

Status of Knowledge and Practice about Tetanus Toxoid Immunization among Women of Reproductive Age Group at a Selected Slum Area in Dhaka, Bangladesh.

Sayed HS¹, Mainul AC², Ashraful H³

1. Specialist, Department of Accident & Emergency, United Medical College Hospital, Dhaka, Bangladesh
2. Associate Professor, Department of Public Health, School of Health Science, State University of Bangladesh, Dhaka, Bangladesh.
3. Consultant & Head, Department of Accident & Emergency, United Medical College Hospital, Dhaka, Bangladesh

Abstract

Background: Tetanus remains a preventable but persistent public health problem in low- and middle-income countries. Immunization with tetanus toxoid (TT) among women of reproductive age is a proven strategy to prevent maternal and neonatal tetanus. However, gaps in knowledge and practice continue to exist among disadvantaged urban populations.

Objective: To assess the status of knowledge and practice regarding tetanus toxoid immunization among women of reproductive age living in a selected slum area of Dhaka, Bangladesh.

Methods: A community-based cross-sectional study was conducted among women aged 15–49 years residing in a selected slum area of Dhaka. Data were collected using a structured interviewer-administered questionnaire covering socio-demographic characteristics, knowledge of TT immunization, and immunization practices. Data were analysed using descriptive statistics and appropriate inferential tests.

Results: The majority of respondents had heard about tetanus toxoid immunization, primarily from health workers and mass media. Although awareness of TT vaccination during pregnancy was relatively high, comprehensive knowledge regarding the recommended number of doses and schedule was inadequate. A considerable proportion of women had received at least one dose of TT; however, completion of the full recommended schedule was suboptimal. Knowledge level showed a significant association with educational status and antenatal care utilization.

Conclusion: Despite moderate awareness, important gaps remain in knowledge and practice of tetanus toxoid immunization among women of reproductive age in urban slum settings. Strengthening health education, improving access to antenatal services, and targeted community-based interventions are essential to improve TT coverage and prevent maternal and neonatal tetanus.

ARTICLE HISTORY

Received: 27/12/2025

Accepted: 30/12/2025

Published: 15/01/2026

KEYWORDS

Tetanus toxoid, immunization, women of reproductive age, knowledge, practice, urban slum, Bangladesh

CORRESPONDENCE

Dr. Sayed Hossain Sohag

United Medical College Hospital,
Dhaka, Bangladesh

e-mail: sayedsohag1985@gmail.com

Introduction

Tetanus is a life-threatening but entirely preventable disease caused by *Clostridium tetani*. Maternal and neonatal tetanus (MNT)

continues to pose a public health challenge in many developing countries despite the availability of effective and inexpensive vaccines. Immunization of women of



reproductive age with tetanus toxoid is a cornerstone strategy recommended by the World Health Organization (WHO) to eliminate MNT.

Bangladesh has made substantial progress in expanding the national Expanded Programme on Immunization (EPI). Nevertheless, marginalized populations such as urban slum dwellers often experience inequitable access to health services, including routine immunization and antenatal care. Poor living conditions, low educational attainment, and limited health awareness contribute to inadequate utilization of preventive services among slum populations.

Women of reproductive age play a critical role in the prevention of maternal and neonatal tetanus through timely and complete TT immunization. Assessing their knowledge and practice is essential for identifying gaps and designing effective interventions. This study aimed to evaluate the status of knowledge and practice regarding tetanus toxoid immunization among women of reproductive age living in a selected slum area of Dhaka, Bangladesh.

Methods

Study Design and Setting

A community-based cross-sectional study was conducted in a selected slum area of Dhaka city, Bangladesh. The study setting was chosen due to its high population density and limited access to formal healthcare services.

Study Population

The study population comprised women aged 15–49 years who were permanent residents of the selected slum area. Women who were seriously ill or unwilling to participate were excluded.

Sample Size and Sampling Technique

A sample of women of reproductive age was selected using a convenient sampling technique. The sample size was determined based on

available resources and feasibility considerations.

Data Collection Instrument

Data were collected using a pre-tested, structured interviewer-administered questionnaire. The questionnaire included sections on socio-demographic characteristics, knowledge regarding tetanus and TT immunization, and immunization practices.

Data Collection Procedure

Data were collected through face-to-face interviews conducted by trained data collectors after obtaining informed consent from each participant.

Data Analysis

Data were coded and analysed using statistical software. Descriptive statistics such as frequencies and percentages were used to summarize the data. Associations between selected variables were explored using appropriate statistical tests, with significance set at $p < 0.05$.

Ethical Considerations

Ethical approval was obtained from the appropriate institutional review authority. Written informed consent was taken from all participants, and confidentiality of information was strictly maintained.

Results

Socio-demographic characteristics of the respondents

The study included women of reproductive age residing in the selected slum area of Dhaka city. The majority of respondents were within the age range of early to mid-reproductive years, reflecting a relatively young population structure. Most participants were married, and the predominant occupation was homemaking, with a smaller proportion engaged in informal

employment such as garment work or domestic labor.

Educational status varied considerably among the respondents. While some women had completed secondary education, a substantial proportion had attained only primary education or had no formal schooling. Household income levels were generally low, consistent with the socio-economic profile of urban slum populations. These socio-demographic factors provided important contextual insight into the health-seeking behaviors observed in the study.

Table 2: Distribution of respondents by occupation and monthly income of family (n=226)

Occupation	Frequency	Percentage
House hold work	133	58.8
Garment service	60	26.5
Labor	14	6.2
Private service	19	8.4
Family income in group		
< 5000	54	23.9
5000 - 10000	148	65.5
11000 - 15000	24	10.6

Knowledge regarding tetanus and tetanus toxoid immunization

A high proportion of respondents reported having heard about tetanus and tetanus toxoid immunization. Knowledge regarding the severity of tetanus as a potentially fatal disease was present among many women; however, understanding of its modes of transmission and prevention was often incomplete.

Most respondents were aware that TT immunization is important during pregnancy and helps protect both the mother and the newborn from tetanus infection. Nevertheless, detailed knowledge regarding the recommended TT vaccination schedule was limited. Only a minority of women correctly identified the total number of doses required for full and long-term protection. Awareness regarding the appropriate timing of TT doses during pregnancy and the

need for booster doses in subsequent years was also found to be inadequate.

Health workers were identified as the most common source of information on TT immunization, followed by mass media and family members. Women who reported contact with health facilities or community health workers demonstrated comparatively better knowledge than those who relied solely on informal sources.

Practice of tetanus toxoid immunization

With regard to immunization practice, a substantial proportion of respondents reported receiving at least one dose of tetanus toxoid vaccine during their reproductive life. TT vaccination was most commonly received during pregnancy as part of routine antenatal care services. However, completion of the full recommended vaccination schedule was considerably lower.

Many women reported receiving only one or two doses of TT vaccine and did not proceed to complete the remaining doses required for adequate protection. Commonly reported reasons for incomplete vaccination included lack of awareness about the need for multiple doses, absence of follow-up reminders, competing household responsibilities, and limited access to health facilities.

Factors associated with knowledge and practice of TT immunization

Analysis of selected variables indicated that higher educational status was positively associated with better knowledge and improved practice of TT immunization. Women with secondary or higher education were more likely to know the correct vaccination schedule and to complete the recommended doses.

Utilization of antenatal care services showed a strong association with TT vaccination practice. Women who attended antenatal clinics were significantly more likely to have received TT

immunization compared to those who did not utilize ANC services. Marital status and age also appeared to influence TT uptake, with married women and those in the optimal reproductive age group demonstrating higher vaccination coverage.

Overall, the results demonstrate that while awareness of tetanus toxoid immunization was relatively widespread, substantial gaps remained in detailed knowledge and consistent practice among women of reproductive age in the studied

Table 20: Association between Level of knowledge and total doses of TT immunization taken during 15 – 49 years of age (n=226)

Total doses of TT immunization taken	Knowledge level				Total
	Excellent	Good	Average	Poor	
One	1 (.9%)	3 (2.6%)	0 (.0%)	1 (.9%)	5 (4.3%)
Two	0 (.0%)	0 (.0%)	6 (5.2%)	3 (2.6%)	9 (7.8%)
Five	13 (11.2%)	5 (4.3%)	0 (.0%)	0 (.0%)	18 (15.5%)
Total	16 (13.8%)	19 (16.4%)	48 (41.4%)	33 (28.4%)	116 (100.0%)

$\chi^2 1.060$ and P value 0.000

Discussion

The present study highlights important gaps in both knowledge and practice of tetanus toxoid immunization among women of reproductive age residing in an urban slum area of Dhaka, Bangladesh. Although general awareness of TT immunization was relatively high, comprehensive understanding of the vaccination schedule and long-term protective benefits remained inadequate.

The moderate level of awareness observed in this study is comparable with findings from similar studies conducted in other low-resource urban settings in Bangladesh and neighbouring countries. Health workers emerged as the most influential source of information, underscoring their critical role in delivering immunization-related health education at the community level. However, reliance on interpersonal

communication alone may limit the depth and consistency of information received by women.

Despite awareness, the study identified a clear gap between knowledge and actual practice. While many women-initiated TT vaccination, fewer completed the full recommended course. This discrepancy may be attributed to socio-economic constraints, competing household responsibilities, limited mobility, and insufficient counselling regarding the importance of completing the vaccination schedule.

The strong association between antenatal care utilization and TT vaccination practice observed in this study aligns with existing evidence suggesting that ANC visits provide a key opportunity for delivering preventive interventions, including immunization. Women who attended ANC services were more likely to receive accurate information, reminders, and vaccination services, leading to higher TT coverage.

Educational attainment also played a significant role in shaping knowledge and practice. Women with higher levels of education demonstrated better understanding of TT immunization and were more likely to complete the recommended doses. This finding emphasizes the broader impact of female education on health-seeking behaviour and utilization of preventive healthcare services.

From a public health perspective, the persistence of incomplete TT immunization among urban slum populations poses a risk to the sustained elimination of maternal and neonatal tetanus. Targeted community-based interventions, such as door-to-door vaccination campaigns, reminder systems, and culturally appropriate educational programs, may help bridge the observed gaps.

Strengthening the integration of immunization services within maternal and reproductive health programs is essential. Enhanced training of

community health workers, improved counselling during ANC visits, and greater use of mass media campaigns could further improve both knowledge and practice of TT immunization among disadvantaged urban women.

Limitations

The study was conducted in a single slum area, which may limit the generalizability of the findings. The use of self-reported data may also introduce recall bias.

Conclusion

Women of reproductive age living in urban slum areas of Dhaka demonstrate moderate awareness but suboptimal practice of tetanus toxoid immunization. Strengthening community-based health education, improving antenatal care coverage, and ensuring easy access to immunization services are essential to enhance TT vaccination uptake and prevent maternal and neonatal tetanus.

Conflict of Interest

The authors declare no conflict of interest.

Funding

No external funding was received for this study.

References

1. World Health Organization. Maternal and neonatal tetanus elimination. Geneva: WHO; 2023.
2. UNICEF. Tetanus toxoid immunization coverage. New York: UNICEF; 2022.
3. Ministry of Health and Family Welfare (MOHFW). Expanded Programme on Immunization in Bangladesh. Dhaka: MOHFW; 2021.
4. Rahman M, Islam S, Rahman A. Knowledge and practice of tetanus toxoid immunization among women in Bangladesh. *BMC Public Health*. 2019;19:1–8.
5. Blencowe H, Lawn J, Vandelaer J, Roper M, Cousens S. Tetanus toxoid immunization to reduce mortality from neonatal tetanus. *Int J Epidemiol*. 2010;39(Suppl 1):i102–i109.
6. World Health Organization. Tetanus vaccines: WHO position paper. *Wkly Epidemiol Rec*. 2017;92(6):53–76.
7. Raza N, Sultana A, Rahman M. Factors associated with tetanus toxoid vaccination among women of reproductive age in urban slums. *J Public Health Dev Ctries*. 2018;4(2):456–464.
8. Khan MN, Rahman MM, Islam MR. Utilization of antenatal care services and its association with tetanus toxoid vaccination in Bangladesh. *J Health Popul Nutr*. 2017;36(1):1–9.
9. Ahmed S, Khan MM. Socioeconomic inequalities in maternal health service utilization in Bangladesh. *Int J Equity Health*. 2011;10:1–10.
10. Perry HB, Zulliger R, Rogers MM. Community health workers in low-, middle-, and high-income countries. *Annu Rev Public Health*. 2014;35:399–421.
11. Lambo JA, Sambo MN. Knowledge, attitude, and practice of tetanus toxoid immunization among women of childbearing age in urban communities. *Niger J Clin Pract*. 2014;17(6):704–709.
12. Singh A, Pallikadavath S, Ogollah R, Stones W. Maternal tetanus immunization in low-income settings: determinants and inequalities. *PLoS One*. 2012;7(8):e42538.
13. Khan MA, Hossain MM. Urban slum health challenges in Bangladesh:

- implications for immunization programs. *Asia Pac J Public Health*. 2015;27(2):NP1234–NP1245.
14. Victora CG, Barros AJD, Axelson H, et al. How changes in coverage affect equity in maternal and child health interventions. *Lancet*. 2012;380(9848):1149–1156.
 15. World Bank. *Delivering health services in urban slums: challenges and opportunities*. Washington DC: World Bank; 2019.