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SOCIAL AND CULTURAL FACTORS INFLUENCING IMMUNIZATION OF CHILDREN IN RURAL ABIA STATE, NIGERIA

Ezebunwa E. Nwokocha and Chioma Obioma

Abstract: The role of adequate and timely immunization in the reduction of infant and childhood mortality cannot be overstated, especially in sub-Saharan Africa. This study, anchored in the Health Belief Model and Rational Choice Theory, investigated the socio-cultural factors influencing childhood immunization in the rural state of Abia, Nigeria, an area with a high infant mortality rate. A multistage sampling technique involving the random selection of 3 communities in Bende Local Government Area and the purposive selection of 433 respondents with children under the age of 5 was adopted. In-depth interviews were conducted with 13 respondents — 3 health personnel, 3 traditional birth attendants, 4 community leaders (2 men and 2 women), 2 church representatives, and the head of the health department in the local government headquarters. Findings reveal that the majority of respondents had heard about childhood immunization and largely understood its essence. Religious beliefs and the mother's economic activities (especially when market day coincides with immunization day) were identified as major influences on immunization. More attention should be directed to providing adequate education for rural dwellers on the importance of immunization for childhood mortality reduction.

Keywords: immunization, childhood mortality, religious beliefs, disease prevention

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Statistics have shown that the highest rates of mortality in children under the age of 5 occur in sub-Saharan Africa, where 1 child in 8 dies before the 5th birthday (Nwokocha & Awomoyi, 2009; National Population Commission [NPC] & ICF International, 2014). About 70% of deaths of children under the age of 5 occur in 15 countries, with India and Nigeria accounting for nearly one-third of under-5 mortality globally (You, Jones, & Wardlaw, 2010). Research reveals that preventable or treatable infectious diseases such as pneumonia, diarrhea, measles, and HIV/AIDS are implicated in more than 70% of the estimated one million annual under-5 deaths in Nigeria (Ekure et al., 2013; United Nations Children's Fund [UNICEF], 2009; You, Jones, & Wardlaw 2010). These figures may underrepresent the current situation since some of these deaths occur at home and are therefore not reported.

Although there has been an overall reduction in childhood mortality in Nigeria over the years the rate of reduction has been marginal and far from meeting the Millennium Development Goal of a two-thirds reduction by 2015 (Nwokocha, 2013). Notwithstanding the various efforts that have been made by governments and agencies, the rate of childhood mortality in Nigeria has remained stubbornly high and progress has been fitful. For instance, in 1990, the under-5 mortality rate was estimated at 147 deaths per 1000 births; it increased to 176 in 1995 but dropped to 153 in year 2000 (Central Bank of Nigeria, 1991; Ajala, 2002; UNICEF, 2002). The latest Nigeria Demographic and Health Survey revealed that 128 children per 1,000 live births, or about 1 out of 6 children, dies before age 5 (NPC & ICF International, 2014), even worse than the rate for sub-Saharan Africa overall.

Immunization is not only the surest way of protecting children but also the most cost-effective and important public health approach to disease prevention (Tagbo, Uleanya, & Omotowo, 2012; Adeyinka, Olademeji, Adeyinka, & Almakhu, 2009; UNICEF, 2009). Immunization has saved over 20 million lives in the last two decades (Rahji & Ndikom, 2013), yet, for various reasons, including rumors about perceived side effects and lack of vaccines and health personnel, immunization coverage in Nigerian communities — particularly rural areas — has been low (Itimi, Dienye, & Ordinioha, 2012). Thus, individual and systemic factors undermining the availability and utilization of immunization services have been linked to preventable diseases occurring among children in Nigeria. This paper investigates the factors influencing childhood immunization in rural Nigeria as a way of understanding the effects of relevant manifest and covert factors. Specific issues examined include people's perceptions and beliefs about immunization, socioeconomic status, and availability and utilization of services.

Theoretical Framework

The Health Belief Model (HBM) by Rosenstock,Strecher, and Becker (1988), and Rational Choice Theory (RCT) by Coleman (as cited by Ritzer, 2008), have been adopted in analyzing immunization of children in rural Nigeria.

The Health Belief Model

The Health Belief Model focuses on six constructs to predict the behavior of actors in regard to health care, namely: perceived susceptibility, perceived severity, perceived benefits, perceived barriers, cues to action, and self-efficacy. Rosenstock, Strecher, and Becker (1988) noted that people are likely to take a particular health-related action if they (a) feel that it is possible to avoid the negative health condition; (b) have an expectation that by taking the recommended action, the condition can be avoided; and (c) believe that they can successfully take the recommended health-related action. The model explicitly recognizes that individuals are motivated to act on the basis of their understanding of the situation as it relates to the constructs (Rosenstock, 1974; Becker, Radius, & Rosenstock, 1978).

Perceived susceptibility. Parents who perceive that without routine immunization their children will be vulnerable to diseases and infections will probably make it a priority to have their children immunized, unlike parents who do not consider their children as potentially susceptible to childhood killer diseases. The perception that immunization isn't necessary may derive from ignorance or from an insistence on upholding centuries-old beliefs and practices pertaining to child survival and health strategies.

Perceived severity. Perceived severity of diseases among children when they occur is also a critical factor in deciding whether and when to have children immunized. Parents who understand that their children are susceptible to childhood diseases but who do not grasp the potential severity of such diseases may not take timely action. Delays in having children immunized can have serious adverse consequences, as vaccines must be administered on a prescribed schedule to be fully effective.

Perceived benefit. Perceived benefit as an integral part of the HBM focuses on how a supposed gain or advantage of an intended action motivates an individual towards acting, in this case presenting a child for immunization. As a corollary, parents who do not perceive the benefits of immunization will most likely ignore it as inconsequential.

Perceived barriers. Various perceived barriers may discourage parents from presenting a child for immunization, including having to travel a long distance to the immunization facility, anxiety about likely side effects, delays in accessing vaccines, and reliance on traditional beliefs and practices.

Thus, the four constructs so far discussed have a complementary effect in defining the attitude and behavior of a prospective actor towards taking a health-related action. For instance, a parent who perceives children as vulnerable to diseases and the concomitant severe complications that could result is more likely to understand the benefits of taking preventive action, and to have a child immunized as prescribed. The model posits that cues to action concretize other HBM constructs that are built on perception by providing necessary information that may lead to action. Information sources that can provide cues to action include the media,

extension workers, and significant others (Rosenstock, 1974). The most recent addition to the model, self-efficacy, relates to a parent's level of confidence in his or her ability to successfully present a child for immunization as and when necessary. Such a decision is reached after processing insights derived from other constructs.

Rational Choice Theory

The second perspective, Rational Choice Theory, views individuals as able to weigh the advantages and disadvantages of a goal-directed action before taking the action (Friedman & Hechter, 1988). As such, actors have the capacity to make rational choices among alternatives within the context of available resources and prevailing conditions. However, that ability must be considered relative to a prospective actor's level of awareness about the efficacy of these alternatives in dealing with a particular condition. In the current analysis, the alternatives include presenting a child for immunization as and when necessary, late presentation, or non-presentation.

Within the context of these alternatives, an individual is expected to attempt to make a rational choice that seeks to maximize benefits while minimizing cost or pain (Ritzer, 2008). Effectively weighing the options supposes that the actor has sufficient information about available alternatives. We note that when choices are quite similar, it can be difficult to decide on the preferred option. That ought not to be the case in making a rational decision as to whether to have a child immunized, considering that the merits of immunization are well documented. In what follows we present a conceptual framework that synthesizes the theoretical perspectives employed in explaining the factors that impinge on immunization of children in rural Abia State.

Conceptual Framework

Figure 1 shows three possibilities with regard to children's health in rural Nigeria: preventive strategies, childhood diseases and treatment, and management options. These possibilities define the relevance of an actor's perception related to vulnerability, seriousness, benefits, and barriers to action. The framework indicates that the degree of importance or meaning attached to the constructs will influence an individual's choice of health-seeking behavior, such as, in the present discussion, timely immunization, delayed immunization, or none at all. In contexts where immunization is efficacious, timely, and appropriate, immunization will lead to prevention of diseases, or to reduced effect when diseases occur, promoting stable health among the immunized children. Conversely, individuals who do not present their children for immunization expose them to the danger of morbidity and mortality. Figure 1 also shows that parents who have once experienced the death or serious illness of a child are likely try to avoid a similar incident by seeking health information from relevant sources including neighbours, media, community health workers, and social advocates, as reflected in the box, "Cues to Action".

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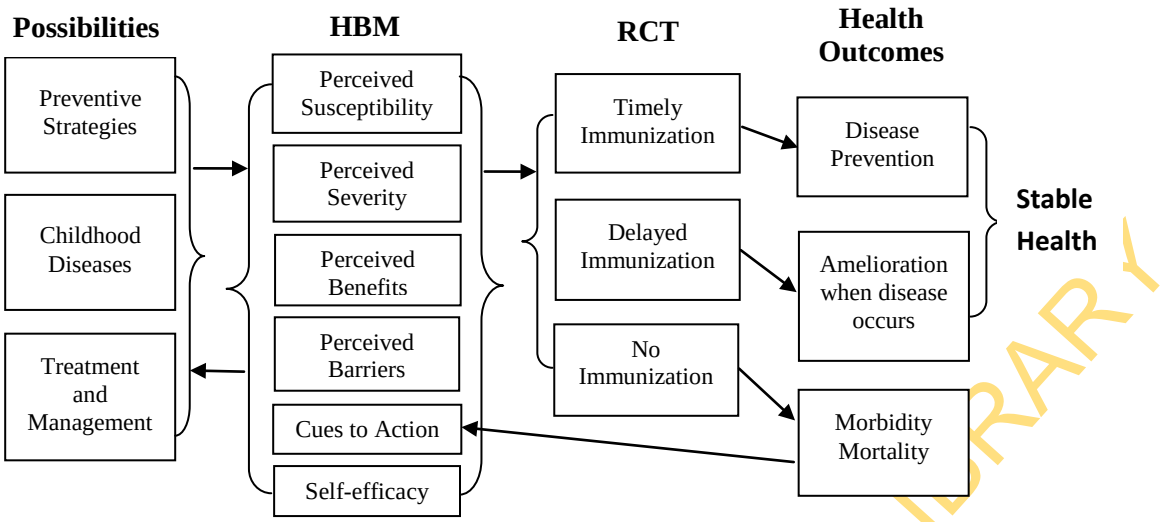

Figure 1. Conceptual framework.

Methods

Abia State in Southern Nigeria was chosen for this study because of its low immunization coverage, with only 49.8% children receiving all the basic vaccinations (NPC & ICF International, 2014). Generally, the rural inhabitants of the state make little use of modern health services, partly as a result of a strong attachment to cultural beliefs, values, and practices with regard to medical matters, and partly due to the paucity of functional orthodox health facilities. Many are illiterate, conservative, and unprepared to accept changes in the social, economic, religious, and familial structure of society. Although a large number of the people profess Christianity, traditional norms supporting male child preference, polygamy (in particular polygyny, as a symbol of wealth and virility), and high fertility still pervade rural Abia communities (Nwokocha, 2007).

The study employed a combination of qualitative and quantitative data collection techniques. A total of 433 copies of an open- and closed-ended questionnaire were administered to mothers with children under the age of 5. Given the low literacy level among respondents, interviewers asked the questions and recorded the answers. Of the total number of questionnaires administered, only 364 copies (84%) were completed and thus available for analysis. Thirteen in-depth interviews (IDIs) were conducted with 3 orthodox health personnel, 3 traditional birth attendants, 4 community elders, 2 religious leaders, and the head of the health department in the Bende Local Government Area (LGA). A multistage sampling technique was adopted beginning with the selection of three communities from the LGA through the simple random method. The second stage also involved the random selection of villages from which mothers with children of immunization age were purposively selected.

Ethical considerations were fully observed in the course of data collection; the anonymity of study participants was guaranteed, and their recruitment was on the basis of voluntary and

informed consent. In addition, the principle of no harm to subjects was applied. Prior to the commencement of interviews, the participants were informed of the ultimate benefits that the study would have for them. They were also informed about their right to withdraw from the study at any time. Quantitative data were edited and cleaned to remove inconsistencies that could undermine research validity and reliability.

Data were analyzed using descriptive and inferential statistics through frequencies, percentages, and cross tabulation of variables using the Statistical Package for the Social Sciences (SPSS). Qualitative data analysis involved the use of ethnographic summaries and content analysis. The procedure began with the translation and transcription of tape recordings of IDIs. These were followed by the examination, and then the thematic isolation, of various responses that threw light upon the study objectives. By adopting this method, responses from the qualitative data complemented the questionnaire survey.

Results

Table 1 shows the sociodemographic characteristics of respondents. The mean age of the respondents was 29.51. Eighty-one percent of respondents were aged 25 to 34; the age categories least represented were 35 to 39 (8.8%) and 40 years and above (0.8%). Eighty-nine percent of the respondents were married and 6% were single. Overall, 69% of the respondents were in a monogamous union and 99.7% were Christian. Forty percent of the respondents had secondary school education and 18% had tertiary school education. Over two-thirds (68%) of the respondents were involved in either trading or farming, 10% were civil servants, and 15% were artisans.

Table 1 also shows that most of the respondents (73%) delivered their babies in a primary health centre, 18% delivered either at home or in church, and only 6% delivered in public or private hospitals. It is important to note that women who give birth in churches, following a practice supported in sections of the community, do so in the hope of divine assistance, which is thought to be readily accessible in the church. It shares with home delivery a lack of emphasis on providing expert assistance such as would be available in other places of delivery.

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Table 1

Sociodemographic Characteristics of Respondents

Characteristics	Frequency (n=364)	Percent
Age group		
>24 years	35	9.6
25-29 years	161	44.2
30-34 years	133	36.5
35-40 years	32	8.8
40+ years	3	.8
Marital status		
Single	22	6.1
Married	324	89.3
Separated/Divorced	6	1.7
Widowed	7	1.9
Cohabiting	4	1.1
Family type		
Monogamous	238	69.0
Polygamous	107	31.0
Level of education		
None	60	16.5
Primary	94	25.8
Secondary	144	39.6
Tertiary	65	17.9
Main occupation		
Trading	179	49.2
Farming	70	19.2
Civil service	37	10.2
Student	25	6.9
Artisanship	53	14.5
Religion		
Christianity	363	99.7
Islam	1	.3
Place of delivery		
Home	42	11.5
Primary health centre	265	72.8
Traditional birth attendant	13	3.6
Private clinic	17	4.7
General hospital	3	.8
Church	24	6.6

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Table 2 examines the main source of information on immunization for the respondents, which ranged from 34% whose main source was their healthcare provider to 5% for whom it was the media. The proportion of those who relied on information from family members and friends combined was 37%.

Table 2

Main Source of Information on Child Immunization

Source	Frequency	Percentage
Family member	82	22.5
Health care provider	125	34.3
Antenatal care service	57	15.7
Friends	53	14.6
Church	23	6.4
Media	19	5.2
Total	364	100.0

In-depth interviews revealed respondents' perceptions about the necessity of immunizing children in the study area. The following views were expressed by some of the respondents:

> Child immunization is used to prevent diseases and even if a child will contract one of the vaccine-preventable diseases it would not be as severe as it would have been without immunization and it is very necessary for a child to survive. (IDI/orthodox health personnel)

> Immunization is very vital for a child's survival. The necessity can be seen from the reduction of child mortality in this community. A good number of mothers have known the use and embraced immunization very well, although there are still mothers who feel child immunization is not necessary. They give reasons ranging from believing God that nothing will happen to the child to not immunizing their first children who didn't die and therefore no need to immunize children born thereafter. (IDI/community leader)

> We always try to encourage mothers during our gatherings on the importance of immunization. (IDI/female community leader)

Another interviewee had a different opinion about the necessity for immunization:

> Immunization is necessary for children whose parents do not have faith in the great physician (God). There are situations where children die even after immunization. The immunization that is very necessary is that which is drawn from God. (IDI/religious leader)

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Figure 2 shows the views of respondents on the dangers associated with non-immunization of children. About 4% of respondents reported either no consequence or do not know of any consequence; the rest identified various consequences and therefore the need to have children immunized.

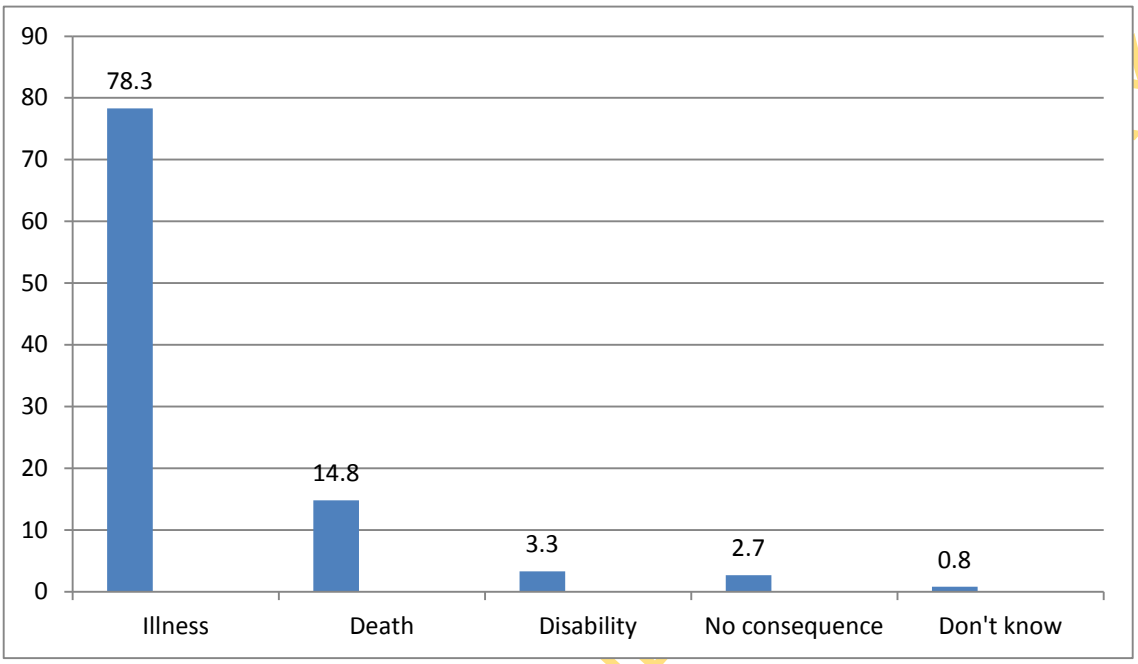

Figure 2. Perceived dangers of non-immunization of child.

A large majority of the respondents (78%) stated that not immunizing a child could lead to illness; 15% said it could lead to death. Notwithstanding identified dangers, Table 3 shows the perceptions of respondents about the main barriers to immunization. Delay at health facilities and the distance to immunization facilities were reported by 38% and 25% respectively. As one respondent stated, delays are sometimes caused by a shortage of people attending the clinic for immunization:

> Practices such as perceived inviolability of participation in *eke* market affects immunization activities among the people. On each *eke* day, few parents would bring their children but most will rather come after buying or selling. On such days mothers spend very long time waiting because we cannot open the vaccine box if we do not have a reasonable number of children that the vaccines can be administered on. Some parents would not come at all and will therefore postpone their children's immunization till the next immunization day or even miss it completely. (IDI/orthodox health personnel)

Twelve percent of the respondents stated not knowing of any main barrier and 4% identified fear of possible side effects.

Table 3

Respondents' Perception of the Main Barrier to Child Immunization

Perceived barrier	Frequency	Percent
Delay in health facility	137	37.6
Long distance to facility	92	25.3
Lack of health workers	54	14.8
Religious belief	8	2.2
Lack of information	16	4.4
Fear of side effects	15	4.1
Don't know	42	11.5
Total	364	100.0

Although some interview respondents viewed the necessity for immunization as outweighing any perceived barriers, others expressed some level of reservation. For instance, one of the interviewees stated:

> Nothing should stop a woman from immunizing her child because it is very important to its survival.... Any woman who does not take her child to a facility for immunization is to be blamed should the child contract preventable diseases. No excuse is good enough to deny a child immunization. (IDI/health personnel at the local government office)

Other respondents explained why some parents may be unwilling to have their children immunized. As one observed:

> Some parents who are reluctant to get their children immunized believe that immunization will make them sick or injure their legs. The usual claim is that these children had never fallen sick even without immunization, hence no need to worry. (IDI/community leader)

The importance of the mother's educational status in childhood immunization was highlighted by a health worker in the study area when she stated:

> The level of education of mothers in one way or the other influences their level of compliance regarding immunization of children. It is easier to discuss the issues concerning immunization such as side effects with more educated mothers than less educated ones. We have to take extra efforts to convince mothers who have lower levels of education about immunization. Also, during immunization awareness exercises, mothers who are more educated participate actively relative to their less educated counterparts who keep quiet, for the most part, even if they do not understand the issues. Sometimes they feel intimidated and may go back home almost empty. (IDI/orthodox health personnel)

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Participants were questioned on household decision-making on immunization of children. A large majority of the respondents (65%) stated that immunization decisions are jointly taken by a child's parents. Interestingly, although the prevailing social organization is patriarchal, among respondents for this study more women made a sole decision on immunization (31.2%) than did men (3.4%). Stressing the need for women to abide by the patriarchal ethos of the Bende community, one of the community leaders argued that:

> Women ought to take permission from their husbands before taking their children to facilities for immunization. The man is the head of the home and therefore should be respected. It is unlikely for a man to deny the woman the permission because they know that immunization is necessary for the survival of a child. (IDI/community leader)

Although most men may indeed be aware of the necessity for immunization, the barriers identified in Table 3 may nevertheless discourage them from giving approval for women to proceed with immunization. Table 4 interrogates the link between a respondent's level of education and who makes the decision whether to immunize the child. The chi-square result shows that there is a significant relationship between the level of education of respondents and spousal decision making ($x^2 = 33.06$, df = 6, p = .001).

Table 4

Level of Education and Spousal Decision-Making

Spousal decision-making	Level of education				Chi-square value
	None formal	Primary	Secondary	Tertiary	
Me alone	36 (61.0%)	28 (30.8%)	35 (24.5%)	13 (20.0%)	$X^{2=33.06}$
My spouse alone	2 (3.4%)	4 (4.4%)	5 (3.5%)	1 (1.5%)	df=6
Both of us	21 (35.6%)	59 (64.8%)	103 (72.0%)	51 (78.5%)	P=.001
Total	59 (16.5%)	91 (25.4%)	143 (39.9%)	65 (18.2%)	

Figure 3 shows the length of time required for respondents to travel to a health facility for immunization, which ranged from 10 minutes or less (53%) to 31minutes and more (6%). Sixteen percent of the respondents took more than 20 minutes to get to a facility, which may be a source of discouragement for some community members.

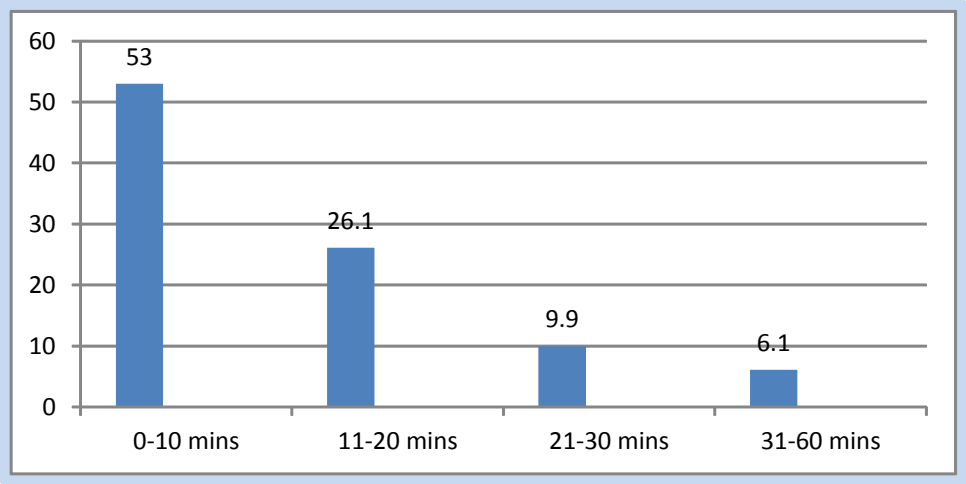

Figure 3. Length of time to immunization centre.

On the influence of religion on immunization, the following views were expressed by respondents. One respondent noted that a gradual but positive attitudinal and behavioral change towards immunization was occurring:

> The community has made efforts to reduce the influence of religious beliefs on immunization of children in our community. Many adults today are disabled or blind due to the influence of these doctrines on immunization. Some parents who did not believe in immunization in the past are beginning to see its importance. We have gone to churches that discourage immunization among their members.… we thank God because some of the doctrines against immunization are gradually waning. (IDI/community leader)

Another interviewee underscored the need for advocacy and sensitization of individuals and groups when necessary:

> When reports come to us about parents who do not immunize their children due to religious beliefs and other reasons, we ensure that a team is sent to such an environment for outreach. We try not to force these parents but make them see the reason why they should immunize their children. (IDI/orthodox health personnel)

For some respondents, prayers and blessings offered in the church were seen as efficacious and therefore an alternative to immunization accessed through health facilities. One interviewee stated:

> Parents who do not immunize their children bring water and oil to church for blessings. The man of God will use a scripture in the Bible and pray over the water and oil. The parents will then use it on the children either by drinking or by rubbing on the body. And it works effectively. (IDI/church leader)

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The same explanation was offered by another church representative who corroborated the earlier position when he stated:

> We call ours Faith Home or Church where we believe in the efficacy of supernatural protection against diseases and germs. All we use in place of immunization is prayers. It works perfectly. (IDI/ church representative)

Table 5 shows the relationship between each of several factors and respondents' perceptions about the necessity for immunization. A respondent's level of education, marital status, and age were examined in this regard. The table indicates that a respondent's age did not necessarily affect their perception of the necessity for immunization. However, the table indicates that the association between a respondent's marital status and her perception of the necessity for childhood immunization is significant (0.001). This suggests that respondents living alone were less likely than their married counterparts to perceive immunization as necessary.

Table 5

Factors Influencing Respondents' Perceptions about the Necessity of Child Immunization

Age of respondent	>24%	25-29%	30-34%	35-39%	40+%	Chi-square figures
Necessary	30 (88.2%)	146 (91.8%)	123 (93.2%)	28 (87.5%)	3 (100%)	$X^{2=8.739}$
Not necessary	0 (0.0%)	6 (3.8%)	6 (4.5%)	1 (3.1%)	0 (0%)	df=8
I don't know	4 (11.8%)	7 (4.4%)	3 (2.3%)	3 (9.4%)	0 (0%)	p=0.3
Total	34 (9.4%)	159 (44.2%)	132 (36.7%)	32 (8.9%)	3 (0.8%)	
Marital status	**Living alone**	**Living with spouse**				
Necessary	27 (79.4%)	303 (92.9%)				$X^{2=21.98}$
Not necessary	0 (0%)	13 (4.0%)				df=2
I don't know	7 (20.6%)	10 (3.1%)				p=0.001
Total	34 (9.4%)	326 (90.6%)				
Level of education	**None formal**	**Primary**	**Secondary**	**Tertiary**		
Necessary	53 (86.9%)	82 (88.2%)	131 (92.9%)	64 (98.5%)		$X^{2=13.63}$
Not necessary	1 (1.6%)	5 (5.4%)	6 (4.3%)	1 (1.5%)		df=6
I don't know	7 (11.5%)	6 (6.5%)	4 (2.8%)	0 (0%)		P=0.003
Total	61 (19.9%)	93 (25.8%)	141 (39.2%)	65 (18.1)		

The chi-square result shows that there is a significant relationship between the level of education and the perception of immunization being necessary (x^2=13.63, df=6, p=0.003).

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Discussion

Results of the study show that although almost all the respondents were Christians, a large number were in a polygamous union. The import of this contradiction is unmistakable and suggests that Christianity has not fully supplanted traditional sentiments and cultural values among rural dwellers in Abia. A high percentage of women (22%) gave birth at home, at church, or with the assistance of traditional birth attendants, increasing the danger to both mother and child in the advent of an emergency. Interestingly, patrons of each healthcare delivery system were likely to perceive their choice of birthing environment as more appropriate than the other available alternatives. We contend that a claim to rational choice is tenuous unless all contending options are weighed to establish the most efficacious. This is hardly the case among the rural people of the region, many of whom are more disposed to rely on medical systems that reflect their cultural norms and values than on orthodox medicine.

Among the main factors that discourage parents from having their babies immunized is the perception that the child is not vulnerable (Harmsen et al., 2013). Some respondents who had older children who were not immunized and did not contract notable communicable diseases erroneously assumed that susceptibility to disease follows a predictable pattern; this *antecedent effect* can lead them to regard immunization as pointless. Another issue identified by respondents is the belief that faithfulness to God and His power to protect believers is enough to shield children from diseases. As a result, affected respondents neither perceive their children as vulnerable nor their medical condition as severe, relying on the conviction that with God immunization of children is immaterial.

When *eke* market day coincides with immunization day, participation in *eke* market activities is often prioritized above having children immunized. Jegede and Owumi (2013) noted that presenting children for immunization is usually affected when immunization day clashes with the economic activities of women. Thus, immunization of children is postponed, even though vaccines are not as efficacious when administered later, outside the prescribed timeframe. Furthermore, given that it is cost-effective to immunize a large number of children at one time, healthcare providers often delay vaccine administration on such days to enable children whose parents are involved in weekly market activities to be included. Delay in accessing services constitutes one of the main barriers against presenting children for immunization when necessary (Abdulraheem, Onajole, Jimoh, & Oladipo, 2011; Ojaakaa *et al*., 2011). The immediate implication of delays in access or completion of immunization is well established in the literature and ranges from deterioration of medical conditions to increase in susceptibility to epidemics (Sadoh & Eregie, 2009).

For others, perceived side-effects of vaccines on children post-immunization is a critical and proximate determinant of immediate and future engagement with immunization for the current child or subsequent children. It is important that health care workers themselves should be well-informed about the potential side effects of immunization so that they can provide

authoritative information, correcting erroneous conclusions about causation that are based on speculation or rumour, and reassuring parents that despite the possibility of mild side-effects such as fever, pain, and dizziness, the benefits of immunization far outweigh the costs. In the rare case of severe side effects, care should be taken to establish adequacy of the vaccine by age of child, expiration date, and dosage, as well as competence of the medical personnel, and then to communicate the findings to the community. Interestingly, none of the respondents reported unavailability of vaccines in health facilities — what is commonly referred to in Nigeria as "out-of-stock syndrome". This is contrary to the observation of Ubajaka, Ukegbu, Okafor, and Ejiofor (2012) that one of the major problems confronting healthcare services in Nigeria is unavailability of drugs, including vaccines.

The mother's level of education also has an important influence on access and use of health facilities. As Desai and Alva (1998) and Desai (2000) have observed, educated mothers access health facilities more often, and adhere to medical regimens more reliably, than their less educated counterparts. The findings of this study support that assertion. Indeed, accurately perceiving the susceptibility and severity of a medical issue, and the likely benefits of an intended health-related action, largely depends on an actor's level of awareness, which is in part a function of education. As results indicate, 17% of the respondents reported not having any form of formal education; when those who had only primary school education are added, the percentage of women with low educational status increases to 42%. As this category of mothers is more likely to exhibit ignorance on issues surrounding immunization more effort is needed to dispel misconceptions about Western science and technology, especially in regard to health matters.

We note here that although gender relations are largely constructed to reflect a patriarchal ethos and notwithstanding the low level of education in rural Abia, immunization decisions are almost always either taken jointly or mainly by the woman. Only a negligible number of respondents reported that only their spouses took such a decision. As Oluwadare (2009) observed, in most Nigerian communities women seek approval from their spouses on major issues, which is not the case in the present investigation. Part of the reason for the assertiveness exhibited by mothers in the study area is a conviction that their spouses appreciate the necessity of immunization and are therefore not likely to oppose the procedure.

Conclusion

The importance of childhood immunization in reducing the mortality and morbidity rate among children in Nigeria cannot be overemphasized. An expression of this realization was common among respondents; however, for ideational, educational, economic, religious, and sociocultural reasons some community members do not present their children for immunization when necessary. The health consequences of non-immunization of children are well established, yet non-immunization continues to occur in the communities studied, due to factors such as a low level of education, concern about perceived side effects, and a preemptive belief in the

efficacy of the healing power of God. This lacuna necessitates a call for more sensitization of rural dwellers on the need to fully embrace immunization of children as a strategy for morbidity and mortality reduction. It is important not only to create awareness messages that are compelling and convincing but also to identify new trajectories of community engagement that will be effective in promoting attitudes and behaviors that entail a positive predisposition to childhood immunization.

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