 0.303; 95%CI 0.185 – 0.187). The predictor variables associated with knowledge of four danger signs of the postpartum period were being able to read Hausa proficiently (OR = 7.64; 95%CI 2.59 – 22.48) and having a child (OR = 6.52; 1.407–30.24).

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The survey was designed to determine the baseline knowledge of at least four danger signs of pregnancy, delivery and the postpartum period amongst women of age 15 – 49 years residing within the 25 communities in Zaria LGA where PATHS2 is to implement its SMID strategy. The study also identified explanatory factors that predict the probability of having knowledge of the danger signs of pregnancy,

delivery and the postpartum period amongst the respondent.

In 2010, a study by Mesay Hailu et al on knowledge of obstetric danger signs among pregnant women in Aleta Wondo district, Sidama Zone in Southern Ethiopia also showed that vaginal bleeding was the most commonly mentioned obstetric danger sign as about half (45.9%), (55%), (59%) of the study subjects spontaneously mentioned it as danger sign during pregnancy, delivery and postpartum period respectively⁶. In another study in 2004, JHPIEGO in measuring the effect of SIAGA behavior change campaign in Indonesia reported that during the baseline assessment about two of every five (36%), one out of every three (30.7%), and one out of every six (16.7%) of the study subjects mentioned vaginal bleeding as danger sign during pregnancy, childbirth and postpartum period respectively¹².

In this study, contrary to the findings in Indonesia and Ethiopia only about a quarter (25.1%), (26.09%) of the study subjects mentioned vaginal bleeding as danger sign during pregnancy and the postpartum period respectively. Also about two fifth (35.7%) of the study subjects spontaneously mentioned vaginal bleeding as a danger sign of labor and delivery. These could be due to the sociocultural, experiential and geographical differences between the study populations.

Obstetric danger signs include persistent vomiting, severe persistent abdominal pain, vaginal bleeding during pregnancy and delivery, severe vaginal bleeding after delivery, swelling of face, fingers and feet, blurring of vision, fits of pregnancy, severe recurrent frontal headache, high grade fever, marked change in fetal movement, awareness of heart beats, high blood pressure, sudden escape of fluid from the vagina, dysuria, oliguria or anuria, prolonged labor, loss of consciousness and retained placenta¹³. Literature on the Knowledge of four or more danger signs in pregnancy, delivery and postpartum period amongst women of reproductive age group was not found after search was done. However, a study by Jerome .K. Kabakyenga et al in 2011 on the knowledge of obstetric danger signs and birth preparedness practices among women in rural Uganda reported that the combined knowledge of danger signs of pregnancy, delivery and postpartum period was 19%⁹. Pembe et al in a study in Tanzania reported that only 6.9%, 1.3% and 3.3% of study subjects had knowledge

of 3 or more key danger signs of pregnancy, delivery and postpartum period respectively¹⁴. In this particular Zaria survey, only about one of every five women (18.31% \pm 1.6%, 95%CI) of reproductive age group was found to have the knowledge of at least four danger signs of pregnancy. Furthermore, this study shows that only about one in ten (9.89% \pm 1.2%; 95% CI), (9.24% \pm 1.2%; 95% CI) women of reproductive age group have knowledge of at least four or more danger signs of labor and delivery and the postpartum period respectively. The observed differences again could be due to differences in exposure to other similar health promotion activities, as well as due to the dissimilarities in the sociocultural and geographical locations of the study populations.

Mesay H. et al found out in their study that those who were currently married were likely to be knowledgeable about the danger signs of pregnancy and child birth⁶. Contrary to Mesay H. et al, Pembe et al reported that the independent variables marital status, occupation, and advice to deliver in hospital were not associated with awareness of a danger sign during pregnancy, delivery and after delivery and that having secondary education or higher increased the likelihood of awareness of obstetric danger signs six-fold (OR = 5.8; 95% CI: 1.8–19). Moreover, the likelihood of awareness of obstetric danger signs increased with age, number of deliveries, number of antenatal visits, when delivery was at a health institution, and when the mother had been informed of having a risk factor or complication during antenatal care¹⁵. In this study, somewhat similar findings to Pembe et al are described. This survey shows that those respondents who could partly read English or partly read Hausa are four and three times (respectively) as likely to have knowledge of at least four danger signs of pregnancy when compared to those who can't read at all. Also subjects in the study population with a child, or who listen to the radio almost every day or who just received information on danger signs of pregnancy are three, five and three times (respectively) as likely to have knowledge of at least four danger signs of pregnancy than those without children or who never listens to the radio or who haven't heard about any danger signs of pregnancy in the last two months.

The explanatory factors that significantly predict having knowledge of at least four danger signs of

labour and delivery in this study were found to be listening to the radio almost every day (OR = 22.32; 95%CI 5.350 – 93.17) and having received information/message on danger signs of pregnancy in the last two months (OR = 0.303; 95%CI 0.185 – 0.187). The link between having received information/message on danger signs of pregnancy in the last two months and having knowledge of four or more danger signs of labor and delivery could be because most of the messages designed and disseminated actually cover all three aspects of obstetric danger signs. It could also be because those who had access to health advice are active in seeking health information and hence are generally more knowledgeable because they have more information. However, this logic appears defeated as it does not seem to hold true for respondents with knowledge of four or more danger signs of the postpartum period.

For knowledge of four or more danger signs of the postpartum period, being able to read Hausa proficiently (OR = 7.64; 95%CI 2.59 – 22.48) and having a child (OR = 6.03; 1.44–25.31) were found to be significant predictors. This means that those who listen to the radio everyday are 22 times as likely to have knowledge of four danger signs of labor and delivery when compared to those who don't listen to the radio at all. It also means that those who can read Hausa proficiently are eight times as likely to have knowledge of at least four danger signs of the postpartum period as those who can't read Hausa or English at all. This could be because of the underground disparity in the level of education and also because Information Education Communication/BCC messages of similar health promotion activities or interventions in the past have been printed and disseminated in Hausa, the predominant language in Northern Nigeria.

A limitation of the study was lack of external validity of the results due to the purposively chosen communities for BCC interventions by PATHS2. For this reason, these findings cannot be generalized to the broader public based on this study alone.

In conclusion, this study showed that a high proportion of the women are unaware of obstetric danger signs. This suggests that large proportions of the women of reproductive age group in this study population are likely to delay in deciding to seek care

and suffer morbidity and or mortality in the process.

Based on the findings of this study, which shows that majority (60.4%) of the respondents listen to the radio almost every day or at least once a week and that the odds of having knowledge of at least four danger signs of pregnancy and childbirth is in favor of those who listen to the radio almost every day, it is recommended that the BCC strategies in place increasingly utilize radio broadcast as part of the approach for increasing the proportion of women with knowledge of four or more obstetric danger signs in the study population. This recommendation is further supported by Adekunle A. et al who reported in 2002 that listening to the radio is a usual activity among members of rural communities in northern Nigeria and that entertainment is the main objective of the listeners¹⁵.

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