

RESEARCH ARTICLE

Pregnant women's knowledge of Tetanus disease and immunization against Tetanus disease in the City of Baghdad

Ishraq Ahmed Chiad, Ban Yousif Yaaqoob

Abstract

Objective: To estimate the understanding of tetanus and tetanus toxoid injections among pregnant women.

Method: The cross-sectional study was conducted at the Baghdad General Hospital and a primary healthcare centre in Bab-Almuadham, Iraq, from November 15, 2020, to January 15, 2021, and comprised 100 pregnant women aged 15-45 years. Data was gathered through face-to-face structured interviews using a complete self-assessment questionnaire. Data was analysed using SPSS 27.

Results: Of the 100 women with mean age of 28.4 ± 10.6 years (range: 15-44 years), 27(27%) were aged 20-24 years, 70(70%) were from the urban areas, 40(40%) had primary education, 69(69%) were housewives, and 85(85%) had had full or partial tetanus toxoid vaccine doses. With respect to knowledge about tetanus disease, 60(60%) subjects answered correctly that tetanus is a serious disease, 52(52%) knew that tetanus infection could also kill the foetus, and 30(30%) recognised that tetanus produces significant side effects. Besides, 80(80%) women considered the vaccine a necessity, and the most common source of information about tetanus vaccination was the health authorities 76(76%).

Conclusion: The pregnant women studied were found to have an acceptable level of knowledge about tetanus and tetanus toxoid immunisation.

Keywords: Pregnancy, Tetanus, Clostridium tetani, Asymptomatic infections, Tetanus toxoid, Nervous system, Demography, Uterus, Foetus **DOI:** <https://doi.org/10.47391/JPMA.IQ-07>

Introduction

Tetanus is caused by a potent exotoxin produced during the growth lag phase of the anaerobic bacterium *Clostridium tetani*.^{1,2} Contamination of wounds by *C. tetani* spores is a public source of infection since these spores are present in the environment, including soil and the gastrointestinal tracts of domesticated animals. Neonatal tetanus is due to postpartum contamination of the umbilical flex by using contaminated bandage and other material. In the central nervous system (CNS), this exotoxin stops the discharge of inhibitory neurotransmitters, like gamma amino butyric acid (GABA), and, consequently causing Tetanus. Efforts are being made universally to prevent new tetanus cases by vaccinating pregnant women with Tetanus Toxoid (TT) and promoting proper cord care.³

Tetanus is caused by unsanitary natal customs that include use of infected material to seal the umbilical cord remnant. The causes of Tetanus are either use of unsterilized gears or insufficient maternal booster dose of tetanus toxoid (TT). The nurture ancient is between the 3rd and 28th existences, and subsequent transport indicators are

enlightened inflexibility, bent posterior, convulsions, and the mother's failure to breastfeed the child⁴ New cases of tetanus in the babies are encountered in low-profit international locations, particularly interior rustic groups with insufficient Health care services.

Common diseases remain unreported in the low-income countries, and therefore, it has been often called the "quiet murderer".⁵ Measures such as vaccinating pregnant women with TT and encouraging sanitary carriages and cord attention checks by competent midwives are being implemented to avoid new tetanus cases.⁶

Furthermore, tourism attractions involving TT therapy contradict women's learning situation. Specifically, women with complex schooling are further expected to be protected by tetanus toxoid containing vaccine (TTCV). The World Health Organisation (WHO) has reported that >90% of TTCV injections are given in high-risk areas.⁷ Tetanus can occur anywhere in the world, although it most frequently does so in warm, rainy climates when there are a lot of inorganic materials in the dust.⁸ In 2015, around 209,000 contagions caused 59,000 deaths globally.^{9,10} The public needs to be frequently made aware of tetanus immunisation regimens and their significance. Preparing mediations that support changes in perception, technique and execution would be easier with knowledge of the public's attitudes toward TT vaccination.¹¹ The current study was planned to ascertain pregnant women's

Department of Community Health Techniques, Middle Technical University, Baghdad, Iraq

Correspondence: Ban Yousif Yaaqoob email: banalbadran@gmail.com

understanding of tetanus and TT injection.

Subjects and Methods

The cross-sectional study was conducted at the Baghdad General Hospital and a primary healthcare centre (PHCC) in Bab-Almuadham, Iraq, from November 15, 2020, to January 15, 2021. The sample size was calculated using the statistical Equation:¹²

$$n = \frac{N P (1 - P)}{(N - 1) \left(\frac{d}{Z_{1-\alpha/2}} \right)^2 + P(1 - P)}$$

Those included using simple random sampling technique, were pregnant women aged 15-45 years. After taking verbal consent from the subjects, data was collected during face-to-face interviews using a complete self-assessment questionnaire. The original questionnaire was in the English language, which was translated into Arabic to facilitate the subjects in understanding the questions. Their responses were subsequently translated into English. The questionnaire's validity was confirmed by relevant experts.

The questionnaire had two sections. The first section was about socio-demographic characteristics and the number of vaccine doses, while the other section assessed pregnant women's knowledge of tetanus disease, TT immunisation, and the sources of information regarding TT serum.

Each of the 32-item knowledge scale was responded to in terms of 'yes', 'no', and 'do not know', and correct response was scored 3 points, and an incorrect response received 1 point. Total score <41) indicated poor knowledge, 41-61 meant acceptable knowledge level, and 62 or more indicated good knowledge. Data was analysed using SPSS version 27. Data was expressed as mean and standard deviation or as frequencies and percentages, as appropriate.

Results

Of the 100 women with mean age 28.4±10.6 years (range: 15-44 years), 27(27%) were aged 20-24 years, 70(70%) were from the urban areas, 40(40%) had primary education, 69(69%) were housewives, and 85(85%) had had either full or partial TT immunisation (Table 1).

The 10-item scale showed that the knowledge of pregnant women regarding tetanus disease was good in 60(60%) cases, 52(52%) knew that tetanus infection could also kill the foetus, and 30(30%) understood that tetanus produces significant side effects (Table 2).

Besides, 80(80%) women considered the vaccine a necessity (Table 3), the overall knowledge about TT immunisation was good in 25(25%) subjects (Figure), and

the most common source of information about TT immunisation was the health authorities 76(76%) (Table 4).

Table-1: Patient characteristics.

Demographic characteristics	n (%)
Age group/years	
15-19)	9 (9%)
20-24)	27 (27%)
(25-29)	21 (21%)
30-34)	25 (25%)
(35-39)	12 (12%)
(40-44)	6 (6%)
Residence	
Urban	73 (73%)
Rural	27 (27%)
Education level	
Illiterate	12 (12%)
Primary school	40 (40%)
Secondary school	27 (27%)
College and higher education	21 (21%)
Profession	
Housewife	69 (69%)
Self-employed	12 (12%)
Government employee	19 (19%)
Vaccine doses	
Perfect	10 (10%)
Partial	75 (75%)
Total	100

Table-2: Sources of information regarding tetanus toxoid vaccination.

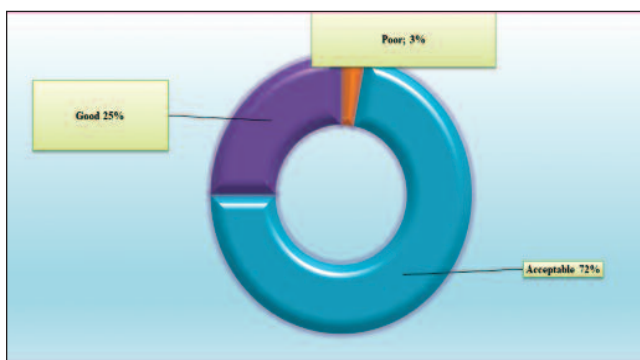
No	Knowledge items	Yes %	No %	Don't know%
1	Have some knowledge of tetanus in their lives.	17%	11%	72%
2	It is a bacterial infection that causes tetanus.	28%	40%	32%
3	Tetanus is a dangerous condition.	60%	25%	15%
4	The subclinical infection is tetanus.	47%	29%	24%
5	Tetanus is a contagious disease.	27%	43%	30%
6	Pregnant tetanus-infected women	40%	31%	29%
7	Significant complications brought on by tetanus include:			
	Muscle spasm, bone fracture	37%	40%	23%
	Difficult breathing	33%	27%	40%
	Damage nervous system	50%	23%	27%
	Kidney failure	21%	57%	22%
8	Congenital and perinatal infections are the two main causes of tetanus illness.	17%	56%	27%
9	A foetus in the womb that contracts tetanus may pass away.	52%	26%	%
10	Tetanus may be transmitted by:			22
	Via digestive route	25%	30%	45%
	Via respiratory tract route	35%	25%	40%
	Via sexual route	20%	60%	20%
	Via injury route	45%	27%	28%
	Via blood transmission	43%	35%	22%

Table-3: Sources of information regarding tetanus toxoid vaccination.

No	Items	Yes %	No%	Don't aware %
1	Vaccination is essential.	80%	9%	11%
2	The best method of prevention is vaccination.	75%	10%	15%
3	The vaccine's adverse effects include:			
	Fever	54%	30%	16%
	Redness	37%	35%	28%
	Swelling in the infection site	52%	25%	23%
	Muscle Pain in arm	53%	31%	16%
	Diarrhoea	20%	60%	20%
	Skin rash	28%	55%	17%
	Nausea	25%	62%	13%
4	The vaccine offers complete immunity against the illness.	65%	20%	15%
5	Pregnant women are safe to receive the immunization.	55%	28%	17%
6	No. vaccine dose:			
	1st dose	18%	45%	37%
	2nd dose	79%	6%	15%
	3rd dose	54%	22%	24%
	4th dose	39%	2%	59%
	5th dose	23%	14%	63%

Table-4: Sources of information regarding tetanus toxoid vaccination.

No	Items	Yes n (%)	No n (%)
1	Social media	52 (52%)	48 (48%)
2	Friends	51 (51%)	49 (49%)
3	Family members	66 (66%)	34 (34%)
4	Newspaper	38 (38%)	62 (62%)
5	Health institutions	76 (76%)	24 (24%)
6	Poster	40 (40%)	60 (60%)
7	Booklets	33 (33%)	67 (67%)
8	School curriculum	62 (62%)	38 (38%)
9	Workshop	41 (41%)	59 (59%)
10	TV channels	53 (53%)	47 (47%)

**Figure:** Level of knowledge about tetanus toxoid vaccination.

Discussion

In the current study, complete TT vaccination was found in 10% cases, which is lower than 63.4% in Spain.¹³

A primary course of completed TT vaccination confers at least 10 years of immunity. Individuals who still need to complete an introductory course can request TT through injection Vaccine schedule according to fixed timing and a booster dose is recommended if TT has not been given within the preceding 5 years.⁹ An Indian study has also emphasized on the correct way to take the vaccine to promote Health awareness.¹⁴

In the current study, 28(28%) women were aware that bacteria are the primary cause of tetanus, which is comparable to the findings 23(23%) of an earlier study in Iraq.¹⁵

A study conducted in Karachi, Pakistan on the knowledge of tetanus among pregnant women, indicated that systematic prenatal examinations in a tertiary care setting improved understanding related to TT.¹⁶

In the current study, 30% women correctly identified severe tetanus consequences, such as muscle spasms, bone fractures, and breathing difficulties. The findings differed from a study conducted in Karbala, which revealed a significant prevalence of muscle spasms (14.6%) and respiratory difficulties (11.5%).¹⁷

In the current study, 80% subjects acknowledged that immunisation was necessary. A study done in Peshawar, Pakistan, 89.5% subjects said vaccination was harmful, and only 55.6% were protected against tetanus.¹⁸

The majority of respondents in the current study (79%) responded incorrectly regarding the second TT dose. In a study done in Nigeria, the corresponding value was, 85%.¹⁹

TT handling was generally consistent among gravid participants in the current study, with 85% of antenatal women protected with at least two doses of TT during their pregnancy. The WHO has recommended, 90%.²⁰ The WHO announced in July 2016 that India had eradicated maternal and neonatal tetanus.²¹

The matter of knowledge related to tetanus and TT immunisation in Iraq has been the focus of earlier studies as well.^{22,23}

The current study has limitations. First, the institution where the study was conducted does not have an ethics review committee, so the approval was acquired from the Scientific Committee in the Department of Community Health Technologies.

Second, due to a lack of time, pilot study was not done for validating the questionnaire.

In the light of the findings, it is recommended that health education and awareness programmes should be initiated

to enhance pregnant women's knowledge of TT immunisation.

Conclusions

The pregnant women studied were found to have an acceptable level of knowledge about tetanus and tetanus toxoid immunisation.

Acknowledgment: We are grateful to all the participants.

Disclaimer: None.

Conflict of Interest: None.

Source of Funding: None.

References

- Jogdand KS, Yrpude PN. A cross-sectional study on perception of medical students regarding tetanus immunization. *Int J Contemp Med* 2013;1:27-31.
- Rupani S, Kazmi U, Ahmed U, Ali A, Hafeez-ur-Rehman. Knowledge of tetanus vaccination among undergraduate medical students in Karachi, Pakistan. *Int J Res* 2015;2:154-9.
- Savage EJ, Nash S, McGuinness A, Crowcroft NS. Audit of tetanus prevention knowledge and practices in accident and emergency departments in England. *Emerg Med J* 2007;24:417-21. doi: 10.1136/emj.2007.047399.
- Alliance for Maternal and Newborn Health Improvement (AMANHI) mortality study group. Population-based rates, timing, and causes of maternal deaths, stillbirths, and neonatal deaths in south Asia and sub-Saharan Africa: a multi-country prospective cohort study. *Lancet Glob Health* 2018;6:e1297-308. doi: 10.1016/S2214-109X(18)30385-1.
- Galazka AM, Stroh G. Neonatal tetanus: guidelines on the community-based survey on neonatal tetanus mortality. [Online] 1986 [Cited 2017 March 02]. Available from URL: <https://apps.who.int/iris/handle/10665/60007>
- Fauveau V, Mamdani M, Steinglass R, Koblinsky M. Maternal tetanus: magnitude, epidemiology and potential control measures. *Int J Gynaecol Obstet* 1993;40:3-12. doi: 10.1016/0020-7292(93)90765-o.
- Hasnain S, Sheikh NH. Causes of low tetanus toxoid vaccination coverage in pregnant women in Lahore district, Pakistan. *East Mediterr Health J* 2007;13:1142-52. doi: 10.26719/2007.13.5.1142.
- Centers for Disease Control and Prevention (CDC). Epidemiology and Prevention of Vaccine-Preventable Diseases, 14th ed. In: Hall E, Wodi AP, Hamborsky J, Morelli V, Schillie S, eds. Washington, DC: Public Health Foundation, 2021; pp 327-329.
- Fene F, Ríos-Blancas MJ, Lachaud J, Razo C, Lamadrid-Figueroa H, Liu M, et al. Life expectancy, death, and disability in Haiti, 1990-2017: a systematic analysis from the Global Burden of Disease Study 2017. *Rev Panam Salud Publica* 2020;44:e136. doi: 10.26633/RPSP.2020.136.
- GBD 2015 Mortality and Causes of Death Collaborators. Global, regional, and national life expectancy, all-cause mortality, and cause-specific mortality for 249 causes of death, 1980-2015: a systematic analysis for the Global Burden of Disease Study 2015. *Lancet* 2016;388:1459-1544. doi: 10.1016/S0140-6736(16)31012-1.
- Saleh JA, Abdelrahim K. Towards Elimination of Maternal and Neonatal Tetanus in the Developing Countries: A Look at the Theory of Planned Behaviour. *European Journal of Preventive Medicine. EJPM*. 2015;3:110-6. doi: 10.11648/j.ejpm.20150304.13
- Jaber AB. General statistics book, 1st ed. Alexandria Governorate, Egypt: Alexandria University, 2014; pp 45.
- Rodríguez-Blanco N, Tuells J, Vila-Candel R, Nolasco A. Adherence and Concordance of Influenza and Pertussis Vaccination Coverage in Pregnant Women in Spain. *Int J Environ Res Public Health* 2019;16:543. doi: 10.3390/ijerph16040543.
- Nath B, Singh JV, Awasthi S, Bhushan V, Kumar V, Singh SK. KAP Study on Immunization of Children in a City of North India – A 30 Cluster Survey. *Online J Health Allied Scs* 2008;7:1-6.
- Kandola A. What to know about airborne diseases? News release. Medical News Today Media Centre. [Online] 2023 [Cited 2017 March 02]. Available from URL: <https://www.medicalnewstoday.com/articles/317632>.
- Shafiq Y, Khowaja AR, Yousafzai MT, Ali SA, Zaidi A, Saleem AF. Knowledge, attitudes and practices related to tetanus toxoid vaccination in women of childbearing age: A cross-sectional study in peri-urban settlements of Karachi, Pakistan. *J Infect Prev* 2017;18:232-41. doi: 10.1177/1757177416689722.
- Seger HR, Abbas IM. Assessment of pregnant women's knowledge about tetanus toxoid vaccination in Karbala city. *Iraqi National Journal of Nursing Specialties. INJNS*. 2014;27:23-31.
- Naeem M, Khan MZ, Abbas SH, Adil M, Khan A, Naz SM, et al. Coverage and factors associated with tetanus toxoid vaccination among married women of reproductive age: a cross sectional study in Peshawar. *J Ayub Med Coll Abbottabad* 2010;22:136-40.
- Enuku CA, Orru O. Awareness of tetanus toxoid vaccination by pregnant women attending antenatal clinic in central hospital, Benin City. *J Sci Pract Pharm* 2016;3:92-6.
- World Health Organization (WHO). New Delhi: South-East Asia: Delhi End TB Summit 2018. News release. The WHO Media Centre. [Online] 2018 [Cited 2017 March 02]. Available from URL: <https://www.who.int/southeastasia/news/events/detail/2018/03/13/south-east-asia-events/delhi-end-tb-summit-2018>
- Sidhu J, Dewan P, Gupta P. Maternal and Neonatal Tetanus: A Journey into Oblivion. *Indian Pediatr* 2016;53:1057-61.
- Ghazal RS, Jaber EA. Pregnant Women's Knowledge Concerning Tetanus Vaccination in Al-Rusafa Health Sector. *Indian J Public Health Res Dev* 2019;10:643-8.
- Sastry AS, Bhat SK. Essentials of medical microbiology. London, UK: JP Medical Ltd, 2017; pp 255-9. [Online] 2017 [Cited 2017 March 02]. Available from URL: https://books.google.com/books/about/Essentials_of_Practical_Microbiology.html?id=RLpEDwAAQBAJ