



Chickenpox Vaccination: Knowledge and Attitude of Child-Bearing Women of Abraka, Delta State, Nigeria

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ABSTRACT: Chickenpox is a common childhood disease which is highly contagious. The World Health Organization (WHO) recommends that in countries where chickenpox is an important public health burden, chickenpox vaccination should be introduced into their routine immunization programs. This present study is to ascertain the level of knowledge and attitude towards chickenpox infection and its vaccination among child-bearing women in Abraka, Delta State, Nigeria. A cross-sectional descriptive study design was adopted to assess the knowledge and attitude towards chickenpox vaccination among 140 randomly selected child-bearing mothers residing in Abraka community. Of the 140 respondents, a greater number was within 30-40 years of age (61.4%). Most of the respondents (95.7%) had heard about chickenpox and 77.1% stated correctly its mode of transmitted. Majority were well aware of the signs and symptoms of the infection which included itching rashes (85.7%), blisters and red spots (66.4%), and fever (61.4%). Despite the fact that most of the respondents (72.9%) knew about chickenpox vaccination, only very few (19.3%) claimed to know the vaccine used, with less than half of the respondents (44.3%) correctly indicating two doses as the complete dosing for chickenpox vaccination. A greater proportion (91.4%) of the women had vaccinated their children against chickenpox, and believed that it was effective (82.1%). A high level of knowledge and positive attitude towards chickenpox vaccination among child-bearing women was evident in this study, however, it is paramount to encourage pregnant women and mothers attending antenatal care to immunize their children against vaccine-preventable diseases (VPDs).

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Chickenpox is a common childhood disease, which usually confers lifetime immunity. Varicella (also known as chickenpox) and herpes zoster (HZ, also known as shingles) are caused by varicella-zoster virus (VZV), a highly contagious herpes virus (WHO, 2014; Wutzler *et al.*, 2017). Varicella-zoster virus is present globally and, where there is no varicella vaccination programme, majority of people become infected by mid-adulthood (WHO, 2014). The mode of transmission of the virus is from person to person via direct contact with the varicella or HZ rash, inhalation of aerosolized droplets from respiratory tract secretions of patients with varicella, or in rare cases from the inhalation of aerosolized droplets from vesicular fluid of skin lesions of patients with varicella or disseminated HZ (WHO, 2014). The virus gains access to the body of the host through the upper respiratory tract or the conjunctiva. Gershon *et al.*, (2013) reported that the virus remains dormant in the sensory nerve ganglia after primary infection, and it

can reactivate later in life. Chickenpox causes a relatively lower global burden of disease-specific mortality than other major infectious diseases such as measles, pertussis, rotavirus, or invasive pneumococcal disease (Lozano *et al.*, 2012). Chickenpox infection typically confers immunity for life, however, in rare cases of second attacks of varicella have been documented (WHO, 2014). World Health Organization (WHO) recommends that in countries where chickenpox is an important public health burden, chickenpox vaccination should be introduced into their routine immunization programs (WHO, 2014). Recommended dosing for varicella vaccination may include one or two doses, separated by a dosing interval. A first dose at 12–18 months followed, if adopted, by a second dose at 4 – 6 years of age is the most common schedule. Otherwise, the second dose can be given to children at an earlier age (below 4 years) provided it is given at least 3 months after the first dose (Marin *et al.*, 2007; Bonanni *et al.*,

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2013; Wutzler *et al.*, 2017). The two commonly used varicella vaccines include Varilrix® (GSK, Belgium) or Varivax® (Merck, USA) which is administered as a monovalent vaccine, and Priorix® (GSK, Belgium) or ProQuad® (Merck, USA) administered as a quadrivalent vaccine in combined with the measles, mumps, and rubella vaccine (MMRV) (CDC, 2016; Wutzler *et al.*, 2017). The use of chickenpox(varicella) vaccines (Varivax and Proquad) has been shown to be safe and efficacious in reducing the incidence and associated morbidity (Kreth *et al.*, 2008; Tafuri *et al.*, 2010; Kurugol *et al.*, 2011; Ma *et al.*, 2015). Varicella vaccination has been shown to be associated with a significant decrease in varicella-related hospitalization rates (Streng *et al.*, 2013; Siedler and Dettmann, 2014; Leung and Harpaz, 2016). Previous studies have indicated that mothers play an important and critical role in protecting their children from acquiring and transmitting vaccine-preventable diseases (VPDs) through increasing the vaccination coverage (Coniglio *et al.*, 2011).

The specific mechanism is that the knowledge and perception of the benefit of vaccination can influence a mother's choice to immunize her children. Furthermore, some studies demonstrated that pregnant women's knowledge and attitude regarding vaccination could have an early and positive influence on the practice of getting vaccinated (Trim *et al.*, 2012; Hu *et al.*, 2017; D'Alessandro *et al.*, 2018). To the best of our knowledge, not much is known about the knowledge and attitude of child-bearing women towards chickenpox vaccination in Abraka, Delta State, Nigeria. Thus, this present study is to ascertain the level of knowledge and attitude towards chickenpox infection and its vaccination among child-bearing women in Abraka, Delta State, Nigeria.

MATERIALS AND METHODS

A cross-sectional descriptive study design was used to assess the knowledge and attitude towards chickenpox vaccination among child-bearing mothers residing in Abraka community, Ethiope East Local Government Area, Delta State, Nigeria. A total of 140 child-bearing women were randomly recruited for this study between February and March 2019. Ethical approval was obtained from the ethical committee of the Faculty of Basic Medical Sciences, Delta State University, Abraka, Nigeria. A well-structured questionnaire was used to collect data for the study from participants who gave informed oral consent. Information collected comprised the socio-demographic data, knowledge on immunization, and attitude toward childhood immunization. Data was presented as percentage using descriptive statistics.

RESULTS AND DISCUSSION

Table 1 shows the socio-demographic data of the respondents. Of the 140 respondents, a greater number was within 30-40 years of age (61.4%). About two-third (65.7%) were married, while more than half (54.3%) the respondents have had post-primary education. Most of the respondents (60%) were either into business or self-employed, whereas 12.9% indicated they were basically idle, not doing anything. A larger proportion (87.8%) of the respondents had at least 3 children.

Table 1: Socio-demographic characteristics

Variable	Frequency (n=140)	Percentage (%)
Age		
20-30	20	14.3
31-40	86	61.4
>40	34	24.3
Marital Status		
Single	26	18.6
Married	92	65.7
Divorced	10	7.1
Widowed	12	8.6
Educational Status		
Informal	30	21.4
Primary	34	24.3
Secondary	56	40.0
Tertiary	20	14.3
Occupation		
Business/Self-employed	24	17.1
ant	84	60.0
	14	10.0
	18	12.9
Number of Children		
	5	3.6
2	12	8.6
	45	32.1
	78	55.7

An immense number of the respondents had heard about chickenpox (95.7%). Most (77.1%) stated correctly that chickenpox was transmitted by direct contact and/or through inhalation of aerosolized droplets. Majority were well aware of the signs and symptoms of the infection which included itching rashes (85.7%), blisters and red spots (66.4%), and fever (61.4%). Despite the fact that most of the respondents (72.9%) knew about chickenpox vaccination, only very few (19.3%) claimed to know the vaccine administered to their children, with less than half of the respondents (44.3%) correctly indicating two doses as the complete dosing for chickenpox vaccination (Table 2). The results concerning attitude indicated that a greater proportion (91.4%) of the women had vaccinated their children against chickenpox, and believed that it was effective (82.1%) (Table 2). This study helps to evaluate the level of knowledge and attitude of child-bearing women towards chickenpox vaccination. The result of the present study reflected that the child-bearing

women of the Abraka community of Delta State, Nigeria, have a good knowledge about chickenpox infection and a positive attitude towards its vaccination.

Table 2: Knowledge and attitude towards chickenpox and its vaccination of the respondents

Category/Variable	Frequency (n=140)	Percentage (%)
Knowledge		
Have you ever heard of chickenpox?		
Yes	134	95.7
No	6	4.3
How can it be transmitted?		
By contaminated water and food	4	2.9
By direct contact and/or inhalation of aerosolized droplets	108	77.1
By injection syringes	28	20.0
Signs and symptoms of chickenpox infection*		
Itching rashes	120	85.7
Blisters and red spots	93	66.4
Fever	86	61.4
Have you heard of chickenpox vaccination?		
Yes	102	72.9
No	38	27.1
Do you know of any chickenpox vaccine?		
Yes	27	19.3
No	113	80.7
How many doses is required for the completion of chickenpox vaccine?		
One dose	53	37.9
Two doses	62	44.3
Three doses	25	17.9
Attitude		
Have your child/children been vaccinated against chickenpox?		
Yes	128	91.4
No	16	8.6
Do you think chickenpox vaccination is efficacious?		
Yes	115	82.1
No	25	17.9

*Multiple responses given.

Although, there was little or average knowledge about the type of vaccine administered and its dosing regimen. Knowledge relating to chickenpox and its vaccine in this study revealed that the women have heard about chickenpox infection and they correctly mentioned the mode of transmission of the infection as well as the accompanying signs and symptoms. Even though they had also heard of chickenpox vaccination, they did not know which type of vaccine was used or administered to their children and also had less knowledge about the doses for a complete vaccination process. This raises concern for the need to properly educate on chickenpox vaccination for mothers who enroll for immunization of their children at health facilities. Omotara *et al.*, (2012), while assessing the knowledge, attitude and practice of

stakeholders towards immunization in Borno State, Nigeria, reported a high level of awareness and acceptability of immunization as parents not only accepted the programme but also presented their children for immunization. Similar study by Njidda *et al.*, (2017) showed that parents in Maiduguri, Borno State, Nigeria, were well knowledgeable about the benefits of child immunization. In this study, a positive attitude towards chickenpox vaccination was observed among the mothers as a large majority (91.4%) accepted the vaccination as they reportedly presented their children for chickenpox vaccination. They also saw it as effective. Similar studies have reported a positive maternal attitude to immunization (Omotara *et al.*, 2012; Hu *et al.*, 2017; Vezzosi *et al.*, 2017). Optimal vaccination programmes against chickenpox

are effective in mitigating the disease burden, chickenpox-related hospitalization rate, morbidity, and mortality (Shapiro *et al.*, 2011; García-Cenoz *et al.*, 2013; Baxter *et al.*, 2014; Amodio *et al.*, 2015).

It was observed in this study that a high knowledge of chickenpox infection and vaccination will possibly improve the positive attitude and acceptability of chickenpox vaccination among mothers. A cross-sectional survey carried out in Naples, Italy to examine the knowledge, the attitudes, and the behavior regarding the varicella infection and its vaccination among parents, revealed that a sufficient level of knowledge about the varicella vaccination was a significant predicting factor for vaccination acceptance (Vezzosi *et al.*, 2017).

Despite the fact that chickenpox infection has relatively low morbidity and mortality rates in most settings, it still causes substantial burden on healthcare systems and the society at large (Heininger and Seward, 2006; Lozano *et al.*, 2012; Hussey *et al.*, 2017). The health benefits of immunization and vaccination cannot be over-emphasized as it constitutes a cost effective strategy to reduce both the morbidity and mortality associated with infectious diseases (Ophori *et al.*, 2014). Quite a robust immunization programme has been initiated across the Nigerian healthcare system, however, there is need for the government to address the numerous drawbacks facing the success of the programme (Ophori *et al.*, 2014; Oku *et al.*, 2017; Akwataghibe *et al.*, 2019), in order to improve the attitude and acceptance of immunization by its citizenry.

Conclusion: The current study indicated high level of knowledge and positive attitude towards chickenpox vaccination among child-bearing women of Abraka community of Delta State, Nigeria. It is essential to encourage pregnant women and mothers attending antenatal care to immunize their children against vaccine-preventable diseases (VPDs), as it would ensure a better attitude toward chickenpox vaccination.

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