



# Awareness of Women about Tetanus in Baghdad

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## Research Article

Volume 7 Issue 1

Received Date: March 06, 2023

Published Date: April 25, 2023

DOI: 10.23880/whsj-16000172

## Abstract

**Background:** Tetanus toxoid (TT) vaccine is still recommended for pregnant women even in countries that declared elimination of neonatal tetanus (NT) and consequently the maternal tetanus (MT). Many factors may affect TT vaccination during pregnancy. Awareness is a key factor that greatly affect the pregnant women to receive tetanus toxoid vaccination during pregnancy.

**Aims of study:** To assess the awareness of women regarding different aspects of tetanus and tetanus toxoid vaccination as well as to identify the factors influencing their awareness.

**Subjects and Method:** A cross sectional study conducted in Baghdad from first of April to the end of September 2021. Convenient sample of women in reproductive age, attended the designated primary health care centers for the study were enrolled. An interview questionnaire was used to collect quantitative data pertaining to awareness of women about tetanus toxoid immunization and tetanus infection. The total number of women enrolled in the study was 400, the study found that that 35.2% and 35% of women had good and fair level of awareness respectively. Good awareness level was significantly higher among older aged women and those with higher level of education as well as working women. Good awareness was more prominent among women's having 1-2 children (39%), as compared to those having five and more children (21.3%). Antenatal care attendance and place of delivery shown statistical significant link with level of awareness. Women identify family members and friends as their primary sources of information about tetanus infection and immunization.

**Conclusion:** Women's awareness was acceptable regarding Tetanus and TT immunization. Yet still there is a place for proper health education targeting young women to bridge gap in the connection between the tetanus immunization status of women and the occurrence of Maternal neonatal tetanus (MNT), as well as need for the appraisal of the components of health information delivered by health care providers to women attending antenatal care clinics.

**Keywords:** Women; Awareness; Tetanus; Baghdad

**Abbreviations:** MNT: Maternal Neonatal Tetanus; TT: Tetanus Toxoid; NT: Neonatal Tetanus; MT: Maternal Tetanus; TTV: Tetanus Toxoid Vaccination.

## Introduction

Tetanus is caused by a potent exotoxin, which is formed by the anaerobic bacterium *Clostridium tetani*. It is a life-

threatening disease, which causes severe mortality among maternal, neonatal, and young infant. Maternal neonatal tetanus (MNT) is important public health problem in many developing countries [1,2].

Maternal Neonatal tetanus (MNT) can be prevented by immunizing the women with Tetanus Toxoid vaccine, immunization is one of the best effective public health

initiatives towards Maternal and neonatal tetanus (MNT) elimination [3].

Tetanus toxoid (TT) vaccine is still recommended for pregnant women even in countries that declared elimination of neonatal tetanus (NT) and subsequently the maternal tetanus (MT). Several issues may affect the utilization TT vaccine during pregnancy [4].

Awareness is a factor that considerably motivated pregnant women to receive tetanus toxoid vaccination during pregnancy. On the other hand, inadequate or poor awareness is risky and may effect the tetanus oxoid uptake and underutilization of other vaccination programs [5].

Awareness about tetanus and tetanus toxoid vaccination is a fundamental factor of tetanus toxoid vaccination use among pregnant women. Misinformation about vaccination can interrupt, particularly if the health care providers be unsuccessful in deliver sufficient information and education on the topic of its benefits, importance, and effectiveness [6].

The results of prior studies from Iraq and other countries revealed that most of women lacked appropriate awareness of MNT and TTV and this reflected in inadequate uptake of TT by women [7-9].

The current study was conducted aiming to assess the awareness of women regarding tetanus and tetanus toxoid vaccination, and to find out the factors influencing women's awareness.

## Subjects and Method

Across sectional study with analytic elements carried out in ten primary health care centers in Baghdad/ Iraq over a period from first of April to end of September 2021. The study group comprised convenient sample of women in reproductive age, be present at the selected PHCCs for any cause interrelated to their health or for vaccination for their children, and agree to join in the study.

The data collected by direct interview; using a structured questionnaire, which was geared up for the purpose of the study after reviewing, related available studies [10,11].

The questionnaire comprised two sections, first one including sociodemographic features of the woman: Age, number of children, the education and working status. This section of questionnaire also queries about the antenatal care attendance and place of delivery in the course of the last pregnancy.

While the second section consist of 13statements

assessing woman's awareness about Tetanus disease, causes, transmission, and TT vaccine required doses, time of vaccination during pregnancy and benefits of TTV.

The women demanded to answer by "Yes", "No" or "do not know" for each statement. They were scored one point for each statement answered correctly and zero for incorrect and "do not know" answers.

Following completing the questionnaires, scoring of the responses performed. The total awareness score of each participant could range from zero to13. Scores between ( 0-6 )were considered poor level of awareness, between( 7-9) were considered Fair, and scores of( 10-13) were considered good level of awareness.

In addition, women were enquired to pinpoint the sources of their information about tetanus and TT immunization.

## Ethical Consideration

A verbal consent was attained from all participants, the ethical approval was obtained from College of Medicine / Al-Mustansiriyah University as well as, official permissions were also acquired from Ministry of Health and health directorates in Baghdad.

## Statistical Analysis

Analysis of data carried out using the available statistical package of SPSS-27 (Statistical Packages for Social Sciences- version 27). Pearson's  $\chi^2$  -test applied to evaluate the association between the study variables and level of awareness. A p-value of less than or equal to 0.05 was considered statistically significant.

## Results

The study group comprised 400 women in their reproductive age.

The awareness of the study group regarding tetanus disease and TT presented in table 1. The rate of correct answers among women ranged from (54.2%to 91.2%). The majority of women (87%) knew that there is disease named tetanus. The tetanus disease caused by bacteria recognized by 44.2% of the women.

It is worth mentioning that 62.8% of study participants did not know that the microbes caused tetanus found usually in soil and animal waste. The result points out that 54.2 % of the study group were aware that tetanus disease occur when unsterile instruments and unhealthy practice used in the course of delivery and care of umbilical cord. One hundred forty seven (36.8%) of the respondents falsely believed that

tetanus can be transmitted between people.

Out of 400 women, 84.5% of them are aware that tetanus is prevented by vaccine. Additionally, 80% of study participants acknowledged that people who have wounds should receive tetanus vaccine. It is remarkable that only 49 (12.2%) of study participants had correct knowledge regarding doses

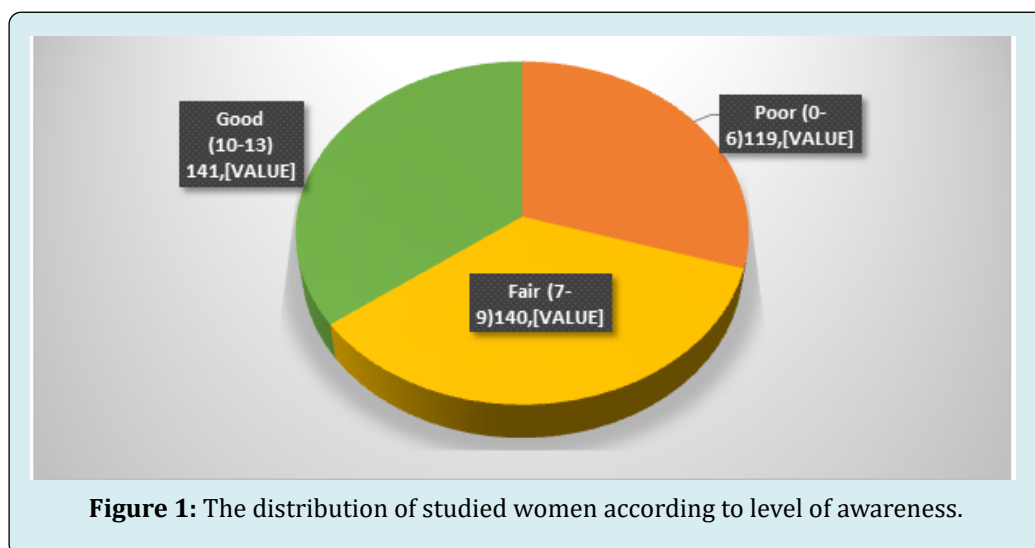
of TT for women needed during her reproductive life. Moreover, 79.4% of women were aware that TT during pregnancy protects mother and her baby.

Lastly, fever and swelling at the site of injection are correctly considered as possible problems of TT vaccination by 91.2% of the study group.

Statement	Yes		No		Do not know	
	No	%	No	%	No	%
1-There is a disease named "Tetanus"	348	87	52	13	-	-
2-The tetanus disease is caused by bacteria	177	44.2	43	10.8	180	45
3-The microbes causing tetanus are usually found in soil and animal waste	149	37.2	-	-	251	62.8
4-Tetanus disease happens when using unsterile instruments during delivery	217	54.2	59	14.8	124	31
5-Unhealthy practice during umbilical cord management can cause tetanus disease	217	54.2	59	14.8	124	31
6-Tetanus disease can be transmitted from person to another person *	147	36.8	129	32.2	124	31
7-Tetanus disease is prevented by vaccine	338	84.5	12	3	50	12.5
8-People who are not completely immunized and have wounds should receive a tetanus vaccine	320	80	14	3.5	66	16.5
9-TT can be given to every person (man, woman & children)	268	67	132	33	-	-
10-The woman needs five doses of TT during her reproductive life	49	12.2	223	55.8	128	32
11-The pregnant woman can receive TT at the fourth month of pregnancy	261	65.3	62	15.4	77	19.3
12-The TT vaccine is given during pregnancy to protect the mother and her baby	318	79.4	59	14.8	23	5.8
13-The possible problems of TT vaccination are fever and swelling at the site of injection	365	91.2	35	8.8	-	-

The mean score was  $7.9 \pm 2.8$  (1-13)

**Table 1:** Distribution of awareness responses among the study group.



It showed that the level of awareness generally increased with increasing the age of the woman, no woman aged less than 20 years had good level of awareness, while the same level of awareness found in 41.9% of those aged 40 years and more. The relation between age and the awareness level showed statistical significant association ( $P = 0.0001$ ). Education of the woman revealed a statistical significant relation with the awareness level ( $P = 0.0001$ ). Among women with primary education, 76.5% had poor awareness in comparison with only 18.4% of women with higher educational status. Concerning women 'working status, it showed a statistical

significant association with the awareness level ( $P = 0.0001$ ). 52.2% of the working people had good level of awareness. On the other hand, good awareness was allocated to 16.8% of not working women. Regarding the number of children, table-6 indicated that the level of awareness was statistically associated with the number of children the woman had ( $P = 0.041$ ).

Good level of awareness observed in 39 % of women having 1-2 children, while 21.3% of those having five and more children had this level of awareness.

Woman characteristics		Level of awareness						P value
		Poor(0-6)		Fair (7-9)		Good(10-13)		
		No.	%	No.	%	No.	%	
Age (years)	<20years	8	66.7	4	33.3	-	-	0.0001*
	20-29	55	39.9	41	29.7	42	30.4	
	30-39	46	24.5	69	36.7	73	38.8	
	=>40years	10	16.1	26	41.9	26	41.9	
Education level	Primary	39	76.5	12	23.5	-	-	0.0001*
	Intermediate & secondary	28	41.8	26	38.8	13	19.4	
	College & higher	52	18.4	102	36.2	128	45.4	
Working status	Working	29	13.9	71	34	109	52.2	0.0001*
	Not working	90	47.1	69	36.1	32	16.8	
Number of children	02-Jan	33	26.8	42	34.1	48	39	0.041*
	04-Mar	13	22.8	24	42.1	20	35.1	
	5 & more	23	48.9	14	29.8	10	21.3	

\*Significant difference between percentages using Pearson Chi-square test (c2-test) at 0.05 level.

**Table 2:** presents the distribution of study group according to the levels of awareness and some women's ' characteristics.

The participants ANC attendance showed a statistically significant influence on awareness level ( $P=0.002$ ), as 36.6% of women attended ANC had a good awareness compared to only 7.1% of those who did not attend ANC.

Place of birth in last pregnancy also publicized statistically significant impact on the level of awareness ( $P=0.010$ ).27.6% of those delivered in hospital had poor awareness, while 50% of women delivered at home had the same level of awareness.

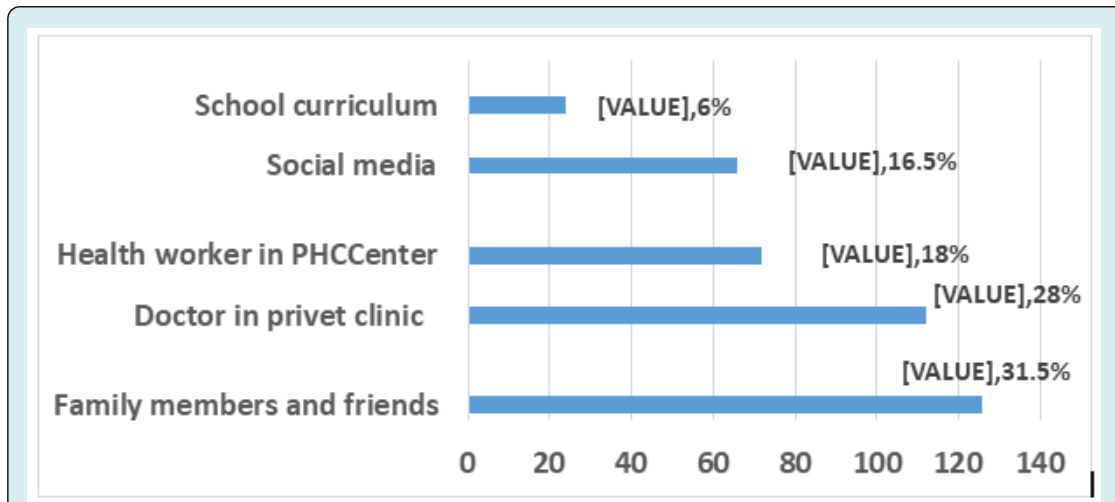
ANC attendance and place of delivery		Level of awareness						P value
		Poor (0-6)		Fair (7-9)		Good(10-13)		
		No	%	No	%	No	%	
Attended ANC during the last pregnancy	Yes	109	28.2	137	35.5	140	36.3	0.002*
	No	10	71.4	3	21.4	1	7.1	
Place of birth of the last delivery	Hospital	100	27.6	128	35.4	134	37	0.010*
	Home	19	50	12	31.6	7	18.4	

\*Significant difference between percentages using Pearson Chi-square test (c2-test) at 0.05 level.

**Table 3:** The distribution of study group according to level of awareness in relation to ANC attendance and place of delivery in the last pregnancy.

Concerning the sources of women information, the main source was family members and friends as stated by

126(31.5%) women. Other sources of women ' information demonstrated in Figure 2.



**Figure 2:** Women's source of information about Tetanus disease and TT immunization.

## Discussion

Awareness is an influence that significantly affects pregnant mothers to obtain TT vaccination during pregnancy. The results from the current study demonstrated that woman's awareness were satisfactory in some items, and inadequate in other items. These results were also reached by study from Gambia and Senegal [12].

The overall awareness was adequate since (35.2% and 35%) of the women had a good and fair level of awareness respectively.

These findings supported by other studies done in Iraq [10,13] and Nigeria [14,15], which displayed adequate awareness of mothers about tetanus infection and immunization. The finding of the study however contradicts with the findings of studies conducted in Saudi Arabia [16] and Egypt [17,18], which stated that the majority of women had poor knowledge on MNT and TTV. The dissimilarities in results may be a role of the variation in the studied population characteristics and variances in study designs and difference in tools used to measure the outcome variable.

## Factors influencing woman's awareness

Present study results showed the rate of good awareness become higher with increasing age. This result coincides with previous studies from Saudi Arabia [16] and Nigeria [19].

A possible reason for this finding could be that women with increasing age are more mature and gathering more

knowledge and information. Moreover might have had previous exposure to information about immunization and its benefits for themselves and their offspring. When point out the level of education of the study members, the results establish that when the level of education increases the awareness increases as well. This result was in keeping with finding by earlier studies conducted in Iraq [10,13] and elsewhere [20] which stated that education has great influence on the level of awareness that the respondents would have on Tetanus infection and TT immunization.

This finding may indicate that women with higher educational level were more considerate in terms of understanding and interpreting the health information. Results of present study indicated a significant relationship between number of children and level of awareness. This evidence was observed by former studies carried out in Nigeria [15,19], which confirmed that the level of awareness was significantly associated with parity. The current study demonstrates that the mother working status was one of the factors determining her level of awareness. Better awareness was reported among the working women. This was corroborated by findings of studies conducted in Iraq [13] and Nigeria [21], which showed that maternal working status had an influence on the awareness level.

The likely explanation of this can be attributed to that, employment empower woman and give her more mobility to gain health information and control resources as well as access to good health care practice. As well, women may acquire more knowledge from part taking in work with succeeding interactions with surrounding community.

The result obtained from current study found a significant influence of ANC attendance on level of awareness. As better awareness observed among women who had attended ANC. A finding replicated in other studies from Iraq [10] and Uganda [22], which have verified significant improvement of maternal awareness concerning tetanus and TT immunization following antenatal visits. The plausible explanation might be that women who have attended ANC are more likely to have frequent contact with healthcare providers which itself supports and enhance awareness of mothers about of TT vaccination utilizing and benefits. Therefore, regular antenatal care is an essential way to expand TT vaccination.

### Conclusion

The present study found that about one third of the respondents gain information about tetanus from family members and friends. This was similar to study conducted in Egypt [17]. This can be elucidated the important role-play by family members and the women feel close and contented with relatives. In addition, such findings can disclose the shortage in information provided by medical personnel to these women whose source of information was mainly family members and friends, while the role of obstetricians, nurses, and media was not relevant. On contrary, health personnel from an antenatal clinic and primary health care centers were the main source for information in previous studies done in Iraq [7,23].

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