

Students' Knowledge Toward Importance of Tetanus Toxoid Vaccine for Women and Their Children in Al-Bayan University

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Abstract

Descriptive study design was conducted on Al-Bayan students for the period from 1 March 2022 to 10 of April 2022. The study aimed to identify student's knowledge toward importance of Tetanus Toxoid Vaccine for women and their children, and to find out the association between student's knowledge and their socio demographic characteristics. Methodology- A purposive "non-probability" sample of (200) students in Al-Bayan University. The questionnaire was designed and constructed by the investigators to measure the variable underlying the study. A questionnaire was consisted of two parts) demographical information and the knowledge of the expectant student's toward importance of Tetanus Toxoid Vaccine.) Reliability of the questionnaire was determined through internal consistency. Content validity of the questionnaire was determined through panel of experts. Data were analyzed through descriptive statistical approach (frequency, percentage and inferential statistical analysis) are used by Socioeconomic Package for Social Science approach Version 26. Results- The finding of this study clarified that medical and not medical students have poorly knowledge about tetanus toxic disease and vaccines schedules for women and their children and the importance of that information for adult and child health condition. Recommendations-Current study recommended for use a mass media campaign to create awareness among students, in childbearing age and families about the importance of Tetanus Toxin vaccine. Also reinforcing health promotion activities by making the Tetanus Toxin vaccine available & accessible for all women at their reproductive age and injured people as need in the university.

1. Introduction

Tetanus is a serious illness that causes convulsions (seizures) and severe muscle spasms that can be strong enough to cause bone fractures of the spine. Tetanus causes death in 30 to 40 percent of cases.

Maternal neonatal tetanus remains a significant cause of neonatal and infant mortality in a number of developing countries (1). Tetanus is an acute infectious non-communicable disease caused by bacteria *Clostridium tetani*. Women exposed to the organism during pregnancy or within 6 weeks after delivery are liable to develop maternal tetanus.

In spite of the World Health Organization's intention to eradicate tetanus by the year 1995, it remains endemic in the developing world and WHO estimated approximately 1000000 deaths from tetanus worldwide in 1992. This included 580 000 deaths from neonatal tetanus, with 210 000 in South East Asia and 152 000 in Africa. The disease is uncommon in developed countries. In South Africa approximately 300 cases occur each year, approximately 12±15 cases are reported each year in Britain and between 50 and 70 in the USA. (2)

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to eradicate tetanus by the year 1995, it remains endemic in the developing world and WHO estimated approximately 1000 000 deaths from tetanus worldwide in 1992. This included 580 000 deaths from neonatal tetanus, with 210 000 in South East Asia and 152 000 in Africa. The disease is uncommon in developed countries. In South Africa approximately 300 cases occur each year, approximately 12±15 cases are reported each year in Britain and between 50 and 70 in the USA.

Infants born to non-immunized mothers are prone to neonatal tetanus. Infection usually occurs through the unhealed umbilical cord. The majority of cases of neonatal tetanus develop symptoms during the first 3–14 days. The disease starts by loss of ability to suck, followed by generalized rigidity, and painful muscle spasms. (3)

The mortality of tetanus in general tends to be high in the absence of medical treatment where case fatality approaches 100%; this percentage decreases to 10–60% in the presence of hospital care, depending on the availability of intensive care facilities (4). In 2017 (the latest year for which estimates are available), nearly 30,848 newborns died of neonatal tetanus.

Immunization against tetanus is recommended for all infants 6 to 8 weeks of age and older, all children, and all adults. Immunization against tetanus consists first of a series of either 3 or 4 injections, depending on which type of tetanus toxoid you receive. (5)

2. Methodology

Descriptive study design was conducted on students' knowledge toward importance of Tetanus Toxoid Vaccine, for the period from 1 March 2022 to 10 of April 2022. The study was carried out at medical colleges of Al-Bayan university includes (dentistry, pharmacy, nursing, and medical technology) and not medical colleges includes (administration and economics, and law) of Al-Bayan University.

A non-probability (purposive) sample of (200) students from the abovementioned colleges of Al-

Bayan university. The questionnaire was designed and constructed by the investigator to measure the variable underlying the study. A questionnaire was consisted of two parts: Part 1: It included demographical information such as (student's gender, age, studies type, and their marital status). Part 2: It consists of structured elements related to the knowledge of the expectant student's toward importance of Tetanus Toxoid Vaccine. He was interested in knowing the student and consisted of (42) items.

The data as were collected through the use of questionnaire format and means of an interview with students in the colleges of Al-Bayan University. Data were analyzed through the application of descriptive statistical data analysis approach (frequency and percentage).

3. Results of the Study

Table (1) Distribution of the Studied Sample by their Personal Information

%	No.	Variables	
55	110	Male	Gender
45	90	Female	
94.5	189	20-30 years old	Students' age
5.5	11	31-40 years old	
50	100	Medical study	Study's types for the student
50	100	Not-medical study	
20.5	41	Married	Marital status
79.5	159	Single	
16.5	33	Yes	Students have children
83.5	167	No	

This table shows the percentage of male participants more than females (55%), while (94.5%) at the age of (20-30 years). The study's types for the student equal

50% for each type, also (79.5%) single student more than married person, (83.5%) of the participants didn't have any child

Table (2) The correlation of Students' Gender and their Knowledge about Tetanus' Medical Information

Good or poor knowledge	Gender				Medical Information About Tetanus	No .
	Female		Male			
	No	Yes	No	Yes		
Good	24	66	32	78	Tetanus is bacterial infection by bacteria clostridium tetanus	
Poor	70	20	81	29	Tetanus is infectious disease	
Signs and Symptoms:						
Poor	56	34	51	59	Painful muscle contraction began at 3-14 days at neonatal period.	
Poor	41	49	62	48	Stiffness in the neck muscle and the jaw.	
Poor	52	38	60	50	Hardly swallowing.	
Poor	59	31	83	27	hardly to open the mouth	
Poor	70	20	88	22	loss of ability to suck of neonatal baby.	
Poor	58	32	84	26	Stiffness of abdominal muscles	
Poor	73	17	80	30	Headache	
Poor	48	42	56	54	Fever and sweating.	
Poor	60	30	77	33	Elevated of blood pressure and heart rate.	
Causes of toxic tetanus by:						
Poor	71	19	78	23	Burns	
Good	17	73	29	81	Contaminated Injuries	
Poor	52	38	62	48	Contaminated Wound with dirt feces.	
Poor	67	23	73	37	Contaminated wound with saliva.	
Poor	71	19	89	21	Animal & insect bites.	
Poor	84	6	102	8	Dental infections.	
Poor	63	27	79	31	Infected umbilical cord.	
Poor	71	19	83	27	Chronic sores and infections.	
Poor	73	17	82	28	Puncture wounds.	
The complications						
Good	37	53	45	65	Laryngospasm	
Poor	72	18	76	34	Bone fractures	
Poor	53	37	73	37	Abnormality heart rhythm	
Poor	64	26	76	34	Pneumonia	
Poor	55	35	76	34	Nosocomial infections related to prolonged hospitalization	
Poor	65	25	74	36	Brain damage	
Good	47	43	40	70	Lead to death	

This table showed that students have poor knowledge about medical information with Tetanus disease related to their both gender (male and female)

Table (3) The correlation of Students' Gender and their Importance of prevention from Tetanus infections

Good or poor knowledge	Gender				Importance of prevention from Tetanus infections	No.
	Female		Male			
	No	Yes	No	Yes		
Poor	59	31	59	51	Bleeding control	
Good	30	60	39	71	Cleaning the wounds	
Good	42	48	47	63	Covered wounds to prevent infection	
Poor	55	35	52	58	Change dressing for wounds continuously	
Good	39	51	53	57	Following for pregnant women by vaccination	
Poor	59	31	68	42	Sterilized newborns' umbilical cord	
Good	28	62	45	65	Best way for protect peoples when they injured by contaminated equipment would tack tetanus toxic vaccines	

This table showed that more than half of the students have good knowledge about Importance of prevention from Tetanus infections related to their both gender (male and female)

Table (4) The Correlation of Students' Gender and their Knowledge about Women , children, and the adult Vaccination Schedule against Tetanus

Good or poor knowledge	Gender				Women vaccination schedule against Tetanus 0.5 ml at gestational period	No .
	Female		Male			
	No	Yes	No	Yes		
Good	25	65	35	75	First dose at fourth month of pregnancy	
Poor	55	35	64	46	Second dose at the fifth month of pregnancy	
Good	42	48	42	68	Third dose after 6 months of second dose	
Poor	64	26	76	34	Fourth dose after one year from the third dose	
Poor	62	28	84	26	Fifth dose after one year from the fourth dose	
Children's vaccination schedule against Tetanus 0.5 ml at age						
Good	38	52	40	70	2 months	1.
Good	50	40	54	56	4 months	2.
Good	47	43	54	56	6 months	3.
Poor	68	22	83	27	15 years (adolescents)	4.
Poor	73	17	87	23	18 years (adolescents)	5.
Poor	65	25	67	43	Adult who are injuries by any equipment must take vaccine tack 0.5 ml dose	6.

This table showed that 48% of the students have good knowledge about pregnant women's , children and the adults vaccination schedule against Tetanus related to their both gender (male and female)

Table (5) The correlation of Students' Age Group and their Knowledge about Tetanus' Medical Information

Good or poor knowledge	Age Group				Medical Information About Tetanus	No .
	31-40		20-30			
	No	Yes	No	Yes		
Good	4	7	52	137	Tetanus is bacterial infection by bacteria clostridium tetanus	1.
Poor	9	2	142	47	Tetanus is infectious disease	2.
Signs and Symptoms:						
Poor	6	5	101	88	Painful muscle contraction began at 3-14 days at neonatal period.	
Poor	3	8	100	89	Stiffness in the neck muscle and the jaw.	
Poor	4	7	108	81	Hardly swallowing.	
Poor	7	4	135	54	Hardly to open the mouth.	
Poor	9	2	149	40	Loss of ability to suck for neonatal baby.	
Poor	7	4	135	54	Stiffness of abdominal muscles	
Poor	9	2	144	45	Headache	
Poor	5	6	99	90	Fever and sweating.	
Poor	7	4	130	59	Elevated of blood pressure and heart rate.	
Causes of toxic tetanus by						
Poor	11	0	147	42	Burns	
Good	2	9	44	145	Contaminated Injuries	
Poor	5	6	109	80	Contaminated Wound with dirt feces.	
Poor	6	5	134	55	Contaminated wound with saliva.	
Poor	9	2	151	38	Animal & insect bites	
Poor	9	2	177	12	Dental infections	
Poor	9	2	133	56	Infected umbilical cord	
Poor	9	2	145	44	Chronic sores and infections	
Poor	10	1	145	44	Puncture wounds.	
The complications						
Good	5	6	77	112	Laryngospasm	
Poor	10	1	138	51	Bone fractures	
Poor	8	3	117	71	Abnormality heart rhythm	
Poor	8	3	132	57	Pneumonia	
Poor	6	5	125	64	Nosocomial infections related to prolonged hospitalization	
Poor	5	6	116	72	Brain damage	
Good	6	5	81	108	Lead to death	

This table showed that mostly of the students have poor knowledge related to their age group (20-30) years old

Table (6) The correlation of Students' Age Group and their Importance of prevention from Tetanus infections

Good or poor knowledge	Age Group				Importance of prevention from Tetanus infections	No .
	31-40		20-30			
	No	Yes	No	Yes		
Poor	7	4	111	78	Bleeding control	
Poor	3	8	166	23	Cleaning the wounds	
Good	5	6	84	105	Covered wounds to prevent infection	
Poor	8	3	99	90	Change dressing for wounds continuously	
Good	5	6	87	102	Following foe pregnant women vaccination	
Poor	5	6	122	67	Sterilized newborns' umbilical cord	
Good	4	7	69	120	Best way for protect peoples when they injured by contaminated equipment would tack tetanus toxic vaccines	

This table showed that mostly of the students have poor knowledge about Importance of prevention from Tetanus infections related to their age group

Table (7) The Correlation of Students' Age Group and their Knowledge about Women , children, and the adult Vaccination Schedule against Tetanus

Good or poor knowledge	Age Group				women vaccination schedule against Tetanus 0.5 ml at gestational period	No.
	31-40		20-30			
	No	Yes	No	Yes		
Good	3	8	57	132	First dose at fourth month of pregnancy	
Poor	6	5	113	76	Second dose at the fifth month of pregnancy	
Good	4	7	80	109	Third dose after 6 months of second dose	
Poor	7	4	133	56	Fourth dose after one year from the third dose	
Poor	7	4	139	50	Fifth dose after one year from the fourth dose	
Children and adolescent vaccination schedule against Tetanus by dose 0.5 ml at age						
Good	4	7	74	115	2 months	1.
Poor	6	5	98	91	4 months	2.
Poor	5	6	96	93	6 months	3.
Poor	9	2	142	47	15 years (adolescents)	4.
Poor	8	3	152	37	18 years (adolescents)	5.
Poor	8	3	124	56	Adult who are injuries by any equipment must take vaccine tack 0.5 ml dose	**

This table showed that mostly of the students have poor knowledge about pregnant women's, children and adult vaccination schedule against Tetanus related to their age group(20-30)years old

Table (8) The correlation of Students' Study's Types and their Knowledge about Tetanus Medical Information

Good or poor knowledge	Study's Types				Medical Information About Tetanus infections	No .
	Not Medical		Medical			
	No	Yes	No	Yes		
Good	39	61	17	83	Tetanus is bacterial infection by bacteria clostridium tetanus	1.
Poor	72	28	79	21	Tetanus is infectious disease	2.
Signs and Symptoms:						
Poor	54	46	53	47	Painful muscle contraction began at 3-14 days at neonatal period.	
Poor	60	40	57	43	Stiffness in the neck muscle and the jaw.	
Poor	64	36	48	52	Hardly swallowing.	
Poor	67	33	75	25	Hardly to open the mouth.	
Poor	83	17	75	25	Loss of ability to suck for neonatal baby.	
Poor	74	26	62	38	Stiffness of abdominal muscles.	
Poor	78	22	75	25	Headache	
Poor	60	40	44	56	Fever and sweating.	
Poor	74	26	63	37	Elevated of blood pressure and heart rate.	
Causes of toxic tetanus by :						
Poor	72	28	86	14	Burns	
Good	29	71	17	83	Contaminated Injuries	
Poor	66	34	48	52	Contaminated Wound with dirt feces.	
Poor	78	22	62	38	Contaminated wound with saliva.	
Poor	84	16	76	24	Animal & insect bites.	
Poor	92	8	94	6	Dental infections.	
Poor	67	33	75	25	Infected umbilical cord.	
Poor	76	24	78	22	Chronic sores and infections.	
Poor	77	23	78	22	Puncture wounds.	
The complications						
Good	47	53	35	65	Laryngospasm	
Poor	72	28	76	24	Bone fractures	
Poor	65	35	61	39	Abnormality heart rhythm	
Poor	74	26	66	34	Pneumonia	
Poor	63	37	68	32	Nosocomial infections related to prolonged hospitalization	
Poor	74	26	62	38	Brain damage	
Good	42	58	45	55	Lead to death	

This table showed that mostly of the students have poor knowledge related to their Study's Types

Table (9) The correlation of Students' Study's Types and their Importance of prevention from Tetanus infections

Good or poor knowledge	Study's Types				Importance of prevention from Tetanus infections	No.
	Not Medical		Medical			
	No	Yes	No	Yes		
Poor	61	39	57	43	Bleeding control	
Good	45	55	24	76	Cleaning the wounds	
Poor	54	46	35	65	Covered wounds to prevent infection	
Poor	64	36	43	57	Change dressing for wounds continuously	
Good	49	51	43	57	Following foe pregnant women vaccination	
Poor	61	39	66	34	Sterilized newborns' umbilical cord	
Good	37	63	36	64	Best way for protect peoples when they injured by contaminated equipment would tack tetanus toxic vaccines	

This table showed that more than half of the students have poor knowledge about Importance of prevention from Tetanus infections related to their Study's Types

Table (10) The Correlation of Students' Study's Types and their Knowledge about Pregnant Women's, children, and the adult Vaccination Schedule against Tetanus

Good or poor knowledge	Study's Types				Women vaccination schedule against Tetanus 0.5 ml at gestational period	No .
	Not Medical		Medical			
	No	Yes	No	Yes		
Good	32	68	28	72	First dose at fourth month of pregnancy	
Poor	66	34	53	47	Second dose at the fifth month of pregnancy	
Good	37	63	47	53	Third dose after 6 months of second dose	
Poor	70	30	70	30	Fourth dose after one year from the third dose	
Poor	66	34	80	20	Fifth dose after one year from the fourth dose	
Children's vaccination schedule against Tetanus 0.5 ml at age						
Good	28	72	50	50	2 months	1.
Poor	57	43	47	53	4 months	2.
Good	49	51	52	48	6 months	3.
Poor	74	26	77	23	15 years (adolescents)	4.
Poor	75	25	85	15	18 years (adolescents)	5.
Poor	61	39	71	29	Adult who are injuries by any equipment must take vaccine tack 0.5 ml dose	**

This table showed that mostly of the students have poor knowledge about pregnant women's, children and adult vaccination schedule against Tetanus related to their Study's Types.

4. Discussion

Through the course of the present study, (table 1) showed that the (55%) percentage of male participants more than females, while (94.5%) at the age of (20-30 years). The studies type for the student equal 50% for each one (medical and not medical), (6) Kolkata (2011) reported that 72 were males and 36 were females, the mean age of the internees was 23.8, Its nearly agree with the present study more than half of the participant was male.

In Nigeria (2019) reported that age group (21-25) (n: 201) (52.9%) (7) while single participant is about 366 (96.3%) and (79.5%) single student have more than married person, and (83.5%) of the participants didn't have any child because they already single or not have any child for now.

Mosul (2021) reported that 77.6% of women lacked awareness on TT., (8) in table (2 and 3) the participant in the present study also have poor medical information and importance of prevention about

Tetanus Toxin, Our current health system does not provide the opportunities for participate in training programs launched by the government. They have been kept isolated from it.

In a Nigerian study (n=300), 65% (188) of the respondents were found to have obtained the required knowledge about TT vaccine from the antenatal clinic, while more than half of the academic student in this study bit little information about TT vaccine can showed in tables(4,5,6,7,8,9,and 10) related to their gender, age, study's types.(7) In our country adult immunization has been given importance for pregnant women and their children more than adults who injured and needs for that TT vaccines to prevent infections .While the students in our study had lack knowledge concerning with adult immunization and student need , despite of Ministry of Health posting posters about vaccinations and importance it for people health at any age If necessary

5. Recommendations

Current study recommended for use a mass media campaign to create awareness among students, in childbearing age and families about the importance of Tetanus Toxin vaccine. Also, health promotion by

making the Tetanus Toxin vaccine available & accessible for all women at their reproductive age and injured people as need in the university.

References

Burgess C, Gasse F, Steinglass R, Yakubu A, Raza AA, Johansen K. Eliminating maternal and neonatal tetanus and closing the immunity gap. *The Lancet*. 2017;389(10077):1380–1.

Cook T. M., Protheroe R. T. and Hande J. M., Tetanus: a review of the literature, *British Journal of Anaesthesia* 87 (3): 477±87 (2001)

Dey A, Saha L, Shahidullah M. Risk factors, morbidity and mortality of neonatal tetanus. *Mymensingh Medical Journal: MMJ*. 2011;20(1):54–8.

WHO. Tetanus vaccines: WHO position paper No. 6; 2017. *Weekly Epidemiological Records WER*. 2017; 92:53–76. <https://apps.who.int/iris/bitstream/handle/10665/254582/WER9206.pdf;jsessionid=83716A9C039275C21B5E951E35B6E64E?sequence=1>.

World Health Organization. Immunization, surveillance, assessment and monitoring 2019 June. www.who.int/immunization/diseases/MNTE_initiative/en/index2.html.

Ranadip Chowdhury, Abhijit Mukherjee, Saibendu Kr Lahiri; A study on the knowledge of tetanus immunization among internees in the government medical college of Kolkata; *National Journal of Community Medicine* Vol 2 Issue 3 Oct-Dec 2011 page 432-439

Adegbenroa, C. A, Samuel Anu Olowookerea, Fehintolaa F. O, Adegbenrob P. A, Oriokea O. T.; Knowledge about and preventive practices against neonatal tetanus among young Nigerian women; *Tzu Chi Medical Journal* 2019; 31(3): 154–157; [Downloaded free from <http://www.tcmjmed.com> on Monday, July 1, 2019, IP: 118.163.42.220]

Rana Mohammed Jasim, Shaymaa Riyadh thanoon , Zainab Faisal Alzaidy, Nadia khalaf sulaim; Assessment Knowledge Of Pregnant Women About Tetanus Toxoid Vaccination In Mosul City; *Systematic Reviews in Pharmacy* Vol 12, Issue 1, January 2021