



Original Article

## Impact of communication on the awareness of birth defects among adult women in Nigeria

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### ABSTRACT

**Objectives:** Birth defects are universal problems associated with poor management outcomes in children, especially in developing countries where its burden is enormous. Media advocacy is believed to help in reducing these poor outcomes. This study assessed the level of awareness of birth defects in women and the impact of the media in Nigeria.

**Material and Methods:** This was a descriptive cross-sectional study of 778 women, conducted in the outpatient clinics of two major referral hospitals in Ibadan, Nigeria, from March to October 2019.

**Results:** Of the 778 women, 768 were administered a structured questionnaire and 10 women whose children have been managed for a congenital anomaly before were interviewed using an in-depth interview guide. Of the 768 respondents, 600 (78.1%) were in the third and fourth decades of life and 577 (75.1%) women have heard about birth defects before. A total of 348 (60.3%) and 134 (23.2%) women heard about it from the hospital and mass media, respectively, with 65.0% of them believing that the media were helping in educating people about birth defects. There was a statistically significant relationship between the awareness levels and the respondents' occupation ( $\chi^2 = 28.914, P < 0.001$ ), educational status ( $\chi^2 = 43.325, P < 0.001$ ), religion ( $\chi^2 = 10.376, P = 0.016$ ), antenatal clinic attendance ( $\chi^2 = 5.035, P = 0.025$ ), and history of previous mid-trimester abortion ( $\chi^2 = 7.689, P = 0.006$ ).

**Conclusion:** The level of awareness about birth defects is good but not enough; there is a need for greater media involvement in disseminating information on the occurrence of birth defects.

**Keywords:** Awareness, Birth defects, Media, Morbidity and mortality, Women

### INTRODUCTION

Birth defects are a group of universal problem whose impact on pediatric morbidity and mortality is particularly severe in developing countries. About 94% of children born with birth defects in these countries have associated life-long disabilities and very high mortality.<sup>[1,2]</sup> It is estimated that the incidence of major birth defects is about 2–3% of all live births. The burden of birth defect is enormous to the government and the families of the affected patients as they are responsible for up to 30% of all pediatric hospital admissions.<sup>[3]</sup> Although the etiology is unknown, several myths and beliefs which are peculiar to different cultures and often erroneous have been suggested to increase the vulnerability of a fetus to birth defects during pregnancy.<sup>[4]</sup> However, environmental exposures to teratogens, underlying medical risk factors in pregnant mothers, economic, ethnic, and other factors, are suggested predisposing factors to their occurrence in newborn babies. These

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factors are believed to account for the global variations in the incidence of these birth defects.<sup>[5]</sup> Thus, infant mortality from birth defects is reportedly low and is about 1% in Canada and Ireland<sup>[6,7]</sup> but varied between 5.7% and 14% in the United States of America.<sup>[8]</sup> Conversely, the mortality is high in developing countries, although some associated risk factors have been attributed to this.<sup>[9,10]</sup>

The efforts at reducing infant mortality due to birth defects in Western countries have gone through various stages, and these include mounting surveillance for congenital diseases, improvement of perinatal diagnosis of birth defects, providing appropriate methods of treatment for newborns with birth defects, and raising public awareness through health education on ways of reducing the occurrence of birth defects among other things.<sup>[2]</sup>

In educating the public about birth defects, appropriate use of the media is important as proper attention should be paid to the cultural beliefs and values of the people in any given community. Public education may also involve interpersonal communication and community meetings that seek to raise the awareness of the people.<sup>[11]</sup> This study aimed at investigating the level of awareness of mothers about birth defects, the factors attributed to these defects and the impact of the media on efforts to raise this awareness among women living in a typical urban area in Southwest Nigeria.

## MATERIAL AND METHODS

This was a descriptive cross-sectional study of women from different socioeconomic, cultural, educational, and marital backgrounds. The study was conducted in Ibadan metropolis using the Outpatient Clinics of University College Hospital, Ibadan, and Adeoyo Maternity Hospital, Ibadan, Nigeria, from March to October 2019. Purposive sampling technique was used to select 768 respondents who have had pregnancy before to respond to a structured self-administered questionnaire and 10 women whose child had been treated for a birth defect before for in-depth interview. Excluded from the study are women who refused to give consent to be enlisted in the study.

Following an informed consent, the structured self-administered questionnaire translated into the local languages was distributed to the participants to collect information on their sociodemographic details such as age, occupation, marital status, educational status, religion, number of pregnancies they had before, and other related questions. Furthermore, information regarding women's knowledge and causes of birth defects; its prevention and treatment and the role of the media in educating people about birth defects were collected. An in-depth interview guide was also used to interview women whose children have been managed for a congenital anomaly or the other

before to determine their level of awareness of the causes of birth defects and obtain their opinions regarding the role of the media in the awareness campaigns on birth defects. The data were collected, analyzed, and reported in a confidential manner. Descriptive statistics were used to summarize data as appropriate. Tests of association between sociodemographic variables and awareness of presence of birth defects were performed using Chi-square statistics. The level of statistical significance was set at 5%. All analyses were performed using the Statistical Package for the Social Sciences Version 23.0 for Windows.

## RESULTS

A total of 768 women aged 17–75 years completed the questionnaire, with a mean of  $33.53 \pm 8.95$  years. Respondents in the third and fourth decades of life constitute more than three-quarters (600, 78.1%) of the women. The participants were predominantly skilled workers (430, 56.0%) and a large proportion of them were married (709, 92.3%). Fifteen (2.0%) participants had no formal education whereas 484 (63.0%) were educated beyond the 12<sup>th</sup> grade. All the participants except 25 (3.3%) have had at least one pregnancy before and a high proportion (737, 96.0%) of them had attended antenatal clinic for all their pregnancies [Table 1].

About three-quarters (577, 75.1%) of the participants have heard about birth defects before. Of this, 348 (45.3%) women became aware during their routine antenatal care visits, 134 (17.4%) through the mass media, 90 (11.8%) women became aware through interpersonal communication with their friends, colleagues at work, and their husbands, and 3 (0.4%) through various meetings of their religious organizations [Table 2]. A total of 499 (65.0%) women believed that the media were helping in educating the populace about the prevalence of the various birth defects.

### Sociodemographic variables and level of awareness

Across the age groups, the proportion of the participants who were aware of birth defects was higher than those who were not aware. The awareness was most (274, 35.7%) in the fourth decade of life and least in women below 20 years of age (7, 0.9%). The degree of awareness of birth defects was significantly higher among the respondents who were educated beyond the 12<sup>th</sup> grade (394, 51.3%) in comparison to respondents (183, 23.8%) whose educational status was below the 12<sup>th</sup> grade ( $\chi^2 = 43.325$ ,  $P = 0.000$ ). A total of 350 (45.6%) out of 430 (56.0%) women who were skilled workers (professionals) had knowledge of birth defects compared with 175 (22.8%) out of 274 (35.7%) who were unskilled workers ( $\chi^2 = 5.167$ ,  $P = 0.00$ ). Thus, women who had knowledge of birth defects were more likely to be seen

**Table 1:** Relationships between the sociodemographic characteristics of the participants and awareness of birth defects.

Variable	Aware, no. (%)	Not aware, no. (%)	Total	Chi-square ( $\chi^2$ )	P value
Age (years)					
<20	7 (0.9)	6 (0.8)	13 (1.7)	5.363	0.373
20–29	177 (23.1)	68 (8.9)	245 (31.9)		
30–39	274 (35.7)	81 (10.6)	355 (46.2)		
40–49	83 (10.8)	26 (3.4)	109 (14.2)		
50–59	26 (3.4)	7 (0.9)	33 (4.3)		
≥60	10 (1.3)	3 (0.4)	13 (1.7)		
Occupation				28.914	<0.001
Skilled workers	350 (45.6)	80 (10.4)	430 (56.0)		
Unskilled workers	175 (22.8)	99 (12.9)	274 (35.7)		
Dependants	52 (6.8)	12 (1.6)	64 (8.3)		
Number of pregnancies				5.184	0.394
None	20 (2.6)	5 (0.7)	25 (3.3)		
1	152 (19.8)	63 (8.2)	215 (28.0)		
2	152 (19.8)	41 (5.3)	193 (25.1)		
3	127 (16.5)	37 (4.8)	164 (21.4)		
4	76 (9.9)	30 (3.9)	106 (13.8)		
≥5	50 (6.5)	15 (2.0)	65 (8.5)		
Antenatal clinic attendance				5.035	0.025
Yes	559 (72.8)	178 (23.2)	737 (96.0)		
No	18 (2.3)	13 (1.7)	31 (4.0)		

P<0.05 (i.e., significant)

**Table 2:** Sources of awareness.

Source	Frequency	Percentage
Hospital (antenatal clinics)	348	45.3
Mass media	134	17.4
Friends	45	5.9
Colleagues at work	40	5.2
Spouse (husband)	5	0.7
Religious meetings	3	0.4
Non-governmental organizations	2	0.3

among skilled workers (45.6% vs. 22.8%). Furthermore, the degree of awareness was significantly higher in women who attended antenatal clinic ( $P = 0.025$ ) and women who had miscarriage before ( $P = 0.006$ ). Other variables such as the marital status of the respondents ( $P = 0.772$ ) and number of pregnancies ( $P = 0.394$ ) were not significantly associated with the degree of awareness of birth defects [Table 1].

Majority of the respondents believe that dangerous lifestyles with excessive alcohol intake, smoking and drug abuse by pregnant women (570, 74.2%), use of unprescribed drugs and herbal concoction during pregnancy (579, 75.4%), and malnutrition in pregnancy (488, 63.5%) may cause birth defects in children [Table 3].

#### Role of the mass media on the awareness of birth defects

A total of 692 (90.1%) participants reported that their children did not have birth defect, whereas 76 (9.9%) had

**Table 3:** Causes of birth defects.

Causes	Agree	Disagree
Dangerous lifestyles (alcoholism, smoking, drug abuse, etc.)	570 (74.2%)	198 (25.8%)
Unprescribed drugs and herbal concoction usage in pregnancy	579 (75.4%)	189 (24.6%)
Supernatural cause	224 (29.2%)	544 (70.8%)
Malnutrition and hypovitaminosis	488 (63.5%)	280 (36.5%)
Babies with birth defects are monsters and spirit beings	74 (9.6%)	694 (90.4%)
No known cause	94 (12.2%)	674 (87.8%)

birth defects such as anorectal malformations, Hirschsprung’s disease, hypospadias, disorders of sexual differentiation, omphalocele, polydactyly, undescended testis, bladder exstrophy, branchial cyst, gastroschisis, congenital heart defects, congenital hydrocele, congenital inguinal hernias, and congenital pelvic mass (teratoma). About 499 (65.0%) women believed that the media are helping in educating the populace about the various birth defects. Of this, 304 (39.6%) participants reported that the media awareness is enough to help mothers develop a positive attitude to children with birth defects toward their care. More than half 288 (37.5%) of the study participants reported that the media have not been able to allay the fears of parents about the beliefs people have concerning birth defects. Furthermore, 302 (39.3%) women thought the media have not been successful in educating people about the causes of birth defects and how to prevent

them and 231(30.1%) women were not aware of any measure adopted by the government or any other body to reduce the incidence of birth defects in children [Table 4].

The ages of the 10 women interviewed ranged from 30 to 42 years. Two women had no formal education, two did not go beyond the 12<sup>th</sup> grade, and six were educated beyond the 12<sup>th</sup> grade. Their children had been managed for omphalocele, inguinoscrotal hernia, hypospadias, undescended testis, hemangioma, and pelvi-ureteric junction obstruction before. Only three women were not aware of birth defects before, including two illiterate women and a woman who was educated beyond the 12<sup>th</sup> grade. The sources of information include the media (television, radio, newspapers, and internet), interpersonal communication with friends, neighbors and in the school, as well as with doctors and nurses in the hospital. Participants' opinions were divided on whether the media are doing enough in creating awareness about birth defects. A few of the participants have heard about some cultural taboos and myths surrounding the occurrence of birth defects with witches and wizards being attributed to the cause. Other suggested causes include evil deeds by friends and neighbors and a situation where a pregnant woman is always walking in hot sun and in the night making it easy for evil spirits to enter the woman to cause birth defects. The myths and cultural taboos were, however, passed to them by their family members, friends, and neighbors. None of them heard about the myths from the media.

The participants interviewed believed that poor or lack of adequate antenatal care, heredity, increasing age of the parents at pregnancy, and indiscriminate use of drugs

during pregnancy could be responsible for the occurrence of birth defects and they can be prevented by eating good foods, adequate antenatal care, and avoidance of dangerous drugs during pregnancy. Although 20% of the participants claimed to be afraid of babies with birth defects as some of these babies may be monstrous in appearance, they all agreed that a positive attitude and sympathy should be shown to them as they are human beings; they are not the cause of their problems and should be treated as such. They unanimously agreed that the media have not done enough to instill a positive attitude on the people toward babies with birth defects. They suggested that the media could help with enlightenment campaigns to sensitize people on the existence of birth defects, how it can be prevented, the need to develop a positive attitude toward the babies with these anomalies and what can be done to treat and rehabilitate them in a bid to reduce the burden of birth defects on the society. They also suggested that early marriage, self-discipline among mothers, especially during perinatal period, maternal counseling, and screening of suspicious cases, will also help in reducing the incidence of these defects.

## DISCUSSION

Awareness of birth defects is more likely to be high among older, more matured respondents, skilled workers, and educated women. It was also observed that women who have had more than 1 pregnancy and had antenatal care in the hospital for these pregnancies showed good knowledge and awareness about the prevalence of birth defects. A finding that agrees with the responses of the women interviewed. During the routine antenatal care visits in many maternity

**Table 4:** Role of the mass media on the awareness of birth defects.

Variables (768)	Aware, no. (%)	Not aware, no. (%)	Total, no. (%)
Does any of your children have birth defect?	76 (9.9)	692 (90.1)	768 (100)
Is the media (radio, television, and newspapers) helping in educating the populace about the various birth defects?	499 (65.0)	269 (35.0)	768 (100)
Is the awareness raised by the media enough to help parents, especially mothers to have a positive change of attitude to children with birth defects towards their care? (n=499)	304 (39.6)	195 (25.4)	499 (65.0)
Have the media in a bid to survey the environment been able to allay the fears of parents about the beliefs people have about birth defects?	288 (37.5)	480 (62.5)	768 (100)
Do you think the media have been successful in educating people about the causes of birth defects and what to do to prevent them?	302 (39.3)	466 (60.7)	768 (100)
Are you aware of any measure put in place by the government or any other body to reduce the incidence of birth defects in children?	231 (30.1)	537 (69.9)	768 (100)

centers in this environment, these women are repetitively taught about the occurrence of birth defects and what could be done to prevent or treat them. A high proportion of the participants (75.1%) was aware and has heard that a child could be born with a defect. Mavrou *et al.*<sup>[12]</sup> observed that better awareness of birth defects was associated with older age, better education, and high socioeconomic status. Older age is a reflection of greater experience and maturity where women in the fourth decade of life were most aware of birth defects and it is likely that such women or mothers would have interacted with friends whose babies had birth defects previously. Although, religion, education, and socioeconomic status are important determinants of enlightenment in any society,<sup>[13]</sup> the role of interpersonal communication through passage of information among friends, colleagues at work, and door-to-door campaign should not be overlooked as it has been shown in this study that awareness was enhanced through interpersonal communication by 11.8% which is almost similar to 17.4% produced by the mass media.

The WHO (2008) observed that birth defects account for about 25 million disability-adjusted life years worldwide and are a major part of the global burden of disease in children.<sup>[14]</sup> This is made worse by the increase in incidence of birth defects, especially in the developing countries.<sup>[15]</sup> Against the backdrop of these reports, it is important for all stakeholders to come up with strategies both at the country level and the level of international organizations to reduce the burden of birth defects among children. Enlightenment campaigns that will provide information about the existence of a problem in any community are believed to assist people to change their attitudes toward the problem to solve the problem.<sup>[16,17]</sup> This, however, can be achieved by the use of the mass media. Thus, the mass media can create awareness to change people's behavior. In the Indian population, it is believed that social class, consanguinity of marriage, parity, and urban or rural status are significantly associated with congenital malformations,<sup>[18]</sup> whereas the typical belief in Nigeria is that the occurrence of birth defect in a child is a punishment from the gods as the mother dared to walk in the midday sun or late in the night when the evil spirits who are agents of these gods usually move around, during pregnancy.<sup>[19-21]</sup> The consequence of this is that children with birth defects are taken as bad omen to the family and they are either concealed or neglected while some other people may consult the revered traditional healers to perform rituals before they are taken to the hospital for treatment.<sup>[22,23]</sup> This may account for the delay in presentation in the hospital often experienced in this environment. Although more than two-thirds of the respondents believed that the media have been helping to create awareness in the people about birth defects, the awareness was not enough to change their beliefs, attitudes, and behavior toward children with birth defects. In spite of the media awareness, these erroneous beliefs and attitudes are

still being reinforced and passed down from one generation to another, suggesting that the media are not doing enough to demystify birth defects by focusing on the traditional beliefs on causes and predisposing factors of birth defects to improve awareness and subsequently reduce the incidence of birth defects. The lack of adequate knowledge about the burden of birth defects by the relevant stakeholders (government and non-governmental organizations) may also be responsible for this. They are most likely unwilling to commit their resources to areas where they know very little or nothing about in the areas of etiology and predisposing factors of birth defects. The resultant effect of this is that people will stick to their cultural beliefs with no proper sense of responsibility to treat or prevent birth defects. The government is expected to work with the media to enlighten people about their policies on health care and financing including the various measures adopted to reduce the incidence of birth defects in children.

### **Communication strategies for raising awareness of birth defects**

Providing adequate information on causes of birth defects to correct the myths and misconceptions surrounding the occurrence of birth defects and what can be done to prevent their occurrence as well as the various measures that can be taken to manage them is crucial to reducing the incidence and burden of these diseases. The information provided will reduce the stigma associated with birth defects which will ultimately help in modifying individuals and community's attitudes toward these anomalies.<sup>[24]</sup> In reducing the stigma associated with birth defects; interpersonal communication, community mobilization (using the community leaders and Chiefs), and mass media campaigns are sure to influence people's attitudes about the causes, myths, and misconceptions they have about birth defects.<sup>[24]</sup> Through the creation of birth defect registry, data can be gathered on the various birth defects prevalent in a country and the government can use this to create media advocacy toward changing the perceptions and beliefs of the people, preventing the occurrence of birth defects and providing information about how and where these anomalies can be treated. Although, mass media campaigns may be expensive, its appropriate use will influence people's behavior. However, interpersonal communication and community mobilization are more strategic in that they ensure that every individual living in a community is informed about the occurrence of birth defects but the community leaders and individuals involved in passing the information must be well educated and convicted enough about the burden of birth defects for them to pass the information effectively.

### **CONCLUSION**

The level of awareness about birth defects is good; it is improving with age, better education, and with skilled

workers. However, the level of awareness can be improved to demystify the causes of birth defects. Appropriate education and public health enlightenment campaign targeting younger women or mothers from lower socioeconomic class is suggested to improve awareness in developing countries. Furthermore, improving healthy behaviors should be the focus of policy-makers and opinion leaders through strategically planned communication. Therefore, effective communication activities must be well-designed, well-planned, and properly aligned to national priorities as well as community needs to achieve the desired effects of reducing the prevalence of birth defects.

#### Declaration of patient consent

Patient's consent not required as patients identity is not disclosed or compromised.

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#### Conflicts of interest

There are no conflicts of interest.

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