Knowledge and Practice About Complete Immunization by Tetanus Toxoid of Women of Reproductive Age

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Abstract

Background: Bangladesh has one of the highest maternal mortality rates in the world, with widely prevalent maternal tetanus. 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.

Objective: The purpose of this study was to assess the knowledge and practice about complete immunization by tetanus toxoid (TT) of the women of reproductive age in Rajshahi, Bangladesh.

Methods: This was a cross sectional type of descriptive study. Total sample size was 300 which was selected purposively.

Results: The mean age of the respondents was 27.98 (SD ± 8.37) years. Majority (48.0%) of the respondents had up to higher secondary level of education and 40% were house wives. The average monthly income of the family was BDT 18221.67 (SD ± 11414.87). Regarding recipient of TT vaccine in EPI programme, maximum respondents (98.7%) mentioned women of reproductive age, concerning the time to start TT vaccination, 69% had knowledge regarding this. Most of the respondents (98%) had idea regarding the route of administration of TT vaccine, 62% had knowledge on the dose of TT vaccine in pregnancy if TT was taken previously. The age groups, monthly family income, educational level of the respondents were significantly associated with full course of TT vaccine taken by the respondents, knowledge on total doses of TT vaccine ($p < 0.001$).

Conclusion: Majority of females did not have proper knowledge regarding vaccination. Effective media campaigns on maternal tetanus vaccination should be carried. Lady health workers should be mobilised effectively to increase the vaccination coverage.

Key words: immunization, tetanus toxoid, reproductive health

Introduction

Reductions in infant and maternal fatalities have been seen around the world in recent decades. Between 1990 and 2020, the infant mortality rate decreased by nearly half, from 37 to 18 deaths per 1000 live births, whereas the global maternal mortality rate decreased by about 38% between 2000 and 2017. Although the Bangladesh government attained maternal and neunatal tetanus (MNT) eradication status in June 2008, tetanus is still a serious health risk throughout the entire nation.[1,2] Infectious Disease

Hospital in Dhaka did a cross-sectional study on 149 tetanus patients (of any age or gender), which gave us an idea of the disease's current situation in the nation. The results showed a high fatality rate of 53.84% (7 out of 13) and an 8.7% (13 out of 149) NT rate. Patients had the least TT immunization compared to those who survived.[3] Since most newborns and mothers die at home and such incidences, either the birth or the death, are rarely reported to the appropriate authority, the true extent of the death toll from tetanus is never known in underdeveloped nations.[4] In underserved populations, the percentage of deaths due to the vaccine-preventable diseases is even higher, in the slums of Dhaka for instance, the vaccine-preventable 22% of the deaths among children aged less than five years.[5] There are persistent pockets of relatively low childhood of Dhaka.[6-8] Approximately one-third of Dhaka City's overall population lives in slum neighbourhoods.[9] Therefore, addressing the problem of low immunization coverage in slum neighborhoods is an important problem. The lower coverage within the urban slum population is a cause of special concern due to several reasons. First, this is a rapidly growing population. According to one estimate, the Dhaka urban population is growing at a rate of 9% per year.[10] Secondly, because of the crowd conditions which exist in the urban slums, communicable vaccine-preventable diseases have higher transmission rates than in rural communities and non-slum urban neighborhoods.[11] Thirdly, the levels of malnutrition in Bangladesh's urban slum children are higher than for children in rural and in non-slum urban areas, and even in rural and non-slum urban areas malnutrition levels are quite high by international standard.[12] Thus the capacity of malnourished slum children to combat infections, including those which are vaccine-preventable, is particularly compromised.[13]

Methods

This cross sectional type of descriptive study was carried out in outpatient department (OPD) of Rajshahi Medical College Hospital (RMCH), Rajshahi. Women of reproductive age attending at OPD of RMCH was the study population. Sample size was 300 and that was selected purposively. Data were collected according to a duly pre-tested and partially structured questionnaire by face-to-face interview. Descriptive analysis and chi-square test were performed.

Results

A total of 300 women of reproductive age, majority (97.67%) of them received TT vaccine and 2.33% did not received.

Table – 1: Distribution of the respondents by TT vaccine & socio-demographic status (n = 300)

Variables	Respondents		Variables	Respondents	
	No.	%		No.	%
Age of the respondents:			**Occupation**		
15 –19 years	53	17.7	Service	84	28.0
20-24 years	76	25.3	Day labour	13	4.3
25-29 years	43	14.3	Business	1	0.3
30-34 years	44	14.7	Housewife	120	40.0
35-39 years	37	12.3	Others	82	27.3
40-44 years	45	15.0	**Monthly family income**		
45-49 years	2	0.7	Up toBDT6000	10	3.3
$\bar{X} \pm SD = 27.98 \pm 8.37$ **years**			BDT6000-12000	96	32.0
Educational status:			BDT>12000	194	64.7
Illiterate	23	7.7	$\bar{X} \pm SD$ = **BDT18221.67 ± 11414.87**		
Primary	53	17.7	**Cause of TT vaccination:**		
SSC + HSC	144	48.0	Prevent tetanus	300	100
Graduate +	80	26.7	Do not know	0	0
			Prevent others disease	0	0
To whom TT vaccine given:			**When to start TT vaccine**		
Reproductive age	296	98.7	A girl age 15 years	288	96.0
Only children	1	0.3	Don't know	12	4.0
All people	1	0.3	**Knowledge on route of administration:**		
Don't know	2	0.7	I/M	294	98.0
Doses of TT in pregnancy if had primary dose:			Don't know	6	2.0
Two	79	26.3	**Time interval between 1st& 2nd dose:**		
One	186	62.0	One month	296	98.7
Don't know	35	11.7	Don't know	4	1.3
Time interval between 2nd & 3rd dose:			**Time interval between 3rd&4th dose:**		
Six month	267	89.0	One year	268	89.3
Don't know	33	11.0	Don't know	32	10.7
Time interval between 4th & 5th dose:			**Full course TT vaccine complete:**		
One year	270	90.0	Yes	209	69.7
Don't know	30	10.0	No	91	30.3

Regarding age distribution of the respondents it was found that out of 300 respondents (25.3%) were in the age group of 20-24 years followed by 17.7%, 15%, 14.7%, 14.3%, 12.3% and 0.7% in the groups of 15-19 years, 40-44 years, 30-34years, 25-29years, 35-39-years and 45-49 years respectively. The mean age of the respondents was 27.98 ± 8.37 years. It was revealed that majority (64.7%) of the respondents had monthly family income of BDT more than 12000. The mean monthly family income of the respondents was BDT 18221.67 ± 11414.87. About 48% respondents were educated up to SSC and HSC & 40% respondents were housewives. Cent percent respondents knew the reason of giving TT vaccine. 98.7% of the respondents knew that in EPI, TT was given to women of reproductive age.

Among all the respondents, 96% knew when to start and 98% knew the route of administration of TT vaccination respectively. Among the respondents, 62% said one & 11.7% did not know the doses of TT vaccine in pregnancy, if previously vaccinated. Regarding time interval between 1st & 2nd, 2nd & 3rd, 3rd & 4th, 4th & 5th doses of TT vaccine, 98.7%, 89.0%, 89.3%, 90.0% of the women had correct knowledge. Among the respondents 69.7% took full course of TT vaccine (Table-1). out of 300 respondents most (52.0%) were from nuclear family and 48% of them belonged to joint family

Table- II: Relationship between TT vaccination with monthly family income and educational status.

		Full course of TT vaccination		
Variables		Yes N (%)	No N (%)	$\chi 2$-value
Monthly Family income	Up to BDT 6000	2 (20.0)	8 (80.0)	$\chi 2$=49.46
	BDT 6001-12000	46(47.9)	50 (52.1)	df =2
	BDT > 12000	161 (83.0)	33(17.0)	p < 0.001
Educational status	Illiterate	4 (17.4)	19 (82.6)	$\chi 2$=51.75
	Primary	30 (56.6)	23 (43.4)	df =3
	SSC + HSC	102 (70.8)	42 (29.2)	p < 0.001
	Graduate +	73 (91.2)	7 (8.8)	

Above Table-II showed that there was a direct relationship between monthly family income and completing the course (5 doses) of TT vaccine ($p < 0.001$). Among the graduates, 91.2% had complete immunization, 70.8% in the SSC & HSC, 56.6% of the primary educated group and 17.4% illiterate and the relationship between educations of the respondents and completing the course of TT vaccine was statistically significant ($p < 0.001$).

Discussion

This cross-sectional descriptive study painted a clear picture of the Knowledge and practices of reproductive-age women regarding full immunization with the TT vaccine. The women of reproductive age who visited the Rajshahi Medical College Hospital's outpatient department in order to receive information or medical care were the study population. In this study the mean age of the respondents was 27.98 years and majority of them (25.3%) were in the age group 20-24. In a study[14] of Pakistan, majority (48%) of the mothers were educated up to HSC. This study prevealed that educated mothers had 47% (p-value 0.001) higher likelihood of receiving the TT vaccine compared to women who were educated below HSC.

Most of the respondents (52%) came from nuclear families. Cent percent respondents knew about TT vaccine and the cause of giving TT vaccine. Regarding recipient of TT vaccine in EPI programme, maximum respondents (98.7%) mentioned the women of reproductive age. Regarding the time to start TT vaccination, 96% respondents knew it. Most of the respondents (98%) knew the route of administration of TT vaccine. Regarding total doses of TT vaccine, 90% knew five doses. Most of the respondents (62%) knew the doses of TT vaccine in pregnancy if TT was taken previously. Regarding time interval between 1st and 2nd, 2nd and 3rd, 3rd and 4th and 4th and 5th doses of TT vaccination, most of the respondents 98.7%, 89.0%, 89.3% and 90.0% respectively possessed correct knowledge. Majority of the respondents (97.67%) took TT vaccine. About 70.0% of the respondents took full course of TT vaccine. The location of residence had no effect on the likelihood of obtaining the TT vaccine.[15] Regarding incomplete or no vaccination (n=91), about 68% said that they did not realized the importance. Monthly family income and education of the respondents was significantly associated with full course of TT vaccine taken by the respondents ($p < 0.001$).

Conclusion

The Expanded Programme on Immunization (EPI) is one of the successful programmes in Bangladesh. Knowledge and practice of complete immunization of the general people, especially the women is one of the main factors for successful implementation of this programme.

In this study an attempt has been made to explore the actual situation regarding knowledge and practice of the complete immunization by tetanus toxoid of the women of reproductive age attending outpatient department of Rajshahi Medical College Hospital. However, given the current significance of neonatal tetanus as a cause of child mortality in urban Bangladesh and the fact that immunizing mothers and expectant mothers against TT is one of the most highly cost-effective ways to lower infant mortality in developing countries, the effort necessary to meet these challenges is justified.

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