



Factors Related to the Escapement of Reproductive Age Women from Tetanus Toxoid Vaccination at the Sub-Divisional Medicalized Health Center, Nkwen, Bamenda

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ABSTRACT

The purpose of this study was to find out the factors related to the escapement of reproductive age women from tetanus toxoid vaccination at the Sub - Divisional Medicalized Health Center Nkwen Bamenda. A cross - sectional hospital based study was conducted in which 100 reproductive aged women (15 - 40 years) were randomly selected to participate. Demographic and clinical data were collected from participants and health personnel using a well - structured pre - tested questionnaire. From the results obtained, most of the women were within the age range of 26 - 30 years (41.1%) and were graduates (40.0%) that were employed (36.7%). Most of the reproductive age women had not taken any dose of the vaccine (54.5%) reasons being that they did not know the time the vaccine was given (80.0%), they were not aware (71.1%) and that they were scared of the side effects (61.0%). From the point of view of the health professionals, misconception about the vaccine (90.0%), poor socio - economic status (90.0%) and lack of awareness (80.0%) were the major reasons of the low tetanus toxoid vaccination coverage. In conclusion, majority of the reproductive age women are not vaccinated and notably, lack of awareness, fear of side effects and not knowing the time the vaccine is given were the main reasons for their escapement.

Keywords: Escapement, Reproductive age women, Tetanus, Tetanus toxoid vaccine, Nkwen, Bamenda

Introduction

Tetanus is a highly fatal vaccine - preventable disease with a mortality rate as high as 35% and is caused by *Clostridium tetani* bacilli which is found in soil and excretions of animals [1]. Tetanus spores are widespread in the environment and the tetanus bacilli can enter the body through contaminated puncture wounds and sometimes seemingly trivial injuries [2]. The symptoms of tetanus are caused by the toxin acting on the central nervous system; the first sign is spasm of the jaw muscles followed by stiffness of the neck, difficulty in swallowing and stiffness of the abdominal muscle [3]. Tetanus causes an annual total of 309,000 deaths [4] and particular concern is maternal

and neonatal tetanus (MNT). When tetanus occurs in newborn is particularly serious and is called neonatal tetanus but tetanus that strikes women during pregnancy or within six weeks of the termination of pregnancy is called maternal tetanus [5]. MNT is a swift and painful killer that killed about 200,000 newborns in the year 2000 and 2001 [6]. Tetanus accounts for about 73% of neonatal deaths [7] and is responsible for at least 5% of maternal deaths worldwide and 30,000 females each year [5].

Neonatal tetanus can be prevented by immunizing women of childbearing age during or outside pregnancy. The World Health Organization (WTO) recommends that women of childbearing age should commence a 5 - dose regime of vaccination against tetanus as early as possible [8]. This comprises; first dose given at any time during the ages of 15 - 45 years, a second dose four weeks later and a third dose given 6 - 12 months after the first two doses. Additional two doses given at least one year apart further prolongs the duration of

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immunity against tetanus [8]. Previous study by Blencowe *et al* [9] showed that after the fifth dose protective antibody levels might last for about 20 years with resultant protection for the mother and her newborn, who would be sufficiently protected against tetanus. Although Cameroon started routine immunization against tetanus since 1980, there are no known programs aimed at ensuring that the recommended five doses of tetanus toxoid vaccine are given to reproductive age women. Moreover, the slow uptake of tetanus toxoid vaccination by women of the reproductive age makes the elimination of tetanus unrealistic in the near future [10,11]. The present study therefore focused on identifying the factors related to the escapement of reproductive age women from tetanus toxoid vaccination at the Sub - Divisional Medicalized Health Center Nkwen Bamenda.

Materials and Methods

Study Area:

This cross - sectional hospital based descriptive study design was carried out at the Sub - Divisional Medicalized Health Center Nkwen located in the North West Region of Cameroon. This hospital though very small has a functional maternity unit.

Study population:

100 pregnant and non - pregnant women of reproductive age were randomly selected to take part in the study. Also the few personnel that were working in the ANC unit (10) of the hospital participated in the study.

Data collection:

A well - structured pre - tested questionnaire composed of both open and closed ended questions was used to collect data from participants. Two types of questionnaire were used;

- Questionnaire for women of reproductive age
- Questionnaire for health personnel working in the ANC unit

Data analysis:

Analysis of the data was done using SPSS version 17.0 and results represented on tables and charts

Ethical considerations:

Authorization to carry out this research was given by the North West Regional Delegate of public health (Reference No 142/RA/NWR/RDPH). Each participant signed an informed consent form before participating. Full confidentiality and participants rights were maintained.

Results and Discussion

Demographic characteristics of the participants:

From the results of the demography, most of the women were within the age range of 26 - 30 years (41.1%) and 21 - 25 years (35.6%). Thus this shows that most of the women belonged to a

very young and most reproductive age group. This clearly shows the age group that could be targeted for the tetanus toxoid vaccination. Also most of the respondents (77.8%) had attended a formal education (secondary/high school and graduates) and were employed (36.7%). More pregnant women took part in this study (51.1%).

Knowledge on tetanus toxoid vaccination:

The proper knowledge about vaccination increases the likelihood of increase vaccination acceptance [12]. In the current study, majority of the participants knew of the importance of tetanus toxoid vaccination (61.1%) and were concerned about neonatal tetanus (69.9%). This finding is consistent to that of Nusrat *et al* [13] who reported 65.7% knowledge of women about the importance of tetanus toxoid vaccination. From Table 2, the highest percentages were observed amongst the pregnant women compared to non - pregnant women (36.6% vs 33.3% and 31.1% vs 30%). This is probably due to the utilization of health care facilities for antenatal care, which has been shown to have a positive impact on the tetanus toxoid coverage [6]. However, only a few women knew the correct number of dose regimes of tetanus toxoid vaccination (18.9%)

Tetanus toxoid vaccination received by women:

From figure 1, majority of women in the study area had not received any dose of the vaccine (54.5%). This result is however higher than the 18.6% and 44% reported in Bangladesh and Indonesia respectively [14,15]. This difference may be due to variable circumstances and health services of the countries. Also, the second highest percent was observed amongst women who had received at least two doses of the vaccine (21.1%). This result is low compared to the 55% for TT2 vaccination estimated by the National Immunization figures of 2009 [16]. Overwhelming in this study was the fact that no woman of reproductive age had achieved a complete series of five TT injections. This result is similar to Nusrat *et al* [13] in Pakistan who reported that none of the women in their study had received five doses of the TT vaccine. This is not in line with other studies that reported 11% and 13% of women who had achieved five TT immunization [14,17]. This result points to the urgent need of addressing the problem of escapement of women from TT vaccination in the study area.

Factors related to escapement:

The most significant causes of escapement from TT vaccination were lack of awareness (71.1%), do not know the time of TT vaccination (80.0%) and fear of side effect (61.0%). This is in line with the findings of Hasnain and Sheikh, 2007 [18] who reported that the most common reason (32%) for inadequate TT vaccination reported by the women was lack of awareness and that they did not know where and when to get the vaccination (18.0%). This results is also similar to the work of Mary, 1989 [19] who reported that majority of the women said they were scared of the side effects of the vaccine (66.5%). This result suggests that if a proper awareness campaign using all the available channels are launched, it will help strengthen

Table 1: Demographic distribution of the study participants

Variables	N (%)
Age range (in years)	
15 – 20	2 (2.2)
21 – 25	32 (35.6)
26 – 30	37 (41.1)
31 – 35	17(18.9)
36 – 40	2(2.2)
Occupation	
Student	26 (31.1)
Housewife	29 (32.2)
Employed	33 (36.7)
Educational Level	
No Formal Education	20 (22.2)
Secondary/High school	34 (37.8)
Graduates	36 (40.0)
Status	
Pregnant	46 (51.1)
Non – pregnant	44 (48.9)
Religion	
Christian	63 (70.0)
Muslim	15 (16.7)
Others	13 (13.3)

1. On the table below, 14 – 45 years has been removed because it was 0.0%

2. Also worthy of note is that 90 pregnant and non – pregnant women took part in the study but the remaining 10 which is not reflected on the table is for the health professionals (this is reflected on factors affecting low TT vaccination coverage from the viewpoint of health professionals).

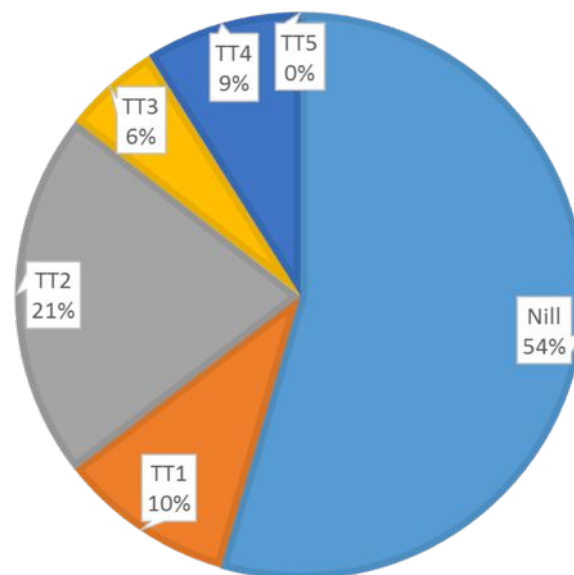
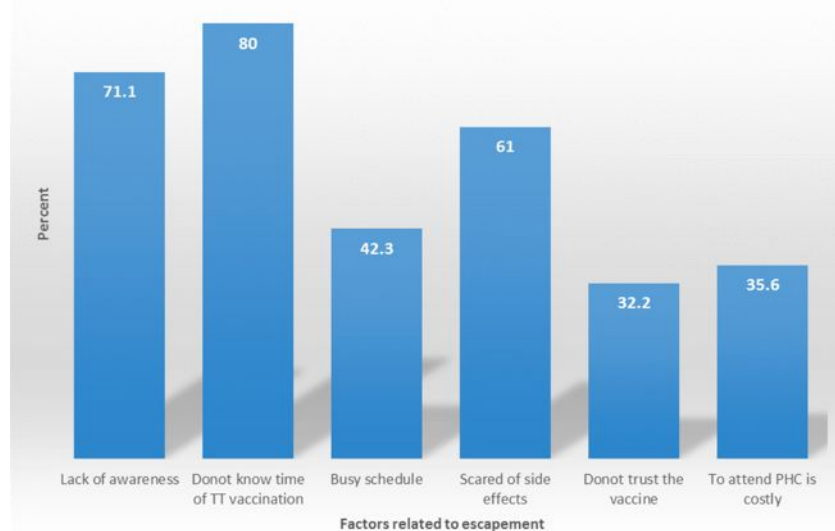
the vaccination delivery system and may also achieve 100% TT vaccination coverage in the study site. Other factors related to escapement were that of busy schedule (42.3%), do not trust the vaccine (32.2%) and to attend PHC is costly (35.6%) which also needs to be addressed not only to achieve 100% TT vaccination but also improve the vaccination coverage of other vaccine preventable diseases.

Reasons for incomplete dose of vaccine:

Most of the attributed the poor attitude and lack of commitment of health workers (73.3%) and their disbelief in the vaccine (56.6%) to be their main reasons for not completing the TT vaccination dose. This result is consistent with those of other research studies conducted in Belgium, Bangladesh, Ethiopia, Thailand and Cambodia that found various factors associated with faulty coverage. The studies indicated that

Table 2: Knowledge of participants on tetanus toxoid vaccination

Variables	Pregnant (%)	Non-Pregnant (%)	Total (%)
Know the importance of TT vaccination	31.1	30.0	61.1
Know the correct number of dose regime of TT vaccination	12.2	6.7	18.9
Are concerned about neonatal Tetanus	36.6	33.3	69.9

**Figure 1: Distribution of tetanus toxoid doses received by women of reproductive age in the study area.****Figure 2: Distribution of factors related to escapement of women from TT vaccination**

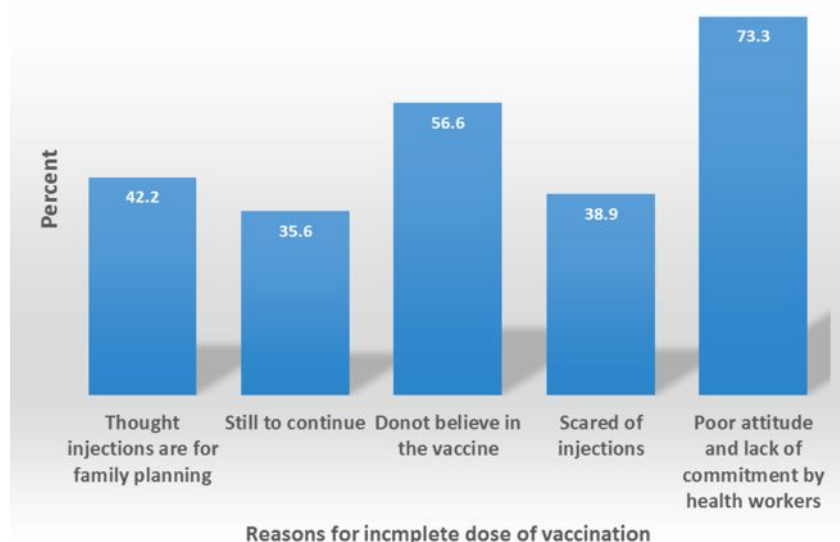


Figure 3: Distribution of reasons for incomplete dose of vaccination of the women in the study area.

Table 3: Factors resulting to Low TT vaccination coverage from health worker's point of view

Factors	Percent (%)
Lack of awareness of TT vaccine by the public	80.0
Misconception about TT vaccine by the public	90.0
Vaccine not available daily	50.0
Poor socio – economic status	90.0
Low literacy	60.0

amongst the factors were poor staff attitude and lack of commitment by health care workers. However, some of the women said they are scared of injections (38.9%), thought injections were for family planning (42.2%) while others said they are still to continue (35.6%). These again point to the need for creating awareness to correct some of the misconceptions that these women have.

Factors affecting low TT vaccination coverage from health worker's point of view:

From the point of view of the 10 medical staff, the most important reasons for the low TT vaccination coverage were, misconception about TT vaccine (90.0%), poor socio – economic status (90.0%), lack of awareness (80.0%), low literacy (60.0%) and vaccine not available daily (50.0%). This may be due understaffing as seen in most hospitals in developing countries where the work load for the medical staff does not give them adequate room for the efficient delivery of health care such as

creating awareness. This can also be attributed to the deteriorated services. To achieve a 100% percent target of TT coverage, the researchers suggest that both short and long term interventions are needed.

Conclusion

From this study, the TT vaccination coverage is below the WHO recommendation with 54.5% of the women not being vaccinated and most importantly lack of awareness (71.1%), do not know the time of TT vaccination (80.0%) and fear of side effects (61.0%) were the major factors related to escapement from TT vaccination found in the study area.

Limitations

This study was done on a small scale and so findings cannot be generalized the whole country but with a study as important as this we solicit for help to run this research on a larger scale involving many other hospitals which will help us come out with plans for effective immunization program implementation.

Acknowledgement

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References

1. Pillitteri A, Pillitteri: *Child health nursing: care of the child and family*: Lippincott Williams & Wilkins; 1999.
2. Savage EJ, Nash S, McGuinness A, Crowcroft NS: **Audit of tetanus prevention knowledge and practices in accident and emergency departments in England.** *Emergency Medicine Journal* 2007, **24**:417-421.
3. Allen C, Lueck C: **Neurological disease, Chapter 22.** *Davidson's Principles and practice of medicines, 19th ed.* Philadelphia: Churchill Livingstone 2002:1159-1168.
4. Vandelaer J, Birmingham M, Gasse F, Kurian M, Shaw C, Garnier S: **Tetanus in developing countries: an update on the Maternal and Neonatal Tetanus Elimination Initiative.** *Vaccine* 2003, **21**:3442-3445.
5. **Elimination of Maternal and Neonatal Tetanus (2010).** http://www.unicef.org/health/index_43509.html/ (accessed 10 September 2010).
6. Deming MS, Roungou J-B, Kristiansen M, Heron I, Yango

- A, Guenengafo A, Ndamobissi R: **Tetanus toxoid coverage as an indicator of serological protection against neonatal tetanus.** *Bulletin of the World Health Organization* 2002, 80:696-703.
7. **Elimination of Maternal and Neonatal tetanus by 2005 (online news).** <http://www.medicalnewstoday.com/medicalnews.php?Newsid=12383> (accessed 9 March 2007).
 8. Organization WH: **Organisation mondiale de la santé. Relevé épidémiologique hebdomadaire. Weekly epidemiological record** 2006, 81:273-284.
 9. Blencowe H, Lawn J, Vandelaer J, Roper M, Cousens S: **Tetanus toxoid immunization to reduce mortality from neonatal tetanus.** *International Journal of Epidemiology* 2010, 39:i102-i109.
 10. Antai D: **Gender inequities, relationship power, and childhood immunization uptake in Nigeria: a population-based cross-sectional study.** *International Journal of Infectious Diseases* 2012, 16:e136-e145.
 11. Brown V, Oluwatosin O: **Socio-demographic factors associated with childhood immunization uptake in Akinyele Local Government Area, Oyo State, Nigeria.** *African journal of medicine and medical sciences* 2012, 41:161-167.
 12. Dietz V, Milstien JB, Van Loon F, Cochi S, Bennett J: **Performance and potency of tetanus toxoid: implications for eliminating neonatal tetanus.** *Bulletin of the World Health Organization* 1996, 74:619.
 13. Nusrat N, Nousheen A, M F: **Tetanus toxoid vaccination coverage amongst pregnant women at tertiary care hospital, Sindh Pakistan.** *Gynaecology and Obstetrics* 2010, 6:272-275.
 14. Mohammad M: **Determinants of the Utilization of the Tetanus Toxoid (TT) Vaccination Coverage in Bangladesh: Evidence from a Bangladesh Demographic Health Survey 2004.** *The Internet Journal of Health* 2008, 8.
 15. WHO. **Global program for vaccine and immunization EPI, WHO, Geneva**1998. Edited by.
 16. WHO. **Vaccine – preventable diseases monitoring system 2010 global estimates.**2010 Available from [TTV publication.doc](http://www.who.int/publications/publication.doc) (cited 10 September 2014).
 17. Kidane T, Yizaw A, Sahilemariam Y, Bulto T, Mengistu H, Belay T, Bisrat F, Benti D, Mbakuliyemo N, Olusegun B: **National EPI coverage survey report in Ethiopia, 2006.** *Ethiopian Journal of Health Development* 2009, 22:148-157.
 18. Hasnain S, Sheikh N: **Causes of low tetanus toxoid vaccination coverage in pregnant women in Lahore district, Pakistan.** *Eastern Mediterranean Health Journal* 2007, 13:1142-1152.
 18. Mary M: **Utilization of tetanus toxoid 1 and 2 immunization service among child bearing age women.** 1989 34 (12).

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