

Assessment of Pregnant Women's Knowledge about Tetanus Toxoid Vaccination in Karbala City

تقييم معارف النساء الحوامل حول تطعيم ذيفان الكزاز في مدينة كربلاء

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المستخلص:

أهداف الدراسة: تهدف الدراسة إلى تقييم معارف النساء الحوامل حول تطعيم ذيفان الكزاز وإيجاد علاقة بين معارف النساء وبعض المتغيرات (العمر، المستوى التعليمي، الحالة الوظيفية، الحالة الاقتصادية، عدد مرات الحمل، عدد مرات الولادة، المتابعة للزيارات للرعاية ما قبل الولادة، تغطية التطعيم بلقاح ذيفان الكزاز).

منهجية البحث: دراسة وصفية تحليلية أجريت على عينة احتمالية متعددة المراحل لمائة وثلاثين امرأة حامل خلال الفترة من ٣٠ كانون الثاني / ٢٠١٢ إلى ٢٤ نيسان / ٢٠١٣ أجريت في ست مراكز صحية في مدينة كربلاء. تكونت الاستبانة من (٤) أجزاء شملت المعلومات الديموغرافية، الخصائص الإنجابية، معارف النساء حول التطعيم بلقاح ذيفان الكزاز، مصادر المعلومات بخصوص لقاح ذيفان الكزاز. وتم تحديد صدق المحتوى وثبات الاستبانة من خلال دراسة استطلاعية. تم استخدام التحليل الوصفي والاستدلالي في تحليل البيانات.

النتائج: تبين نتائج الدراسة بأن أعلى نسبة (٢٩,٢%) من عينة الدراسة كانت تتراوح أعمارهن بين (٢٠-٢٤) سنة، (٣١,٥%) منهن لا يقرأن ولا يكتبن، (٩٧,٧%) منهن ربّات بيوت. أعلى نسبة (٦٨,٥%) منهن يعيشون في مستوى اقتصادي منخفض. أعلى نسبة (٥٠,٨%) من عينة الدراسة لديها (٤-٢) حمل و (٤٠,٨%) منهن كان لديهن (٢-٤) ولادات. (٧٢,٣%) منهن كانت متابعتهن للزيارات غير منتظمة للرعاية ما قبل الولادة. (٧٦,٢%) منهن كانت تغطية التطعيم جزئية. معارفهن كانت كافية في بعض الفقرات وغير كافية في فقرات أخرى. (٧٢,٣%) منهن لم يزودن بالمعلومات حول لقاح ذيفان الكزاز. (٦١,١١%) من النساء اللواتي زودت بالمعلومات أجابت الأطباء كانوا مصدر معلوماتهن. هناك علاقة إحصائية ذات دلالة معنوية بين مستوى المعرفة. و (المستوى التعليمي وتغطية لقاح ذيفان الكزاز) بمستوى معنوية $\geq 0,05$.

التوصيات: أوصت الدراسة بزيادة معارف النساء عن الكزاز من خلال وسائل الإعلام المختلفة لزيادة تغطية لقاح الكزاز. تشجيع النساء الحوامل بالزيارات المنتظمة للرعاية أثناء فترة الحمل التي تعتبر سبب للاتصال بمصادر لقاح الكزاز وبذلك زيادة فرصة التطعيم.

Abstract

Objectives of the study: Assess pregnant women's knowledge about tetanus toxoid vaccination, to find out the relationship between pregnant women's knowledge and some variables which included: (age, level of education, occupational status, socio-economic level, gravidity, parity, following visits of antenatal care, tetanus toxoid vaccination coverage).

Methods and Materials: Descriptive analytic study conducted on multistage probabilistic sample of 130 pregnant women during period from 30th January 2012 to the 24th April 2013 was carried out in the six primary health care centers at Karbala city. The questionnaire was consisted of four parts which include of: socio-demographic characteristics, reproductive information, knowledge about tetanus toxoid vaccination, sources of information regarding tetanus toxoid vaccine. Content validity and reliability of the questionnaire were determined through pilot study, descriptive and inferential statistics were used to analyze the data.

Results: The results of the study showed that highest percentage (29.2%) of study sample were at age group (20-24) years, (31.5%) of them were not read and write, and (97.7%) of them were housewives. The highest percentage (68.5%) of them were living in low socio-economic level, the highest percentage (50.8%) of study sample were had (2-4) pregnancies, and (40.8%) of them were had (2-4) deliveries, (72.3%) of them have irregular visits to antenatal care, (76.2%) of them have partial vaccination coverage. Their knowledge were adequate in some items, and inadequate in other items, (72.3%) of them were not provided with information about tetanus toxoid vaccine about it, (61.11%) of women that provided with information answered; doctors were source of their information. There were statistical significant association between level of knowledge and (Level of education and Tetanus toxoid vaccination coverage) with probability value ≤ 0.05 .

Recommendations: The study recommended to enhance women's knowledge on tetanus by using the various mass media to increase the coverage of tetanus toxoid. Encouraging the pregnant women to have regular antenatal care visits which consider the cause to contact with sources of tetanus toxoid and hence increase the chance of vaccination.

Keywords: Assessment, Pregnant women, Knowledge, Tetanus toxoid, Vaccination

Introduction:

Tetanus is a vaccine preventable, non-communicable infectious disease ⁽¹⁾. It is caused by the *Clostridium tetani* bacteria spores which are ubiquitous in the environment and can be introduced into the body through no intact skin, usually via injuries from contaminated objects ⁽²⁾. Globally every year 309,000 deaths occur due to tetanus. It is estimated that every year worldwide 5% of maternal deaths occur due to tetanus and 14% of all neonates die due to maternal neonatal tetanus ⁽³⁾. Even the end November 2012, maternal neonatal tetanus still remains a public health problem in 31 countries, predominantly in the African and Asian regions, Iraq is still pre validated for maternal neonatal tetanus elimination ⁽⁴⁾. Maternal and Neonatal Tetanus which represents a triple failure of public health in terms of routine vaccinations, antenatal care and clean delivery / umbilical cord care services. Maternal neonatal tetanus is a swift and painful killer that killed about 200 000 newborns in year 2000 ⁽⁵⁾. Maternal neonatal tetanus cases continue to occur in mothers (and their newborns) who have to deliver at home without a trained midwife, mostly alone or in presence of an untrained traditional birth attendant or a family member. Delivery on an unclean surface, with unclean hands and instruments increases the chances of the spread of infection to both mother and baby during the birthing process. In addition, the traditional birth attendant or family may recommend application of harmful traditional substances (ghee, ashes, earth, and animal dung) to stop the bleeding of the umbilical cord and to promote quick drying which further increases the risk of contracting tetanus ⁽⁶⁾. Knowledge is a factor that greatly affects pregnant women to receive tetanus toxoid vaccination during pregnancy.

Methodology:

Descriptive analytic design was conducted throughout the present study from 30th January 2012 to 29th April 2013. Probability, multistage sample technique was used to select 130 pregnant women who attended primary health care centers. The present study was carried out in the six primary health care centers at Karbala city which are: Al-Abassiya Al-Sharqiya, Al-Abassiya Al-Gharbiya, Al-Ghadeer, Al-Muadhafeen, Al-Nedhal and Al-Nasir that selected by simple random sampling. The questionnaire was instrument of study was consisted of four parts which include socio-demographic characteristics, reproductive information, knowledge about tetanus toxoid vaccination and sources of information regarding tetanus toxoid vaccine. (13) Items of the knowledge were rated and scored as (2) for yes and (1) for no, while the numeric values for the negative items was scale as one (1) for yes and two (2) for no. Two levels of Likert scale was used for rating the items of knowledge. The cut-off point was 1.5 while the level of knowledge was calculated as accepted and unaccepted according to the following formula: Number of items × cut-off point. Level of knowledge about tetanus & its vaccine were: $13 \times 1.5 = 19.5$. Minimum score = 13 and maximum score = 26. To evaluate the validity of the questionnaire form, the researcher presented it to (19) experts in various fields. A pilot study was conducted before starting actual data collection on (10) pregnant women who attended to Al- Muadhafeen primary health care center. The pilot study was conducted to find out whether the items of questionnaire were clearly understood, applicable and to determine the reliability and to estimate the time required for the interview. Reliability of the questionnaire was determined through the use of split half approach for the determination the consistency of pregnant women's

knowledge items regarding tetanus and its vaccine (R=0.84) which was statistically acceptable. To analyze the data, statistical procedures were used as descriptive statistic

(frequency, mean, percentage, standard deviation) and inferential statistic (Pearson correlation, chi- square).

Results:

Table 1. Distribution of the Study Sample According to Socio- Demographic Characteristics (n = 130).

Demographic variables	F.	%
Age group / years		
15 – 19	25	19.2
20 – 24	38	29.2
25 – 29	29	22.3
30 – 34	28	21.5
35 – 39	9	6.9
40 – 44	1	0.8
$\bar{x}=25.31\pm SD=6.01$		
Level of education for study sample		
Illiterate	41	31.5
Read & write	27	20.8
Primary school graduate	25	19.2
Intermediate school graduate	16	12.3
Secondary school graduate	11	8.5
Institute graduate	4	3.1
College graduate & more	6	4.6
Occupational status for study sample		
Housewife	127	97.7
Governmental occupation	3	2.31
Socio-economic status		
High	6	4.6
Moderate	35	26.9
Low	89	68.5

F= Frequency, %=percentage, \bar{x} = Mean, SD=Standard Deviation

Table (1) shows that the highest percentage (29.2%) of study sample were at age group (20-24) years, (31.5%) of study sample were illiterate, (97.7%) of study sample were housewives. The highest percentage (68.5%) of study sample was living in low socio-economic status.

Table 2. Distribution of the Study Sample According to Reproductive Characteristics (n = 130).

Reproductive Characteristics	F.	%
Gravidity		
Primi	24	18.5
2 – 4	66	50.8
5 – 6	28	21.5
≥ 7	12	9.2
Parity		
Nulli	28	21.5
Primi	33	25.4
2 – 4	53	40.8
5 – 6	11	8.5
≥ 7	5	3.8
Following visits of attending antenatal clinics		
Regular	36	27.7
Irregular	94	72.3
Tetanus toxoid vaccination coverage during reproductive age		

Table 2. Continues

Complete	11	8.5
Partial	99	76.2
Unvaccinated	20	15.4

F=Frequency, %=percentage

Table (2) shows that the highest percentage (50.8%) of study sample were multigravida (had 2–4 pregnancies). (40.8%) of them were multipara (had 2-4 deliveries). (72.3%) of them have irregular visits during pregnancy. The highest percentage (76.2%) of study sample have partial vaccination coverage (one to four doses of vaccine were received).

Table 3. Distribution of Study Sample According to Knowledge of Study Sample about Tetanus Disease & Its Vaccine (n = 130).

No	Knowledge items	Yes		No		M.S
		No	%	No	%	
1.	There was disease called "Tetanus"	84	64.6	46	35.4	1.65
2.	Causative agent of tetanus is bacteria	30	23.1	100	76.9	1.23
3.	There is a vaccine for tetanus disease	95	73.1	35	26.9	1.73
4.	The bacteria of tetanus is lived in					
4.1	Soil	23	17.7	107	82.3	1.18
4.2	Saliva of animals	28	21.5	102	78.5	1.22
4.3	Dust	26	20.0	104	80.0	1.2
4.4	Animals intestine	30	23.1	100	76.9	1.23
4.5	Animals excretion	31	23.8	99	76.2	1.24
4.6	Human excretion	33	25.4	97	74.6	1.25
5.	Modes of tetanus infection					
5.1	Using unsterile instruments during delivery	73	56.2	57	43.8	1.56
5.2	Unhealthy practices during umbilical cord management	70	53.8	60	46.2	1.54
5.3	Contaminate the wounds & burns	69	53.1	61	46.9	1.53
5.4	Animals bite	66	50.8	64	49.2	1.51
6.	Tetanus disease is not transmitted from one to another person	46	35.4	84	64.6	1.35
7.	Signs & symptoms of tetanus					
7.1	Muscle spasm in the jaw & neck	19	14.6	111	85.4	1.15
7.2	Pain & stiffness of the face, shoulder and back	18	13.8	112	86.2	1.14
7.3	Severe contraction of the abdomen, arms and thighs	15	11.5	115	88.5	1.12
7.4	Agitation & irritation	17	13.1	113	86.9	1.13
7.5	Difficult of swallowing	17	13.1	113	86.9	1.13
7.6	Difficult breathing	15	11.5	115	88.5	1.12
8.	Complications of tetanus if it is not managed					
8.1	Disability	32	24.6	98	75.4	1.25
8.2	Death	49	37.7	81	62.3	1.38
9.	Tetanus toxoid vaccine was received during reproductive age (15 – 45) years	54	41.5	76	58.5	1.42
10.	The purpose of vaccine receiving					
10.1	To protect mother & child	86	66.2	44	33.8	1.66
*10.2	To protect child only	32	24.6	98	75.4	1.75
*10.3	To protect mother only	9	6.9	121	93.1	1.93
11.	Five doses of vaccine doses during reproductive age	25	19.2	105	80.8	1.19
12.	Site of vaccination					
12.1	Intramuscular (deltoid muscle)	120	92.3	10	7.7	1.92
*12.2	Orally	2	1.5	128	98.5	1.98

Table 3. Continues

13.	Side effects of vaccine					
13.1	Pain in the site of injection	74	56.9	56	43.1	1.57
13.2	Swollen at site of injection	78	60.0	52	40.0	1.6
13.3	Slight fever	79	60.8	51	39.2	1.61
13.4	Headache	35	26.9	95	73.1	1.27
13.5	Allergy (rarely)	23	17.7	107	82.3	1.18
Grand mean of score = 1.41						

Cut-off point = 1.5; M.S= Mean of Scores; *Negative item of score

Table (3) shows that the highest mean of score (1.98) of study sample had knowledge regarding item No. (12.2): which refers to: Orally, while the lowest mean of score (1.12): in item No. (7.3) that refers to: Severe contraction of the abdomen, arms and thighs, and item No. (7.6) that refers to: Difficult breathing. So the grand mean of score was (1.41) related to Knowledge of Women about Tetanus Disease & Its Vaccine.

Table 4. Distribution of Study Sample According to Source of Women's Information about Tetanus Toxoid Vaccination

Items	n = 130	
	F.	%
Are you giving any information or instructions about tetanus toxoid vaccine		
Yes	36	27.7
No	94	72.3
If answer "yes" which of the following is source of information for you about tetanus toxoid vaccine		
	n = 36	
	No.	%
Health personnel		
Nurses	20	55.56
Health visitors	5	13.89
Doctors	22	61.11
Media		
Television	3	8.33
Books	7	19.44

*More than one answer, F=Frequency, %=percentage, n=Number of sample

Table (4) shows that the highest percentage (72.3%) of study sample did not provided information about tetanus toxoid vaccine, while (27.7%) of study sample were provided information about it, (61.11%) of them were received their information about tetanus toxoid vaccine from doctors.

Table 5. Association between Level of Knowledge of Study Sample and Studied Variables (n = 130)

Studied variables		Knowledge level				χ^2	d. f	P-value	Sig.
		Acceptable		Unacceptable					
		No	%	No	%				
Age / years	15-24	11	8.5	52	40	3.688	2	0.158	NS
	25-34	15	11.5	43	33.1				
	35-44	4	3.1	5	3.8				
Level of education for study sample	Primary & institute	17	13.1	76	58.5	5.942	2	0.050	S
	Intermediate & secondary	8	6.2	19	14.6				
	Institute & college	5	3.8	5	3.8				
Occupational status for study sample	Employed	0	0	3	2.31	0.921	1	0.337	NS
	Housewives	30	7.5	97	97.7				
Socio-economic	High	3	2.3	3	2.31	2.995	2	0.224	NS
	Moderate	9	6.9	26	20				

Table 5. Continues

status	Low	18	13.8	71	54.6				
Gravidity	1	4	3.1	20	15.4	2.981	2	0.225	NS
	2-4	13	10	53	40.8				
	≥5	13	10	27	20.8				
Parity	0-1	11	8.5	50	38.5	1.809	2	0.405	NS
	2-4	14	10.8	39	30				
	≥5	5	3.8	11	8.5				
Following visits of antenatal care	Regular	8	6.2	28	21.5	0.020	1	0.886	NS
	Irregular	22	16.9	72	55.4				
Tetanus toxoid vaccination coverage	Complete	7	5.4	4	3.1	12.315	2	0.002	S
	Partial	21	16.2	78	60				
	Unvaccinated	2	1.5	18	13.8				

χ^2 = Chi- square; df=degree of freedom; p-value= probability level; Sig. = significant; NS= Not significant

Table (4) shows that there was statistical significant relationship between level of knowledge and (level of education and tetanus toxoid vaccination coverage), while there were no statistical significant relationship between level of knowledge and (age, occupational status, socio-economic status, gravidity, parity, following visits of antenatal care).

Discussion:

The present study showed that the highest percentage (29.2%) of study sample were at age group (20-24) years, while the lowest percentage (0.8%) of them were in age group between (40-44) years; with the mean age and SD (25.31±6.01) years as shown in table (1). There were no statistical significant relationship between level of knowledge and age as shown in table (5). The findings of present study supported evidence is available in the study that reported the highest percentage (55%) of pregnant women out of (200) were at age group between (21-30) years with mean and SD age was (26.90 ± 6.13) ⁽⁷⁾. In Japan, it was reported that the majority of pregnant women were in age group (17-30) years old, with an average age of 26 years. The youngest was 17 years while the oldest was 45 years ⁽⁸⁾. Regarding level of education for study sample: The highest percentage (31.5%) of study sample were illiterate, while the lowest percentage (3.1%) were institute graduated as shown in table (1). There was statistical significant relationship between level of knowledge and level of education for women as shown in table (5). The finding of present study supported evidence is available in the

study that reported education level plays a significant role in the vaccination coverage of mothers during pregnancy and their child⁽⁹⁾. Regarding occupational status for study sample: the majority (97.7%) of study sample were housewives, while the lowest percentage (2.31%) were governmental occupation as shown in table (1). There were no statistical significant relationship between level of knowledge and occupational status as shown in table (5). The finding of present study supported evidence is available in the study that reported the highest percentage (72%) of the study sample were housewives ⁽⁸⁾. The finding of present study supported evidence is available in the study that reported the majority (89.8%) of the women were housewives, while (3.6%) were skilled women who were governmental employee or skilled employees of the private sector ⁽¹⁰⁾. Regarding gravidity: The Majority (50.8%) of study sample were multigravida (had 2 - 4 pregnancies), while the (9.2%) of them were great multigravida (had ≥ 7 pregnancies) as shown in table (2). There was no statistical significant relationship between level of knowledge and gravidity as shown in table (5). Regarding parity: The majority (40.8%) of study sample

was multipara (had 2 - 4 deliveries). There was no statistical significant relationship between level of knowledge and parity as shown in table (5). The finding of present study supported evidence is available in the study that stated the vaccinated women (with at least one dose) were significantly with lower parity ⁽¹¹⁾. Regarding follow up of visits during pregnancy: More than two thirds (72.3%) of study sample were irregular visits during pregnancy, while (27.7%) of them have regular visits during pregnancy as shown in table (2), there were no statistical significant relationship between level of knowledge and following visits of antenatal care during pregnancy as shown in table (4). The finding of present study supported evidence is available in the study that reported the mothers who performed antenatal care tended to be highest for tetanus toxoid vaccination practice where the mothers who performed antenatal care were 30 times more likely to get tetanus toxoid vaccination compared with those who never got any antenatal care ⁽⁸⁾. Antenatal care can lead to contact between pregnant women with tetanus toxoid information. Regarding tetanus toxoid vaccination coverage: highest percentage (76.2%) of pregnant women were partial vaccination coverage (one to four doses of vaccine were received), while the lowest percentage (8.5%) of them were completed vaccination coverage (five doses were received) as shown in table (2). There was a statistical significant relationship between level of knowledge and tetanus toxoid vaccination coverage as shown in table (5). The finding of present study supported evidence is available in the study that reported knowledge had a significant relationship with completeness of tetanus toxoid vaccination for pregnant women, where women who had high knowledge had a higher opportunity to get a complete vaccination and women with high knowledge had potential of 1.77 times than those with lower knowledge to get the

complete TT vaccination ⁽¹²⁾. Regarding knowledge items in table (3): The study result reported that the study sample had adequate knowledge about certain items which were found that mean score above cut-off point in the following items: Item No. (1): There was disease called "Tetanus" and item No. (3): There is a vaccine for tetanus disease. Regarding knowledge about modes of tetanus infection: Women had adequate knowledge about all items of mode of tetanus infection which were: Item No. (5.1): Using unsterile instruments during delivery, item No. (5.2): Unhealthy practices during umbilical cord management, item No. (5.3): Contaminate the wounds & burns and item No. (5.4): Animals bite. The study sample were had adequate knowledge about the purpose of vaccination which were included: item No. (10.1): To protect mother & child, the majority of study sample were answered that vaccine didn't vaccinate to protect child only or to protect mother only as the following items: item No. (10.2): To protect child only and item No. (10.3): To protect mother only. Women had adequate knowledge about Site of vaccination in item No. (12.1): Intramuscular (deltoid muscle) and item No. (12.2): Orally which refers that the majority of study sample (98.5%) were answered didn't receive the vaccine orally. Women had adequate knowledge about some items of side effects of vaccine which included: item No. (13.1): Pain in the site of injection, item No. (13.2): Swollen at site of injection and item No. (13.3): Slight fever as shown in table (3). The findings of present study supported evidence is available in the study that reported more than half of study sample had lack of knowledge about TT vaccine ⁽¹³⁾, while in other study was reported only about half of women knew about use of tetanus toxoid for preventing tetanus, among those who knew some tetanus symptoms, most mentioned only one symptom, seizure. Only 4 (6%) of the women knew the right cause

of etiology, tetanus (bacterium living in the soil). Seven women (18%) of those who did not know gave answers regarding unclean cord treatment. The logistic regression of knowledge on tetanus and tetanus toxoid vaccination: mothers who heard of TT were 1.54 more likely to have been immunized than those who did not, while mothers who knew the use of tetanus toxoid were 2.15 times more likely to have been immunized than those who did not, and those who knew at least one of the tetanus symptoms were 1.86 times more likely to have been immunized than those who did not, respectively controlling other variables constant ⁽⁸⁾. Regarding receiving information about tetanus toxoid vaccine and sources of information: that the two thirds (72.3%) of study sample were not provided with information about tetanus toxoid vaccine, while (27.7%) of them were provided with information about it. (61.11%) of pregnant women were received their information about tetanus toxoid vaccine from doctors as shown in table (4). The findings of present study supported evidence is available in the study that reported, (31%) of study sample were received their information about tetanus toxoid vaccine from television, (11.4%) from radio, (10.9%) from other sources (relatives or friends), (6.2%) from newspaper, (12.9%) from health center and (27.6%) more than one source ⁽¹³⁾.

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