

## Awareness and Uptake of Tetanus Toxoid Vaccination Among Females of Reproductive Age in Rawalpindi

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### ABSTRACT

**Objectives:** To determine awareness and uptake of tetanus toxoid vaccination among females of reproductive age in Rawalpindi, Pakistan.

**Study Design:** Cross-sectional study.

**Place and Duration of Study:** Fauji Foundation Hospital, Rawalpindi Pakistan, from Feb to Sep 2018.

**Methodology:** A consecutive sample of 400 females completed a structured questionnaire translated into Urdu after giving written informed consent. Females, 15 to 49 years, accompanying patients and seeking healthcare were enrolled, and all those belonging to the category of healthcare providers (doctors, nurses, paramedics, etc.) were excluded.

**Results:** The study showed that 343(85.8%) women were aware of tetanus disease, and 230(57.5%) knew it could be prevented through vaccination. Only 147(36.8%) knew the correct range of reproductive age in females, 178(44.5%) knew the correct schedule, and 46(11.5%) knew the correct number of injections of tetanus vaccination program given by the World Health Organization (WHO) for females of reproductive age group. Around 321(80.3%) were willing to get vaccinated, and 338(84.5%) were willing to recommend it to other females. The number of females who ever received tetanus vaccination for females of reproductive age was 81(20.25%), out of which 7(1.8%) completed uptake of all five doses.

**Conclusion:** Our study population was aware of tetanus disease with a positive attitude towards vaccination. However, awareness and uptake of the tetanus toxoid vaccine according to the tetanus vaccination program for females of reproductive age could have been better.

**Keywords:** Reproductive age, Tetanus, Tetanus toxoid Vaccination.

**How to Cite This Article:** Humayun S, Azam N. Awareness and Uptake of Tetanus Toxoid Vaccination among Females of Reproductive Age in Rawalpindi. *Pak Armed Forces Med J* 2023; 73(2): 506-509. DOI: <https://doi.org/10.51253/pafmj.v73i2.8404>

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### INTRODUCTION

The World Health Organization (WHO) estimated neonatal tetanus killed about 34,019 babies worldwide in 2015 alone. In South Asia, in 2015, out of 26,366 neonatal deaths, 8,922 were caused by neonatal tetanus.<sup>1</sup> In Pakistan in 2015, out of 3,066 neonatal deaths, 1,453 were caused by tetanus. Pakistan still stands among the 34 countries that still need to achieve the set target of the World Health Organization for neonatal tetanus elimination.<sup>2,3</sup> The disease strikes mainly due to non-vaccination and inadequate knowledge about prevention and safe delivery practices. Pakistan is currently struggling to achieve the target of less than 1 case per 1000 live births at the district level. At present, 50% of districts are considered high risk due to lower coverage of tetanus toxoid vaccination.<sup>4,5</sup>

Maternal tetanus constitutes about 5 percent of maternal deaths, approximately 30,000 annually. Immunization of pregnant mothers with tetanus toxoid vaccine protects both the woman as well as the new born

by inducing antibodies that can be transported across the placenta at birth.<sup>6,7</sup>

WHO has recommended a program of five doses of the vaccine given over three years to all females of reproductive age group (15-49 years) for complete protection from tetanus. In areas carrying a high risk of the disease, up to 90% females need to be vaccinated in order to bring the mortality statistics down.<sup>8,9</sup>

Hence, it seems imperative to understand the existing knowledge of Pakistani women regarding the tetanus vaccination program for females of reproductive age group to understand our country's shortcomings better. Since insufficient data exists regarding studies conducted in Rawalpindi, this study fills the identified knowledge gap to design strategies for improvement and lead a path for similar research in the future to contribute to the prevention of tetanus in mothers and neonates after childbirth.

### METHODOLOGY

The cross-sectional study on tetanus toxoid vaccination awareness and uptake were conducted at FFH, Rawalpindi Pakistan, from February to September 2018. Using the consecutive sampling technique,

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Received: 17 Mar 2022; Revision Received: 23 Sep 2022; accepted: 27 Sep 2022

females presenting at FFH General OPD were enrolled in the study after taking permission from the Ethical Review Board. The sample size was calculated using the WHO sample size calculator.<sup>10</sup>

**Inclusion Criteria:** Females aged 15 to 49 years were included were included in the study. Only those accompanying patients and seeking healthcare were enrolled.

**Exclusion Criteria:** All females belonging to the category of healthcare providers (doctors, nurses, paramedics, etc.) were excluded from the study.

Among pregnant women, only those who were in their last month of pregnancy were questioned about the tetanus toxoid vaccine for pregnancy. The participants filled out a structured questionnaire translated into Urdu after giving written informed consent. The questionnaire was adapted from similar studies and pilot-tested in another setting using non-probability convenience sampling.

SPSS-21.0 was used for the data analysis. Quantitative variables were expressed as mean±SD and qualitative variables were expressed as frequency and percentages.

**RESULTS**

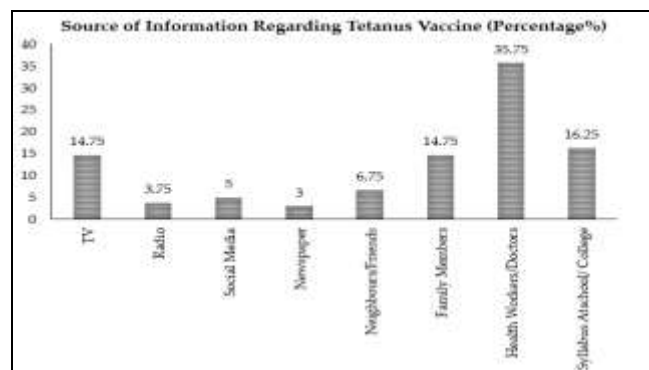
The analysis of data collected from 400 females, aged 15 to 49 years, revealed the mean age of 29±9year. A total of 343(85.8%) women were aware of tetanus disease, 273(68.3%) of its symptoms, and 99(24.8%) about its source of infection (Table-I).

**Table-I: Knowledge about Tetanus Vaccination for Females of Reproductive Age (15-49 years) (n= 400)**

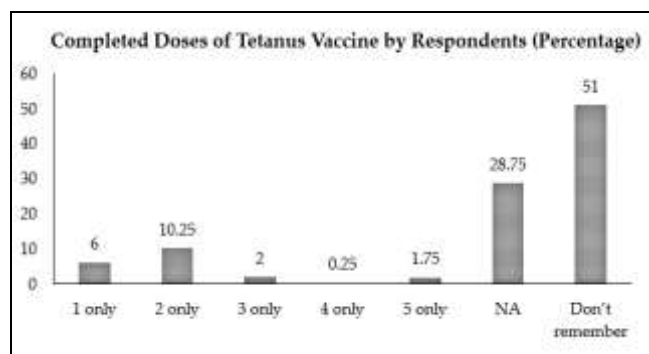
Knowledge of:	n(%)
<b>Correct Range of Reproductive Age</b>	
Yes	147(36.8%)
No	253(63.2%)
<b>Correct Schedule of Vaccine for Females of Reproductive Age</b>	
Yes	178(44.5%)
No	222(55.5%)
<b>Correct Number of Injections in the Schedule</b>	
Yes	46(11.5%)
No	354(88.5%)

About 279(69.8%) knew it was fatal, and 230 (57.5%) knew it could be prevented through vaccination. Source of information regarding tetanus vaccine is shown in Figure-1. The number of females who ever received tetanus vaccination for females of reproductive age was 81(20.25%), of which 7(1.75%) completed all five doses (Figure-2). 115(28.8%) said they never started the course, whereas 204(51%) did not remember. The majority of them (61.7%) received injections from Government hospitals. Perceptions regarding

tetanus vaccination for females of reproductive age are shown in Table-II.



**Figure-1: Source of Information regarding Tetanus Vaccine (n= 400)**



**Figure-2: Completed Doses of Tetanus vaccine by respondents**

**Table-II: Perceptions regarding Tetanus Vaccination for Females of Reproductive Age (n=400)**

Variables	n(%)
<b>Prevention is Possible with Vaccine</b>	
Yes	341(85.3%)
No	17(4.3%)
Don't know	42(10.5%)
<b>Will get Vaccinated According to Schedule</b>	
Yes	321(80.3%)
No	66(16.5%)
Don't know	13(3.3%)
<b>Will Recommend to other Women</b>	
Yes	338(84.5%)
No	45(11.3%)
Don't know	17(4.3%)
<b>Vaccine has Protective Effects on Mother and Baby</b>	
Yes	303(75.8%)
No	39(9.8%)
Don't know	58(14.5%)
<b>Vaccine should be given to all Females in Reproductive Age</b>	
Yes	328(82%)
No	54(13.5%)
Don't know	18(4.5%)
<b>Will get Daughters (&gt;15 years), Vaccinated</b>	
Yes	245(61.3%)
No	92(23%)
Don't know	63(15.8%)

When respondents were inquired about reasons for not getting the vaccine, 126(31.5%) replied they had never heard about the schedule, 54(13.5%) revealed no reason, 50(12.5%) declared it was not required to be taken while 40(10%) were afraid of injections. The uptake of >TT2 doses was 14.25%. Uptake of TT vaccination in current pregnancy among pregnant females in last gestational month (n=60) is shown in Table-III.

**Table-III: Uptake of Tetanus Toxoid Vaccination in current Pregnancy among Pregnant Females in Last Gestational Month (n=60)**

Tetanus Toxoid Vaccine	n(%)
Received only one dose	39(65)
Received two doses	21(35)

## DISCUSSION

In our research on 400 females of reproductive age in Rawalpindi, the response rate was 100%. 360 (90%) respondents were literate, and 343(85.7%) were aware of tetanus disease. A similar study showed that only 8.88% of respondents had correct knowledge of tetanus disease & its vaccination.<sup>11</sup> This varied response, too, can be attributed to their low literacy level (20%) in the respective study. Another study in showed that most respondents (88.6%) needed better knowledge of disease and its vaccination.<sup>12</sup>

However, a previous study showed good knowledge (60%) comparable to ours and can be attributed to the 100% literacy of respondents.<sup>13</sup> The educational status of females seems to affect the knowledge about the disease in most of the studies, pointing to the requirement of speedy efforts by the Government to raise the literacy level of females to curb this disease.<sup>14</sup>

In a similar research in Nigeria, most females were literate and received information from health workers (51.3%). However, this was much lower in our study, where only 35.8% received information regarding disease through lady health workers and doctors.<sup>15</sup> This implies a dire need for healthcare providers to spend more time and educate female patients of reproductive age correctly regarding this disease and its vaccination. Especially the wide network of lady health worker staff needs to be active in this regard, as they can reach the door to door and educate families.

Around 80.3% of our study population showed a positive attitude towards getting vaccinated according to schedule, similar to the other study,<sup>16</sup> where 92.5% had a positive attitude towards immunization. In contrast, another study 58% showed a negative attitude towards immunization. It may be attributed to

improper & insufficient health education to the masses, which was incapable of overcoming their fears and myths.<sup>17</sup>

A low level of vaccine uptake(>TT2=14.25%) was found in our study. In our research majority of respondents did not get vaccinated due to ignorance which seems to be the sole reason in the previous study and happens to be the identified missing thread in vaccine coverage.<sup>18</sup> 115(28.8%) females said they never started the course. Among the pregnant females in our study, 65% had received one dose, and 35% had received two doses of the TT vaccine. That was confirmed upon asking about gestational age and the number of vaccines taken; the first dose completion until the seventh month, and the second was completed by the eighth month. Only females in their last month were questioned about the vaccine status during pregnancy. The majority of them (61.7%) received injections from Government hospitals. In the previous study, 42% of pregnant females had received at least one dose during antenatal visits in the government hospital.<sup>19</sup> These figures show that most females delivering at government set-ups receive tetanus shots during antenatal visits. National Vaccination Campaign needs to be started in most countries to increase coverage. The initiative taken by Government always proves to be the best in promoting vaccination as it becomes a part of routine immunization, and people accept it willingly. Moreover, it increases availability and affordability. Scaling up efforts is required by the stakeholders in the region in order to create awareness of females regarding the importance of the vaccine.

## ACKNOWLEDGEMENT

The students of Fourth Year MBBS are acknowledged for helping in data collection from the respondents.

## LIMITATIONS OF STUDY

Our study was limited due to a small sample size from Rawalpindi and a shortage of time and other resources.

## CONCLUSION

It was concluded that our study population was aware of tetanus disease, with a positive attitude towards vaccination but awareness and uptake of tetanus toxoid vaccine according to the tetanus vaccination program of the World Health Organization for females of reproductive age was poor.

**Conflict of Interest:** None.

## Author's Contribution

Following authors have made substantial contributions to the manuscript as under:

SH: Conception, interpretation of data, drafting the manuscript, approval of the final version to be published.

NA: Data acquisition, interpretation of data, approval of the final version to be published.

Authors agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

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