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DETERMINANTS OF UPTAKE OF TETANUS TOXOID VACCINE AMONG WOMEN OF REPRODUCTIVE AGE IN A SELECTED COMMUNITY IN FUNAKAYE LGA, GOMBE STATE, NIGERIA

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ABSTRACT

Vaccinating women of reproductive age with TT is a targeted intervention which aims to reduce TT among at risk population. This study aimed to determine the level of knowledge and uptake of TT vaccine and the factors affecting uptake of TT vaccine among women of reproductive age in Funakaye LGA, Gombe State. It was a cross sectional study in which information was obtained form 273 women who fulfilled the inclusion criteria. Two-thirds (62.6%) of the respondents were found to have poor knowledge on TT vaccine and more than two-thirds (75.8%) were found to have poor uptake on TT vaccine. Majority have heard of TT vaccine (97.1%) and have ever received at least one dose of TT vaccine (88.6%) in their previous preganacies. Less than half of the respondents (24%) had their last pregnancy protected against Neonatal Tetanus (NNT). Respondents with good knowledge on TT had 23 times more odds of taking TT vaccine compared to those with poor knowledge. The study concluded that improving the knowledge on TT will play a significant role in improving uptake, as such more targeted health education should be provided to women of reproductive age in order to improve uptake of TT vaccine.

KEY WORDS: knowledge, uptake, TT vaccination, women of reproductive age.

1.1 INTRODUCTION

Immunization is an effective health preventive strategy of significant Public Health importance. It has played a significant role in controlling and eliminating diseases such as tetanus toxoid. Worldwide. This strategy is still being used in developing countries with the aim of eliminating the disease especially among neonates and women of reproductive age.[1] Although tetanus toxoid affects individuals of all age groups, it, is more fatal among neonates and women of reproductive age who form a major proportion of the world's population. This explains the concerted effort by world health bodies in providing targeted interventions to eliminate the disease.[2]

Infection with tetanus toxoid among the high risk population occurs during delivery and through the exposure of the unhealed umbilical cord stump to tetanus spores.[1] This mode of spread is more common in middle and low income countries where deliveries take place in unhygienic and septic environment putting mothers and their newborn babies at risk. Most of these options of place of delivery occur as a result of inequity and inaccessibility of maternal, newborn, and child health services.[3]

Tetanus toxoid usually presents within the first two weeks of life. It involves generalized rigidity and painful muscle spasms, in the absence of medical treatment it leads to death in most cases.[1]

Global Strategies aimed at elimination and reducing the prevalence of neonatal tetanus to <1/1000 include ensuring clean and safe delivery, good cord care practices and vaccination.[4,5] Immunization using Tetanus toxoid vaccine is routinely offered to all women of reproductive age and to pregnant women during Ante Natal Care (ANC) in order to protect them and their newborn from developing the disease. This strategy is aimed at producing protective antibody levels in >80% of recipients after two doses the vaccine. According to WHO, Nigeria is one of the 30 remaining high risk countries that is yet to achieve the Maternal Neonatal Tetanus Elimination (MNTE) goal. About 18 out of 36 states in the country are at high risk for MNT, with the North East and North West having lower proportion of women who had two doses of vaccine in their Last pregnancy.

The barriers to TT uptake include illiteracy, ignorance towards immunization, religious influence and doctrine,

misconceptions regarding low socioeconomic status. Others factors include poor antenatal care attendance and missed opportunities.[6]

This study aims to determine the Knowledge and uptake of TT vaccine among women of reproductive age in a selected community in Gombe State.

MATERIAL AND METHODS

Study Design

A community based cross sectional study in which 273 participants were studied.

Study Area

Funakaye is one of the 11 Local Government Areas in Gombe State with its headquarters in Bajoga. This LGA is bounded to the East by the river Gongola and lake Dadin-Kowa beyond which lie Yobe and Borno States. Funakaye LGA is located 10.850^{o}N 11.433^{o}E and a land area of 1,415km^{2} and a population of 236,087.

Study Population

Study population included women of reproductive age whose Last child birth was within two years prior to the study. It excluded those who fulfilled the inclusion criteria but have spent less than 6 months in the study area**.**

Sample size determination

Using the Cochran's formular, the calculated sample size was 246, a non response of 10% was calculated giving a sample size of 273.

Sampling method

A multi stage sampling technique was used**,** Ashaka-Magaba ward was selected in the first stage from wards using simple random sampling technique by balloting. In the second stage, Maza community was selected. All the women of reproductive age who fulfilled the inclusion criteria in the community were studied.

Data collection

The questionnaire was pretested in a Jekada-Fari community in Gombe local government. Questionnaires were administered after obtaining verbal consent with the aid of 5 research assistants who were trained for 2 days.

Data analysis

Data was analyzed using the Statistical Package of Social Science Software (SPSS version 23). Pearson's Chi-square tests was used to test for association of independent and dependent variables such as age, income and uptake of TT. It was also used to test for association of two dependent variables such as knowledge and uptake of TT vaccine among women of reproductive age. Logistic regression analysis was used to determine the predictors of TT vaccine.

At 95% confidence interval, a p-value of ≤ 0.05 was considered statistically significant.

Ethical considerations

Ethical clearance was obtained from Ethical and Research Committee (E&RC) Federal Teaching Hospital Gombe (FTHG), permission was sought from primary health care (PHC) coordinator Funakaye LGA, Mai-Unguwa/Jauro, women leader and youth leader. A written and signed consent form from the respondents was obtained and all information obtained from the study participants were confidential and strictly used for the study.

RESULTS

Table 1: Socio-demographic characteristics.

VARIABLE	Frequency (%) n=273
Age group (years)	
15-24	158(57.9)
25-34	103(37.7)
34-44	12(4.4)
Marital status	
Married	261(95.6)
Divorced	7(2.6)
Widowed	5(1.8)
Religion	
Islam	273(100)
Level of education	
Non-formal	145(53.1)
Primary	128(46.9)
Major occupation	
Farming	17(6.2)
Teaching	1(0.4)
None	254(93.0)
Business	1(0.4)
Parity	

Primiparous	28(10.3)
Multiparous	203(74.4)
Grand multiparous	42(15.4)

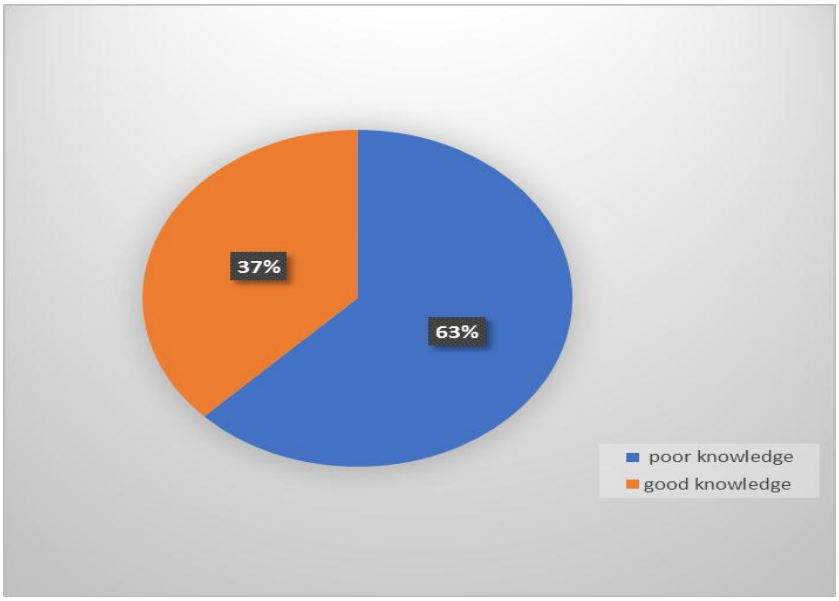

Fig. 1: respondents' knowledge on TT and TT vaccine.

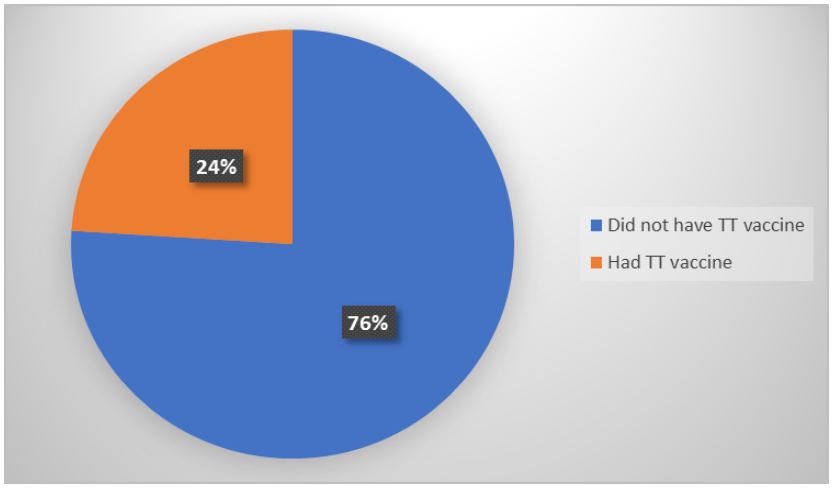

Fig. 2: Proportion of respondents who had two doses of TT in their last pregnancy.

Table 3: Factors associated with uptake of TT vaccine.

VARIABLES	Poor uptake n=207	Good uptake n=66	X^2	df	p-value
Age group (years)					
15-24	127(80.3%)	31(19.7%)			
25-34	68(66.0%)	35(34.0%)	11.016	2	0.004
34-44	12(100%)	0(0%)			
Level of education					
Non-formal	90(70.3%)	38(29.7%)	3.994	1	0.046
Primary	117(80.6%)	28(19.4%)			
Parity					
Primiparous	28(100%)	0(0%)			
Multiparous	149(73.3%)	54(26.7%)	10.022	2	0.007
Grand multiparous	30(71.4%)	12(28.6%)			
Knowledge					
Poor knowledge	149(87.1%)	22(12.9%)	31.939	1	0.000
Good knowledge	58(56.8%)	44(43.2%)			

Table 4: Logistic regression showing predictors of uptake of TT vaccine.

VARIABLE	Odds ratio	95% confidence interval	p-value
Age group (years)			
15-24	14.242	4.431-110.114	<0.001
25-34	22.090	3.204-63.299	<0.001
34-44	1		
Parity			
Primiparous	1		
Multiparous	0.949	0.161-3.474	0.160
Grand multiparous	2.313	0.715-7.492	0.939
Knowledge			
Poor knowledge	23.014	0.108-0.393	<0.001
Good knowledge	1		

DISCUSSION

The respondent's mean age in this study is in keeping with a studies in Rivers state (22years) and lower than a similar study in Dukem Ethiopia, Sokoto and Zaria 29±5.11, 28.76±4.31 and 27years respectively.[7-10] The parity of the respondents in this study is in concordance with a study in Sokoto which shows 74.0% have at least 1-4 children but slightly higher than a similar study in Damboya Woreda, Dukem Ethiopia and Zaria showing 60.2%, 60.3%, and 25% respectively and this may be explained by the higher fertility rate in Northern part of Nigeria.[7,8,10,11] None of the respondents had tertiary level of education, this finidng is different from studies conducted in Port Harcourt, Sokoto and Zaria where 100%, 66.9% and 54% of the respondents respectively had tertiary level of education.[7-95] This disparity may be as a result of the study area which is a community based compared to facility based studies. Furthermore, the variations in this findings may be as a result of the higher level of education of women in the South and North West compared to the North East. Majority of respondents in this study were found to be married which is similar to studies in North western part of Nigeria 96.9% and 82% which could be as a result of cultural influence, ethnicity and religion.[7,8]

The findings on the level of knoelwdge on TT among respondents in this study is similar to a study in Lahore, India which showed that 32% had good knowledge on TT vaccine.[12] This is however different from another study in Peshawar, India where only 6.9% of the respondents had good knowledge while 31.2% and 13.8% fair and poor knowledge respectively.[13] Similarly, a study in Kaduna and Sokoto revealed that 97% and 87% respectively of respondents have heard about TT vaccine which is same as what was observed in this study.[7,8] However, a study in Port Harcourt showed that 94.7% have heard about tetanus while 79.9% have heard about TT vaccine which is lower than what was found in this study.[9] The disparity may be due to difference in study population where this study targeted women that have been pregnant or have had a delivery implying that they may have been educated about TT during ANC visits. In addition, the finding in this study on the believe that TT vaccine should be given to pregnant women was different from the study in Port Harcourt in which only (12.5%) of respondents said pregnant women should be given TT vaccine.[9] Only 1.1% of respondents answered correctly in this study. This poor knowledge of the tetanus toxoid vaccination programme and the high level of misconception about the target population being pregnant women may have contributed to the poor uptake of the vaccine in this study. Furthermore, findings from this study on the proportion of respondents who have had at least one dose of TT vaccine is similar to a study in Lahore, India 87% and Zaria 87.5% but higher than a study in US, Port Harcourt and Sokoto where only 59%, 58% and 68.9% respectively have ever had at least one dose of TT-containing vaccine.[7,8,11] This is however far below the recommended target of 90% of women in childbearing age should receive TT vaccine to achieve and maintain elimination of maternal and neonatal tetanus as stated by United Nations International Children's Fund (UNICEF), World Health Organization (WHO) and United Nations Population Fund (UNFPA) in high risk countries like Nigeria.[14,15] The proportion of women who were found to have completed the recommended TT dose in this study was similarto findings from Zaria where 15.9% of respondents found to have completed the recommended TT vaccine.[8] According to NDHS 2018, 61.7% of women had their last birth protected against neonatal tetanus and Gombe State had 58.0% of women whose last childbirth was protected against neonatal tetanus which is slightly higher than what was found in this study and lower than what was found in Ghana and Ethiopia 71% and 72.5% respectively.[15,-17] Some reasons for non-vaccination were poor knowledge about the importance of TT, unaware of timig for the next dose and, lack of motivation to take the next dose.[8,15,18] This implies that utilization of TT vaccination services is dependent on mother's understanding of its importance and will be improved by conducting regular and focused education and communication activities on the need for vaccination, as well as interpersonal communication and negotiation on the need for subsequent doses of vaccine.

Factors affecting uptake of TT vaccine in this study were level of education, parity, source of income and knowledge on TT vaccine. These finidngs are different from findings from a similar study in Ethiopia which showed that factors affecting uptake were age of mother,

educational status, making joint decisions with husbands for their health issues.[11] Distance, and the type of hospital had no significant effect on the uptake of TT vaccine which is similar to a study in Peshawar, India.[13] Factors found to affect uptake were financial constraint, cultural belief, pain at injection site, poor hospital services like unavailability of TT vaccine and others such as belief that it is a form of contraceptive. These are in keeping with findings in India and Zaria.[7,11,13]

This study also showed that knowledge on TT vaccine is one of the predictors of uptake of TT vaccine as those with poor knowledge have 23 times more odds of not taking TT vaccine. A study conducted in the US showed higher parity as a predictor to uptake of TT vaccine.[18] This is probably because their increasing number of children may have gave them practical knowledge about healthcare services to themselves and the newborn, it may also be as a result of active participation of women in the developed world in decision making regarding their health and health related issues.

CONCLUSION

This study showed that the level of knowledge and uptake of TT vaccine among women of reproductive age in Funakaye LGA was poor. It also showed tht factors associated with TT uptake include knowledge on TT, parity, source of income and increasing age. Knowledge on TT was also a predictor of uptake.

RECOMMENDATION

1) There is an urgent need to improve knowledge on TT vaccine as this will likely improve uptake. This can be achieved by promoting female education and increase the level of public awareness on TT vaccine by involving the community leaders and health care workers.

2) There is need for targeted health education during antenatal care (ANC) visits on the importance and advantages of taking TT vaccine and its relationship with neonatal tetanus.

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