Journal of Population Therapeutics & Clinical Pharmacology

RESEARCH ARTICLE
DOI: 10.53555/hzcc2m34

ASSESSING INSIGHT, OPINION AND PRACTICE RELATED TO TETANUS TOXOID VACCINATION IN PREGNANT WOMEN

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ABSTRACT

Background: Tetanus infection caused by bacterium Clostridium tetani is a non-communicable disease and preventable cause of morbidity and mortality in neonates. Pakistan is one of the very few remaining countries that have yet to achieve the target set by WHO (2015) for the elimination of maternal and neonatal tetanus.

Objective: The study was designed to assess the knowledge, attitude and practices of women regarding the tetanus toxoid vaccination.

Methodology:

Study Design: descriptive cross-sectional study.

Place and Duration of Study: Data was collected from out-patient departments of Gynae, Pediatrics and labor room of Sheikh Zayed Hospital from February 14 to June 1st 2024.

Material and Methods: The study enrolled 150 mothers of child bearing age. A validated, structured questionnaire was used for data collection including different variables of age, education, occupation, residence, family income, number of children and the knowledge of these mothers regarding antenatal tetanus vaccine. The data was collected from mothers who were willing to give information about antenatal tetanus toxoid vaccination. The data was analyzed using Statistical Package for Social Sciences version 27.

Results: 73% of women enrolled had knowledge about tetanus disease and antenatal tetanus toxoid vaccination. Education, family setup and occupation of the respondents had minimal impact on their knowledge.

Conclusion: The study concluded that although mothers of child bearing age are being immunized with tetanus toxoid vaccine during their antenatal checkup, they are not being fully

educated about its importance for good health. (2016)

KEY WORDS: Knowledge of antenatal tetanus, attitude, practice, mothers knowledge

INTRODUCTION

Immunization is one of the most effective, safest and efficient interventions towards disease prevention, the World health Organization (WHO) defines Immunization as the process whereby a person is made immune or resistant to the infectious diseases, by administration of vaccine. In different countries with good vaccination programs people have better health, due to lower mortality of the infectious diseases. The coverage rate of vaccination in many developing countries, has now reached steady rates despite good coverage of vaccination has been made, therefore we need to find urgent ways to increase the rate of immunization.

Tetanus is a vaccine preventable disease that is caused by spores of bacteria called Clostridium tetani. Spores are found everywhere in the environment including soil, ash, intestinal tract and feces of animals and humans. It can also be present oh skin surfaces and rusty tools like nails, needles and wires. Being resistant to heat and most antiseptics they can survive for many years. Most commonly the disease is present in new born babies and pregnant women who are not fully immunized with tetanus toxoid containing vaccine. Tetanus during pregnancy and within the 6 weeks of end of pregnancy is called "maternal tetanus" and tetanus within first 28 days of life is called "neonatal tetanus" (trismus nascentium). As of 1998 report, it was very common and produce about 14% of neonatal deaths. In 2010, the death toll was about 58000 newborns.

The WHO definition of the neonatal tetanus is an illness occurring in infant who has the normal ability to suck and cry in first 2 days of life but who loses his ability between days 3 and 28 of life and became rigid or has spasms. Neonatal tetanus is a generalized tetanus infection of the new-born. It usually gets transmitted from a non-vaccinated mother and enters the body through infection of unhealed umbilical stump. This typically happens when the umbilical cord is cut using non-sterile instruments. The disease remains a world health problem but most commonly occur in low socioeconomic countries due to low coverage of immunization.

Symptoms

The incubation period of tetanus varies between 3 to 21 days after infection and mostly it presents within 14 days;

- Spasm in jaw muscles also called lockjaw
- Also affect the facial muscles leading to a condition called risus sardonicus
- Back muscles spasm also produce arching called opisthotonus
- Sometimes they also produce breathing problems
- Muscle cramps
- Headache
- Seizures
- Fever and sweating
- High blood pressure and fast heart rate

Diagnosis

Mainly on clinical basis and not required laboratory confirmation. The spatula test is usually performed involving touching of the posterior pharyngeal wall by a soft tipped instrument and observing the effect. A positive result is the involuntary contraction of the jaw (biting of the spatula) and a negative result will be a gag reflex.

Prevention of neonatal tetanus

The recommended timing for maternal Tdap vaccination is between 27 weeks and 36 weeks of gestation. To maximize the maternal antibody response and passive antibody transfer and levels in the new-born, vaccination as early as possible in the 27-36 weeks-of-gestation window is

recommended. Globally, in 2021, approximately in 2021 5 million children died before turning 21 and child mortality of 51.8% was associated with infectious diseases. (3) Clostridium tetani is estimated to cause 3000 neonatal morbidities annually, of which a vast majority occur in sub-Saharan Africa and Southeast Asia. The literature revealed a declining trend of neonatal mortality due to maternal and neonatal tetanus (MNT) from 2000. Reports suggests that tetanus cases have been reduces by 88% globally and tetanus mortality has been reduced by 92%. (4) Several studies on community-based health interventions such as improved umbilical cord care practices, clean delivery environment, supplementary immunization activities (SIAs) and modification of health-related behaviors, including birth practices, have demonstrated significant reduction in overall child morbidity and mortality. Tetanus toxoid (TT) vaccine is a safe public health intervention, targeted to decrease MNT deaths in particular. Although TT vaccine is offered at no cost to women, it is one of the least utilized vaccines in developing countries. Millions of women in developing countries lack access to adequate care during pregnancy: about 63% in Africa, 65% in Asia, and 73% in Latin America. In contrast, maternal healthcare is nearly universal in developed countries. Many barriers limit a woman's access to care for herself during pregnancy including distance, cost, multiple demands on women's time, poverty, fear regarding pregnancy, knowledge, beliefs, behavior toward antenatal care (ANC), and a lack of decision-making power. Ensuring that women have access to maternal healthcare is essential to saving their lives. It was found that about 88-98% of all maternal deaths could be avoided by proper handling during pregnancy and labor. The antenatal period (ANP) represents the most important time for pregnant women. Many of the practices carried out during the ANP improve the wellbeing of the mother and/or the baby and decrease the burden of adverse perinatal outcomes. The WHO has developed specific guidelines regarding the timing and the content of ANP visits.

Pakistan is among 34 countries to have failed the MNT global elimination target of 'less than 1 case per 1000 live births in every district of country' as introduced by the World Health Organization. The WHO highly recommended greater than 90% TT vaccine coverage in high-risk area Pakistan's Expanded Program on Immunization (EPI) offers free-of-charge TT vaccine services for all pregnant women and women of childbearing age The existing EPI schedule recommends five TT vaccine doses inclusive of TTV-1 at first contact, TTV-2 at least four weeks after the first dose, TTV-3 at least six months after the second dose, TTV- 4 at least one year after the third dose and TTV-5 at least one year after the fourth dose. Local statistics suggested that more than 50% of districts are at risk of MNT in Pakistan. It is estimated that 54-70% of women received at least two doses of TT vaccine, and significant coverage disparities exist between urban and rural districts. Studies conducted elsewhere suggested lack of knowledge about tetanus disease, inadequate information vaccine schedule, misconceptions related to TT vaccine and poor understanding of TT vaccine benefits. Community level knowledge gains are critical to improve TT vaccine coverage in Pakistan. There is a paucity of published literature to support woman's knowledge and preferences for TT vaccination in the local context of Pakistan.

OBJECTIVES

To assess the knowledge about antenatal tetanus vaccination of mothers of child bearing age based on their socioeconomic status including their place of residence and family income.

To find out the percentage of mothers getting tetanus shots in each pregnancy and those with on and off administration.

METHODOLOGY

Study Design

cross-sectional study

Study Setting

The study was conducted among various mothers visiting the out-patient departments of Gynaecology, pediatrics and labor room of Sheikh Zayed Hospital, Rahim Yar Khan.

Study Subject
The subjects of the study were various mothers of child bearing age visiting the out-patient departments of Gynae, pediatrics and labor room of Sheikh Zayed Hospital. Mothers verbal consents were obtained prior to interviewing after explaining the objectives of the study to them. Data were kept confidential and were not disclosed to any unauthorized.

Study Duration
14th Feb 2024 – 1st June 2024

Sample Size
150 Mothers visiting the out-patient departments of Gynae, pediatrics and labor room of Sheikh Zayed Medical Hospital, Rahim Yar Khan

Sampling Techniques
Convenient Sampling

Inclusion Criteria
All mothers of child bearing age who were willing to give the information regarding tetanus toxoid vaccination

Exclusion Criteria:
- All mothers of child bearing age who were not willing to give the consent
- Post-menopausal women
- Nulliparous

Data Collection Method:
Data were collected by using a pre designed structured questionnaire which was administered to interview the mothers which contain the following information:
1. Socio-demographic and personal information
Maternal age, level of education for mothers and fathers. Mothers' and fathers' employment status, income, household number of family, number of children, number of rooms in the house, and residence.

These questionnaires include 7 items that assess the mothers' knowledge about the antenatal maternal vaccination (Tetanus vaccine) these include knowledge of the mothers about antenatal vaccination, diseases prevented by this vaccine, when to start antenatal vaccination? times of antenatal vaccination, receiving information from the PHCs, did she received tetanus toxoid during pregnancy? was vaccine received as per schedule? and then the mothers was asked about the number of doses received. These include history of tetanus vaccination, complete or not and family history of vaccine preventable infectious diseases or side effects.

Data Analysis
Data of the 151 mothers were entered and analyzed by using the statistical package for social sciences version 27, IBM,US, 2013. Descriptive statistics were presented as mean, standard deviation (SD), frequencies (No.) and proportions, the results and findings were introduced in tables, figures and paragraphs by using the Microsoft Office software, Words, version 2007, for windows,

Ethical Approval
Ethical approval was sought from the Constitutional Review Board before starting research.

RESULTS

Table: 1 Age wise distribution of study subjects Statistics Age

Valid	150
Missing	0
Mean	33.87
Median	31
Mode	30
Std. Deviation	9.746
Range	39
Minimum	16
Maximum	55

Table 1 showed that the mean age of study subjects is 34.34 years and the standard deviation is 1.469.

Table 2: Education wise distribution of study subjects Education

	N	%
Illiterate	49	32.7%
Read and write	27	18%
Matric	26	17.3%
Above Matric	48	32%

Table 2 shows that 32.7% of mothers are illiterate, 18% can read and write, 17.3% have matric and 32% are above matric.

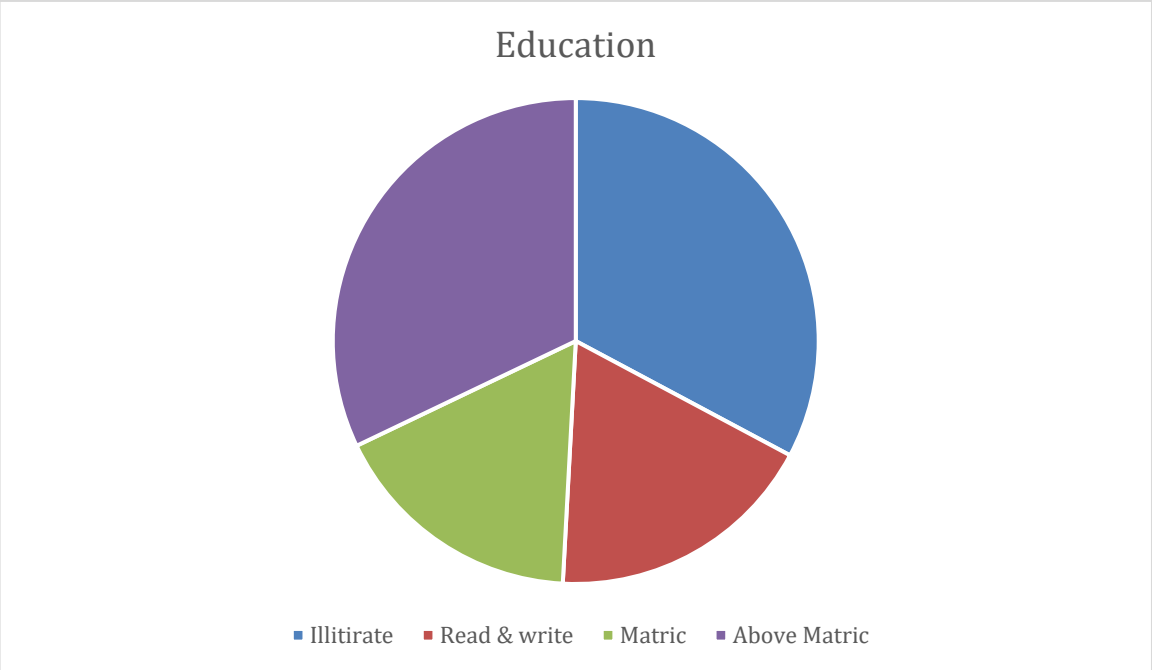

Table 3: Employment wise distribution of study subjects Employment

	N	%
Employed	26	17.3%
Unemployed	124	82.7%

Table 3 shows that 82.7% are unemployed and 17.3% are employed.

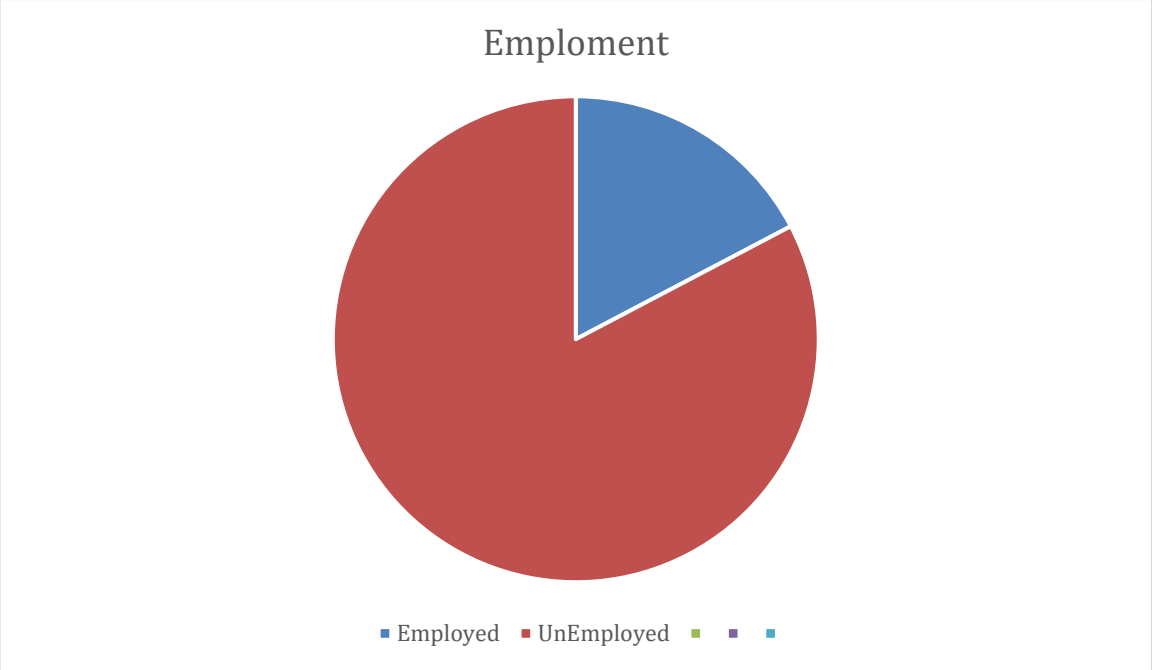

Table 4: Residence wise distribution of study subjects Place of Residence

	N	%
Rural	66	44%
Urban	84	56%

Table 4 shows that 56% of mothers live in urban while 44% live in rural areas.

Table 5: Monthly income wise distribution of study subjects Family Income

Rupees (PKR)	**N**	**%**
20000	70	46.7%
20000 to 50000	40	26.7%
More than 50000	40	26.7%

Table 5 shows that 46.7% have monthly income of 20000, 26.7% have 20000 to 50000 and 26,7% have more than 50000.

Table 6: Number of children of each study subject Number of Children

	N	%
1-2	66	44%
3-4	49	32.7%
5 or more than 5	35	23.3%

Table 6 shows that 44.0% of mothers have 1-2 children, 32.7% have 2-4 and 23.3% have 5 or more than 5.

Table 7: Knowledge about Antenatal Tetanus Vaccination of mother

	N	%
No	41	27.3%
Yes	109	72.7%

Table 7 shows that 72.7% of the mothers know about Antenatal tetanus vaccination.

Table 8: Knowledge about that Infectious Disease (Tetanus) Is Prevented by Anti-Tetanus Vaccination

	N	%
No	**47**	**31.3%**
Yes	**103**	**68.7%**

Table 8 shows that 68.7% mothers knew that tetanus is prevented by anti- tetanus vaccination.

Table 9: Knowledge about Schedule of Antenatal Tetanus Vaccination

	N	%
No Idea	41	27.3%
1st Trimester	9	6%
2nd Trimester	22	14.7%
3rd Trimester	78	52%

Table 9 shows that 52.0% of mothers knew that the Antenatal Tetanus Vaccination is administered in 3rd trimester.

Table 10: Awareness About Antenatal Tetanus Vaccination Awareness

	Frequency	%
Family and Friends	31	20.7
Health care Provider	97	64.7
Media	3	2
Nil	19	12.7
Total	150	100

Table 10 shows that 64.7% of mothers got awareness about Antenatal Tetanus Vaccination through healthcare provider.

Conclusion

The study respondents demonstrated a relatively good degree of knowledge regarding tetanus disease and the importance of ante-natal tetanus toxoid vaccination. Despite good vaccination coverage for women of child bearing age at Sheikh Zayed Hospital, it was concluded that knowledge and practice score that does not correlate with each other. Thus, it is imperative to aware mothers regarding tetanus, it's symptoms, and its prevention for which not only health care workers but media also has to play an important part. Mothers of child bearing age should be educated to create sustainable demand for this preventive service.

Discussion

The study was conducted to evaluate knowledge, attitude and practice about awareness of antenatal tetanus vaccination among mothers of child bearing age. In this study, 150 mothers visiting out-patient department of Gynae, pediatrics and labor room of Sheikh Zayed Hospital participated. All mothers belong to age group 16-55 with mean age 35. 83% of mothers were house-wives and percentage of working mothers is only 17%. The study respondents demonstrated good knowledge of ante-natal tetanus toxoid vaccination. It was found that 73% of mothers had knowledge about antenatal tetanus toxoid vaccination. The study design was descriptive cross-sectional study. 56% of urban respondents admitted that they were aware of benefits of antenatal tetanus toxoid vaccination than rural respondents (44%). 61% of mothers admitted that they got antenatal tetanus vaccination in each of their pregnancies. According to a similar study conducted in Karachi, it was found that majority of mothers of urban areas were aware of benefits of ante-natal tetanus toxoid vaccination.

Another study conducted in Omdurman Maternity Hospital and Al Saudi Hospital of Khartoum State showed that majority of the respondents were very confident that TT vaccine is important, safe and effective and that the disease itself is serious. These findings are consistent with a global study conducted in over 140 countries in 2018, which found that people in East Africa region are more likely to perceive the safety and effectiveness of this vaccine. Furthermore, the same report revealed that people in Ethiopia and Egypt are most likely to agree about importance and benefits of this vaccine.

Only 68.7% mothers knew that tetanus is prevented by anti-tetanus vaccination while it was found that 84% of mothers had knowledge that tetanus is preventable, in a study conducted in northern areas of India. The difference might be due to higher proportion of illiterate and less educated women (50.7%) in our study. Our study was completed in short duration of 30 days as compared to referred research which was conducted in 5 months. In this study, 52% of mothers had knowledge about schedule of antenatal tetanus vaccination whereas a study conducted in a tertiary hospital in Turkey, almost 89.7% of women had knowledge of antenatal tetanus vaccine schedule. The difference of which is because our study contains 44% of rural population whereas the study conducted at tertiary hospital in Turkey was mainly targeted on urban population. However, such practices, when investigated further, didn't match the recommended ways of doing. Only a few of them had a proper knowledge.

Social determinants have potential to affect immunization programs around the world, especially factors related to knowledge and understanding of the women regarding the tetanus vaccine. Exploring all these determinants affecting immunization is of great importance in the attempts to increase immunization uptake, reduce hesitancy to immunization and promote a culture that demands vaccines and ultimately increase immunization rates and prevent early infant mortality previously attributed to neonatal tetanus.

The results demonstrate the importance of antenatal tetanus vaccination which includes the prevention of such infectious disease through vaccination. Moreover, the results of the current study are prone to call bias, as the participants did not show their vaccination cards during data collection. This study has established a nexus between awareness, knowledge and attitude of mothers of child bearing age and their practice of vaccination. The study also provided valuable information that could be used in developing health education interventions to increase tetanus toxoid vaccine uptake among mothers of child bearing age during their antenatal period.

RECOMMENDATIONS

1. Improvement on Supplemental immunization activities such as National Immunization Days and catch-up campaigns.
2. Immunization campaigns should be conducted frequently to overcome the lower proportion of complete vaccination.
3. Strengthen antenatal clinic by training more health care workers to increase the immunization coverage and identify the missed opportunities since this finding shows that majority of mothers attended antenatal clinics received good information.
4. Targeting women in productive age in educational program about tetanus vaccination, and conducting tetanus vaccination campaign frequently, this better to be done in the secondary schools of girls, institutes and colleges.
5. Vaccines should be made available to every mother and child and provided in all primary health care centers during the whole days of the week.
6. Further studies are recommended.
7. Public awareness about the importance of vaccination should be raised using different types of mass media, religious and community leaders.

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